Issues in Clinical Child Psychology

International Handbook of Phobic and Anxiety Disorders in Children and Adolescents

Edited by
Thomas H. Ollendick,
Neville J. King,
and William Yule

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Preface

Every so often one has the opportunity to undertake a project that is both challenging and rewarding. Such was the case for us with this book. For years, we, the editors, have corresponded with one another about matters of mutual interest, each other's clinics, and collaborated on active clinical and research projects. What has made this relationship both challenging and highly rewarding is the fact that one of us resides in the United States, another in Australia, and another in Great Britain. Although our countries and cultures are similar in many ways, there are subtle differences in philosophies, clinical practice, and research methodologies, to say nothing of time zones and "correct" spellings of frequently used words! Personal and professional relationships are put to test under such conditions. Fortunately, ours has survived and has become the better for it.

A few years ago, at an international conference, we met and formulated the ideas for this project. We were determined to undertake a project that was international in scope, interdisciplinary in focus, and interactive in development. In addition, we resolved to attract leading scholars, researchers, and clinicians from different countries to contribute to this venture.

We believe that we have reached our goals and provided the professional community with a truly international and interdisciplinary body of work. The contributions from many luminaries in the field are scholarly and provocative. Hopefully, their chapters will contribute to the advancement of theory, research, and practice in this burgeoning field of interest.

In Part I, our contributors explore issues related to understanding phobic and anxiety disorders in children and adolescents. Critical among the many potential issues are those related to etiology, diagnosis and classification, epidemiology, and cultural influences. Our international group of contributors have addressed these issues with flair and considerable precision.

In Part II, our contributors discuss individual phobic and anxiety disorders frequently observed in children and adolescents. Although the precise disorders change with ever-evolving diagnostic classification schemes, the major disorders included in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) and the *International Classification of Diseases* (ICD) are described. The contributors present these disorders with thoughtfulness, thoroughness, and sensitivity to cross-cultural and developmental issues.

In Part III, the authors examine specific assessment strategies. Structured diagnostic interviews, self-report instruments, behavior checklists and rating forms, behavioral obser-

vation, physiological assessment, and projective assessment are all described in detail. Moreover, the authors articulate their theoretical underpinnings and highlight their uses through case presentations.

Finally, in Part IV, our contributors explore the treatment and prevention of childhood and adolescent phobic and anxiety disorders. Family systems, cognitive-behavioral, and psychopharmacological interventions are detailed and preventive strategies are put forth. Our contributors have done an excellent job of identifying issues and, at the same time, providing us with treatment and prevention stategies.

All in all, we are extremely pleased with this book and hope that the reader will be as well. An effort such as this requires the efforts of many people, including our families who put up with many late night or early morning phone calls and weeknight and weekend editing chores; our secretaries at our respective institutions who labored with the many drafts; the editorial staff at Plenum Press who displayed considerable patience, encouragement, and assistance in bringing this project to fruition, and, finally, the many contributors. Without them, this project would not have been possible. To them and their hard work on behalf of children and adolescents with phobic and anxiety disorders, we dedicate this effort.

THOMAS H. OLLENDICK
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Contents

I

ISSUES IN PHOBIC AND ANXIETY DISORDERS OF CHILDREN AND ADOLESCENTS

1

Etiological Considerations

Martin Herbert

INTRODUCTION

In the 17th century, Robert Burton (quoted in Herbert, 1975) commented in his *Anatomy of Melancholy* on the torment caused by phobic anxiety: "They that live in fear are never free, resolute, secure, merry, but in continual pain . . . No greater misery, no rack, no torture like unto it." Even then, anxiety was no new phenomenon, as we know from Hippocrates' writings. Clearly, there has been plenty of time to solve the etiological mysteries of fears and phobias, time to unravel the complexities of that universal, debilitating condition called anxiety.

Etiology—the study of causes of disease—has certainly served physical medicine well. The discovery of causes of illness by means of a search (research) firmly rooted in scientific philosophy and methodology has led to an impressive armamentarium of rational treatments. These treatments, in turn, have done much to reduce human suffering. Not surprisingly, psychologists and psychiatrists entertained high hopes of emulating their physician colleagues by undertaking the same journey with regard to psychological "disorders" and mental "illness."

NOSOLOGY AND ETIOLOGY

That journey has proved to be something of an expedition through a conceptual minefield, particularly with regard to childhood psychopathology. Cattell (1940) made the point that nosology necessarily precedes etiology. What he had in mind was the require-

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ment, in any investigation of causation, to define a disorder in a manner that renders it recognizable and differentiates it clearly from other disorders. This chapter is not the place to review the debate about diagnostic classification in psychopathology or the related subject of the nature and meanings of mental health and illness. Suffice it to say that operational definitions of psychological problems in children are many and varied, and these variations often influence diagnosis (assessment) and clinical decisions. Achenbach and Edelbrock (1989) conclude a review of these issues by acknowledging that there is little agreement about the proper nature and role of diagnosis with respect to the psychopathology of children. Despite interesting correlations that make for clusters or constellations of psychological problems, the vast majority of childhood "disorders" (it is difficult to escape from medical terminology) cannot be viewed—except figuratively—as disease entities (Graham, 1980).

Psychologists have responded to this predicament in different ways. Some have rejected diagnostic classification altogether, relying on functional analyses of individual cases. Others feel that to do so is to throw out the baby with the bathwater and, while they remain somewhat skeptical about the reliability and validity of present classifications, use them for their practical/professional and heuristic value. There is some limited overlap between behavioral dimensions (obtained by psychological measurement and factor analysis) and the most widely accepted system of classification, DSM-III-R (see Quay, 1984). The organization of some chapters of this book reflects this system, which suggests that children suffering from anxiety can be diagnosed under several different categories.

Psychoanalytical Etiology

Among the early etiological studies of anxiety in children (by inference) and adults (by analysis) is the work of Sigmund Freud. Freud considered his approach to be a scientific one (see Lee & Herbert, 1970) and, indeed, a psychological one. As he put it (quoted in E. Jones, 1953):

> It is psychology which has been the goal beckoning me from afar, and now that I have come into contact with the neuroses the goal has drawn much nearer. Two aims plague me: to see how the theory of mental functions would shape itself if one introduced quantitative considerations, a sort of economics of nervous energy; and, secondly, to extract what psychopathology has to yield for normal psychology.

Freud's theory of anxiety was central to his ideas about neurotic symptomatology (Fenichel, 1945; Freud, 1926). The etiology of neurosis was closely tied to various phases of anxiety aroused by "dangerous situations," which, he believed, play a part in the early development of the child. He claimed that every danger situation corresponds to a certain phase of development of the "psychic apparatus" and seems justified for it. There are, in his view, three outstanding danger situations: (1) anxiety about the loss of love, (2) castration anxiety, and (3) superego or social anxiety. Neurotic symptoms such as phobias are interpreted as a defense against—or flight from—anxiety that is aroused by forbidden thoughts and impulses.

The Greek word *phobos* means "flight," "terror," or "panic," and it is of interest to note that the concepts of escape and avoidance have emerged in both psychodynamic and learning theory formulations about anxiety symptoms. In the psychodynamic canon, phobias are the "visible upshot of unconscious causes." According to this view, the child, say, with a phobia is really afraid of giving way to the temptation to express deeply rooted, atavistic, and therefore forbidden impulses. These impulses function at an unconscious

level. Anxiety signals the danger. Phobias, with their avoidance element, "protect" the child from situations in which repressed aggressive or erotic impulses are aroused. These powerful temptations are fended off by displacing the anxiety they provoke ("signal anxiety") onto some associated object.

The status of such etiological theories is, to say the least, controversial (see Farrell, 1970). Psychoanalysis has generated a body of observations very different from those provided by the behavior theorist in the laboratory or the behavior therapist in the clinic. Therapists working with a psychodynamic model are guided to notice such phenomena and indeed to give weight to them, because their perspectives are characterized by different epistemologies.

These differences are nicely illustrated in case histories from the early decades of this century. The behavioral treatment of children can be traced back to some innovative (but strangely isolated) work carried out by Mary Cover Jones in the early 1920s. Where Little Hans, with his deeply symbolic fear of horses, became the much-quoted standard-bearer of the psychoanalytic paradigm, Little Peter (aged 2 years 10 months at the beginning of his treatment for a fear of rabbits) became the hero of the behavioral paradigm (see M. C. Jones, 1924). In this role, he was to join Little Albert, subject—many would say martyr—of an experiment (Watson & Rayner, 1920) that used conditioning methods to convert his fondness for white rats into phobic anxiety.

Freud's aim (like Watson's) was to establish a "scientific psychology," and his wish was to do so by applying to psychology the same principles of causality as were at that time considered valid in physics and chemistry. Psychic determinism was an article of faith for Freud, and yet there is no instance in his writing of a claim to have predicted in advance the outcome of any choice or decision made by a patient. What he did, according to Rycroft (1970), was not to explain the patients' choices causally, but to understand them and give them meaning. The procedure he engaged in was not the scientific one of elucidating causes, but the semantic one (in his claim that neurotic symptoms, such as phobias, are meaningful disguised communications) of *making sense of the symptoms*.

Concept of Causation

The term *causation* itself has been the source of some intellectual indigestion for psychologists and psychiatrists in their desire to work within a scientific and (notably, for psychiatrists) a medical framework. The complexity of psychiatric and psychological problems has led to great confusion in the analysis of causes. There is an all-too-human tendency to oversimplify and think of causality in linear, univariate terms: A causes B; B is the effect of A. However, there is no limit to the analysis of causes. One finds, not a single antecedent, not even a chain of antecedents, but a whole interlacing network of them. This complexity appears to obtain in Fielding's not untypical formulation of an adolescent patient's obsessional anxiety (Fielding, 1983) (see Fig. 1).

One point of agreement that appears to emerge from the welter of findings about problems like these is their multicausality. Mayer-Gross, Slater, and Roth (1955) make the point that in medicine it is necessary to deal with causes of all kinds, not just those that are both necessary and sufficient. In searching for a cause of some phenomenon, we are really searching for a quantitative relationship. If A is the necessary and sufficient cause of B, then there is a one-to-one relationship between A and B. If A is a necessary but not sufficient cause of B, then there is no B without A, but A may be combined with X or Y, instead of with B. If the variety of these X's and Y's is great, the causal relationship, though it still exists, is thereby attenuated. If A is neither necessary nor sufficient, then there are A's

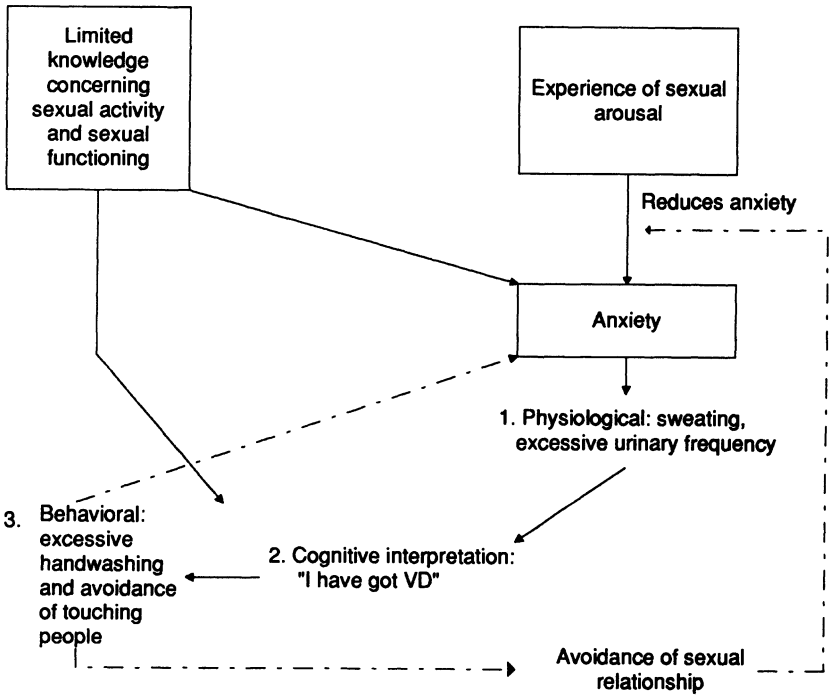

Figure 1. Clinical formulation of obsessional hand-washing in a 16-year-old male adolescent. From Fielding (1983). Reproduced by permission.

without B's and B's without A's, and the strength of the causation will depend on the proportionate relationship between AB to A on one hand and B on the other.

Mayer-Gross and colleagues observe that it is not difficult to founder in a causal network. We are less likely to do so if we take into account the quantitative aspect of causation. It is at this point that so much psychological thinking loses cogency and direction. Quantitatively important causes are tangled in a knot of others with only slight or entirely unknown quantitative relation with the effects we are interested in.

The reality for psychologists and psychiatrists is the complex, multivariate nature of most of the phenomena they study. In their clinical formulations, they have to take into account both direct (proximal) and indirect contemporary (contextual) influences, as well as indirect predisposing (organismic) and historical (distal) influences. (I shall return to this issue.)

In attempting to explain the origins and nature of a child's problem of, say, anxiety attacks, clinicians ignore *moderating* variables at their peril. Formulations positing a linear relationship between a single precursor—a bereavement, say—and the later development of an anxiety state could miss the impact on the child's development of other experiences that determine his or her vulnerability or resistance to stressful life events. The question "Does A lead to B?" inevitably elicits the response "It depends. . . ." And that "depends"

refers to context—the context of the *situation* in which the child finds himself or herself and the *kind* of child he or she is. There are those risks that accumulate (and interact complexly) to affect a child adversely, but also opportunities and protective influences that ameliorate outcomes. There may be in the child's milieu supportive persons who provide a buffer against adversity. Not surprisingly, there is considerable variability in children's (and for that matter parents') response to stress. Some individuals are completely overcome by circumstances that leave others relatively unscathed (Werner & Smith, 1982). The question formulated in the earlier stress literature as "What makes for a vulnerable child?"has been turned on its head to become "What makes for a resilient child?" (Garmezy, 1987).

A further complication of concepts such as cause and effect is that they have no significance as absolutes. As Coles (1980, p. 166) puts it:

> They are reference points, imposed upon a situation in order to facilitate understanding and communication, and are relative to both the situation and to each other. Thus an event which may be regarded as an effect in one analysis may be regarded as a cause in another analysis; and what one theorist regards as a cause, another may regard as a mediating response.

He also makes the point that what is regarded as the effect or cause of a "disorder" is often determined by the point in the developmental sequence at which the individual is identified as a patient; this chronological locus will also determine the appropriate treatment. If he or she is identified at a point earlier than the event immediately preceding the development of the illness—that is, if he or she is identified at a point prior to the occurrence of the "cause"—treatment is likely to be called "prevention."

Speaking of events preceding other events, as often as we may remind ourselves of the *post hoc ergo propter hoc* fallacy, it is still easy to fall into that particular trap. Interestingly, intrasubject reversal (ABAB) designs employed (inter alia) to avoid this problem—one to which simple AB designs, so handy for busy practitioners, are prone—may also fall foul to illogic. How can one ask a previously demoralized parent to return to baseline conditions when given an access of self-confidence by his or her apparent success with a behavioral intervention? Leaving aside the ethical issue, it is probably impossible to replicate baseline conditions with a parent who has seen his or her child-managing behavior actually work.

The upshot of the conceptual (sometimes, ideological) difficulties that surround the term "causation" is that many clinicians, notably behavior therapists, have abandoned the concept of etiology and its preoccupation with the *causes* of abnormal behavior in favor of the term "determinants," which, it is hoped, gives rise to fewer misleading assumptions about the inevitability of cause–effect relationships or the univariate, linear nature of causality.

Developmental–Behavioral Factors

One way of reviewing some of the etiological influences in childhood anxiety on a broad canvas (detailed accounts for specific conditions appear in other chapters) is to look at a contemporary assessment method leading to a formulation and treatment plan for generalized anxiety disorders and specific phobias (see Herbert, 1987; Ollendick & King, 1991). Ollendick and King recommend a developmental–behavioral framework of assessment. This framework requires measures of behavioral, cognitive, and physiological responding as well as a determination of the social and cultural context within which the problem occurs. Their strategy is to begin with a broad-based assessment of the child and

his or her environment (e.g., family, school, peers) and then to obtain information regarding specific stimulus features, response modes, antecedents and consequences, severity, duration, and pervasiveness of the particular phobias. The assessment utilizes a multimethod, problem-solving approach to obtain as complete a picture of the child and his or her family as is possible, and one that generates a treatment plan.

Over the years, a number of strategies have evolved for the management of anxiety by psychological means. Many of these methods have focused on specific fears or phobias, and more recently there has been a move to look at ways of helping people with more generalized forms of anxiety. The author of this chapter has put the elements of a developmental behavior assessment into diagrammatic form (Herbert, 1991) (see Fig. 2).

Behavior: Identifying Target Problems

Beginning with point 1 in Fig. 2, we ask when an emotional "problem" is really a problem. This question underlines the importance of a developmental context for explaining a child's fearfulness (anxiety has been called "fear spread thin"). The question arises from the essential normality of these emotions. Anxiety is not wholly a maladaptive condition. It is, in fact, a fundamental and universal response to a wide range of life events and a normal adaptation to particular environmental circumstances. Indeed, it is *functional* in the sense of having positive survival and reward value: "driving" the individual to maximum efficiency for "fight or flight" in the event of extreme threat or toning him or her up for peak performance in activities such as examinations, acting, and athletics. For many aspects of human performance, an "inverted U-curve" relationship is postulated between efficiency and level of anxiety. Parents also make use of the child's fear in teaching the child to avoid danger, and anxiety (about the loss of love or approval) is vital for ensuring compliance and the internalization of rules and values in the task of socialization (Herbert, 1991).

What, then, is abnormal fear or dysfunctional anxiety? Context is one criterion. Is the fear proportionate to the objective threat inherent in a particular situation? The physiological accompaniments of the fight or flight response to threat, if they are chronic and unresolved by action (given the constraints of life at home and at school and the fact that many of the threats are symbolic rather than real), may contribute to the etiology of psychophysiological disorders (Herbert, 1974).

Context for childhood fear is a wider criterion than that for adults. Fears are so widespread at different ages and stages of development that at one time or another a given fear may be said to be or not to be age-appropriate. An analysis of children's fears suggests that certain types of situations tend to evoke more worries at one particular phase of development than at another (see Campbell, 1985). For example, the fears of 3-year-olds are more often reality fears; as children get older, a majority of fears tend to be vague anxieties rather than focused fears of realistic dangers. In deciding whether a child's fearfulness amounts to an emotional problem, it is obviously necessary to be familiar with the normal fears that children experience while growing up. A large number of fears are outgrown in the way that the child outgrows many childish toys and preoccupations.

The frequency and intensity of fear reactions are also significant criteria (see point 3 in Fig. 2). Anxiety is thought of as abnormal when it occurs to a much greater *degree* than is usual for most people—when it occurs more often and with greater severity than the stimulus (circumstance) warrants. It is not only high levels of anxiety that are dysfunctional; low levels, such as those postulated in the sociopathic individual that are thought to adversely affect socialization (notably social cognition and moral development), can also be maladaptive.

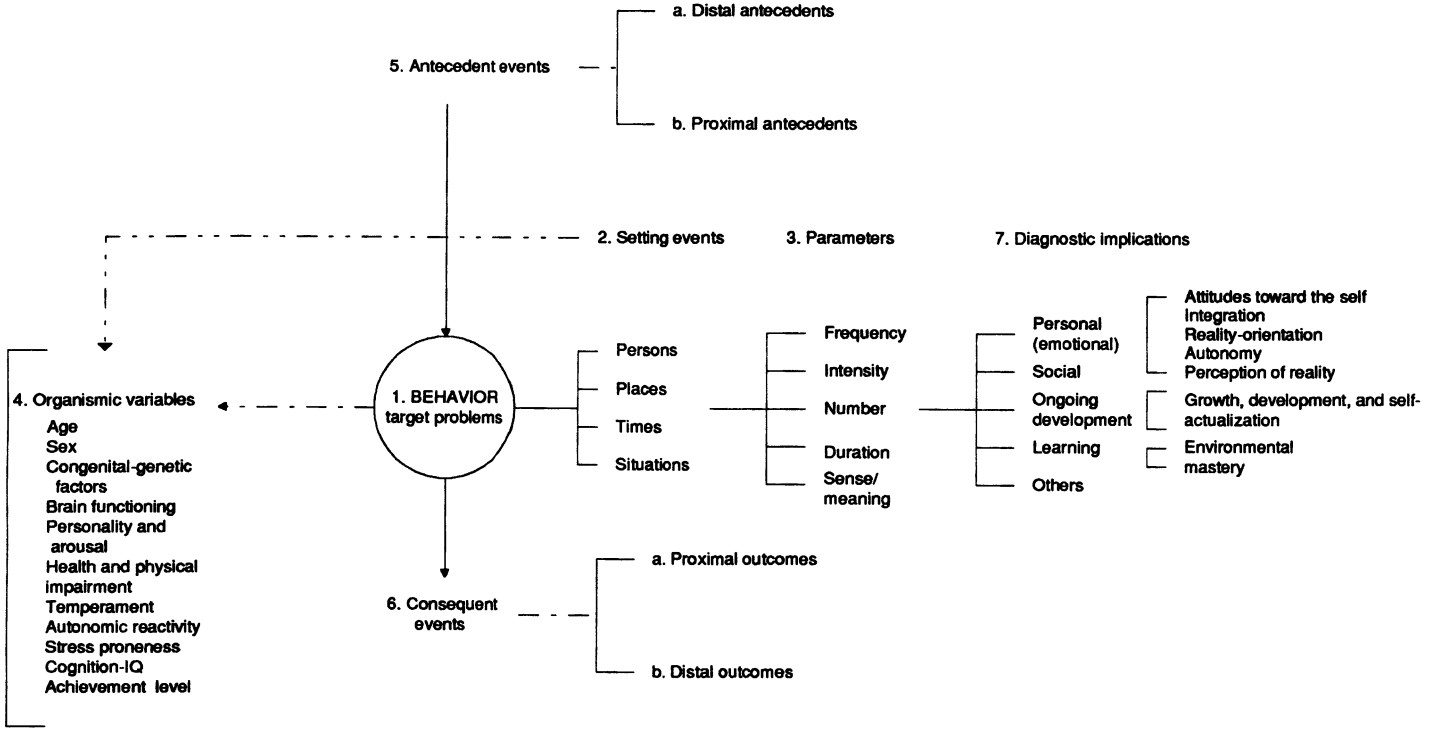

Figure 2. A conceptual framework for an assessment of behavior problems.

When it comes to quantitative issues such as reliability of assessments, as opposed to qualitative matters of appropriateness of behavior, a study by Wilson and Evans (1983) is of interest. These workers investigated the reliability of target-behavior selection in behavioral assessment by asking 118 members of the Association for Advancement of Behavior Therapy to prioritize for treatment the problems described in three written case histories. The problem areas considered were: (1) fearfulness, (2) conduct disorders, and (3) social withdrawal in children. Granted that the means of assessment was somewhat artificial, there was nevertheless a surprisingly low agreement (38%) between clinicians in selecting a first-priority behavior for treatment. There was considerable variability in selecting behaviors for intervention and, perhaps surprisingly for behavior therapists a substantial (22%) tendency to introduce psychodynamic and intrapsychic terminology such as "internalized hostility," "poor self-concept" and "insecure child."

Situation Specificity

The behaviors and beliefs that make for an anxiety disorder are likely to vary in intensity and frequency depending on setting events relating to persons, places, times, and situations (see point 2 in Fig. 2). This raises the issue of specificity, this time with regard (broadly) to response systems rather than stimulus conditions.

One of the difficulties in defining anxiety, not least in children, stems from its generic nature—notably, the range of phenomena that the term is used to cover. Four broad components can be distinguished: physiological arousal, cognitive factors, behavioral components, and subjective (experiential) aspects. With regard to the first three—the "three systems" model of anxiety—it is suggested that the components may be only loosely coupled. They may vary together (synchrony) or they may not (desynchrony) (Hodgson & Rachman, 1974). Certainly, it is inappropriate to reify anxiety into an entity or single system. This model has provided new understanding of the determinants of anxiety, but it too requires further refinement (Hugdahl, 1981). This chapter is not the place to explore in detail theories of anxiety, which are discussed in Chapters 5 through 14.

Parameters

The parameters that separate behaviors defined as "neurotic" from the anxieties, avoidance, fears, indecisiveness, and obsessions shown by all children at one time or another are, as we have seen, their rate and intensity (see point 3 in Fig. 2). The persistence (duration) with which they are manifested, their pervasiveness, and the sheer number of problems with which they are associated are also important.

Their *implications* for the individual's well-being and "effective" functioning provide a diagnostic guidelight for the therapist (see point 7 in Fig. 2). The meaning of the problems for the child—the sense made of them, the payoff they provide—and indeed for his or her family, also constitutes a vital element of the overall assessment. In behavioral work, in the author's opinion, explanations in terms of a functional analysis can operate at two levels: At its simplest, behavior is a function of certain contingent stimuli, originating in the person's internal and external environment. Here, the important questions are "What triggers (elicits) the phobia?" or "What reinforcement does the child get for behaving in this way?" At a more interpretive level, the child's behavior may have the function of solving (or attempting to solve) a developmental or life problem. To make sense of it, one might ask (inter alia): "What immediate 'solutions' (even if self-defeating in the longer term) do the

child's actions provide for himself or herself?" Also: "What purpose does the child's behavior serve in terms of his or her family life and its psychological and social dynamics?"

Formulation: Identifying Controlling Variables

In identifying controlling variables, two categories are generally considered: current environmental variables [antecedent and consequent events (see points 5 and 6 in Fig. 2)] and organismic variables (see point 4). The contemporary causes of problem behavior may exist in the client's environment or in his or her own thoughts, feelings, or bodily processes (organismic variables), and they may exert their influence in several ways: as eliciting or discriminative antecedent stimuli or as outcomes (consequences) of a reinforcing kind.

Proximal Antecedents. Proximal (current) influences (point 5b) are direct in their effects and close in time to the actions they influence. They are functionally related to behavior and can thus be tested in therapy—as hypotheses about causation—using single-case experimental designs. The formulation is directed toward the precise identification of the antecedent outcome and symbolic conditions that control the problematic behavior or beliefs.

An early and venerable statement of stimulus-contingent and response-contingent aspects of anxiety is that of Mowrer (1960) in his two-process theory of fear and anxiety. Fear and avoidance are established by two processes, the first of which is classic conditioning of fear to stimuli associated with a painful event. The second process is the reinforcement by fear reduction of any responses that remove the individual from the fear-eliciting stimuli. This escape behavior will eventually become avoidance and may lead to well-established dysfunctional patterns of behavior of the type frequently faced by clinicians.

It is of interest to see how ancient these ideas are. Descartes (see Errera, 1962) had this to say:

> . . . the smell of roses may have caused some great headache in the child when it was in the cradle; or a cat may have affrighted it and none took notice of it, nor the child so much as remembered it; although the idea of that aversion he then had to roses or a cat remained imprinted in his brain to his life's end.

The Mowrer theory, which has been heavily criticized, has been very influential. For some clinicians, the ideas of Eysenck (1967) were woven into a broader theoretical framework so as to account for the development by children of one sort of problem (e.g., emotional disorder) rather than another (e.g., conduct disorder) or for their relative immunity to life stresses altogether. Eysenck postulates personality dimensions, in part inherited, that influence what and how children learn as they grow up. According to this theory, the possession of particular combinations of the personality characteristics extraversion/introversion and neuroticism determine whether certain children are predisposed to acquire dysthymic disorders in general and phobias in particular. Given an extreme position on the continuum toward introversion (which has implications for the individual's conditionability) and a labile or reactive autonomic nervous system (a high rating on neuroticism), the child is thought to be particularly susceptible to acquiring phobic anxiety by conditioning.

A 1970's clinician might have formulated the development of a school phobia by combining theories from Eysenck (1967) and Mowrer's two-stage theory of learning (Mowrer, 1960) in some such manner as this: Consider a youngster who is dealt with harshly

by a bullying teacher during the math lesson. The fortuitous association of the subject matter, the classroom, and possibly other factors with the humiliating and frightening experience causes the child (particularly if predisposed by personality) to feel anxious during math lessons, and even in other classrooms, in the absence of the math teacher. The anxiety may generalize so that he feels anxious when he approaches the school, let alone the classroom. Nevertheless, he has to make the effort to approach the classroom; doing so causes him to feel panicky. Avoidance of the area leads to relief from anxiety, and it is in this way that the habit of avoidance can become reinforced ("drive reduction"). The attachment of fear to the previously unfeared classroom situation is thought to proceed on the basis of a classic conditioning paradigm—that is to say, the contiguity of classroom (CS) and bullying teacher (US). The genesis of phobic anxiety may be due to a single traumatic incident or to a cumulative series of subtraumatic events. In the latter case, it might be daily criticisms and punishments from a sarcastic teacher. There is much more to a phobia, in the Mowrer view, than a passive conditioned emotional response; there is a strong and active avoidance element. It is postulated that responses of an avoidance type are acquired and reinforced on the basis of instrumental conditioning and drive reduction.

An initial fear reaction may become more intense over a period of time, even if there is no repetition of the frightening events ("incubation of anxiety") (Eysenck, 1968). The child's anxiety may be exacerbated by what amounts to confinement in the distressing school environment. In addition, it may spread to more and more aspects of the school situation ("stimulus generalization"). It can develop to a point at which only avoidance of the entire school situation brings the child relief from intolerable anxiety. The anxiety, conditioned as it is to various stimuli but not under conscious control, comes into action despite the child's best efforts to combat it. Ideas and attitudes (conveyed in children's idle, exaggerated chatter) can also become the source of aversive reactions to various facets of school life ("higher-order conditioning").

Many of the assumptions in this synoptic account have been questioned and, in some cases, invalidated by subsequent research. Eysenck's theories, notably with regard to conditionability, have been strongly criticized (see Herbert, 1974). Rowan and Eayrs (1987) list several problems with the conditioning model, while providing chapter and verse of the sort of evidence that undermines its validity. For example, there has been little convincing demonstration that human fears can be conditioned deliberately under laboratory or clinical settings. Successful avoidance behavior appears to be independent of any mediating state of anxiety, yet for the two-process model to be plausible, there would need to be some evidence of fear as a precursor of avoidance.

Clinical observations on the development of fear do not always accord with the processes specified by the conditioning model. It assumes that all fears are traumatically conditioned, yet clinically it is often difficult to determine the origin of a client's phobia. It has been demonstrated that only (roughly) 50% of clients ascribe their phobias to trauma or conditioning experiences. Evidence such as this casts grave doubts on the comprehensiveness of the conditioning theory. Evidence of fears that have not been acquired through a process of direct conditioning—those acquired vicariously through observational learning and modeling—also undermines the traditional model. There are also many instances of the failure of human subjects to acquire fears despite exposure to extreme fear-provoking situations (e.g., air raids).

Yet another difficulty for the conditioning theory is its assumption of equipotentiality—that any object or stimulus can acquire the power to evoke a fear response. However, in classic conditioning, it is not the case that any CS and US can be associated

equally easily nor that the laws governing the rate of acquisition and extinction are the same for all CSs and USs. For example, it is not the case that fears in the general population are manifested as would be predicted—at roughly the same prevalence rate for all fears.

Seligman (1971, p. 312) has this to say:

> A neglected fact about phobias is that, by and large, they comprise a relatively non-arbitrary and limited set of objects: agoraphobia, fear of specific animals, insect phobias, fear of heights and fear of the dark, etc. All these are relatively common phobias. And only very rarely, if ever, do we have pyjama phobias, grass phobias, electric-outlet phobias, hammer phobias, even though these things are likely to be associated with trauma in our world.

He suggests that human phobias are of biological significance and that the majority of them are engendered by phenomena that have threatened the survival of the species: potential predators, unfamiliar places, and the dark. Such "prepared" phobias are very selective. They are thought to be acquired, generalizeable, and highly resistant to extinction.

In more recent times, as other chapters illustrate, considerable research has gone into alternative models of fear acquisition. Cognitive learning processes have entered the arena, which is my cue to refer to organismic etiological influences.

Organismic Variables. Organismic variables (point 4 in Fig. 2) include individual differences produced by, inter alia, age, cognitive structures, and past learning. Behavior therapists tend to adopt a transactional position—the view that behavior results from a (still poorly understood) interaction of the current situation and individual differences of a biological and psychosocial nature. In the past, the individual seemed to be conceptualized as an empty vessel—as something passive and reactive rather than proactive. This position has changed radically. Indeed, the active and powerful influence of children on their parents' behavior and choices is acknowledged (e.g., Bell & Harper, 1971; Thomas, Chess, & Birch, 1968). The following influences play their part:

Age. We have already seen the considerable attention given to the developmental features of anxiety in childhood. There is undoubtedly a patterning in the type of fears present at various ages (see Campbell, 1985; Ollendick & King, 1991). Simple phobias seem to date back to early childhood, whereas social phobias tend to have their onset in adolescence or later. Separation anxiety occurs at about 8 months of age and is related to attachment developments. It may also contribute to the raised incidence of school phobias at age 11.

One can only speculate about the reasons for these age-related patterns; the notion of developmental and life tasks and the crises to which they give rise may throw some light on this conundrum (see Herbert, 1991). Certainly cognitive factors are significant.

Cognitive structures. When analyzing childhood anxiety and coping strategies, it is vital to remember that children mature cognitively in a manner that changes the way they construe the world they live in and the interpretation they put on people and events. Several authors, noting the development of statistically "normal" fears in childhood, have demonstrated how they arise from increasingly sophisticated cognitive structures in the maturing child (e.g., Bauer, 1976; Ferrari, 1986). Infants and very young children show fear in response to events that occur in their immediate environment (e.g., separation from parents, approach of strangers). The more advanced cognitive development of preschool children allows them to show fear to more imaginary, global stimuli (e.g., the dark, monsters). Older children demonstrate more specific, realistic fears as they become capable of differentiating internal representations from objective reality (see Bauer, 1976).

The theories of Lazarus (1982, 1984), for one, and Schachter (1971), for another, have been important in illuminating the role of cognitive appraisal and attributions in the subjective appraisal of stress. These authors both believe that cognitive processes are indispensable elements in any causal theory of emotion. For Lazarus, emotional activity results from the child's appraisal of the situation—whether it is dangerous (primary appraisal)—and the evaluation of the coping processes he or she has available (secondary appraisal). One of the determining factors—*dispositional* conditions—refers to the individual's psychological structure [e.g., beliefs, attitudes (see point 1, in Fig. 2)].

Zimrin (1986) relates her findings on the cognitive functioning of abused children to this work; she found evidence that abused children who managed to survive the trauma of their childhood and whom she described as well adjusted on a series of clinical measures were distinguishable from a matched group of abused children with high degrees of psychopathology on various measures of cognitive skill and cognitive attainment.

The theories of Ellis (1970) and Beck (1976) also build on the existence of cognitive structures or schemas such that abused children suffer severely dysfunctional thinking processes. The characteristics of the dysfunctional thoughts that lead to anxiety are that they repetitively construe events as harmful or dangerous, that they cannot be "reasoned away," and that they become readily attached to a wide range of stimuli that can elicit them. Jehu (1992) has demonstrated clearly how important negative schemata are in the long-term sequelae of sexual abuse, explaining why some young females develop severe anxiety disorders that persist into adulthood, while others remain relatively unscathed.

Genetic variables. The background to the question of a genetic etiology in anxiety conditions, in particular, and emotional disorders, in general, is that in no example of a psychological condition that has been investigated is the heritability of psychological attributes so high that there is no room for environmental effects (Rutter, 1985). In fact, this statement can be reversed in the case of emotional disorders to a question: Is there any room for a genetic component?

Family resemblances provide an important datum; that is to say, the extent to which influences operate *within* or *between* families may be significant. Emotional disorders commonly affect just one child in the family, whereas conduct disorders usually affect several (Rutter, 1985). In examining the nature–nurture issue from another angle (familial concordance in anxious children), studies of parents of anxious children (e.g., Gittelman-Klein, 1975) and studies of the children of adults with anxiety disorders (e.g., Berg, 1976) produce some ambiguous findings, but on balance indicate a familial predisposition. These findings are not of the order that allows one to be precise about the relative contribution of inherited influences as compared with environmental influences, except to say that the former have a minor role.

Rutter (1985) concludes from his review of the evidence that it is clear that the gross factors associated with conduct disorders and delinquency are *not* usually found with the emotional disorders. He poses the alternatives: Either the family features that predispose to depression and anxiety states are much more subtle or they are of a different kind. Rutter is disposed to the latter view. This view suggests that the mechanisms are likely to involve *within*-family differences that cause one child to be dealt with in a way that differentiates him or her from siblings, rather than *between*-family differences that reflect general variables that impinge similarly on all children in the family. He also makes the point that emotional disorders are more likely to be acute conditions with a less prolonged course and a better prognosis, suggesting that acute and transient stressors (as distinct from chronic adversities) may play a greater role in their genesis.

Sex. The findings regarding sex are not consistent, although some investigations suggest that girls are somewhat more fearful than boys and are more vulnerable to neurotic disorder (Herbert, 1974). Whether this is a true organismic variable or a social artifact of willingness to admit to fears on the part of girls is a moot point.

Nervous system reactivity. Why do certain children within a family react to the stresses and strains of growing up with an anxiety disorder while others seem unfazed by the vicissitudes of life? Leaving aside the specific life-event trauma that may beset a particular child, we are left with three major possibilities that may act singly or in any combination: (1) that parents treat a particular member of their family differently (a matter of particular interest to family therapists, a matter to which I return) or (2) that a particular offspring has a protective configuration of personality/temperamental attributes or (3) possesses highly reactive neurophysiological and subcortical systems in those areas that mediate emotional reactions. We have already considered cognitive processing systems. Nebylitsin (1960) has extended Pavlovian ideas on "nervous system reactivity" to human subjects. Another vital processing agency is the autonomic nervous system. This subject was touched on earlier in connection with Eysenck's notion of an inherited predisposition (neuroticism). It also has a bearing on the three-system model of anxiety referred to earlier. These are etiological issues that are too complex to do justice to in a brief chapter; however, see Beidel (1988) and Gray (1964, 1967) for further discussions.

Life structure. Brown and Harris (1989) use the term "life structure" to tackle the interface of the *internal* and *external* worlds of the individual and to reflect the fact that despite great complexity at any particular time, there is some structure to life—some regularity. The term refers to the current psychosocial totality of the child, to the transition and change in his or her family life, and according to Sloan (1987, p. 29) "encompasses not only behavior, but also unexpressed longings, moods, regrets and attitudes about one's life as well as all referents to these activities and feelings." This significant aspect of the child's life moves the assessment on from a consideration of current antecedent influences to an inquiry into distal (historical) antecedents (see point 5a in Fig. 2).

Very early environmental influences, even those going back to the child's uterine environment, are thought by some to sensitize the child to overreact to stimuli (see Joffe, 1968). It has been suggested that if the mother is under considerable stress during pregnancy, the child may be more reactive and high-strung than he or she would otherwise be. Many postnatal life events have been studied for their adverse consequences on children's psychological well-being: separation from parents (hospitalization, reception into care, divorce, bereavement), trauma (disaster, abuse), and family violence.

There is a range of separation anxieties shown by children—from the normal protests they make when parents go out to the morbidly fearful preoccupation at all times with mother's whereabouts. The sort of child who fits into the latter category is often referred to as "clinging" or "overdependent." Theorists (see Belsky & Nezworski, 1988; Sluckin, Herbert, & Sluckin, 1983) have long been interested in the development of bonds or attachments (secure vs. insecure) between children and their parents (notably mothers). They have also studied the weakening of these bonds—the period of psychological weaning from the parents—whereby children become persons in their own right. Another area of research concerns the fear of separation that, when it persists, is thought to be central in many neurotic anxiety conditions. From the clinical point of view, the evidence (Rutter, 1972) suggests that psychological distress of a kind commonly termed neurotic results (at least in part) from the early *disruption* of bonds.

Social Learning Theory and Behavioral Family Therapy

Many practitioners make use of social learning theory (e.g., Bandura, 1986; Patterson, 1982) because it has the range—comprehensiveness and theoretical coherence—to encompass the complex life problems (e.g., family disruption/discord) of many anxious (and antisocial) children and also the elaborate assumptions that are a feature of contemporary cognitive–behavior therapy/behavioral psychotherapy. Learning is seen to occur within a social nexus; rewards, punishments, and other events are mediated by human agents and within attachment and social systems and are not simply the impersonal consequences of behavior. Children do not simply respond to stimuli; they interpret them. They are relating to, interacting with, and learning from people who have meaning and value for them.

Bandura (1977) suggests that stimuli influence the likelihood of particular behaviors through their predictive function, not because they are automatically linked to responses by occurring together; contingent experiences create expectations rather than stimulus–response connections. Not surprisingly, behavioral work based on this premise is increasingly systemic, dealing with caregivers and nominated child "patients" in their own right as individuals and analyzing their relationships to each other (as dyadic attachment subsystems) and their communications, interactions, boundaries, and perceptions of one another within a holistic and dynamic family system (Herbert, 1991). The ABC (see Fig. 2) linear analysis is elaborated into a recursive sequence such that C's become A's that generate new C's, and so on.

It is generally acknowledged that anxiety and fear have received relatively little attention from behavioral family theorists and therapists, and that more attention needs to be paid to evaluating the role of family interactional processes in the development and treatment of childhood anxiety disorders.

FROM THEORY TO TREATMENT METHOD

We have seen that at a *strategic level*, behavioral work represents a *theory* (indeed a philosophy) of treatment and behavior change, rather than a technology or cookbook of ad hoc techniques. It is based on a *broad* and empirically based set of assumptions about normal and abnormal behavior (see Herbert, 1991; Ollendick, 1986). It is the proud claim of behavior therapists that whereas traditional psychotherapy is not a natural science, behavior therapy enjoys a solid scientific status (Kazdin, 1988). The trouble is that the evidence does not convince everyone. The skeptics state that behavioral theories and laws on which the therapy rests are either unproven, tautologous, or too narrow in scope to accommodate the complex problems they are called on to explain. [For critical analyses of the philosophical and scientific basis of learning theory and its conceptual relationship to behavioral methods, see Dickinson (1987), Erwin (1979), Mackintosh (1983), and Masters, Burish, Hollon, & Rimm (1987).]

Clearly, learning processes do not sufficiently explain much abnormal behavior, including anxiety disorders. At the tactical level of behavioral methods as techniques, the link between behavioral theory and the treatment methods of choice can be somewhat tenuous. Erwin (1979) poses the following question (which I paraphrase): If someone derived one or more statements describing a behavior therapy technique from some principle of learning, who did this, and *how* can such a statement be derived? He is of the

opinion that learning principles serve a heuristic rather than a logical function in generating tactics for bringing about change.

Powers (1991, p. 22–23) argues that it is essential that behavior therapy develop a sounder philosophical base that can genuinely represent the constructs with which skilled behavior therapists work. He believes that the tacit philosophies that inform behavior therapists at present are somewhat contradictory in nature. For example, he cites the combination of ". . . determinism (contingency of reinforcement plus learning history) and non-determinism (a causal role for mental states), reductionism (psychological states reducible to physiological ones) and non-reductionism (a causal role for mental states), associationism (belief in the traditional laws of learning) and constructivism (that attitudes or schemata alter perception)." Whatever the justice or overstatement of such comments, psychologists are still uncertain, for example, why *precisely* systematic desensitization is so successful. And this uncertainty persists despite many years of experimentation.

Fortunately, this state of affairs does not mean that a behavioral approach is valueless in such conditions. The approach can work without being tied to a theory about the origins of the behavior. Indeed, it is one of the strengths of behavioral work that treatment does not necessarily depend (as we shall see) on the discovery and understanding of the historical causes of the problem. Indeed, some methods are like the use of aspirin, in that they are empirical rather than rational treatments. Aspirin tends to alleviate headaches of *various origins*, but it is not necessary to ascribe their success to a deficit in acetylsalicylic acid. Relaxation, incidentally, has been described with some justice (given its ubiquitous and benign applications) as "behavioral aspirin."

Certainly, the identification of the current problem and its contemporary antecedents and consequences may be assisted by information about the patient's past (e.g., attachments, health, reinforcement history, attitudes, life-events) (see point 5 in Fig. 2). But the information is gathered primarily as a source of clues to contemporary conditions that influence the elicitation and maintenance of symptoms of anxiety rather than as primary treatment objectives in themselves. The behavior therapist places most emphasis on providing the patient with *new* learning experiences. If past experiences did contribute significantly to the manner in which, say, a person with obsessive–compulsive symptoms is now behaving, in practice they are seldom still functional; i.e., they no longer directly maintain current behavior problems. Of course, the past may haunt the present in the sense that it may influence current attitudes and thus, in turn, actions. It may be necessary to lay such ghosts to rest by discussing past events and, possibly changing attitudes to them by cognitive restructuring or what family therapists call "reframing."

SUMMARY

The question posed at the beginning of the chapter about how far we have gone in unraveling the mysteries of fear and anxiety may find an answer in the various chapters of this book. In my opinion, we are well advanced on that journey of discovery, but still have a long way to go. There is an impressive therapeutic armamentarium to alleviate the suffering of frightened children. Theorists and clinicians have trodden somewhat different paths; it would seem reasonable to assert that the one taken by cognitive therapists and cognitive–behavior therapists is proving to be particularly fruitful.

It has been suggested that there is a danger of oversimplifying relationships when they

are formulated in terms of cause and effect. There is a case for using the term "determinants" rather than "causes" when assessing psychological phenomena such as fears and phobias. The term is psychological as opposed to medical, descriptive rather than diagnostic, and relative rather than absolute in its connotations. It avoids the misleading assumptions implicit in the word "causation"—notions about the inevitability of specific outcomes following particular antecedent events (thus downgrading the role of moderating variables), erroneous ideas about univariate (necessary and sufficient) relationships between cause and effect, and beliefs that causal influences are entities rather than processes—an avoidance best effected by use of the term "determinants." Needless to say, it is undesirable to be precious or overly pedantic about these issues; however, ambiguities of language have the potential to bring about as much confusion for clinicians as the ferociously complex problems they are asked to solve.

REFERENCES

Achenbach, T. M., and Edelbrock, C. S. (1989). Diagnostic, taxonomic and assessment issues. In T. H. Ollendick and M. Hersen (Eds.), *Handbook of child psychopathology*. New York: Plenum Press.

Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.

Bauer, D. H. (1976). An exploratory study of developmental changes in children's fears. *Journal of Child Psychology and Psychiatry, 17*, 69–74.

Beck, A. T. (1976). *Cognitive therapy and emotional disorders*. New York: International Universities Press.

Beidel, D. C. (1988). Psychophysiological assessment of anxious emotional states in children. *Journal of Abnormal Psychology, 97*, 80–82.

Bell, R. Q., & Harper, L. V. (1971). *Child effects on adults*. Hillsdale, NJ: Erlbaum.

Belsky, J., & Nezworski, T. (Eds.) (1988). *Clinical implications of attachment*. Hillsdale, NJ: Erlbaum.

Berg, I. (1976). School phobia in the children of agoraphobic women. *British Journal of Psychiatry, 128*, 86–89.

Brown, G. W., & Harris, T. O. (Eds.) (1989). *Life events and illness*. London: Unwin Hyman.

Campbell, S. B. (1985). Developmental issues in childhood anxiety. In R. Gittelman (Ed.), *Anxiety disorders of childhood*. New York: Guilford Press.

Cattell, R. B. (1940). The description of personality. I. Foundations of trait measurement. *Psychological Review, 50*, 559–594.

Coles, E. M. (1980). *Clinical psychopathology: An introduction*. London: Routledge and Kegan Paul.

Dadds, M., Heard, P. M., & Rapee, R. M. (1992). The role of family intervention in the treatment of child anxiety disorders: Some preliminary findings. *Behaviour Change, 9*, 171–177.

Dickinson, A. (1987). Animal conditioning and learning theory. In H. J. Eysenck and I. Martin (Eds.), *Theoretical foundations of behavior therapy*. New York: Plenum Press.

Ellis, A. (1970). *The essence of rational psychotherapy: A comprehensive approach to treatment*. New York: Institute for Rational Living.

Errera, P. (1962). Some historical aspects of the concept, phobia. *Psychiatric Quarterly, 36*, 325–336.

Erwin, E. (1979). *Behaviour therapy: Scientific, philosophical and moral foundations*. Cambridge: Cambridge University Press.

Eysenck, H. J. (1967). *The biological basis of personality*. Springfield, IL: Charles C. Thomas.

Eysenck, H. J. (1968). A theory of the incubation of anxiety/fear responses. *Behaviour Research and Therapy, 6*, 309–321.

Farrell, B. A. (1970). Psychoanalysis: The method. In S. G. Lee and M. Herbert (Eds.), *Freud and psychology*. Harmondsworth, England: Penguin.

Fenichel, O. (1945). *The psychoanalytic theory of the neuroses*. New York: Norton.

Ferrari, M. (1986). Fears and phobias in childhood: Some clinical and developmental considerations. *Child Psychiatry and Human Development, 17*, 75–87.

Fielding, D. (1983). Adolescent services. In A. Liddell (Ed.), *The practice of clinical psychology in Great Britain*. Leicester, England: British Psychological Society/Wiley.

Freud, S. (1926). *Inhibitions, symptoms and anxiety*, Standard ed., Vol. 21 (pp. 87–172). London: Hogarth Press (1959).

Garmezy, N. (1987). Stress, competence and development: The search for stress-resistant children. *American Journal of Orthopsychiatry, 57*, 159–194.

Gittelman-Klein, R. (1975). Psychiatric characteristics of the relatives of school phobic children. In D. V. S. Sankar (Ed.), *Mental health in children*, Vol. I. Westbury, NY: PJD Publications.

Graham, P. (1980). Epidemiological studies. In H. C. Quay and J. S. Werry (Eds.), *Psychopathological disorders of childhood*, 2nd ed. New York: John Wiley.

Gray, J. (1964). *Pavlov's typology*. Oxford: Pergamon Press.

Gray, J. (1967). Strength of the nervous system, introversion–extraversion, conditionability and arousal. *Behaviour Research and Therapy, 5*, 151–169.

Herbert, M. (1974). *Emotional problems of development in children*. London: Academic Press.

Herbert, M. (1975). *Problems of childhood*. London: Pan Books.

Herbert, M. (1987). *Behavioural treatment of children with problems: A practice manual*. London: Academic Press.

Herbert, M. (1991). *Clinical child psychology: Social learning, development and behavior*. Chichester, England: John Wiley.

Hodgson, R., & Rachman, S. (1974). Desynchrony in measures of fear. *Behaviour Research and Therapy, 12*, 319–326.

Hugdahl, K. (1981). The three-systems-model of fear and emotion—A critical examination. *Behaviour Research and Therapy, 19*, 75–85.

Jehu, D. (1992). Personality problems among adults molested as children. *Sexual and Marital Therapy, 7*, 231–250.

Joffe, J. M. (1968). *Prenatal determinants of behaviour*. Oxford: Pergamon Press.

Jones, E. (1953). *The life and work of Sigmund Freud*, Vol. I, *The formative years and the great discoveries 1856–1900*. New York: Basic Books.

Jones, M. C. (1924). The elimination of children's fears, *Journal of Experimental Psychology, 7*, 383–390.

Kazdin, A. (1988). *Child psychotherapy: Developing and identifying effective treatment*. London: Pergamon Press.

Lazarus, R. S. (1982). Thoughts on the relation between emotion and cognition. *American Psychologist, 37*, 1019–1024.

Lazarus, R. S. (1984). On the primacy of cognition. *American Psychologist, 39*, 124–129.

Lee, S. G., & Herbert, M. (1970). *Freud and psychology*. Harmondsworth, England: Penguin.

Mackintosh, N. J. (1983). *Conditioning and associative learning*. Oxford: Oxford University Press.

Masters, J. C., Burish, T. G., Hollon, S. D., and Rimm, D. C. (1987). *Behavior therapy, techniques and empirical findings*, 3rd, ed. New York: Harcourt Brace Jovanovich.

Mayer-Gross, W., Slater, E., & Roth, M. (1955). *Clinical psychiatry*. London: Cassel.

Mowrer, O. H. (1960). *Learning theory and the symbolic processes*. New York: John Wiley.

Nebylitsin, V. D. (1960). Typological features of higher nervous activity. *Quarterly Journal of Experimental Psychology, 2*, 17–25.

Ollendick, T. H. (1986). Behavior therapy with children and adolescents. In S. L. Garfield and A. E. Bergen (Eds.), *Handbook of psychotherapy and behavior change*. New York: John Wiley.

Ollendick, T. H., & King, N. J. (1991). Fears and phobias of childhood. In M. Herbert, *Clinical child psychology: Social learning, behaviour and development*. Chichester, England: John Wiley.

Patterson, G. R. (1982). *Coercive family process*. Eugene, OR: Castalia.

Power, M. J. (1991). Cognitive science and behavioural psychotherapy: Where behaviour was, there shall cognition be. *Behavioural Psychotherapy, 19*, 20–41.

Quay, H. C. (1984). A critical analysis of DSM-III as a taxonomy of psychopathology in childhood and adolescence. University of Miami: Unpublished manuscript.

Rowan, D., & Eayres, C. (1987). *Fears and anxieties*. London: Longman.

Rutter, M. (1972). *Maternal deprivation reassessed*. Harmondsworth, England: Penguin.

Rutter, M. (1985). Family and school influences: Meanings, mechanisms and implications. In A. R. Nicol (Ed.), *Longitudinal studies in child psychology and psychiatry*. London: John Wiley.

Rycroft, C. (1970). Causes and meaning. In S. G. Lee and M. Herbert (Eds.), *Freud and psychology*. Harmondsworth, England: Penguin.

Schachter, S. (1971). *Emotion, obesity and crime*. New York: Academic Press.

Seligman, M. E. P. (1971). Phobias and preparedness. *Behavior Therapy, 2*, 307–320.

Sloan, T. S. (1987). *Deciding: Self-deception in life*. New York: Methuen.

Sluckin, W., Herbert, M., & Sluckin, A. (1983). *Maternal bonding*. Oxford: Basil Blackwell.

Thomas, A., Chess, S., & Birch, H. G. (1968). *Temperament and behaviour disorders in children*. London: University of London Press.

Watson, J. B., & Rayner, R. (1920). Conditioned emotional reactions. *Journal of Experimental Psychology, 3*, 1–14.

Werner, E. E., & Smith, R. S. (1982). *Vulnerable, but invincible: A longitudinal study of resilient children and youth*. New York: McGraw-Hill.

Wilson, F. E., & Evans, I. M. (1983). The reliability of target-behavior selection in behavioral assessment. *Behavioral Assessment, 5*, 15–23.

Zimrin, H. (1986). A profile of survival. *Child Abuse and Neglect, 10*, 339–349.

2

Diagnostic and Classification Issues

John Scott Werry

INTRODUCTION

Anxiety and phobias in children and adolescents present much the same diagnostic and classification issues as those of any behavior or emotion of concern. In addition, however, there are some unique problems. Some of these issues are enduring (e.g., scientific, psychometric, taxonomic); others come and go with whatever theoretical systems or classification system holds current popularity. Although it failed in the 19th century to match the spectacular success of the battle against physical diseases, and as a result allowed diagnosis to become a neglected if not despised endeavor, DSM-III [American Psychiatric Association (APA), 1980] changed all that.

It is also of historical interest to note that serious psychopathological study of children probably began with juvenile delinquency in Chicago, then, in the 1920s, shifted somewhat in the overly hopeful era of "mental hygiene" to focus on the shy, anxious child who was felt to be at particular risk of later mental illness. After World War II, with the exception of Kanner's autism, all else was gradually overshadowed as minimal brain injury, then hyperactivity, then attention-deficit disorder took center stage. While there have been enormous benefits in methodology and conceptualization from this all-absorbing focus, interest in both conduct and emotional disorders in children and adolescents was sadly lacking until the last few years. It is therefore timely that this volume should appear now to summarize what we know about anxiety in children and adolescents and that this chapter should examine its diagnostic and classification issues in some detail.

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Popularity is no sign of scientific robustness. Overwhelming orthodoxies have a habit of stultifying or oppressing thought, and running with the mob is always an unbecoming activity. In this regard, the lessons of history should not be forgotten. Medicine, being the oldest helping profession, provides one of the best historical yardsticks by which to evaluate the present situation of classification in psychopathology. According to Feinstein (1967), toward the end of the 18th century, medical taxonomies were of two types: descriptive–symptomatological or derived from untested theories such as phlogiston theory. Both fell away before cellular pathology and bacteriology, which changed the shape of classifications and the entire face of medicine. The old classifications, and the painful, dangerous, and useless treatments they spawned, had flourished only because of the need of the sick to believe that there was someone with the power to stay the hand of death and of the arrogance of members of the medical profession in believing they had that ability.

The rise and all-too-slow fall of elegant but ideological psychopathological theories such as psychoanalysis or family systems currently being put to the sword by DSM-III causes some uncomfortable historical parallels to spring to mind. Not only do these dying (let us hope) theories have much in common with late-18th-century theories of physical disease in being tiered mansions built on sand (see Feinstein, 1967), but also DSM and the increasingly look-alike ICD have disconcerting resemblances to the complex 19th-century French and German symptom-based classifications of psychiatric disorders produced in a vain quest to put psychiatric illness within the grasp of emergent pathology. As the century drew to a close, the iconoclast Kraepelin had reduced most of these elegant symptomatological edifices to but two shabby outhouses—dementia praecox and manic–depression. Is it possible that just around the corner there lies a new body of knowledge—perhaps from molecular biology or even from that perpetually promising Peter Pan of science called psychology—that will do to current psychopathological classifications what pathology and bacteriology did to the classifications of disease? Perhaps, but on a more hopeful note, it would be wrong to dismiss 18th-century medical classifications as totally useless, since the rapid progress of bacteriology and pathology after their inception was made possible by the existing symptomatological–prognostic descriptions of different diseases such as rabies, anthrax, scarlet fever, and so on.

There are those in psychopathology who eschew or denounce all classifications, some for the reason that they find them useless for clinical practice, some for ideological reasons, and some for more base motives such as professional territoriality. These objections will be examined in more detail below, but for the moment, they will merely be rejected as specious, for such dissenters do not even practice what they preach, attending conventions and courses, sitting at the feet of gurus, reading journals and wordy treatises, all of which activities assume that the next patient or client they see will somehow resemble the ones just described—for that is what classification is: the assumption that experience can be captured, that it will be repeated, and that subgroups of human beings share certain behaviors, emotions, foibles, challenges, and stresses that differentiate them from others. While the issue of how scientifically good a classification is and how helpful it is to the practicing clinician and the consumer is a valid one, whether or not to classify is not, as will now be shown.

WHY CLASSIFY?

This question has been discussed by a number of authors (Blashfield & Draguns, 1976; Cantwell & Baker, 1988; Quay, 1986; Rutter & Shaffer, 1980; Werry, 1985, 1992).

Classification is merely the process of putting things in "boxes" on the basis of some perceived similarity that differentiates those in one box from another; the boxes may be large (e.g., human vs. nonhuman) or small (conduct vs. oppositional disorder). There are various reasons that it is done.

Evolutionary/Automatic Imperatives

As living creatures, we cannot avoid classifying: Presumably the brain is hard-wired for it and presumably it has survival value. Classification of everyday phenomena ranging from baseball plays to the weather is part of the daily discourse. It is a way of capturing experience and making it understandable and predictable rather than unique and terrifying. It could be argued that any animal that can learn has an implicit classification system. A cat or dog, for example, classifies its environment as mine/not mine, safe/unsafe, food/not food. What distinguishes the classification of humans is their investment with language and its derivatives such as science, since clearly classification reaches its height of exactitude and practical utility in science, though that in literature may be more interesting.

It should not be forgotten, then, that as clinicians, researchers, patients, or clients, we are driven to classify, and while this basic process may advance our knowledge, it also constitutes one of the biggest threats to it, because our instinctive ways of classifying phenomena other than simple, recurring, or life-sustaining phenomena are fallacious. Science was developed to explain what could not be encompassed quickly and easily by experience. It is merely a set of rules to prevent the self-deception inherent in experience of infrequent, complex, or currently incomprehensible phenomena. Clinical practice, especially with complex social systems such as those that enmesh a child, is one of the most intellectually and emotionally demanding of all human experiences, and the constant, automatic, but unregulated drive to order this chaos is a constant threat to true understanding. While the researcher can sympathize with the clinician's feeling of "seeing through a glass darkly" and the need to "see face to face," false knowledge is just as bad as and often more dangerous than not knowing—as is shown by the history of medicine,with its ghastly list of remedies such as bleeding and purging, total colectomies, and dunking. As hypothesis-raisers, clinicians are unparalleled; as classifiers, they are likely to be wrong. Great discoveries made at the bedside, such as that of AIDS, are rare indeed. Part of being a good clinician is to resist the ever-present tendency to classify, but to take one's ideas to and leave them to those who can do it properly.

Definition and Communication

Any science or its applied arm, a profession, must have a way of communicating its ideas that is quick, efficient, and universal. A good classification accomplishes this aim. For example, the term "obsessive–compulsive disorder" brings up a clinical picture that is similar across all clinicians who have ever seen and correctly diagnosed such a case. Studies of obsessive–compulsive disorder being done in Washington, DC (e.g., Leonard, Swedo, Rapoport, Koby, Lenane, Cheslow, & Hamburger, 1989), must take care to see that they describe exactly the same picture as in every other research center, or attempts to apply or confirm their findings will have no meaning. Standardization of diagnostic criteria is one of the most difficult areas in classification in child psychopathology, as demonstrated by the trans-Atlantic arguments over exactly what is "hyperactivity" and what conduct disorder (Prendergast, Taylor, Rapoport, Bartko, Donnelly, Zametkin, Ahearn, & Wieselberg, 1988). The very high level of comorbidity in childhood disorder—for example, among

anxiety disorders of childhood (Bernstein & Borchardt, 1991; Silverman, in press; Werry, 1991)—also raises serious concerns about getting distinctive criteria right. Until a classification can make clear what it is talking about, there is no hope of a real science. Whatever its weaknesses, the great contribution of DSM-III was to make a serious start at this very first stage of standardization.

A good classification tells not only what is absolutely necessary to make the diagnosis, but also what other features, constant or inconstant, are part of the disorder and should be sought. If a diagnosis of separation anxiety disorder is made, school refusal, recurrent stomachache, and refusal to sleep over, for example, should be actively sought because of their disabling effects on development. In short, a good diagnosis will act as a signpost to building a comprehensive symptomatological picture more likely to rebound to the child's ultimate benefit.

Description of Correlates

Correlates are variables that do not define the disorder but are often found in association with it. In DSM, correlates are presented in a section entitled "Associated Features" and include epidemiological variables such as gender ratio, socioeconomic and ethnic vulnerabilities, family structures, and some clinical features such as age of onset, school performance, peer function, and so on. Again, the diagnosis helps the clinician to build a more comprehensive picture by an efficient, focused search of key areas. In research, these correlates play an important part in deriving theories of etiology and in validating them, since any good theory must explain why these correlates occur. In the provision of services and public health, education, or prevention programs, correlates are critical for targeting sections of the population in need, for deciding priorities in allocation of resources, and for measuring impact of services.

Differential Diagnosis

This determination requires consideration both of other disorders that the picture might be (e.g.,with all anxiety disorders in children, mood disorders) and, even more important, what it is not. Parents often come with secret fears as to what may be wrong with their child induced by their own reading and the well-meaning suggestions of relatives, teachers, and so on, and affixing a classificatory label may do much to relieve these fears even without much discussion.

Treatment

A good classification system of anxiety disorders should indicate what treatments should be applied, and there is some evidence, albeit limited, for doing so; for example, specific phobias are best dealt with by behavioral means (Bernstein & Borchardt, 1991; Ollendick & King, 1990) (see also Chapter 22), while the very distressing and disabling obsessive–compulsive disorder may be helped somewhat with pharmacotherapy with serotonergic antidepressants (see Bernstein & Borchardt, 1991) (see also Chapter 23). However, many clinicians express disappointment with current classifications because they do not give sufficiently clear indicators for treatment. Some of this disappointment is real, but some is due to a failure to understand that most psychopathological classification systems address only localized areas of a child's function, while the clinician has to struggle

with a child and a family and a school. Treating a disorder or symptoms is not the same as treating a child, and no classification should claim otherwise unless it specifically sets out to address this Herculean task.

Course and Outcome

With some important exceptions, the course of most childhood anxiety disorders is time-limited, though there is a tendency to recurrence (Keller, Lavori, Wunder, Beardslee, Schwartz, & Roth, 1992). A good classification system should enable the clinician to make predictions about what lies ahead and to then fit treatment into this framework. Medicine survived for centuries mostly because much of human illness is self-resolving and therefore any treatments, if prolonged enough, would get credit for the cure. A good classification system should help to keep clinicians honest about treatment by defining what the outcome without treatment is.

Etiology

Ideally, a diagnosis also describes the cause of the problem behavior as physical medicine does with many diseases. However, like that of other psychopathological disorders, the cause of most anxiety disorders is largely unknown but almost certainly multidetermined. The failure to describe etiology in no way invalidates diagnosis, however, but merely diminishes its practical value.

Relief of Uncertainty

Uncertainty is a very uncomfortable emotion, especially when it surrounds matters of great concern. Assigning a diagnostic label to describe what is wrong with a child often brings great relief to the worried parent because the parent then assumes, rightly or wrongly, that the professional knows what is wrong, and has encountered it before and that their child is therefore not uniquely disordered, as they may have imagined.

DISADVANTAGES OF CLASSIFYING

Labeling

Labeling is a frequent complaint from consumers, as patients are now fashionably called. The objections seem to be due in part to their feeling that their individuality and personhood are being swept aside and they are being treated as a "type." It is for this reason that some journals and publishers properly now insist that terms such as "schizophrenics" be replaced with "persons with schizophrenia."

However, objection stems equally from the social stigma of the label. Despite the slogan "Mental illness is just like any other illness," a psychiatric diagnosis still attracts a stigma, and this may be particularly true in some of the child's most important environments, such as school or peer group. It is, however, a moot point as to whether avoiding making a diagnosis will do much to prevent this stigma, while failure to do so may deprive the child and family of systematic knowledge to help them. Peers readily identify emotionally disturbed children (Ollendick, Greene, Francis, & Baum, 1991) and assign them pejorative labels.

Most of the objection to labeling seems to be a priori with little formal study. The slender adult literature is mostly concerned with labeling as a function of contact with an agency rather than assigning particular diagnostic labels. While results are mixed, they generally support the idea that *it is the patient's behavior rather than the contact with the agency that causes most stigma* (Feehan, McGee, & Stanton, 1994). There are even fewer data for children, but the data that exist are similar to those for adults (McGee, Feehan & Williams, 1994). There is thus a need for good research to determine the net cost–benefit of diagnostic labeling in children with anxiety disorders. In the meantime, the argument will remain largely ideological and territorial rather than data-driven.

Prejudicial Set

Diagnosis is supposed to follow only after careful history-taking and examination. Studies of doctors have shown that they make up their minds what the diagnosis is very early in the interview and then tend to focus their questioning to confirm their first impressions. In order to make this kind of initial diagnostic impression, there must be some way of organizing incoming data. Criticisms have been made that diagnostic systems such as DSM produce a narrowing of perspective way from the more complex person/family aspects of the problems and the simpler one of disorder (see Silverman, in press), though such criticism ignores benefits from systematic knowledge about such diagnoses. A set produced by using a diagnostic system is prejudicial only if it disadvantages the patient. Judgments about what is best for patients should be made less on a priori objections and more on data. Such data are rare in general and in the field of child and adolescent anxiety disorders in particular.

Inutility

A common complaint about diagnosis in child psychiatry is that it doesn't help the clinician to deal with the child and family. For example, a recent study of "emotionally disturbed" children in three California counties (Robenblatt & Attkisson, 1992) showed that DSM diagnoses had little relationship to the children's degree of disability. The utility of a diagnosis is intimately related to the formal knowledge with which such a diagnosis is invested. One of the problems with DSM is that some categories are poorly researched and some were even invented with DSM.

However, the formal knowledge carried by the diagnosis is only part of the problem, and no dramatic increase in research is likely ever to remedy this state of affairs. It has been shown (e.g., Anderson, Williams, McGee, & Silva, 1987; Rosenblatt & Attkisson, 1992) that many children with psychiatric problems are multiply handicapped, not only in personality but also academically, motorically, economically, and socially. The fashionable word for this condition these days is "comorbidity." Similar problems face much hospital medical practice, including pediatric and geriatric hospitals. Increasingly in these settings, patients have multiple system failures due to diseases that would have swiftly killed them two or three decades ago. Such patients are difficult to deal with, consume a disproportionate amount of resources, and excite much more public concern, especially when, as are children and adolescents with psychopathological disorders, they are mobile, dependent, and required by law to be cared for by parents, and educational or welfare systems. It is grossly unfair to judge the worth of a psychopathological diagnosis by its inability to solve multiple problems, many of which lie outside its ambit.

While clinicians who work with disturbed children and adolescents, especially in the public sector, may be more aware than researchers or those in academic settings of the shortcomings of diagnosis, this circumstance should not be allowed to conceal the very real growth in useful knowledge as revealed, for example, in this volume.

Administrative Problems

In most Western countries, the inability of underwriters of health systems, whether public or private, to meet the costs of burgeoning medical knowledge has led to the search for ways to contain costs. The cost–benefits of mental health services are difficult to quantify, and in their quest to contain costs, administrators and underwriters have seized on such things as DRGs. In the United States, DSM has become feared for its potential to be used as a procrustean weapon against the profession. This fear in turn has led to reluctance of organized psychiatry until very recently to develop treatment guidelines for each diagnosis lest these guidelines become rigid shackles, reducing practice to "cookbook medicine" (*Psychiatry News*). The American Academy of Child and Adolescent Psychiatry (AACAP) is producing "practice parameters," the first three of which, for ADHD, conduct disorder, and schizophrenia, have been published (e.g. AACAP, 1992); these parameters will ultimately include the anxiety disorders. This development is likely to be viewed with enthusiasm by administrators and insurers, but will inevitably raise questions about the validity of such guidelines.

Territorial Disputes

Particular diagnostic systems tend to be identified with different professions (see below), but may also involve proprietary rights and even national pride, as is the situation with the way that Europeans often view DSM. As a result, what are presented as problems of conceptual ways of viewing behavior often reflect the battle lines of hegemony. In fact, there is considerable strength in diagnostic diversity at this point of ignorance, but arguments should be data-driven.

SUMMARY OF PROS AND CONS

Diagnosis offers the researcher much and the clinician somewhat less, but certainly, in many areas of psychopathology such as anxiety disorders, a good diagnosis may greatly enhance knowledge and aid children, their families, and all those who deal with them. The value varies with the disorder, with whatever other problems the child and family and society are invested with, and with what expectations are that the diagnosis will yield. There are risks of stigmatization, blinkered thinking, abuse by administrators and insurers, and territorial disputes, but most of these risks pale into insignificance compared with disaffection with the current low yield of usable information in the clinical situation beyond a few vague probabilistic statements and treatment regimens that often lack specificity. For example, the AACAP guidelines for the treatment of conduct disorder (AACAP, 1992) contain many nonspecific elements that would be part of the treatment of any disturbed child or family. A good clinician who already does these things, as many do, is not going to be helped much by such catholic guidelines when confronted with a difficult case.

In the end, a diagnosis can be only as good as the data that support it. Dissatisfaction

with the yield of current diagnostic systems is not cause for casting them aside, but for research on improving them. Diagnosis (classification) is the first step in treatment and in the evolution of a science; thus, if clinicians wish to move from intuitive do-gooders to professionals driven largely by technical knowledge, they need to push for and participate actively in research on diagnosis. The Greek chorus role of standing on the sidelines and offering cynical commentary may have some role in keeping researchers in touch with the rather different imperatives of the clinical field, but without creative input, support, and acceptance of findings by clinicians, it is merely destructive of science.

PROPERTIES OF A GOOD CLASSIFICATION

Most of these properties have been discussed already, but only in descriptive terms. This chapter is not the place to review the field of psychometrics and taxonomics except to note that there is a whole science applicable to this topic, though until very recently, psychiatric and other medical classifications showed little knowledge of this field, preferring to use precedent and pragmatism as monitors. There have been many previous discussions of desirable properties (e.g., Anderson et al., 1987; Blashfield & Draguns, 1976; Quay, 1986; Spitzer & Cantwell, 1980), but a recent review centered on anxiety disorders (Silverman, in press) provides a useful summary.

Reliability

This property refers to the replicability of the classification, and there are various types: (1) Interdiagnoser, which means that two clinicians or researchers seeing the same child will agree on what label they are going to give the child. By now, this concurrence and methods for assessing it are reasonably well recognized,with, since the arrival of DSM-III, κ seeming the preferred statistic. (2) Test–retest, or the stability of the diagnosis across time. Understandably, any check of this stability must be within a reasonable time frame, given the expected duration of the disorder. (3) Across samples. A classification that applies only to, say inpatients or children seen in New York City is unlikely to be considered acceptable.

Reliability is clearly going to be affected both by the particular system used and by the methods of eliciting the data used to make the diagnosis. It is important not to attribute unreliability arising from diagnostic methods to the classification system itself; many good theories in physics have had to wait until measurement methods caught up. Methods of testing reliability vary from ordinary informal clinical rounds to structured interviews and from global diagnostic judgments to video or other recording and subsequent frame-by-frame analysis. Despite considerable advances in methodology, there is still considerable debate as to just how good diagnostic methods are at measuring what they claim to measure. This topic is covered in much more detail in Part III of this book.

In the end, a clinical classification system must be reliable in the accepted clinical situation, though research may demonstrate how clinical methods might be improved. For example, DSM-III, which owed much of its parentage to the Research Diagnostic Criteria, codified diagnostic criteria for each disorder and, having won wide acceptance, has presumably increased reliability, though there seems to have been little formal test of this assumption. There is also little doubt that structured methods of interview or data capture should improve reliability, but while there has been a big change to better methods in

research in children's disorders, there has been scant movement to implement these methods in clinical practice. This lack of progress is due partly to the cumbersomeness of structured interviews and partly to questions about their practical utility, but much of the resistance must be attributed to training programs, which in psychiatry at least certainly still favor the seat-of-the-pants methods (Young, O'Brien, Gutterman, & Cohen, 1987).

Coverage

While, for research purposes, the scope of a classification can be limited, to be useful clinically a diagnostic system must cover most of the children judged to have a disorder or a serious problem. However, this wide casting of the net can be overdone, especially if there is an attempt to encompass all human behavior or to meet other than scientific needs (e.g., those of underwriters of health care), as has been suggested with DSM-III (see Silverman, in press). Also, in the quest for coverage, dissection into minute categories can occur, with loss of the broader picture, which was one of the more persistent criticisms of the childhood anxiety disorders of DSM-III (Quay, 1986; Rutter & Shaffer, 1980). As noted, the problem with disturbed children and adolescents is that much of what bothers others about them is not just their behavior but their social–family background and the social valence of a particular act (see Rosenblatt & Attkisson, 1992). This contextual noise is likely to create problems with coverage.

Discriminative Validity

This property is the ability of the diagnostic label to separate children with the diagnostic label distinctively from those who do not have that diagnosis, along a range of variables such as correlates, outcome, and treatment (described above). There has been a problem with some disorders [including some anxiety disorders (Silverman, in press)] not only in separating diagnosed children from children considered to be normal, but also in separating children with a given type of disturbance from children with another. For example, Werry, Reeves, and Elkind (1987) found that most of the purported characteristics of anxiety disorders in children had also been described in other diagnostic groups. A comparative study of three diagnostic groups (Reeves, Werry, Elkind, & Zametkin, 1987) failed to support most of the purported differences. Similar problems have arisen with the disruptive disorders (Taylor, Sandberg, Thorley, & Giles, 1991), and the problem is endemic in DSM. One way of sweeping this problem under the carpet has been to give it a name, "comorbidity" now raging through child and adolescent psychopathology like a brushfire in California or Australia after five years of drought. Figures for comorbidity of anxiety disorders are very high (Silverman, in press), ranging from 44% at 11 years to 34% at 15 years in one study (McGee, et al., in press). This comorbidity in anxiety disorders is not only with different classes of disorders but also within the anxiety disorders themselves (Silverman, 1994; Werry, 1991).

While the assumption seems to be that comorbidity is genuine, it is equally possible that some is due to error of measurement and lack of discriminative validity of the diagnostic system concerned, especially the categorical model (Achenbach, 1991), and requires correction (see also below).

Before leaving discriminative validity, it is worth noting that in addition to problems of distinctiveness within childhood anxiety and between other childhood disorders, there is also that from adult disorders. A good example of this is the relationship between

overanxious disorder and general anxiety disorder. There are few data on this issue (Werry, 1991), but their paucity has not stopped the DSM-IV committee from combining the two disorders.

Predictive Validity

As the term suggests, this property is the ability of a diagnosis to predict with an accuracy greater than chance a range of variables external to the diagnosis itself, such as treatment outcome and so on, most of which have been outlined earlier. Clinically, predictive validity needs to be considerably better than just barely greater than chance to be of useful value. As with most areas of anxiety disorders, this area has not been well researched, but such evidence as there is provides a conflicting picture, especially in stability of diagnoses with time (Bernstein & Borchardt, 1991; Cantwell & Baker, 1988; McGee et al., in press; Silverman, 1994). Predictive validity for specificity in treatment has not been well researched (see Part IV), though there is better evidence in some of the adult-type disorders, such as obsessive–compulsive or panic disorder (Brown, Hertz, & Barlow, 1992; Roy-Byrne & Wingerson, 1992; Werry & Aman, 1993).

It has been pointed out (see McGee et al., 1994; Rutter & Tuma, 1988; Silverman, 1994) that there is a need for a developmental approach to psychopathology (and not just during immaturity but throughout the life span). When predictive validity of anxiety disorders in children and adolescents is considered, it is clear that the developmental approach is essential to determine such important factors as predisposition, mitigation, symptomatology, and continuity/discontinuities of disorder not only during childhood and adolescence but also in adult disorders. Unfortunately, such an approach is time-consuming and a lot more difficult than a cross-sectional view. But the key to understanding etiology and prevention of anxiety disorders lies at least in part in such a perspective.

Clinical Usefulness

Though this term is not a psychometric one, it is worth noting that researchers and clinicians often have different requirements for a diagnostic system and go about their tasks in different ways. It is the researcher who develops the system and is primarily concerned to see that the scientific criteria are met. Researchers usually have, and take, much more time to diagnose than do clinicians, and their methods of diagnosing are often impractical in the clinical situation. A p value of 0.05 may mask the fact that the clinical significance is low or useless in that the size of the effect is very small (e.g., increase in sleep time by 20 minutes in insomnia) or that the level of prediction, especially for rare events such as suicide, may be only 10% accurate. Clinicians are looking for something that is going to make work faster, more accurate, and more satisfying to themselves and to their customers. No diagnoses in psychopathology match the many medical diagnoses that give a 90% or higher accurate picture of etiology, treatment, and outcome. Some of this discrepancy arises because the variables that dictate the overall clinical picture are complex and diagnosis is only one of them, as is well illustrated in the study of disturbed children in some California counties (Rosenblatt & Attkisson, 1992). There are two answers to this problem that are complementary rather than mutually exclusive. One is to aim to expand classificatory systems to include these other critical predictive variables, such as premorbid personality, family environment, or stress levels, as multiaxial systems are attempting to do. The other is to accept that diagnosis is only one part of the picture and that the clinician

must use it in some kind of intuitive multiple regression equation in determining action and outcome. The worst course of action is to turn one's back on diagnosis just because it predicts, say, only 10% of the variance, since at least that level of prediction is moving the clinical process some way from being an art to a science. Unlike art, science is more readily teachable and transmissible as a technology and more likely to produce uniform quality of care.

CLASSIFICATION MODELS

Medical/Disease/Categorical

The essential feature of this model is its dichotomous nature—one either has the disorder (or is in the category) or not. In the area of psychopathology, this dichotomization is into normal or abnormal, well or sick, disordered or not. Most modern categorical classifications further subdivide the abnormal into a varying number of different types of disorders (maximal in DSM), though much of the old literature on children's psychopathology talked [and even some of the current literature talks (Rosenblatt & Attkisson, 1992)] of "emotionally disturbed children" without further classifying them.

The medical or disease model is a variant of the categorical model that additionally connotes some unifying underlying etiology or etiologies, a distinctive set of symptoms, pathological features, epidemiology, course, and response to treatment. There is, however, no need a priori for any of these features to be biological, as is clearly shown by the DSM-III descriptions of each disorder, though they are organized along the lines of the medical model. There seems little doubt that since the arrival of DSM-III, this model now dominates the field of child psychopathology.

The traditional way that this type of classification is established is by clinical intuition followed by validation through establishment of the distinctive etiology/pathology, outcome, and response to treatment.The discovery of AIDS is a typical example. However, when these methods are absent, inapplicable, or weak, as is the case with most psychopathological disorders, professional acceptance seems to be the main criterion of validity and survival. It is only in the past few years that psychometric and taxonomic methods have begun to be applied to psychopathological disorders. This is not an argument for rejecting such classifications, but rather for applying such analyses to them more vigorously.

Dimensional

This model differs from the disease model largely by postulating or demonstrating the existence of *N* dimensions or axes on which all individuals have a score ranging from zero to maximum. Measured along all these axes, each individual will have a position in multidimensional space. It is usually assumed that scores along each axis are normally distributed, so that only a statistically predictable number of subjects will have extreme scores on any one axis. Further, if the axes are assumed to be independent, then it follows that a smaller but calculable number of individuals will have extreme scores on two, even fewer on three, and so on.

This model dominated research in child psychopathology through such instruments as the Conners Teacher Rating Scale (see Conners & Barkley, 1985), the Child Behavior Checklist (Achenbach, 1985), and the Revised Behavior Checklist (Quay, 1986)—until the arrival of DSM—and still has a strong (though probably diminishing) following (Achen-

bach, 1985; Quay, 1986). The dimensional model can generate categories through the use of extreme scores or cluster analysis techniques, as had been done most clearly in studies of hyperactivity (e.g., Laprade & Trites, 1985) or conduct disorder (Quay, 1986); however, such categories differ from true disorders in that the assumption of abnormality is statistical and probabalistic and is not derived from clear a priori indicators of abnormality. In short, it is not anchored in any independent validators of abnormality. There is no theoretical limit to the number of persons in a population who can be abnormal in the disease model (witness epidemics of influenza), whereas the usual indicator of abnormality in a dimensional classification (1.5 or 2 S.D.) sharply limits the number.

Unlike the categorical model, most of the dimensional classifications have been established statistically and empirically through the use of factor analysis with orthogonal rotation to establish independence of dimensions.

Other Systems

There are other ways of classifying psychopathology, though none seems to have any significant taxonomic status at the moment. Some, such as the circumplex model, are variants of the dimensional. Other important ones are derived from the behavioral analysis and family systems theory. These systems classify children (or families) by the eliciting stimuli/reinforcement patterns or interactional patterns. Such a model, relevant to anxiety disorders, has been used by Kearney and Silverman (1990) to group children with school refusal. Conceptually, functional models seem to be a variant of the categorical model, the main difference being that the criteria for grouping are not symptomatological but functional.

Which Model Is Best?

The short answer is, it depends. When the "disorder" represents a state that is clearly abnormal, defined by qualitatively different symptoms not seen in healthy people, such as AIDS, then the categorical model is best. In psychopathology, there are a number of conditions that fit this picture more or less well: psychotic disorders, autism, and, among the anxiety disorders, panic disorder, obsessive–compulsive disorder, and simple phobia. However, in many of the psychopathological states, the "abnormality" is not one of a qualitative combination of abnormal symptoms such as obsessions, delusions, hallucinations, or other features, but one of extreme degrees of characteristics found in all human beings. For example, activity level or anxiousness is, like weight or height, a characteristic measurable in all children and adolescents. Hyperactivity and overanxious disorder, like obesity or dwarfism, are arbitrary points on these axes defined largely by social visibility or concern. As Rutter and Tuma (1988) argue, using low intelligence as an example, such extremes of the distribution may contain two types of individuals: those who are simply the extreme point of normal variation and those whose extreme scores are caused by true abnormality (in the case of low IQ, brain damage). Further, this group should be detectable by a small hump in the tail of the frequency distribution in the population. If the hump is much larger than the normal tail, the application of the disorder model will do little violence to the validity of the model. If the hump is not much larger, however, which is probably the case with most temperamental/personality dimensions, there are some predictable consequences of misapplying the disorder model, as follows: (1) There may be a misguided search for qualitatively abnormal etiologies when the answer may lie in quantitative

extremes of normal functions. (2) There may be misdirections of individuals to systems largely concerned with abnormality, such as the miscalled "health" system with its "sick" role values and alien, intrusive treatment methods, when the best methods of dealing with the problem may be adaptation of existing systems for children within the normal range. The nonspecifity of treatments for children across different psychopathological problems may reflect this misdirection, albeit unwittingly. (3) There is danger of inaccuracy and substantial variations in definitions of abnormality across diagnosers and across samples, or where more exact methods such as statistical definitions are used, as in hyperactivity, there is a danger of procrustean numerological misclassification of nonproblem children as abnormal (see Taylor et al., 1991). (4) It would be predicted that particularly in referred cases, there would be a group of children who have extreme scores on more than one dimension simply on a chance basis and that these children may then be grouped into pseudosyndromes such as ICD-9's hyperkinetic conduct disorder or DSM's mixed personality disorders.

Since in practice most clinicians, whatever their discipline, are probably pragmatic in their approach and tend to look at the whole picture, leading to complaints that all professionals in the multidisciplinary team seem to act and think alike, the debate about dimensional and categorical approaches is probably more theoretical than real. Further, there is a high degree of convergent validity between the two approaches whereby most of the dimensional extremes can be matched to at least the main categories of disorders (see Achenbach, Conners, Quay, Verhulst, & Howell, 1989; Quay, 1986). Further, each is at least partially convertible into the other—in the dimensional by using cutoff points for abnormality and in the categorical by using a severity of disorder including a score of zero for no disorder. This conversion is not necessarily a problem even when the disorder embraces more than one dimension (as in, for example, attention-deficit hyperactivity disorder), since most dimensional systems are multidimensional and dimensions often match those of the categorical systems (Achenbach et al., 1989; Bowen, Offord, & Boyle, 1990; Quay, 1986), though not always (e.g., when the disorder is rare, such as psychosis).

There are rather more important issues for research apart from those that affect the search for etiology. According to Fergusson et al. (1993), if a variable has dimensional properties, a continuous "dose–response" relationship to another variable would be expected, but would not be expected where the variable is discontinuous. This can then be used as a test of the validity of the dimensional vs. the categorical model for any particular disorder. In an analysis of data from the large, birth-cohort, Christchurch longitudinal child development study, they found that there was a strong dose–response relationship for both percentage offending ($r^2 = 0.91$ and 0.75) and mean scholastic achievement ($r^2 = 0.71$ and 0.93) at age 13, predicted by conduct disorder and attention-deficit disorder at age 7, respectively, when graded for severity 1–5 instead of yes/no. An almost exactly similar result was obtained in the field trials of disruptive disorders using number of symptoms as the severity measure (B. B. Lahey, personal communication, 1992). The misapplication of the disorder model would lead to loss of power in demonstrating relationships between variables. As set out in Table 1, Fergusson found that treating conduct "disorder" and attention-deficit "disorder" as continuous resulted in a 4-fold increase in the amount of variance explained in a multiple regression over that of the categorical model for scholastic performance and offending.

In summary, then, there is little doubt that some of the categorical disorders, including some related to anxiety in children, are conceptually inaccurate and might be better treated as dimensions, at least in research. Whether it makes a great deal of difference clinically is

open to debate and should be argued on grounds of validity or knowledge accrued. For example, though the disorder model of attention-deficit hyperactivity disorder may be conceptually wrong, its yield heuristically and socially in terms of legislation for special education has been enormous. It could be argued that mixed classifications, which use categorical models for some disorders and dimensional for others that represent personality/temperamental traits, should be better, though proof, not rhetoric, is required to settle this argument.

CURRENT CLASSIFICATIONS

Symptomatological

One of the traditional approaches exemplified by the classic monograph of Jersild and Holmes (1935) and the work of Lovick Miller (Miller, Barrett, Hampe, & Noble, 1972) is to classify anxiety by an inventory of all the specific fears that a child has. This method can be categorical (more usual) or continuous (by severity). It has been given a new lease on life by the behaviorists (Ollendick, King, & Frary, 1989).

Its great advantages are its simplicity, high reliability, universality, sensitivity, face validity, and cogency for treatment. Its disadvantages are the large number of potential fears that must be surveyed, difficulties in application and interpretation when the number of hits is high, the atomistic and descriptive nature of the classification, which limits its nomothetic value, and the problem of nonfocused or generalized anxiety. Some of these difficulties can be reduced by using factor-analytically derived clusters of fears (see Ollendick et al., 1989), but this procedure moves it to a dimensional classification. The greatest utility is probably in screening populations for fear-focused research, in initial clinical assessment, and in monitoring treatment in uncomplicated cases.

Trait–State

This classification stems from the 1950s and the heyday of personality research, which gave us the MMPI, the Eysenck Personality Inventory, and the 16PF. It sees anxiety as of two types, one (trait) an enduring personality dimension with high stability and the other (state) anxiety that is elicited by and fluctuates with particular aversive stimuli and situations (stress). The state–trait classification is primarily dimensional, though like all such, it is readily convertible into categorical models. If trait anxiety is severe enough, it

Table 1. Comparison of the Predictive Power of Dimensional and Categorical (DSM-III) Models[a]

Disorder vs. measure	Dimensional	Categorical
I. Conduct disorder (age 8)		
Offending (age 13)	0.33	0.17
Scholastic achievement (age 13)	−0.29	−0.14
II. Attention-deficit disorder (age 8)		
Offending (age 13)	0.33	0.17
Scholastic achievement (age 13)	−0.40	−0.22

[a]After Fergusson et al. (1993).

can be a disorder in itself, for example, generalized anxiety disorder or, in children, overanxious or avoidant disorder. In addition, it is a vulnerability or risk factor for state anxiety.

As a theoretical concept, this model is extremely attractive, but there are practical difficulties in differentiating trait from state anxiety (Johnson & Melamed, 1979), and the dichotomy is probably too broad-brushed for practical use. For whatever reason, it is doubtful that this classification has much of a following now.

DSM-III, DSM-III-R, and DSM-IV

DSM is indubitably the most widely used psychopathological classification system at the moment. Part II of this monograph discusses individual DSM anxiety disorders; therefore, the discussion here will be brief and confined to the system as a whole.

DSM-III [*Diagnostic and Statistical Manual of Mental Disorders*, 3rd edition (APA, 1980)] appeared in 1980, and in the child area, though it retained some of the preexisting categories (such as overanxious disorder), it was vastly different from its predecessors, DSM-I and DSM-II. It is a multiaxial system with five axes: I—mental (psychiatric) disorders; II—personality or, in children and adolescents, developmental disorders; III—medical disorders; IV—psychosocial stressors; V—global assessment of functioning. In addition, there are also "V" codes, which are conditions not attributable to a mental disorder that are a focus of attention or treatment (i.e., problems, not true disorders). In addition, in order to make a diagnosis of a disorder, significant distress or disability is required. Axis IV offers crude anchor points with some descriptive situations for children and adolescents. Axis V is now a 100-point scale that melds the effect of both symptomatology and psychosocial function and is also anchored.

There is a comprehensive supporting manual that, in addition to instructions on the system as a whole, includes for each disorder a definition, general description, characteristic symptomatology, any special features critical to the diagnosis, a set of correlates not part of the diagnosis itself—associated features, culture, age and gender factors, prevalence, course, familial pattern, differential diagnosis—and finally the "operational" diagnostic criteria. Unfortunately, this manual is not referenced either in DSM-III or DSM-IV.

DSM-III was unique among clinical classifications in a number of ways: multiaxiality; explicit criteria for each disorder, including, for many disorders, a threshold number of and types of symptoms; exclusionary criteria; hierarchical organization, which gave certain disorders precedence over others; emphasis on phenomenological rather than (psychosocial) etiological criteria; anchored points for the axes; the extensive supporting manual; and attempts to establish reliability by large field trials. Little wonder, then, that it proved so popular.

When it first appeared and subsequently, a number of criticisms were and have been made (see reviews by Achenbach, 1980; Cantwell, 1988; Quay, 1986; Rutter & Shaffer, 1980; Silverman, in press; Werry, 1985, 1992). The main concerns were about the attempt to encompass all unusual human behavior as psychiatric disorder, its entirely categorical nature, the lack of proof for some disorders, the weakness of some of the purportedly operational and other criteria, the fear that many clinicians would use the system in a cookbook way as a substitute for clinical common sense and judgment, and the failure to thoroughly assess the taxonomic properties of the system before publication. In the child area, additional criticisms were made about the number of (untested) subcategories, especially in the anxiety and conduct disorders; the use of Axis II entirely differently in

children than in adults; the failure to include an axis for intelligence; and the small number of subjects in the field trials for some disorders, including anxiety disorders (see Cantwell, 1988; Werry, 1991). Concern reached a crescendo even among DSM supporters (e.g., Cantwell & Baker, 1988) when DSM-III-R appeared in 1987 because it was felt that what was supposed to be a minor tidying up had turned out to be, for some child disorders such as attention-deficit hyperactivity disorder or autism, a major revision that threatened to make the emerging research on DSM-III obsolete (see Silverman, in press; Werry, 1992). There has also been little research on Axes IV and V in children, and there may be some real problems especially on Axis IV (Shaffer, Gould, Rutter, & Sturge, 1991). It is also doubtful that Axis V was really a linear scale, as its 0–90 scores suggested.

However, on the positive side, DSM-III gave an immense impetus to taxonomic research in psychopathology, and once psychologists stopped pouting and began to apply their unique psychometric skills, there was a marked elevation in the quality of research on it.

Research on DSM-III and DSM-III-R, as would be expected, has shown that reliability is mixed—good for some disorders and poor for others (Cantwell, 1988; Quay, 1986; Silverman, in press). As far as the anxiety disorders in children are concerned, Silverman (1991) concluded that although results were encouraging, the findings were uneven, and because of widely differing methods and samples of studies, no general statement about reliability can be made as yet. Her review covered only studies using structured interviews, so that the situation clinically is likely to be less robust.

Anxiety disorders in DSM-III and DSM-IV are found in two sections: adult anxiety disorders and those with onset usually in childhood or adolescence. Adult diagnoses are made when a child exhibits the features of that disorder unless specifically excluded in the definition. The adult disorders (see Part II) are panic, agoraphobia, social phobia, simple phobia (even though most begin in childhood or adolescence!), obsessive–compulsive disorder, posttraumatic stress disorder, generalized anxiety disorder, and anxiety disorder not otherwise specified. In preparation for DSM-IV, an extensive critical review of DSM-III and DSM-III-R studies of these disorders was undertaken (Liebowitz, 1992), which appeared in the *DSM-IV Source Book* (Widiger, Frances, Davis, & First, 1994). The main issues to emerge were those of threshold, coverage, and boundary. Threshold involves the optimal number of symptoms balancing sensitivity against specificity and, unlike in DSM-III, is most often determined in DSM-IV by data from extensive field trials rather than committee consensus. Coverage concerns center on unsuitability of criteria for patients seen in primary care and in some minority groups. Boundary issues involve both anxiety disorders and other disorders, notably minor depressive states and childhood disorders, and within the anxiety disorders themselves (e.g., panic, agoraphobia, simple and social phobias).

Childhood disorders in DSM-III (see Part II) included separation anxiety, overanxious and avoidant disorder. The review for DSM-IV (Klein, Tancer, & Werry, in press; Werry, 1991) and other papers (Bernstein & Borchardt, 1991; Silverman, in press) reveal problems of variable reliability; continuity before and after maturity; comorbidity, especially with mood disorders and between overanxious and other anxiety disorders; and paucity of good research, especially on validity and on avoidant disorder. In DSM-IV, criteria have been tightened to remove semantic overlap with other disorders, to improve compatibility with adult disorders. Avoidant disorder, which has attracted almost no research and was semantically identical with social phobia, is discontinued in favor of the latter and avoidant personality disorder. Unfortunately, unlike the disruptive disorders, autism, and the adult

anxiety disorders, major field trials have not been undertaken for child anxiety disorders, leaving DSM-IV exposed. This lack should be taken as a stimulus to research into reliability, validity, and continuity especially with adult disorders.

DSM-IV was conceived as a continuation of DSM-III-R to be amended only when research revealed the need for correction. Although, unacceptably, the manual will again be unreferenced, there is a *Source Book* (Widiger et al., 1994) that documents the data and reviews on which diagnostic decisions were based.

In sum, DSM-III was a major event in scientific classification. Though it attained a popularity far in excess of its demonstrated validity and was shown to have flaws and almost certainly contains many more, it has promoted and enhanced the study of psychopathology immeasurably. DSM-IV will offer advances derived from at least a decade of research, from an increasing use of psychometric methods, from better preparatory field trials, and from more attention to data when making decisions. Unfortunately, anxiety disorders of children and adults have benefitted less than other disorders such as autism and conduct and attention-deficit disorders, so that evidence on reliability and validity is only just emerging and some is not particularly reassuring (Silverman, 1994).

DSM-IV should thus be seen as requiring a major research effort to improve the status of the classification of anxiety in children and adolescents. The main problems with DSM are insufficient supporting data for some disorders or their diagnostic criteria and for Axes IV and V, lack of clear-cut relevance of diagnosis for treatment in some disorders, overinclusiveness, boundary problems, categorical instead of dimensional classifications in some areas such as overanxiousness and emphasis on major abnormality (though this is softened somewhat by the V codes), failure of clinicians to follow the rules (Prendergast et al., 1988), especially where diagnostic criteria are complicated, and absence of any way of assessing family/social support, which has been shown to be highly influential on outcome (Rosenblatt & Attkisson, 1992; Setterberg, Ernst, Rao, Campbell, Carlson, Shaffer, & Staghezza, 1991).

ICD-9 and ICD-10

The World Health Organization's *International Classification of Disorders* (9th edition) is the official classification that all member nations of the United Nations must use in preparing their national health statistics. However, while officialdom requires its use, most psychiatric clinicians and researchers now utilize DSM-III except in the United Kingdom, parts of Europe, and some other countries with strong links to Europe. An effort was made to make DSM-III as compatible with ICD-9 as possible. As in DSM, there was now a separate section for childhood disorders, and it could be multiaxial, but there were substantial differences (Remschmidt, 1988). There were no operational diagnostic criteria, just broad descriptions; there were fewer subcategories; categories might differ, the axes seemed confined to child disorders, were optional, and differed (I—Clinical psychiatric syndrome; II—developmental delays; III—intellectual level; IV—physical disorders; V—abnormal psychosocial situations); comorbidity was dealt with by "mixed disorders" rather than multiple diagnoses; and the manual was very brief.

Anxiety disorders were encompassed by (1) neurotic disorders (those that resemble adult anxiety disorders, such as phobias or obsessive–compulsive disorder), (2) disturbances of emotions specific to childhood (where they do not resemble adult disorders), (3) mixed disturbance of emotion and conduct (comorbidity), and (4) adjustment reaction, which encompasses stress-related disorders.

Research on ICD-9 was much more limited than that on DSM-III. Reliability was variable but low for emotional and neurotic disorders and improved when these disorders were amalgamated (Gould, Shaffer, Rutter, & Sturge, 1988). Attempts to subcategorize anxiety disorders further (as in DSM) lowered reliability, while a manual more detailed than the official handbook improved it.

ICD-10 appeared in 1992 and is presented in two different versions, one for clinicians and one setting out DSM-type operational criteria for research. This split was necessary because it proved impossible to sell the World Health Organization on the need for operational criteria in clinical practice. While there can be argument about how well clinicians apply the DSM operational criteria (e.g., Prendergast et al., 1988) and about how research criteria might make them less acceptable clinically, the failure by ICD-10 to accept the necessity for these criteria in the clinical situation must seriously disadvantage its credibility as a nosological system.

Even more effort has gone into making ICD-10 and DSM-IV compatible, especially in the children's area, where Rutter has been a prominent member of both committees; thus, while some differences remain, they are fewer in number and smaller in degree. In the adult-type anxiety disorders, the differences are minor and confined to placing some disorders such as posttraumatic stress disorder in different main categories. In the childhood disorders, as in DSM, all anxiety disorders are aggregated in a single category, with a number of subcategories, though these subcategories differ somewhat: separation anxiety, phobic, and social phobic disorder, where these disorders differ from the same-named adult disorders by being only exaggerations of normal developmental fears (e.g., animals, strangers); other (which includes overanxious disorder dropped from DSM-IV); and a new, go-it-alone disorder, sibling rivalry disorder, stemming largely from the research of one United Kingdom center (Dunn & McGuire, 1992).

In view of DSM's greater popularity, proven facilitation of research, and single version for research and clinical practice, it remains to be seen what impact ICD-10 will have, particularly now that categories in both are much more similar. It should also be noted that neither DSM nor ICD has addressed the issue of how the clinical diagnostic criteria (i.e., symptoms) are to be obtained; it is assumed that methods already employed by clinicians will be reliable and valid for this purpose. While, as for DSM research, instruments are being developed for ICD-10, it is unlikely that these instruments will find much acceptance in clinical practice.

Dimensional Classifications

There are three main competing systems, all of which are derived from symptom rating scales and developed by empirical multivariate statistical methods: (1) the Child Behavior Checklist (CBCL) (Achenbach, 1985), (2) the Revised Behavior Problem Checklist (Quay, 1986), and (3) the Conners Scales (see Conners & Barkley, 1985). Unlike DSM or ICD, the method by which the primary data are obtained is structured and examined psychometrically in great detail (see Quay, 1986). While all yield rather similar dimensions (see Quay,1986), the CBCL is the most popular and differs in having not just broad-band (orthogonal) but also narrow-band (correlated) factors or dimensions and somewhat different scales for different ages. Orthogonal factors yield only one anxiety dimension (mostly anxiety/withdrawal), but the narrow-band solutions separate anxiety and withdrawal, though mixed with depression (Quay and LaGreca, 1986).

In an effort to reduce competition among these three rather similar scales and take advantage of the large amount of psychometric data on each, the American Psychological

Association created a task force of the principal authors to produce a melded and expanded "second-generation" scale, the American Behavior Checklist (ABCL) (Achenbach et al., 1989).

These dimensional scales have fairly good levels of reliability except across situations (Achenbach et al., 1989; Quay, 1986), a problem that bedevils all methods of trying to assess psychopathology in children (Achenbach, McConaughy, & Howell, 1987; Anderson et al., 1987) but that is concealed in medical classifications by their failure to explicate required data-capture methods. As to validity, it is substantial, though considerably less studied for the anxiety than for other dimensions and particularly scant in such areas as stability, effect on social relations (Quay & LaGreca, 1986), and treatment, though DSM-III had similar defects (see Klein et al., in press; Silverman, in press; Werry, 1992).

One interesting aspect of validity is convergence between DSM-III categories and extreme scores on dimensions, though in the case of anxiety/dysthymia, which item-wise seems very like the soon-to-be discarded overanxious disorder (in favor of generalized anxiety disorder, which has been modified to look more like overanxious disorder), the ABCL and CBCL were unable to distinguish between anxiety and depression. The massive Ontario Child Health Study used CBCL items slightly modified to define its DSM disorders (see Werry, 1991). This convergence takes some of the heat out of the debate on category V dimensions, though the loss of predictive power of categories should be kept in mind (see above). Dimensional systems, unless oversampling highly abnormal or using selected populations, lack the power to detect uncommon dimensions such as psychosis or obsessive–compulsive disorder (Quay and LaGreca, 1986).

In summary, while dimensional systems have far better psychometric data than categorical systems, and until recently were somewhat better researched, they have a number of defects, most notably incompletely demonstrated validity, especially for outcome and treatment, and failure to uncover uncommon disorders. They are probably better for screening than for individual diagnosis and treatment, that is, used as a prelude to and in conjunction with categorical systems rather than as competitors. Conceptually, they deal with comorbidity better and offer greater sensitivity when variables are continuous.

Other Approaches

The most important approach here is the functional one. Both family systems and behavioral theory have attempted classifications that are etiologically rather than symptomatologically based (see Silverman, 1994), but none of these has yet attracted enough psychometric research to be regarded as other than worth pursuing at a research level. Of these, with its long history of self-evaluation, the behavioral would seem to be the best avenue in prospect. Silverman (Kearney & Silverman, 1990; Silverman, in press) offers a behavioral classification for school avoidance. The great potential advantage of functional classifications is that they are highly treatment-relevant providing the functional analysis is accurate, since they usually ignore biological etiologies and hence treatments such as pharmacotherapy.

SUMMARY

Classification is the way that we order experience so as to predict the future and be able to anticipate and, it is to be hoped, influence outcomes. We do it automatically, but when relationships are complex or small in size, as they almost always are in child and

adolescent psychopathology, the intuitive way is too error-prone without investing it with psychometric checks and balances. Most objection to classification, such as that to labeling, is ideological or political, but some, especially in poorly researched areas such as anxiety, is real enough, most notably that diagnosis may add little that is useful to clinical knowledge or care. The last decade has shown a massive increase in good research in classification of child and adolescent psychopathology, though anxiety disorders have much catching up to do to match leaders such as attention-deficit hyperactivity disorder. Though the science of test construction has only recently begun to evaluate their reliability and validity, medical or categorical classifications such as DSM have become the most popular ways of viewing psychopathology, threatening to displace the previously predominant dimensional systems.

There are advantages and disadvantages to both categorical and dimensional systems, and research and practice are likely to be the richer if both systems are seen and preserved as complementary. Dimensional classifications are better when it is a question of degree of departure from normality, and the extremes of their distributions are probably efficient ways to find any qualitatively abnormal cases in epidemiological samples. On the other hand, categorical systems are best with the highly deviant, but have serious problems at the boundaries and with comorbidity not due to direct cause and effect. Neither type of system at the moment offers much specificity for treatment, though categorical ones are better for rarer disorders such as panic and obsessive–compulsive disorder. In order to improve the relationship between treatment and diagnosis, there is a need to define the etiologies of anxiety disorders and then, as happened in general medicine, to develop etiological (functional) classifications or to add etiological criteria to existing classifications.

Anxiety disorders and behaviors have been the poor relation of most classifications, and a concerted effort is needed to research these common (see Chapter 3) and distressing disorders in children and adolescents, particularly their etiology and treatment and their relationships to both homo- and heterotypic disorders in adults.

REFERENCES

Achenbach, T. M. (1980). DSM-III in the light of empirical research on the classification of child psychopathology. *Journal of the American Academy of Child Psychiatry, 19*, 395–412.

Achenbach, T. M. (1985). *Assessment and taxonomy of child and adolescent psychopathology*. Beverly Hills: Sage Publications.

Achenbach, T. M. (1991). Categorical and dimensional clarifications. *Journal of Child and Adolescent Psychopharmacology, 1*, 271–278.

Achenbach, T. M., Conners, C. K., Quay, H. C., Verhulst, F. C., & Howell, C. T. (1989). Replication of empirically derived syndromes as a basis for taxonomy of child/adolescent psychopathology. *Journal of Abnormal Child Psychology, 17*, 299–323.

Achenbach, T. M., McConaughy, S. H., & Howell, C. T. (1987). Child/adolescent behavioral and emotional problems: Implications of cross-informant correlations for situational specificity. *Psychological Bulletin, 101*, 213–232.

American Academy of Child and Adolescent Psychiatry (1992). Practice parameters for the assessment and treatment of conduct disorders. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, IV–VII.

American Psychiatric Association (1980). *Diagnostic and statistical manual of mental disorders* (DSM-III), 3rd ed. Washington, DC: Author.

American Psychiatric Association (1987). *Diagnostic and statistical manual of mental disorders*, 3rd ed., revised. Washington, DC: Author.

American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders*, 4th ed. Washington, DC: Author.

Anderson, J. C., Williams, S., McGee, R., & Silva, P. A. (1987). DSM-III disorders in preadolescent children. *Archives of General Psychiatry, 44*, 69–76.

Bernstein, G. A., & Borchardt, C. M. (1991). Anxiety disorders of childhood and adolescence. *Journal of the American Academy of Child and Adolescent Psychiatry, 30*, 519–532.

Blashfield, R. K., & Draguns, J. G. (1976). Towards a taxonomy of psychopathology: The purpose of psychiatric classification. *British Journal of Psychiatry, 129*, 574–580.

Bowen, R. C., Offord, D. R., & Boyle, M. H. (1990). The prevalence of overanxious and separation disorder in the community: Results from the Ontario Mental Health Study. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 753–758.

Brown, T. A., Hertz, B. M., and Barlow, D. H. (1992). New developments in cognitive-behavioral treatment of anxiety disorders. In A. Tasman & M. Riba (Eds.), *Review of Psychiatry*, Volume 2. Washington, DC: American Psychiatric Press.

Cantwell, D. P. (1988). DSM-III studies. In M. Rutter, A. H. Tuma, & I. S. Lann (Eds.) *Assessment and diagnosis in child psychopathology* (pp. 3–36). New York: Guilford Press.

Cantwell, D. P., and Baker, L. (1988). Issues in the classification of child and adolescent psychopathology. *Journal of the American Academy of Child and Adolescent Psychiatry, 27*, 521–530.

Conners, C. K., and Barkley, R. A. (1985). Rating scales and checklists for child psychopharmacology. *Psychopharmacology Bulletin, 21*, 809–815.

Dunn, J., & McGuire, S. (1992). Sibling and peer relationships in childhood. *Journal of Child Psychology and Psychiatry, 33*, 67–106.

Feehan, M., McGee, R., Raja, S. N., & Stanton, W. R. (1994). Helping agency contact for emotional problems in childhood and early adolescence and the risk of later disorder. *Australian and New Zealand Journal of Psychiatry, 28*, 87–99.

Feinstein, A. R. (1967). *Clinical judgment*. Baltimore: Williams & Wilkins.

Fergusson, D. M., Horwood, L. J., Lynskey, M. T. (1993). The effects of conduct disorder and attention deficit in middle childhood on attending and scholastic ability at age 13. *Journal of Child Psychology and Psychiatry, 34*, 899–916.

Gould, M. S., Shaffer, D., Rutter, M., & Sturge, C. (1988). UK/WHO study of ICD-9. In M. Rutter, A. H. Tuma, & I. S. Lann (Eds), *Assessment and diagnosis in child psychopathology* (pp. 37–65). New York: Guilford Press.

Jersild, A. T., & Holmes, F. B. (1935). Children's fears. *Child Development Monographs*, No. 20.

Johnson, S. B., & Melamed, B. G. (1979). The assessment and treatment of children's fears. In B. B. Lahey & A. E. Kazdin (Eds.), *Advances in clinical child psychology*, Vol. 2 (pp. 107–139). New York: Plenum Press.

Kearney, C. A., & Silverman, W. (1990). A preliminary analysis of a functional model of assessment and treatment for school refusal behavior. *Behavior Modification, 14*, 340–347.

Keller, M. B., Lavori, P. W., Wunder, J., Beardslee, W. R., Schwartz, C. E., & Roth, J. (1992). Chronic course of anxiety disorders in children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 595–599.

Klein, R., Tancer, N. K., & Werry, J. S. (in press). Anxiety disorders of childhood and adolescence. In T. A. Widiger, A. J. Frances, W. Davis, & M. First (Eds.), *DSM-IV source book*. Washington, DC: American Psychiatric Press.

Laprade, K., & Trites, R. L. (1985). Is there an independent syndrome of hyperactivity? *Journal of Child Psychology and Psychiatry, 26*, 491–494.

Liebowitz, M. R. (1992). Diagnostic issues in anxiety disorders. In A. Tasman & M. B. Riba (Eds.), *Review of psychiatry*, Vol. 11 (pp. 247–259). Washington, DC: American Psychiatric Press.

Leonard, H. L., Swedo, S. E., Rapoport, J. L., Koby, E. V., Lenane, M. C., Cheslow, D. L., & Hamburger, S. D. (1989). Treatment of obsessive–compulsive disorder with clomipramine and desipramine in children and adolescents: A double-blind crossover comparison. *Archives of General Psychiatry, 46*, 1088–1092.

McGee, R., Feehan, M., & Williams, S. (in press). Comorbidity of anxiety disorders in childhood and adolescence. In G. D. Burrows, M. Roth, & R. J. Noyes (Eds.), *Handbook of anxiety*, Vol. 5. Amsterdam: Elsevier.

Miller, L. C., Barrett, C. L., Hampe, E., & Noble, H. (1972). Revised anxiety scales for the Louisville Behavior Checklist. *Psychological Reports, 29*, 503–511.

Ollendick, T. H., & King, N. J. (1990). School phobia and separation anxiety. In H. Leitenberg (Ed.), *Handbook of social anxiety* (pp. 179–214). New York: Plenum Press.

Ollendick, T. H., Greene, R. W., Francis, G., & Baum, C. G. (1991). Sociometric status: Its stability and validity among neglected, rejected and popular children. *Journal of Child Psychology and Psychiatry, 32*, 525–534.

Ollendick, T. H., King, N. J., & Frary, R. B. (1989). Fears in children and adolescents: Reliability and generalizability across gender, age and nationality. *Behaviour Research and Therapy, 27*, 19–26.

Prendergast, M., Taylor, E., Rapoport, J. L., Bartko, J., Donnelly, M., Zametkin, A., Ahearn, M. B., & Wieselberg, H. M. (1988). The diagnosis of childhood hyperactivity: A US–UK cross national study of DSM-III & ICD-9. *Journal of Child Psychology and Psychiatry, 29*, 289–300.

Psychiatric News (1992). *27*(14) (pp. 1 & 13). Washington DC: American Psychiatric Association.

Quay, H. C. (1986). Classification. In H. C. Quay & J. S. Werry (Eds.), *Psychopathological disorders of childhood*, 3rd ed., New York: Wiley (pp. 1–34).

Quay, H. C., & LaGreca, A. M. (1986). Disorders of anxiety, withdrawal and dysphoria. In H. C. Quay & J. S. Werry (Eds.), *Psychopathological disorders of childhood*, 3rd ed., New York: Wiley (pp. 73–110).

Reeves, J. C., Werry, J. S., Elkind, G. S., & Zametkin, A. (1987). Attention deficit, conduct, oppositional and anxiety disorders in children. II. Clinical characteristics. *Journal of the American Academy of Child and Adolescent Psychiatry, 26*, 144–155.

Remschmidt, H. (1988). German study of ICD-9. In M. Rutter, A. H. Tuma, & I. S. Lann (Eds.), *Assessment and diagnosis in child psychopathology* (pp. 66–86). New York: Guilford Press.

Rosenblatt, A., & Attkisson, C. C. (1992). Integrating systems of care in California for youth with severe emotional disturbance. I. A descriptive overview of the California AB377 Evaluation Project. *Journal of Child and Family Studies, 1*, 93–114.

Roy-Byrne, P. P., & Wingerson, D. (1992). Pharmacotherapy of anxiety disorders. In A. Tasman & M. B. Riba (Eds.), *Review of psychiatry*, Vol. 11 (pp. 260–284). Washington, DC: American Psychiatric Press.

Rutter, M., & Shaffer, D. (1980). DSM-III: A step forward or back in terms of classification of child psychiatric disorders? *Journal of American Academy of Child Psychiatry, 19*, 371–394.

Rutter, M., & Tuma, H. (1988). Diagnosis and classification: Some outstanding issues. In M. Rutter, A. H. Tuma, & I. S. Lann (Eds.), *Assessment and diagnosis in child psychopathology* (pp. 437–452). New York: Guilford Press.

Setterberg, S. R., Ernst, M., Rao, U., Campbell, M., Carlson, G. A., Shaffer, D., & Staghezza, B. M. (1991). Child psychiatrists' views of DSM-III-R: A survey of usage and opinions. *Journal of the American Academy of Child and Adolescent Psychiatry, 30*, 652–658.

Shaffer, D., Gould, M. S., Rutter, M., & Sturge, C. (1991). Reliability and validity of a psychosocial axis in patients with child psychiatric disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 30*, 109–115.

Silverman, W. K. (1991). Diagnostic reliability of anxiety disorders in children using structured interviews. *Journal of Anxiety Disorders, 5*, 105–115.

Silverman, W. K. (1994). Taxonomy of anxiety disorders in children. In G. D. Burrows, M. Roth, & R. J. Noyes (Eds.), *Handbook of anxiety*, Vol. 5. Amsterdam: Elsevier.

Spitzer, R. L., & Cantwell, D. P. (1980). The DSM-III classification of the psychiatric disorders of infancy, childhood and adolescence. *Journal of the American Academy of Child Psychiatry, 19*, 356–370.

Taylor, E., Sandberg, S., Thorley, G., & Giles, S. (1991). *The epidemiology of childhood hyperactivity*. Oxford: Oxford University Press.

Werry, J. S. (1985). ICD 9 & DSM III: Classification for the clinician. *Journal of Child Psychology and Psychiatry, 26*, 1–6.

Werry, J. S. (1991). Overanxious disorder: A review of its taxonomic properties. *Journal of the American Academy of Child and Adolescent Psychiatry, 30*, 533–544.

Werry, J. S. (1992). Child psychiatric disorders: Are they classifiable? *British Journal of Psychiatry, 161*, 472–480.

Werry, J. S., & Aman, M. G. (1993). *A practitioner's guide to psychoactive drugs in children and adolescents*. New York: Plenum Press.

Werry, J. S., Reeves, J. C., & Elkind, G. S. (1987). Attention deficit, conduct, oppositional and anxiety disorders in children. I. A review of research on differentiating characteristics. *Journal of the American Academy of Child and Adolescent Psychiatry, 26*, 133–143.

Widiger, T. A., Frances, A. J., Davis, W., & First, M. (Eds.) (1994). *DSM-IV source book*. Washington, DC: American Psychiatric Press.

Young, J. G., O'Brien, J. D., Gutterman, E. M., & Cohen, P. (1987). Research on the clinical interview. *Journal of the American Academy of Child and Adolescent Psychiatry, 26*, 613–620.

3

Epidemiological Issues

Jessie C. Anderson

INTRODUCTION

As recently as 1988, Myrna Weissman (1988) described the area of epidemiology in childhood anxiety disorders as "virgin territory." While other disorders in childhood and adolescence had been the focus of considerable research activity, the anxiety disorders remained relatively uninvestigated.

Since then, there has been an increase in interest in all childhood and adolescent mental health problems, including several general population studies of all common disorders and their correlates and risk factors, as will be described further. There have also been good descriptions of the anxiety and phobic disorders (and the rarer obsessive–compulsive disorder) in both clinical and general populations, which have contributed valuable information on the presentation, stability, and comorbidity of these disorders.

There arise in relation to these studies some general issues that are not specific to the anxiety disorders, and these issues will be reviewed briefly before the material more directly relevant to the anxiety disorders is presented. The issues include the problems of referral bias in clinical studies, the representativeness of general population studies, the separation of pathological from normal states, and the use of competing definitions of disorder, using either a categorical or a dimensional paradigm. Also, the source of information about the child's symptoms can affect both prevalence and correlates of the disorder, and this variance will be discussed. A look will then be taken at the distribution of anxiety disorders in the general population and their comorbidity, correlates, and stability over time.

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Studies of Clinical Populations

While clinical samples make a valuable contribution to understanding particular groups of children with anxiety disorders, they cannot adequately represent what is happening at the general population level. Bias arises at all levels of the referral process, from the recognition that a child has a disorder to referral, attendance, assessment, and treatment. Some of this bias is systematic and can be identified by comparing diagnoses of mental health problems made by referrers such as pediatricians in a primary care center with the diagnoses made independently on the same children by a trained mental health team. This comparison was made in a study using children attending a primary health care center in Pittsburgh, which looked at the identification and referral patterns of all childhood psychiatric disorders by the pediatricians and compared them to the results of a structured psychiatric assessment (Costello et al., 1988a; Dulcan et al., 1990). The pediatricians identified only a quarter of the emotional and behavioral disorders found by the psychiatric team and referred one child in six with a psychiatric disorder for assessment and treatment. They were twice as likely to identify a psychiatric disorder in children with a current physical health problem compared to children who were not physically ill, in contrast to the psychiatric team, who found no association between psychiatric and physical health problems. There was high specificity but low sensitivity for psychiatric disorders demonstrated by the pediatricians, who served an important gatekeeping function in referring disturbed children for psychiatric assessment and treatment. Referrals were more likely if parents themselves raised issues of emotional or behavioral disturbance, showed distress at their child's problems, or had a family history of psychiatric disorder (Dulcan et al., 1990).

These findings are similar to those of Goldberg, Roghmann, McInerny, and Burke (1984), who found that around 5% of children under the care of pediatricians had emotional or behavioral problems identified and that twice as many children with chronic physical illnesses were identified compared to other children. The Pittsburgh study indicates that at least some of this association between physical and psychiatric disorder (and subsequent referral) may represent a selection bias on the part of the primary care physicians, rather than a true association. Garralda and Bailey (1986) identified psychiatric disorder in 23% of children attending a primary practice setting,with anxiety disorders being the most prevalent, girls with disorder outnumbering boys, and psychiatric patients having associated family problems with high levels of parental stress at the time of the parental interview. These results compare with an overall prevalence of psychiatric disorder of 22% in the study of Costello et al. (1988b), in contrast to the 5% of children identified by pediatricians.

Other factors that may influence referral are severity, chronicity, and disruptiveness of the disorder, which lead to referral of the most serious, chronic, or socially disruptive behaviors. Because of the influence of coexisting disorders on the probability of referral, children and adolescents in clinical samples are more likely to show high rates of comorbidity with other psychiatric disorders, as well as to have more physical illness, have a family history of psychiatric disorder, and have parents who are distressed. Additional bias may be less systematic and may arise from the availability and ease of getting children into treatment, local expertise, and the awareness and personal skills of the potential referrer. All these factors lead to distortions in the rates, correlates, and comorbidity of the disorders presenting to specialist clinics compared to disorders in the population at large.

General Population Studies

While studies of general population samples may be more representative of the overall population than clinic-derived samples, there are still some methodological problems. First, children should be selected by a method that gives all children an equal chance to be selected, e.g., by using a randomly chosen sample from the whole child population. In practice, those children most likely to miss selection when research samples are selected by a dwelling-based or school-based process are those who live in special settings such as institutions or boarding schools or are frequently absent from or do not attend regular schools. Conversely, children who enjoy excellent health may miss selection for a primary health care sample.

Second, bias may arise from groups of parents who are less likely to give consent for their children to be involved in research or who are less likely to ensure their children's attendance. Children missed in random child population samples have been shown to have increased parental psychopathology, poorer social skills, and higher numbers of symptoms reported from other sources (Beck, Collins, Overholser, & Terry, 1984; Cox, Rutter, Yule, & Quinton, 1977; McGee et al., 1990; Verhulst, Koot, & Berden, 1990). In those longitudinal studies in which there was information about the child and family prior to the refusal or in which incomplete data were collected, the family was more likely to have shown an increase in adversity (including poorer maternal mental health, a drop in socioeconomic status, poor family relationships, or parental separation) compared to the participating families. This deterioration was most marked for new refusers, who had previously cooperated (Boyle, Offord, Racine, & Catlin, 1991; McGee, unpublished report, 1985; Offord et al., 1992). The children who did not complete interviews were also significantly more likely to have high levels of symptoms reported by parents and teachers and higher levels of personal and family disadvantages, plus lower self-esteem (Williams, McGee, Anderson, & Silva, 1989). While some longitudinal studies have found no significant differences between participants and refusers (Boyle, et al., 1987; Esser, Schmidt, & Woerner, 1990; Verhulst, Berden, & Sanders-Woudstra, 1985), none has found nonparticipants to be better off than participants, making it likely that estimates of prevalence of disorders, and the degree of associated family, social, and personal disadvantages, are conservative in most general population studies.

Attempts to overcome bias arising from missing cases have included compensating for missing cases by matching similar cases among respondents and weighting the respondent data to cover the likely missing results. This is most easily done in longitudinal studies, in which matching can be done on the basis of previous results and the effect of the weighting can be estimated. In the Ontario Child Health Study, the effects of matching missing cases in a follow-up study were found to be greatest for estimating persistence of disorder and not significant for outcome or risk analyses (Boyle et al., 1991). The influence of missing cases is likely to vary with sample size, statistical power, and the type of analysis carried out, as shown in the analysis of Boyle et al. (1991).

Separating Pathological from Normal States

The anxiety disorders, in common with most other emotional and behavioral disorders that arise in childhood and adolescence, tend to be disturbances of degree rather than type of problems identified. Because all children occasionally feel anxious, sad, fearful, or angry, and behave inappropriately, aggressively or defiantly, the boundaries between

normality and pathology tend to be set by any or any combination of the number, severity, and duration of the symptoms. The one exception would be the psychotic disorder group, and even in this group the distinction between psychosis and eccentricity is less clear in younger children than the comparable distinction in adults.

Anxiety and fearfulness are universally experienced unpleasant states, with undoubted survival value, especially for the young child. The development of normal fearfulness and normal anxiety has been described by Marks (1987) as following a relatively orderly sequence, whether they are seen as innate, triggered by specific stimuli, or learned from normal experience.

For most children, this sequence starts with fear of sudden noise, of being dropped or startled, followed by anxiety about the proximity of caregivers, with anxious attachment behavior and protest when separated from the primary caregiver (separation anxiety). Later, as the child recognizes strangers as being different from familiar persons in the environment, fear of strangers develops, followed by more specific fears of objects or events. As Werry and Aman (1980) point out, the four major types of pathological anxiety reflect these normal stages, which may be modified by the response of adults and become reinforced and learned patterns of behavior, continuing long after their survival value or adaptive value has lessened. Developmentally, most young children cease to be fearful of separating from caregivers or fearful of strangers by 4–5 years, but in early and middle childhood, they may have as many as six or seven fears and worries about specific objects or situations at any one time (La Pouse & Monk, 1959; Marks, 1987; Werry & Aman, 1980).

The distinction between "normal" fears and "pathological" fears depends on the child's age, cognitive abilities, and the realities of the situation in which the child experiences the fear. Pathological fears are described as being involuntary, irrational, inappropriate, and limiting the child's life in some way. Clearly, the child's perception of the threat imposed by the object or situation is important in deciding whether a fear is rational or appropriate to the child's age or developmental stage. Many children exhibit a range of fearful, anxious, ritualistic, and sometimes withdrawn behaviors that in excess may limit their activities and cause concern to adults. Quay and La Greca (1986) describe the difficulties in identifying subgroups of anxious and fearful behaviors from this wider group of anxious–withdrawn behaviors, as either symptoms or disorders. The requirement that to be labeled a "disorder" a collection of fears and worries must also be handicapping to the child, not just annoying or distressing to adults, adds a further element of complexity, as most information comes from parents or teachers. Adults may not know the degree of handicap or limitation of activities imposed on the child by the fear or anxiety. This lack of awareness may lead to a discrepancy between the high prevalence rates for many fears and worries in the community and the more restricted fears and anxieties referred to clinics, e.g., school refusal, fear of the dark leading to refusal to go to bed, or separation anxiety that restricts parents from being able to leave the child. Many of these more frequently complained-of fears and anxieties of childhood are notable for their "nuisance value" to adults, but may not represent the range of anxiety disorders suffered by children.

Several recent studies have looked at the distribution of anxious and phobic symptoms in normal children and at the levels of impairment in children whose symptoms do not reach threshold for a diagnosis of disorder. The significance of subclinical anxiety is becoming clearer, with evidence that children with anxiety symptoms but no disorder are "normal," have adjustment and outcomes similar to those of asymptomatic children, and come from nonanxious families (Bell-Dolan, Last, & Strauss, 1990). Costello and Shugart (1992) report significant functional disabilities in children with "subthreshold" disorder, except for those with anxiety disorders and depression. The latter groups of children were not

significantly impaired on a global measure of function with subthreshold anxiety, but were significantly impaired if their symptoms qualified for an anxiety disorder. These observations suggest that the threshold for anxiety disorders has some validity in terms of associated impairment.

Categories or Dimensions?

The definition of disorder and the ability to identify cases of disorder reliably are critical to epidemiology. The identification of cases depends on valid and reliably, used classification systems, and the advent of several such systems has enabled epidemiology to flourish in psychiatry. A parallel need for structured, reliable instruments that provide replicable data for use in epidemiological studies has been addressed in child populations as well as in adults.

The major division among the systems of classification and their diagnostic instruments is the "category or dimension" distinction. This debate concerns the nature of emotional and behavioral disturbances and the taxonomic systems imposed on the range of symptoms to order and classify them. Increasingly, it is apparent that both categorical and dimensional systems can describe the phenomena of interest and that the two types of systems are not mutually exclusive.

The dimensional systems recognize the distribution of emotions and behaviors across the whole population, assuming a normal distribution for the more common symptoms and expressing pathology as an excess or abnormally high burden of symptoms, in either number or severity. Dimensional systems rely on rating scales to identify those children who have abnormal symptom loads and use cutoff points to separate children into groups depending on their scores. The "cases" can be identified according to scores on individual scales, or from profiles across several scales, leading to a more sophisticated classification of clusters of scores occurring in the same child. The most comprehensive system using dimensional scores is that of Achenbach and colleagues, with questionnaires available for children, parents, and teachers, namely, the Youth Self-Report (YSR) for children, the Child Behavior Checklist (CBCL) for parents, and the teacher version (TCBCL) for teachers (Achenbach & Edelbrock, 1983, 1986,1987). This system has a high level of careful empirical research as the basis of the identified disorders and uses sophisticated multivariate statistical analyses to identify and validate the syndromes.

In contrast, the categorical systems represent disorder as a dichotomous (present or absent) phenomenon, based on whether a set threshold is reached for numbers, severity, and duration of specific symptoms. While categorical systems have the advantage of reflecting clinical practice, as a whole they are less likely to set their thresholds on the basis of sound psychometric techniques using empirical research data, as in the dimensional classifications (Werry, 1990). The categories are based on clinical consensus and thus convey the historical wisdom of clinical practice. They are likely, however, to be derived from extreme expressions of the same dimensions of behavior or emotional experience as the dimensional systems and to describe similar syndromes. The principal categorical systems are the *International Classification of Disorders* (ICD-9) and DSM-III-R [American Psychiatric Association (APA), 1987], with updates of both on the horizon. These two systems are becoming more compatible, and the new revisions should show considerable similarities. The most widely used system currently is DSM-III-R, the 1987 revision of DSM-III (APA, 1980), which appeared in 1980. In the DSM-III system, anxiety states arising in childhood and adolescence are divided into separation anxiety, overanxious disorder, and avoidant disorder, reflecting the developmental stages of, respectively, attachment and separation

behavior, reactivity to new events, and stranger fears (Werry & Aman, 1980). Other anxiety states and phobias, not specifically arising in childhood, are also diagnosed in children and adolescents, the most common being simple phobia, social pohobia, and, more rarely, obsessive–compulsive disorder. The simple phobias represent abnormal fear of (usually) one object or a class of objects, e.g., animals of a certain size or shape, whereas social phobias include a persistent fear of scrutiny by other people and fear of embarrassment or humiliation (reflecting the increasing importance of socialization and the need to be socially successful among adolescents). Although sometimes included in population studies of anxiety disorders, obsessive–compulsive disorder is rare in such samples, particularly those that use multivariate analyses to identify disorders. Likewise, avoidant disorder is not commonly found in community-based samples, such as the major studies described in this chapter. Posttraumatic stress disorder has also been described in children following catastrophic events, including child abuse, and will be discussed later.

In DSM-III-R, significant changes were made in some categories of childhood and adolescent disorders, which created problems for longitudinal studies and caused shifts in prevalence and severity for several disorders, notably conduct disorder and attention-deficit hyperactivity disorder (Lahey, Loeber, Stouthamer-Loeber, Christ, Green, Russo, Frick, & Dulcan, 1990). Fortunately, the anxiety disorders were little affected by this change, and it is to be hoped that DSM-IV will not make previous work using DSM-III and DSM-III-R uninterpretable long-term because of changes in diagnostic criteria (Werry, 1990). Even if the anxiety disorders remain relatively stable, the patterns of comorbidity will be affected by changes in other disorders.

The degree of convergence between the major categorical systems and the dimensional systems is increasing. Recent comparisons between the CBCL and DSM-III-R have shown similar syndromes emerging, with the conduct, attention-deficit hyperactivity, and somatization disorders being supported in the dimensional studies, and an anxious–depressed syndrome combining the features of overanxious disorder and dysthymia. No empirical syndromes were identified to match major depression, separation anxiety, or phobias as separate disorders. As the empirical syndromes were based on parent reports, the inclusion of child and teacher data may modify these results (Achenbach, Conners, Quay, Verhulst, & Howell, 1989). These findings affect the validity of regarding DSM-III-R anxiety, phobic, and depressive disorders as separate disorders, at least for children.

Sources of Information

The problem of who says the child has a disorder is a major issue for child psychiatry, particularly for epidemiological studies. Traditionally, researchers gained information from parents and teachers to assess the child's emotional and behavioral state (Rutter, Tizard, & Whitmore, 1970; Achenbach & Edelbrock, 1978).

More recent research has shown that children and adolescents can be quite reliable reporters of their own symptoms, although they are more reliable at reporting internal emotional states than external behavioral problems (Edelbrock, Costello, Dulcan, Conover, & Kalas, 1986; Herjanic, Herjanic, Brown, & Wheatt, 1975). Reliability studies comparing child to parent reports also show the child's age to be a factor,with reliability increasing at or after 11 years (Edelbrock, Costello, Dulcan, Kalas, & Conover, 1985).

A recent review by Achenbach, McConaughy, and Howell (1987) of over 100 studies concluded that information would vary according to source, because of the different situations in which the reporter saw the child. Such variation was not necessarily error or unreliability, but reflected true differences in the way children behaved or expressed their

feelings at home, at school, or with peers during unstructured time. It is clear that to gain a comprehensive picture of how a child behaves and feels, one must obtain information from several sources, including the children themselves. Solutions to the problem of how to integrate this information have varied from study to study and have included using a psychiatric assessment as the "gold standard" by which the reliability of other information is measured, using parent reports as the most reliable, or combining information from all sources to get a "best estimate" diagnosis. Among the recent epidemiological studies, where information has been obtained from multiple sources, the definition of "caseness" using multiple informants has received some attention. In the New Zealand longitudinal study, Anderson, Williams, McGee, and Silva (1987) combined information from parents, teachers, and preadolescent children and established levels of caseness depending on the extent to which the sources agreed on either full diagnosis or individual symptoms. The strongest cases were those in which diagnosis was made independently by at least two sources; the weakest, by combining all information to reach diagnostic threshold. Cases identified by only one source with no corroboration were regarded as "situational" cases, as opposed to the stronger confirmed or pervasive cases. Using the same sample, McGee et al. (1990) collected data from the subjects and their parents in mid-adolescence, producing confirmed and unconfirmed diagnoses, depending on the agreement between the two sources. Offord and colleagues from the Ontario Child Health Study took a different route, using combined data to identify overall caseness, but separated cases by source of information when looking at correlates and risk factors. Both the Canadian and Puerto Rican studies used a combination of severity scales with cutoff points, assessment of impairment of general functioning, and structured interviews to identify cases (Offord et al., 1987; Bird et al., 1988, 1989). In the New York longitudinal study, a "best estimate" diagnosis was reached by pooling all information and setting stringent severity criteria (Velez, Johnson, & Cohen, 1989). More recently, Bird, Gould, and Staghezza (1992) reported a scheme for combining data according to who was likely to be the best informant for each symptom. Despite using complex statistical weightings to identify the optimal informant for symptoms and diagnoses, they concluded that counting symptoms as present if reported by any source gave similar results, and there was no clear advantage in using the complex systems (Bird et al., 1992). A similar exploration of ways to combine child and parent reports by Reich and Earls (1987) found that for anxiety disorders, the best strategy was to use the child's report to cover the major symptoms and use the parent's report to validate the disorder and to gain extra information on severity and dysfunction arising from the disorder.

Whatever methods are used to determine caseness, the discrepancies between informants need to be acknowledged and the ways of overcoming this potential conflict in identifying cases should be clearly spelled out in all studies using multiple sources of information. Failure to elucidate these points will create major difficulties in comparing results across studies as well as across time within longitudinal studies.

EMPIRICAL STUDIES OF ANXIETY DISORDERS

Early Studies

The estimates of the prevalence of both anxiety and phobic disorders in clinic and population samples varied with the age of the subjects, how the disorders were defined, and who reported the symptoms or disorders. In many studies, the term "emotional disorder"

was used to cover anxiety, phobias, and affective disorders (mainly depression). Likewise, the terms "neurotic disorder" and "anxious–withdrawal disorders" encompass anxious, phobic, and often depressive disorders in one group.

Quay and La Greca (1986) estimated that in clinical samples, 20–30% of cases are anxious–withdrawal disorders, and that in population samples, 2.5–5% of the children have "emotional" or "neurotic" disorders. In contrast, symptoms of fearfulness and anxiety/depression may be found in up to 43% of the population (LaPouse & Monk, 1959), but few of these symptoms are sufficiently severe or handicapping to be regarded as a "disorder." In the Isle of Wight general population study, Rutter et al. (1970) found that 2.5% of the sample had emotional disorders, of whom two thirds had anxiety disorders and the remaining one third were made up of depression and phobias. Graham (1979) reviewed the early epidemiological studies of emotional disorders, including anxiety and depression, and found similar prevalence rates, of 2.5–5% in population studies. Other prevalence studies, summarized by La Greca and Quay (1984), give a range of prevalences from 2.5% to 9%, with urban/rural and age differences in prevalence, increasing from rural to urban settings and with increasing age.

Recent Studies

The prevalence of all common disorders and the extent to which they coexist have been studied recently in several general population samples (for a review see Costello, 1989). While children have been used rarely as a source of information on their emotional and behavioral states, the recent studies are notable for their use of child-based information and multiple sources of data gathered on the child's mental health. These sources have included parent or teacher data (or both), child interviews, and either a dimensional system of classification employing measures of severity of psychopathology or a categorical system of diagnosis, usually DSM-III, to define caseness. The characteristics of the sample size, methods, and instruments used for these recent prevalence studies are given in Table 1.

Prevalence

The prevalence rates for any DSM-III disorder in these recent population studies are remarkably similar across studies, but the similarity is rather less for individual disorders. This difference is hardly surprising, given the variation in sample ages, instruments used, and the differing ways the data from multiple sources were integrated. The results of prevalence rates for all disorders are given in Table 1.

Anxious and phobic disorders as a group represent one of the most prevalent groups of disorder, occurring equally frequently with the major externalizing or behavior disorders attention-deficit hyperactivity disorder (ADHD), conduct disorder, and oppositional–defiant disorder, and more prevalent than the affective disorders (depression or dysthymia). As can be seen in Table 2, the rates for individual anxiety disorders are variable and range from 2.6% to 5.9% for overanxious disorder, 2.0% to 5.4% for separation anxiety, and 2.3% to 9.0% for the phobic disorders as a group.

Effect of Severity Criteria on Prevalence. When the prevalence rates for all disorders were restricted to confirmed diagnosis (as opposed to unconfirmed or from pooled data only), the prevalence of all disorders fell to 7.3%; for anxiety disorders, the rate fell from 12% for any anxiety or phobic disorder to 2.4% (Anderson et al., 1987).

Table 1. Epidemiological Studies in Nonclinical Samples

Study	Number	Ages	Method[a]	Instruments[a]	Prevalence (%) all disorders
Anderson et al. (1987)	792	11	All Int	C Int, P & T Qre	17.6
Bird et al. (1988)	777	4–6	Two-stage	C & P Int	18.0
Bowen et al. (1990)	1221	12–16	386 Int, all CL	C & P CL	NA
Costello et al. (1988b)	789	7–11	All Int	C & P Int	22.0
Kashani et al. (1987)	150	14–16	All Int	C & P Int	18.7
Kashani & Orvaschel (1990)	210	8, 12, 17	All Int	C & P Int	NA
McGee et al. (1990)	943	15	All Int	C Int, P CL	22.0
Offord et al. (1987)	2679	4–16	All CL	C, P, & T CL	18.1
Velez et al. (1989)	776	11–20	Two-stage, 116 Int	C & P Int, all CL	20.6

[a](CL) checklist; (Int) interview; (Qre) questionnaire; (C) child; (P) parent; (T) teacher.

Similarly, Kashani and Orvaschel (1988) found that in their adolescent sample, the prevalence of anxiety disorders fell from 17.3% to 8.7% when criteria of handicap or clinical dysfunction were added, and Bird et al. (1988), in their mixed-age (4–16 years) sample, reported that prevalence rates for separation anxiety dropped from 6.8% to 4.7% when functional impairment was used as a criterion (measured on a standardized instrument of global functioning). [Bird et al. (1988) did not diagnose overanxious disorder in their Puerto Rican sample.]

The other studies had severity or handicap criteria built into their diagnostic schemata and did not report rates at differing levels of severity or pervasiveness. Because the studies cited could identify disorders at varying levels of severity, they were able to follow up children with disorders to see whether severity or pervasiveness affected outcome, something that had not previously been possible (see the review by Bernstein and Borchardt, 1991).

Prevalence of Symptoms. The prevalence rates of the contributing symptoms of anxiety disorders are of interest, as many children in the community may have fears and

Table 2. Anxiety Disorders in Nonclinical Samples: Prevalence (%) and Sex Ratios (M:F)[a]

	Separation anxiety		Overanxious disorder		Simple phobia		Social phobia	
Study	Prev. (%)	(M:F)	Prev. (%)	(M:F)	Prev. (%)	(M:F)	Prev. (%)	(M:F)
Anderson et al. (1987)	3.5	(1:1.2)	2.9	(1:0.55)	2.4	(1:1.7)	1.0	(1.6)
Bird et al. (1988)	4.7	N	NA	—	2.6	NA	NA	—
Bowen et al. (1990)	2.4	(1:4)	3.6	(1:4)	NA	—	NA	—
Costello et al. (1988b)	4.1	(1:6)	4.6	(1:2.4)	9.2	(1:2.0)	1.0	(0:3)
Kashani et al. (1987)	0.7	G>B	7.3	G>B	4.7	G>B	NA	—
Kashani & Orvaschel (1990)	12.9	(1:4.4)	12.4	(1:1.6)	3.3	(1:6)	1.0	(1:1)
McGee et al. (1990)	2.0	(1:1.8)	5.9	(1:1.1)	3.6	(1:2.9)	1.1	(1:0.7)
Velez et al. (1989)	5.1	G>B	2.7	G>B	NA	—	NA	—

[a]Where the M:F ratio is not given: (N) no significant sex differences; (G>B) girls > boys.

anxieties that do not qualify as a diagnosed disorder (La Pouse & Monk, 1959). The symptom frequencies for overanxious disorder have been reviewed by Werry (1991), who drew the following conclusions: Somatic symptoms are noncontributory; adolescents report more symptoms than younger children; children most frequently worry about future events, whereas adolescents are most concerned about social issues; individual symptoms may occur in up to 36% of the population, making diagnostic threshold numbers of symptoms critical for prevalence rates. Further, in clinical samples, anxious patients have very high numbers of symptoms, and some problems (e.g., sleep problems) may be useful additions for adolescents (Werry, 1991). In the study by Bell-Dolan et al. (1990) of anxiety symptoms in normal children, concerns about competence were again the most common worry for both boys and girls, followed by excessive need for reassurance and, for girls, worry about past behavior, excessive self-consciousness, and somatic complaints. Overall, some 17 items were endorsed by over 10% of the children, with sex and age differences comparable to other studies, showing girls having more symptoms than boys and younger children having more separation anxiety symptoms compared to older children, who had more symptoms of overanxious disorder (Bell-Dolan et al., 1990).

Age and Sex Trends

In their study of a normal sample of 6 to 12-year-olds, LaPouse and Monk (1959) found that large numbers of fears and worries were more common in girls, in younger children, and in black children. Anxiety disorders become more common toward adolescence (Graham, 1979), and specific phobias change in prevalence and focus, with many younger children being afraid of the dark, of animals, of strangers, and of separation from parents. In adolescence, this pattern shifts to a lower prevalence of fears, which are focused on social and academic failure, sexuality, and agoraphobia (Marks, 1987).

In a review of age and sex trends among phobic and anxious Japanese 11- to 23-year-olds, Abe and Matsui (1981) found that phobic symptoms were more prevalent among girls, except for fear of speaking up in social situations, which was equally prevalent in boys and girls. Among anxiety symptoms, the only gender difference was an increase in frequency of micturition in boys; otherwise, there were no persistent sex differences. Symptoms of anxiety tended to reach a peak in adolescence earlier for girls than for boys, and fears of impending death and of going outdoors decreased with age. In contrast, Marks (1987) describes fear of blood or injury and of animals as the phobias most likely to persist into adult life. Among younger children, there have been few reported sex differences in anxious and fearful of behavior, although the rate of decline in fears and worries between 5 and 8 years was more marked in boys than in girls in the study by Werry and Quay (1971). While girls may be reported as more fearful than boys on a global scale, these differences are not significant until after age 10–11 years, when boys' loss of fear is more rapid, leaving more girls still fearful in early adolescence (Marks, 1987). Graham (1979) describes school phobia as having three peaks in incidence, namely, at school entry (5–6 years), change to high school (11–12 years), and near the end of compulsory schooling (14–15 years). Rutter et al. (1970) found that at age 10 years, situational phobias (mainly fear of the dark) were most common and equally distributed in girls and boys, while animal phobias were less common and found mainly in girls. Social phobias in young adults occur earlier than other phobic disorders, and some are likely to have persisted since early adolescence, with a male predominance of this disorder in young adult life (Liebowitz, Gorman, Fyer, & Klein, 1985). In the more recent general population studies, there is consensus that overanxious

disorder is more prevalent in adolescents and separation anxiety in preadolescent and younger children. Also, older children have more symptoms than younger children, and sex ratios differ by disorder and age, as shown in Table 2 (Anderson et al., 1987; Costello et al., 1988b; Kashani & Orvaschel, 1990; McGee et al., 1990; Strauss, Lease, Last, & Francis, 1988).

Comorbidity

High levels of comorbidity across all disorders are evident in the general population samples of children (Anderson et al., 1987; Bird et al., 1988; Costello et al., 1988b) and adolescents (Bowen, Offord, & Boyle, 1990; Kashani et al., 1987; McGee et al., 1990). Anderson et al. (1987) reported comorbidity both within the traditional internalizing and externalizing disorder groups and across these two broad-band categories. In their preadolescent sample, the most comorbid disorders were depression/dysthymia and ADHD. The anxious/phobic disorders group also showed considerable comorbidity with depression/dysthymia, ADHD, and conduct/oppositional disorders, as well as with individual disorders within the anxious/phobic group itself. The overlap between all disorders in this study is given in Table 3 (Anderson et al., 1987).

The extent of comorbidity is not new, having been evident in early studies (Rutter et al., 1970) for the broad "emotional" and "conduct" categories. It is also reported in the more recent studies in Puerto Rico (Bird et al., 1988), in which the conduct/oppositional disorders and affective disorders were the most overlapping, and in the smaller population study of Kashani and Orvashel (1988). McGee and colleagues [reporting on the same children as in the preadolescent sample of Anderson et al. (1987)] found that by 15 years of age, anxiety and depression were the most highly comorbid disorders, with less association between internalizing and externalizing groups in adolescence than there had been at age 11 years (McGee et al., 1990).

Comorbidity rates have also been described for clinical samples, particularly for depression and anxiety, for ADHD and anxiety, and the overlap between depression and anxiety in school refusers (see below). While the high rates of comorbidity in clinic samples

Table 3. Overlap (Number of Cases Overlapping) of All Disorders[a]

Disorder	OA	SA	Sim. phob.	Soc. phob.	ADD	CD	OPP	DEPR
OA	—							
SA	4	—						
Sim. phob.	4	8	—					
Soc. phob.	3	3	4	—				
ADD	8	8	5	2	—			
CD	3	6	3	2	13	—		
OPP	8	4	4	1	12	—	—	
DEPR	6	5	3	2	3	8	3	—
TOTAL	23	28	22	7	53	27	45	14
Single dis.	8	11	9	2	24	11	26	3
Comorbid	15	17	13	5	29	16	19	11

[a]From Anderson et al. (1987). (OA) overanxious disorder; (SA) separation anxiety; (Sim. phob.) simple phobia; (Soc. phob.) social phobia; (ADD) attention-deficit disorder (± hyperactivity); (CD) conduct disorder; (OPP) oppositional disorder; (DEPR) depression/dysthymia.

may reflect referral bias, in that the more severe disorders may also be more highly comorbid or comorbidity may increase the probability of referral, the rates in the general population studies are not insignificant, indicating levels of comorbidity of around 40% in preadolescent anxiety disorders and 35% in adolescent anxiety. The most common patterns are for comorbidity: (1) between anxiety disorders, (2) between anxiety and depression, (3) between anxiety and ADHD, and (4) between anxiety and conduct/oppositional disorders.

1. Comorbidity between Anxiety Disorders. Such comorbidity is described at high levels in both clinical (Last, Strauss, & Francis, 1987c) and population samples. This overlap is so great that in some studies the disorders are combined into a "one or more anxiety disorders" group, which greatly increases the reliability of the diagnoses, both in DSM-III (Werry, 1991) and in the ICD system (Gould, Shaffer, Rutter, & Sturge, 1988).

In clinical samples, up to 50% of children and adolescents with either separation anxiety or overanxious disorder have another concurrent anxiety disorder, and this is more likely with overanxious disorder than with separation anxiety (Last, Hersen, Kazdin, Finkelstein, & Strauss, 1987a).

In general population samples, comorbidity among anxiety disorders can be found for up to 36–39% of children with an anxiety disorder (Anderson et al., 1987; Kashani & Orvaschel, 1990), and in adolescence, 14% had two or more anxiety disorders (McGee et al., 1990; McGee, Feehan, & Williams, 1992a).

In the sample of 11-year-olds in the study by Anderson et al. (1987), multiple comorbidity with three or more concurrent diagnoses occurred in 14 children (representing approximately 2% of the sample, with 59 diagnoses among them). Of these children, 7 had multiple (two or more) anxious or phobic disorders, and these children also presented with conduct or oppositional disorder, ADHD, and depression/dysthymia. All the multiple-diagnosis group had conduct/oppositional disorder, and one or more anxiety or phobic disorders, with 10 also having ADHD and 10 having depression/dysthymia. Anxiety disorders in this group consisted of 7 overanxious, 8 separation anxiety, 7 simple phobia, and 3 social phobia cases. There was no clear pattern of association between conduct or oppositional disorders and individual anxiety disorders. This multiple comorbidity makes it difficult to interpret any analysis of associated features such as cognitive skills, learning problems, and family and social variables, as it is difficult to know which disorder is primarily associated, unless longitudinal analyses highlight one disorder as the more long-standing or more severe or "primary" diagnosis.

2. Comorbidity between Depressive Disorders and Anxiety Disorders. Comorbidity between these two groups of disorders is also reported in both clinical and population samples. Again, this comorbidity is most marked in clinical samples (Kovacs, Gatsonis, Paulaskas, & Richards, 1989), but is also found in preadolescent and adolescent general population samples, with an increase in comorbid anxiety and depression relative to anxiety and ADHD or anxiety and conduct/oppositional disorder in adolescence (Anderson et al., 1987; Kashani et al., 1987; McGee et al., 1990, 1992a,b). The rates of comorbidity between anxiety and depression vary between a high of 69% in adolescents (Kashani et al.,1987) and a low of 12% [in adolescents (McGee et al., 1990)] and 17% in preadolescents (Anderson et al., 1987).

Among clinic samples, the overlap of anxiety and depression has been most extensively studied in school refusers (Bernstein, 1991) and in a longitudinal study of depression (Kovacs et al., 1989). Bernstein and Garfinkel (1986) reported overlap of depression and

anxiety in 50% of school refusers, and in a larger sample, Bernstein (1991) found school-refusing children with comorbid anxiety and depression to have more severe disorders, to be older than anxious children but younger than those with pure depression, and to be more likely to be living with a single parent. School phobic children present with a variety of disorders, mainly separation anxiety and phobias (Hoshino et al., 1987; Last & Strauss, 1990) and depression in older children. The transition in age from predominantly anxiety disorders to depression, with comorbid anxiety and depression in the mid-age group, is also found in longitudinal studies of clinical (Kovacs et al., 1989) and general population samples (Anderson & McGee, in press) of depressed children, in whom comorbidity with anxiety was associated with prolonged depression in the clinical but not the population sample. Anderson and McGee (in press) found comorbid anxiety and depression in preadolescence to be highly comorbid with behavioral disorders (ADHD and conduct/oppositional disorder) as well, and the continuity of disorder in adolescence was greatest for the behavioral disorders, rather than for either the anxiety disorder or depression. As most of the early affective disorder was dysthymia rather than depression, the lack of continuity may well be due to the small numbers of depressive disorder in this sample. In adolescence, the increase in new cases of depression was associated with a drop in the proportion of comorbid cases because of the relative increase in pure cases of both anxiety and depression, while the total number of comorbid cases remained the same (Anderson & McGee, in press; McGee et al., 1990). In contrast to the findings in clinical samples, Anderson and McGee (in press) did not find an increase in severity for either the anxiety or depression in the comorbid cases, similar to the reported lack of increase in severity for all comorbid anxiety disorders in this sample (McGee et al., 1992b). Comorbid depression and conduct disorder, however, were found to be associated with increased severity of both disorders in this study, suggesting that the lack of severity for comorbid depression and anxiety was not just arising from less severe cases in a general population sample (Anderson & McGee, in press).

3. Comorbidity between Anxiety Disorders and ADHD. This combination of disorders is most likely to be found in younger children, given the decline in prevalence of ADHD in adolescence (McGee et al., 1990). For both clinical and nonclinical groups, the children with anxiety disorders will also have ADHD in approximately one quarter (Anderson et al., 1987) to one third of cases (Strauss et al., 1988). When children with ADHD are examined for anxiety disorders, again one quarter or more will have anxiety disorders. Children in this group of ADHD and anxiety have appeared in several studies to differ from either ADHD alone or anxiety alone in that they tend to be older (Pliszka, 1992), to have either higher (Livingston, Dykman, & Ackerman, 1990) or lower levels of impulsivity (Pliszka, 1992) than the ADHD group and to have different patterns of family history of ADHD and anxiety from the pure disorders (Biederman, Faraone, Keenan, Steingard, & Tsuang, 1991a). Anxious subjects also tend to have lower numbers of conduct symptoms, suggesting that anxiety modifies the impulsive component of ADHD and conduct disorder (see Biederman et al., 1991a; Biederman, Newcorn, & Sprich, 1991b). The association of anxiety disorders in childhood with ADHD has been found to follow family risk patterns suggestive of cosegregation, or transmission of the two disorders together, as the family risk for anxiety is increased if the child has ADHD and likewise the risk for ADHD in family members is increased for anxious children. If the child had comorbid anxiety and ADHD, the risk for anxiety in relatives was further increased, but not the risk for ADHD, suggesting that this comorbidity was not a severity effect (Biederman et al., 1991a).

4. Comorbidity between Anxiety Disorders and Conduct or Oppositional Disorder. While this combination is less often described, and aggression and anxiety have traditionally been regarded as negatively correlated with each other (Graham, 1979), there are children in both preadolescent studies and adolescent samples who display combined anxiety and conduct or oppositional behavior. In the preadolescent age group, Anderson et al. (1987) found that 19 children had one or more anxiety disorders combined with either conduct or oppositional disorder—more than those with anxiety disorders and ADHD and nearly twice as many as were in the anxiety–depression group. This high comorbidity for anxiety and conduct disorders was also reported by Bird et al. (1988) in the Puerto Rican study and in the Canadian (Ontario) study (Offord et al., 1987).

Clinic-based samples described by Walker et al. (1991) and Woolston et al. (1989) also show high comorbidity for anxiety and conduct/oppositional disorders, a finding similar to the association between affective and conduct disorder (Kovacs, Paulauskas, Garsonis, & Richards, 1988). Last, Strauss, and Francis (1987c) describe comorbidity with oppositional rather than conduct disorder in their clinical sample of overanxious and separation-anxious children, ranging from 14% to 27% of the anxious children, depending on which group they were in. Even at the preschool age, aggression is associated with anxiety problems, particularly for a group of children characterized by high levels of anxiety, aggression, and difficult temperament profiles (Wolfson, Fields, & Rose, 1987). These children may well be developmentally and temperamentally vulnerable to developing (or continuing to have) combined anxious and conduct disorders in later childhood. The stability of this comorbid pattern has not been well studied, but there are indications that children with multiple disorders in late childhood have a history of conduct and ADHD symptoms—and, to a lesser extent, anxious/fearful symptoms—for many years (Anderson et al., 1987). In contrast, children with "pure" anxiety disorders did not have elevated levels of anxious/fearful or aggressive/disruptive behavior in the 6 years prior to diagnosis.

In the sample of 177 clinic-referred boys in the study by Walker et al. (1991), approximately 40% of the boys with anxiety disorder had concurrent conduct disorder, and many had other disorders as well, including affective disorders, ADHD, and oppositional–defiant disorder. Comparison of the conduct-disordered and conduct-disordered/anxious boys suggested that the anxiety modified the extent of the conduct problems, lessening the numbers of police contacts, school suspensions, and peer nominations of meanness and fighting. This modifying influence was most marked for overanxious disorder in a "dose–response" manner, but not noted for separation anxiety. When a dimensional system was used, high scores for anxiety and aggression were found together in some children, as described by Kashani, Deuser, and Reid (1991). The authors explained this association as due to an increased level of arousal and readiness to fight as a defense in anxious children (Kashani et al., 1991).

The association of anxiety symptoms with depressive conduct and ADHD symptoms at a subthreshold level has also been noted in several studies. Williams et al. (1989) reported high levels of symptom associations in the New Zealand study at age 11, with correlations between symptom scores of 0.63 for anxiety and depression, 0.49 for anxiety and ADHD symptoms, and 0.35 for anxiety and conduct disorder/oppositional disorder symptoms, respectively, for self-reported child symptoms. Those moderately high correlations were less marked by age 15, with anxiety and depression score correlations dropping to 0.27 and 0.28 for boys and girls, respectively. Anxiety and conduct disorder/oppositional disorder correlations fell to 0.13 (boys) and 0.13 (girls), with only anxiety and ADHD correlations remaining close to the earlier levels, at 0.46 (boys) and 0.34 (girls). These levels of

correlation for symptom scores parallel the drop in comorbidity at the disorder level between ages 11 and 15 years (McGee et al., 1992a).

Similar correlations between symptom scores in studies using dimensional analyses make it likely that reported single disorders in the preadolescent age groups may be associated with subthreshold numbers of symptoms of other disorders. These associations need to be controlled for in attributing associated features as "causes" for a particular disorder when they may in fact be associated more strongly with the comorbid symptoms of other undiagnosed disorders, contaminating the association. The "cleanness" of disorders in adolescent samples is more acceptable, as there is less association with other disorders or symptoms in the majority of adolescent cases, as described by McGee et al. (1990).

The problems that arise from comorbidity in terms of diagnosis, attributing risk or casual status to correlated features, and clinical management are well described by Caron and Rutter (1991). Studies that do not clearly rule out comorbidity at the disorder or symptom level should be interpreted with caution.

Associated Features

The patterns of age and sex distribution in anxiety disorders have already been discussed. This section will look at other correlates of anxiety disorders, including cognitive, family, social, and temperament variables.

Examination of the correlates of all childhood disorders have shown that anxious children, although they are less severely affected than children with other disorders, still have measurable difficulties in cognitive and social function and may be less socioeconomically advantaged than children with no disorder (Anderson, Williams, McGee, & Silva, 1989; Bird, Gould, Yager, Staghezza, & Canino, 1989; Offord, Boyle, & Racine, 1989; Velez et al., 1989). However, Werry, Reeves, and Elkind (1987) found little to distinguish anxious children from children with other disorders apart from anxious children being less often male, having more anxious parents, and being less socially and cognitively impaired (unless they had comorbid conduct disorder or ADHD). When risk factors were examined for the New Zealand sample (Williams, Anderson, McGee, & Silva, 1990), the findings were similar,with the disorder/no disorder distinction holding for most cognitive, social, and family variables, but little distinction between disorders. The only exceptions were for male sex being associated with externalizing disorders compared to a predominance of girls for internalizing disorders, a past history of maternal depression associated with internalizing disorders, and low IQ and reading problems with externalizing disorders. Other risk factors such as parents marital status, socioeconomic status, family size, family mobility, early disadvantage, and cumulative disadvantage to age 11 distinguished the disorder group from the no disorder group, but did not separate types of disorders. As the highly comorbid depressive disorders were almost exclusively found in the "multiple disorders" group, the internalizing disorders represented anxiety disorders and phobias in this study (Williams et al., 1990). Further examination of some cognitive and social measures showed that children with anxiety/depression were significantly more likely to have low self-esteem, poorer social skills, and preponderance of girls compared to the externalizing disorders, but were less disabled on all other measures (Anderson et al., 1989). In adolescence, the increase in disorder among girls led to a higher number of girls than boys for all disorders except social phobia, attention deficit (ADHD), and aggressive conduct disorder. The association of disorder with decreased social competence was most marked for adolescents with multiple or externalizing disorders (ADHD, conduct/

oppositional disorders), whereas the anxiety and depressive disorders (individually or in combination) were not associated with poorer social competence, compared to the no disorder group (McGee et al., 1990). Poorer social functioning was associated with anxiety disorders on teacher but not parent report in the Pittsburgh study (Benjamin, Costello, & Warren, 1990). Family studies suggest a familial link between anxious parents and anxiety disorders in children (Weissman, 1988; Last, Hersen, Kazdin, Francis, & Grubb, 1987b; Bernstein, Svingen, & Garfinkel, 1990). Children in the group described as behaviorally inhibited (a term used to describe the tendency to withdraw and to show excessive autonomic arousal in new situations) have shown high rates of anxiety disorders, particularly when this temperament style is stable and when the children's parents also either have anxiety disorders (especially multiple anxiety disorders) or have had them in the past (Biederman et al., 1990; Hirschfeld et al., 1992; Rosenbaum et al., 1992). Parental anxiety (Last et al., 1987b) and depression (Orvaschel, Walsh-Allis, & Ye, 1988) have also been linked to higher rates of children's anxiety disorders, as well as to affective disorders and ADHD.

Breslau, Davis, and Prabucki (1987) found, in contrast, that children of mothers with generalized anxiety disorder were not at increased risk for anxiety disorders in childhood, but that children of mothers with major depression were at risk for overanxious disorder if younger or depression if older. Reeves, Werry, Elkind, and Zametkin (1987) found that maternal anxiety was significantly associated with childhood anxiety disorders but not externalizing disorders, in one of the few studies to compare children with a range of disorders.

However, as the rates of comorbidity with other disorders are not given in many of these studies, it is not clear whether the association with parental anxiety is significant only for anxiety disorders in children or may also be significant for other comorbid disorders, in a similar manner to maternal depression,which is associated with both behavioral and emotional disorders (Rutter, 1989). Biederman et al. (1991a) found that higher rates of childhood anxiety were associated with a family history of ADHD, and a family history of anxiety predicted childhood ADHD, as already discussed. Further studies of "pure" and comorbid disorders in family pedigrees are needed to clarify the extent and direction of the risk conveyed by having parents who are disordered emotionally or behaviorally or both. Furthermore, parental anxiety may protect from other disruptive disorders or may convey modifying levels of anxiety on children otherwise at risk for ADHD and conduct or oppositional disorders.

Stability of Anxiety Disorders

Follow-up and follow-back studies in general population samples have shown that around 40% of children with disorder still have some disorder when seen up to 4 years later (Anderson et al., unpublished data; Esser et al., 1990; McGee et al., 1992b; Offord et al., 1992; Verhulst et al., 1990; Verhulst & van der Ende, 1992). While most of these studies followed samples from late childhood to early or mid-adolescence, Anderson et al. (1987) followed back diagnosed disorder groups at 11, using data collected at earlier ages, from 5 years onward.

The results for all studies are similar, with conduct/oppositional disorders being the most stable and anxiety disorders (either as anxiety or as part of a wider "emotional" category) the least like to persist. Recovery rates for internalizing disorders in these studies

range from 60% to 75%, and anxiety disorders have higher rates of recovery than depressive disorders, particularly for younger children (Verhulst et al., 1990; Offord et al., 1992). Likewise, children with more than one disorder are more likely to still have disorder at follow-up, though this may well be for externalizing disorders rather than internalizing (Anderson & McGee, in press; McGee et al., 1992b; Offord et al., 1992).

Some differences in persistence of disorder were found between boys and girls (McGee et al., 1992b), with externalizing disorders being the most stable for boys and internalizing for girls. While up to 40% of children persisted with disorder, it was not necessarily the same disorder on follow-up. McGee et al. (1992b) reported that internalizing disorders in boys at 11 years were strongly associated with externalizing disorders at 15 years. However, this may well be related to comorbidity with the externalizing disorder, either as a disorder or as symptoms, as found for depression by Anderson and McGee (in press). Offord et al. (1992) reported that emotional disorders were stable for 30% between ages 4 and 12 years and 8 and 16 years, but were equally predicted at the later age by early emotional, conduct, or hyperactivity disorders. Those emotional disorders preceded by externalizing disorders were almost always comorbid with the externalizing disorder at the later age. In the 6-year follow-up by Verhulst and van der Ende (1992), there was less difference in stability for internalizing and externalizing disorders, with around 33% of each group still having disorder. There are problems in determining whether these results from follow-up studies represent continuous disorder or recurrent episodes of unknown length, from the data collected in a series of cross-sectional waves. Although children of parents with affective disorders were described as having chronic anxiety disorders (Keller, Lavori, Wunder, Beardslee, Schwartz, & Roth, 1992), recall of anxiety problems over 2 years has been described as low for both mothers and children (Fendrich, Weissman, & Warner, 1991), in contrast to good recall of affective disorders in the same sample. Further studies using more frequent or continuous data-collection methods are required to clarify continuity and escape from disorder, particularly for episodic disorders. There is little evidence whether anxiety disorders continue into adult life or, if they do, whether they have symptoms or patterns of occurrence similar to those of the anxiety disorders of childhood and adolescence (Rutter, 1984).

DISORDERS NOT REPORTED IN COMMUNITY STUDIES

Three anxiety disorders are not commonly reported in community studies, and these will be described in this section. They are avoidant disorder, obsessive–compulsive disorder, and posttraumatic stress disorder.

Avoidant disorder is a problem of extreme shyness, which was described only in the study of Costello et al. (1988b), in which 1.6% of the sample had this disorder. It is more commonly found in clinic samples of anxious and school-refusing children (Hoshino et al.,1987; Last et al., 1987c), in whom it is comorbid with other anxiety disorders.

Obsessive–compulsive disorder is a rare, serious disorder that shows considerable stability and continuity into adult life. Epidemiological studies of this disorder by Flament, Whitaker, Rapoport, Davies, Berg, Kalikow, Sceery, and Shaffer (1988) and reviews by Rapoport (1986) have found the prevalence to vary between 0.2% and 1%. Lifetime prevalence is estimated at 1.9% (Flament et al., 1988), and it is more prevalent in boys than in girls, with a younger age of onset for males than for females (Rapoport, 1986), although

these findings are not consistent (Toro, Cervera, Osejo, & Salamero, 1992). Comorbidity is described with depression, anxiety disorders, and Tourette's syndrome in some cases, but the disorder arises mostly in children with no previous psychopathology who often have a family history of this disorder (Toro et al., 1992). Onset may follow stress, either personal or family conflict, and the disorder is stable for up to 80% of cases after 2 years (Berg et al., 1989) and 70% up to 7 years later (Flament et al., 1990), when other anxiety disorders and depression were also common. Social withdrawal and poor school performance may be associated with obsessive–compulsive disorder, as are other anxiety and affective disorders as concurrent disorders (Toro et al., 1992).

Posttraumatic stress disorder (PTSD) arises following stress of great severity, not usually experienced by most people. It is a relatively recent disorder, as described by Gersons and Carlier (1992). Unfortunately, children may be exposed to extreme stress in natural disasters (McFarlane, 1987), wars, mass shooting incidents (Schwarz & Kowalski, 1991), and severe family violence, including child abuse (Kashani, Daniel, Dandoy, & Holcomb, 1992). The reaction of children to stress has been described by Terr (1991), who describes two types of reaction, depending on whether the trauma is acute or chronic and repetitive. In acute trauma, children experience full and detailed memories, and misperceptions and see prior events as omens, while chronic trauma is more likely to be associated with denial, dissociation, and anger (Terr, 1991). While PTSD is a relatively recent concept, it has been useful in conceptualizing changes in children's states following stressful events. Of these, child abuse may well be the most common and most prolonged stressor. Child sexual abuse (CSA) occurring before age 16 years was reported by approximately 32% of women in a random population sample (Anderson et al., 1993) and about half that number of boys have ben reported as sexually abused in other surveys (Baker & Duncan, 1985; Leventhal, 1990). Approximately 50% of children experiencing CSA or physical abuse or both may meet criteria for PTSD (Kiser, Heston, Millsap, & Pruitt, 1991; McLeer et al., 1988) and although many victims of CSA do not describe either short- or long-term effects of any severity, the mental health of adult women who were CSA victims is poorer than that of nonvictims, with predominantly anxiety and depressive disorders (Bifulco, Brown, & Adler, 1991; Fromuth, 1986). This relationship between CSA and adult disorder holds even when the less supportive and more physically and emotionally abusive backgrounds of many CSA victims are taken into account (Mullen et al., 1993). It is not surprising that severe child abuse would cause the same reactions as other types of trauma and have recognizable PTSD or anxiety symptoms in victims (Kiser et al., 1991; McLeer, Deblinger, Henry, & Orvaschel, 1992). Those victims at highest risk for PTSD are those whose abuser was a close family member (e.g., father) or trusted adult, and the time since the last abusive episode did not influence the presence of PTSD (McLeer et al., 1992). The children studied have all been known victims at the outset, making them a special subset of sexually abused children. Anderson and colleagues found that only 7% of CSA victims had reported the abuse to either police or social services, and only 37% told anyone within a year of the abuse. A further 28% of the abused women had not disclosed to anyone before the research project, and disclosure was not related to severity of chronicity of the abuse. Retrospective accounts of the effects of CSA on the subjects as children indicated that fear of the perpetrator and shame and fear of not being believed or being punished were the major responses, but specific PTSD symptoms were not sought because of the time lapse and recall problems inherent in the study (Anderson et al., 1993). It is difficult to extrapolate findings from small numbers of reported CSA cases to the large groups of victims of all forms of child abuse known to be in the community.

SUMMARY

The anxiety disorders of childhood and adolescence are common, moderately disabling, and frequently comorbid with other disorders. They exhibit less stability than behavioral disorders or affective disorders, but have not been well studied in long-term longitudinal samples to examine continuity into adult life, with the exception of the rare obsessive–compulsive disorder. Further studies of comorbidity, family patterns, and outcome are needed. This chapter has outlined some of the methodological problems besetting all epidemiological studies and the solutions to some of these problems in more recent studies of all disorders, including anxiety disorders. Of these problems, the separation of normal from pathological states and the use of conflicting information from different sources remain the most difficult, and these areas require further study, to enable useful and valid information from epidemiological studies to be translated to clinical settings.

REFERENCES

Abe, K., & Matsui, T. (1981). Age–sex trends of phobic and anxiety symptoms in adolescents. *British Journal of Psychiatry, 138*, 297–302.

Achenbach, T. M., & Edelbrock, C. S. (1978). The classification of child psychopathology: A review and analysis of empirical efforts. *Psychological Bulletin, 85*, 1275–1301.

Achenbach, T. M., & Edelbrock, C. S. (1983). *Manual for the child behavior checklist and revised child behavior profile*. Burlington, VT: University of Vermont.

Achenbach, T. M., & Edelbrock, C. S. (1986). *Manual for the teacher report form and teacher version of the child behavior profile*. Burlington, VT: University of Vermont.

Achenbach, T. M., & Edelbrock, C. S.(1987). *Manual for the youth self-report and profile*. Burlington, VT: University of Vermont.

Achenbach, T. M., Conners, C. K., Quay, H. C., Verhulst, F. C., & Howell, C. T. (1989). Replication of empirically derived syndromes as a basis for taxonomy of child/adolescent psychopathology. *Journal of Abnormal Child Psychology, 17*, 299–323.

Achenbach, T. M., McConaughy, S. H., & Howell, C. T. (1987). Child/adolescent behavioral and emotional problems: Implications of cross-informant correlations for situational specificity. *Psychological Bulletin, 101*, 213–232.

American Psychiatric Association (1980). *Diagnostic and statistical manual of mental disorders*, 3rd ed. Washington, DC: Author.

American Psychiatric Association (1987). *Diagnostic and statistical manual of mental disorders*, 3rd ed., revised. Washington, DC: Author.

Anderson, J., & McGee, R. (in press). Comorbidity of depressive disorders in childhood and adolescence. In W. Reynolds & H. Johnson (Ed.), *Handbook of depression in children and adolescents*. New York: Plenum Press.

Anderson, J. C., Martin, J. L., Mullen, P. E., Romans, S.E., & Herbison, G. P. (1993). The prevalence of childhood sexual abuse experiences in a community sample of women. *Journal of the American Academy of Child and Adolescent Psychiatry, 32*, 911–919.

Anderson, J. C., Williams, S. M., McGee, R., & Silva, P. (1987). DSM-III disorders in pre-adolescent children: Prevalence in a large sample from the general population. *Archives of General Psychiatry, 44*, 69–76.

Anderson, J. C., Williams, S. M., McGee, R., & Silva, P. (1989). Cognitive and social correlates of DSM-III disorders in pre-adolescent children. *Journal of the American Academy of Child and Adolescent Psychiatry, 28*, 842–846.

Baker, A. W., & Duncan, S. P. (1985). Child sexual abuse: A study of prevalence in Great Britain. *Child Abuse and Neglect, 9*, 457–467.

Beck, S., Collins, L., Overholser, J., & Terry, K. (1984). A comparison of children who receive and who do not receive permission to participate in research. *Journal of Abnormal Child Psychology, 12*, 573–580.

Bell-Dolan, D. J., Last, C. G., & Strauss, C. C. (1990). Symptoms of anxiety disorders in normal children. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 759–765.

Benjamin, R. S., Costello, E. J., & Warren, M. (1990). Anxiety disorders in a pediatric sample. *Journal of Anxiety Disorders, 4*, 293–316.

Berg, C. Z., Rapoport, J. L., Whitaker, A., Davies, M., Leonard, H., Swedo, S. E., Braiman, S., & Lenane, M. (1989). Childhood obsessive compulsive disorder: A two-year prospective follow-up of a community sample. *Journal of the American Academy of Child and Adolescent Psychiatry, 28*, 528–533.

Bernstein, G. A. (1991). Comorbidity and severity of anxiety and depressive disorders in a clinic sample. *Journal of the American Academy of Child and Adolescent Psychiatry, 30*, 43–50.

Bernstein, G. A., & Borchardt, C. M. (1991). Anxiety disorders of childhood and adolescence: A critical review. *Journal of the American Academy of Child and Adolescent Psychiatry, 30*, 519–532.

Bernstein, G. A., & Garfinkel, B. D. (1986). School phobia: The overlap of affective and anxiety disorders. *Journal of the American Academy of Child and Adolescent Psychiatry, 25*, 235–241.

Bernstein, G. A., Svingen, P. H., & Garfinkel, B.D. (1990). School phobia: Patterns of family functioning. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 24–30.

Biederman, J., Faraone, S. V., Keenan, K., Steingard, R., & Tsuang, M. T. (1991a). Familial association between attention deficit disorder and anxiety disorders. *American Journal of Psychiatry, 148*, 251–256.

Biederman, J., Newcorn, J., & Sprich, S. (1991b). Comorbidity of attention deficit hyperactivity disorder with conduct, depressive, anxiety, and other disorders. *American Journal of Psychiatry, 148*, 564–577.

Biederman, J., Rosenbaum, J. F., Hirschfeld, D. R., Faraone, S. V., Bolduc, E. A., Gersten, M., Meminger, S. R., Kagan, J., Snidman, N., & Reznick, J. S. (1990). Psychiatric correlates of behavioral inhibition in young children of parents with and without psychiatric disorder. *Archives of General Psychiatry, 47*, 21–26.

Bifulco, A., Brown, G. W., & Adler, A. (1991). Early sexual abuse and clinical depression in adult life. *British Journal of Psychiatry, 159*, 115–122.

Bird, H., Canino, G., Rubio-Stipec, M., Gould, M. S., Ribera, J., Sesman, M., Woodbury, M., Huertas-Goldman, S., Pagan, A., Sanchez-Lacay, A., & Moscoso, M. (1988). Estimates of the prevalence of childhood maladjustment in a community survey in Puerto Rico: The use of combined measures. *Archives of General Psychiatry, 45*, 1120–1126.

Bird, H. R., Gould, M. S., & Staghezza, B. (1992). Aggregating data from multiple informants in child psychiatry epidemiological research. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 78–85.

Bird, H. R., Gould, G., Yager, T., Staghezza, B., & Canino, G. (1989). Risk factors for maladjustment in Puerto Rican children. *Journal of the American Academy of Child and Adolescent Psychiatry, 28*, 847–850.

Bowen, R. C., Offord, D. R., & Boyle, M. H. (1990). The prevalence of overanxious disorder and separation anxiety disorder: Results from the Ontario Child Health Study. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 753–758.

Boyle, M. H., Offord, D. R., Hofmann, H. G., Catlin, G. P., Byles, J. A., Cadman, D. T., Crawford, J. W., Links, P. S., Rae-Grant, N. I., & Szatmari, P. (1987). Ontario child health study. I. Methodology. *Archives of General Psychiatry, 44*, 826–831.

Boyle, M. H., Offord, D. R., Racine, Y. A., & Catlin, G. (1991). Ontario child health study follow-up: Evaluation of sample loss. *Journal of the American Academy of Child and Adolescent Psychiatry, 30*, 449–456.

Breslau, N., Davis, G. C., & Prabucki, K. (1987). Searching for evidence on the validity of generalised anxiety disorder: Psychopathology in children of anxious mothers. *Psychiatric Research, 20*, 285–297.

Caron, C., & Rutter, M. (1991). Comorbidity in child psychopathology: Concepts, issues, and research strategies. *Journal of Child Psychology and Psychiatry, 32*, 1063–1080.

Costello, E. J. (1989). Developments in child psychiatric epidemiology. *Journal of the American Academy of Child and Adolescent Psychiatry, 28*, 836–841.

Costello, E. J., & Shugart, M. A. (1992). Above and below the threshold: Severity of psychiatric symptoms and functional impairment in a pediatric sample. *Pediatrics, 90*, 359–368.

Costello, E. J., Burns, B. J., Costello, A. J., Edelbrock, C., Dulcan, M., & Brent, D. (1988a). Service utilization and psychiatric diagnosis in pediatric primary care: The role of the gatekeeper. *Pediatrics, 82*, 435–441.

Costello, E. J., Costello, A. J., Edelbrock, C. S., Burns, B. J., Dulcan, M. J., Brent, D., & Janiszewski, S. (1988b). DSM-III disorders in pediatric primary care: Prevalence and risk factors. *Archives of General Psychiatry, 45*, 1107–1116.

Cox, A., Rutter, M., Yule, B., & Quinton, D. (1977). Bias arising from missing information: Some epidemiological findings. *British Journal of Preventive Social Medicine, 31*, 131–136.

Dulcan, M. K., Costello, E. J., Costello, A. J., Edelbrock, C., Brent, D., & Janiszewski, S. (1990). The pediatrician as gatekeeper to mental health care for children: Do parents' concerns open the gate? *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 453–458.

Edelbrock, C., Costello, A. J., Dulcan, M. K., Conover, M. C., & Kalas, R. (1986). Parent–child agreement on child psychiatric symptoms assessed via structured interviews. *Journal of Child Psychology and Psychiatry, 27*, 181–190.

Edelbrock, C., Costello, A. J., Dulcan, M. K., Kalas, R., & Conover, M. C. (1985). Age differences in the reliability of the psychiatric interview of the child. *Child Development, 56*, 265–275.

Esser, G., Schmidt, M. H., & Woerner, W. (1990). Epidemiology and course of psychiatric disorders in school-age children—results of a longitudinal study. *Journal of Child Psychology and Psychiatry, 31*, 243–263.

Fendrich, M., Weissman, M. M., & Warner, V. (1991). Longitudinal assessment of major depression and anxiety disorders in children. *Journal of the American Academy of Child and Adolescent Psychiatry, 30*, 38–42.

Flament, M. F., Koby, K., Rapoport, J. L., Berg, C. J., Zahn, T., Cox, C., Denckla, M., & Lenane, M. (1990). Childhood obsessive–compulsive disorder: A prospective follow-up study. *Journal of Child Psychology and Psychiatry, 31*, 363–380.

Flament, M. F., Whitaker, A., Rapoport, J. L., Davies, M., Berg, C. Z., Kalikow, D., Sceery, W., & Shaffer, D. (1988). Obsessive compulsive disorder in adolescence: An epidemiological study. *Journal of the American Academy of Child and Adolescent Psychiatry, 27*, 764–771.

Fromuth, M. E. (1986). The relationship of childhood sexual abuse with later psychological and sexual adjustment in a sample of college women. *Child Abuse and Neglect, 10*, 5–15.

Garralda, M. E., & Bailey, D. (1986). Children with psychiatric disorders in primary care. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 27*, 611–624.

Gersons, B. P. R., & Carlier, I. V. E. (1992). Post-traumatic stress disorder: The history of a recent concept. *British Journal of Psychiatry, 161*, 742–748.

Goldberg, I. D., Roghmann, K. J., McInerny, T. K., & Burke, J. D. (1984). Mental health problems among children seen in pediatric practice: Prevalence and management. *Pediatrics, 73*, 278–293.

Gould, M., Shaffer, D., Rutter, M., & Sturge, C. (1988). UK/WHO study of ICD 9. In M. Rutter & I. Lann (Eds.). *Assessment and diagnosis in child psychopathology* (pp. 37–65). London: Guilford Press.

Graham, P. (1979). Epidemiological studies. In H. C. Quay and J. S. Werry (Eds.), *Psychopathological disorders of childhood*, 2nd ed. (pp. 185–209). New York: John Wiley.

Herjanic, B., Herjanic, M., Brown, F., & Wheatt, T. (1975). Are children reliable reporters? *Journal of Abnormal Child Psychology, 3*, 41–48.

Hirschfeld, D. R., Rosenbaum, J. F., Biederman, J., Bolduc, E. A., Faraone, S. V., Snidman, N., Reznick, J. S., & Kagan, J. (1992). Stable behavioural inhibition and its relationship with anxiety disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 103–111.

Hoshino, Y., Nikkuni, S., Kaneko, M., Endo, M., Yashima, Y., & Kumashiro, H. (1987). The application of DSM-III diagnostic criteria to school refusal. *Japanese Journal of Psychology and Neurology, 41*, 1–7.

Kashani, J. H., & Orvaschel, H. (1988). Anxiety disorders in mid-adolescence: A community sample. *American Journal of Psychiatry, 145*, 960–964.

Kashani, J. H., & Orvaschel, H. (1990). A community study of anxiety in children and adolescents. *American Journal of Psychiatry, 147*, 313–318.

Kashani, J. H., Beck, N. C., Hoeper, E. W., Fallahi, C., Corcoran, C. M., McAllister, J. A., Rosenberg, T. K., & Reid, J. C. (1987). Psychiatric disorders in a community sample of adolescents. *American Journal of Psychiatry, 144*, 584–589.

Kashani, J. H., Daniel, A. E., Dandoy, A. C., & Holcomb, W.R. (1992). Family violence: Impact on children. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 181–189.

Kashani, J. H., Deuser, W., & Reid, J. C. (1991). Aggression and anxiety: A new look at an old notion. *Journal of the American Academy of Child and Adolescent Psychiatry, 30*, 218–223.

Keller, M. B., Lavori, P. W., Wunder, J., Beardslee, W. R., Schwartz, C. E., & Roth, J. (1992). Chronic course of anxiety disorders in children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 595–599.

Kiser, L. J., Heston, J., Millsap, P. A., & Pruitt, D.B. (1991). Physical and sexual abuse in childhood: Relationship with post-traumatic stress disorder. *Journal of the Academy of Child and Adolescent Psychiatry, 30*, 776–783.

Kovacs, M., Gatsonis, C., Paulaskas, S. L., & Richards, C. (1989). Depressive disorders in childhood. IV. A longitudinal study of comorbidity with and risk for anxiety disorders. *Archives of General Psychiatry, 46*, 776–782.

Kovacs, M., Paulauskas, S.,Gatsonis, C., & Richards, C. (1988). Depressive disorders in childhood. III. A longitudinal study of comorbidity with and risk for conduct disorders. *Journal of Affective Disorders, 15*, 205–217.

La Greca, A. M., & Quay, H. C. (1984). Behavior disorders of children. In N. S. Endler & J. McV. Hunt (Eds.), *Personality and the behavior disorders*, 2nd ed. New York: John Wiley.

Lahey, B. B., Loeber, R., Stouthamer-Loeber, M., Christ, M., Green, S., Russo, M. F., Frick, P. J., & Dulcan, M. (1990). Comparison of DSM-III and DSM-III-R diagnoses for prepubertal children: Changes in prevalence and validity. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 620–626.

LaPouse, R., & Monk, M. (1959). Fears and worries in a representative sample of children. *American Journal of Orthopsychiatry, 29*, 803–818.

Last, C. G., & Strauss, C. C. (1990). School refusal in anxiety-disordered children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 31–35.

Last, C. G., Hersen, M., Kazdin, A. E., Finkelstein, R., & Strauss, C. C. (1987a). Comparison of DSM-III separation anxiety and overanxious disorders: Demographic characteristics and patterns of comorbidity. *Journal of the American Academy of Child and Adolescent Psychiatry, 26*, 527–531.

Last, C. G., Hersen, M., Kazdin, A. E., Francis, G., & Grubb, H. J. (1987b). Psychiatric illness in the mothers of anxious children. *American Journal of Psychiatry, 144*, 1580–1583.

Last, C. G., Strauss, C. C., & Francis, G. (1987c). Comorbidity among childhood anxiety disorders. *Journal of Nervous and Mental Disorders, 173*, 726–730.

Leventhal, J. M. (1990). Epidemiology of child sexual abuse. In R. K. Oates (Ed.), *Understanding and managing child sexual abuse* (pp. 18–41). Sydney: Harcourt Brace Jovanovich.

Liebowitz, M. R., Gorman, J. M., Fyer, A. J., & Klein, D. G. (1985). Social phobia: Review of a neglected anxiety disorder. *Archives of General Psychiatry, 42*, 729–736.

Livingston, R. L., Dykman, R. A., & Ackerman, P. T. (1990). The frequency and significance of additional self reported psychiatric diagnoses in children with attention deficit disorder. *Journal of Abnormal Child Psychology, 18*, 465–478.

Marks, I. (1987). The development of normal fear: A review. *Journal of Child Psychology and Psychiatry, 28*, 680–697.

McFarlane, A. C. (1987). Posttraumatic phenomena in a longitudinal study of children following a natural disaster. *Journal of the American Academy of Child and Adolescent Psychiatry, 26*, 764–769.

McGee, R., Feehan, M., & Williams, S. (1992a). Comorbidity of anxiety disorders in childhood and adolescence. In G. D. Burrows, Sir M. Roth & R. Noyes (Eds.), *Handbook of anxiety* (pp. 353–364). Amsterdam: Elsevier.

McGee, R., Feehan, M., Williams, S., & Anderson, J. (1992b). DSM-III disorders from age 11 to age 15 years. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 50–59.

McGee, R., Feehan, M., Williams, S., Partridge, F., Silva, P., & Kelly, J. (1990). DSM-III disorders in a large sample of adolescents. *Journal of the American Academy of Child and Adolescent Psychology, 29*, 611–619.

McLeer, S. V., Deblinger, E., Atkins, M. S., Foa, E. B., & Ralphe, D. L. (1988). Post-traumatic stress disorder in sexually abused children. *Journal of the American Academy of Child and Adolescent Psychiatry, 27*, 650–654.

McLeer, S. V., Deblinger, E., Henry, D., & Orvaschel, H. (1992). Sexually abused children at high risk for post-traumatic stress disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 875–879.

Mullen, P. E., Martin, J. L., Anderson, J. C., Romans, S. E., & Herbison, G. P. (1993). Child sexual abuse and mental health in adult life. *British Journal of Psychiatry, 163*, 721–732.

Offord, D. R., Boyle, M. H., & Racine, Y. (1989). Ontario Child Health Study: Correlates of disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 28*, 856–860.

Offord, D. R., Boyle, M. H., Racine, Y. A., Fleming, J. E., Cadman, D. T., Monroe-Blum, H., Byrne, C., Links, P. S., Lipman, E. L., Macmillan, H. L., Rae-Grant, N. I., Sanford, M. N., Szatmari, P., Thomas, H., & Woodward, C. A. (1992). Outcome, prognosis and risk in a longitudinal follow-up study. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 916–923.

Offord, D. R., Boyle, M. H., Szatmari, P., Rae-Grant, N. I., Links, P. S., Cadman, D. T., Byles, J. A., Crawford, J. W., Monroe Blum, H., Byrne, C., Thomas, H., & Woodward, C. (1987). Ontario Child Health Study. II. Six month prevalence of disorder and rates of service utilization. *Archives of General Psychiatry, 44*, 832–836.

Orvaschel, H., Walsh-Allis, G., & Ye, W. (1988). Psychopathology in children of parents with recurrent depression. *Journal of Abnormal Child Psychology, 16*, 17–28.

Pliszka, S. R. (1992). Comorbidity of attention-deficit hyperactivity disorder and overanxious disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 197–203.

Quay, H. C., & La Greca, A. M. (1986). Disorders of anxiety withdrawal and dysphoria. In H. C. Quay & J. S. Werry (Eds.). *Psychopathological disorders of childhood*, 3rd ed. (pp. 232–293). New York: John Wiley.

Rapoport, J. L. (1986). Annotation: Childhood obsessive compulsive disorder. *Journal of Child Psychology and Psychiatry, 27*, 289–295.

Reeves, J., Werry, J. S., Elkind, G., & Zametkin, A. (1987). Attention deficit, conduct, oppositional and anxiety disorders in children. II. Clinical characteristics. *Journal of the American Academy of Child and Adolescent Psychiatry, 6*, 144–145.

Reich, W., & Earls, F. (1987). Rules for making psychiatric diagnoses in children on the basis of multiple sources of information: Preliminary strategies. *Journal of Abnormal Child Psychology, 15*, 601–616.

Rosenbaum, J. F., Biederman, J., Bolduc, E. A., Hirschfeld, D. R., Faraone, S. V., & Kagan, J. (1992). Comorbidity of parental anxiety disorders as risk for childhood-onset anxiety in inhibited children. *American Journal of Psychiatry, 149*, 475–481.

Rutter, M. (1984). Psychopathology and development. 1. Childhood antecedents of adult psychiatric disorder. *Australian and New Zealand Journal of Psychiatry, 18*, 225–234.

Rutter, M. (1989). Isle of Wight revisited: Twenty-five years of child psychiatric epidemiology. *Journal of the American Academy of Child and Adolescent Psychiatry, 28*, 633–653.

Rutter, M., Tizard, J., & Whitmore, K. (1970). *Education, health and behaviour*. London: Longmore.

Schwarz, E. D., & Kowalski, J. M. (1991). Malignant memories: PTSD in children and adults after a school shooting. *Journal of the American Academy of Child and Adolescent Psychiatry, 30*, 936–944.

Strauss, C. C., Lease, C. A., Last, C. G., & Francis, G. (1988). Overanxious disorder: An examination of developmental differences. *Journal of Abnormal Child Psychology, 16*, 433–443.

Terr, L. C. (1991). Childhood traumas: An outline and overview. *American Journal of Psychiatry, 148*, 10–20.

Toro, J., Cervera, M., Osejo, E., & Salamero, M. (1992). Obsessive–compulsive disorder in childhood and adolescence: A clinical study. *Journal of Child Psychology and Psychiatry, 33*, 1025–1037.

Velez, C. M., Johnson, J., & Cohen, P. A. (1989). A longitudinal analysis of selected risk factors for childhood psychopathology. *Journal of the American Academy of Child and Adolescent Psychiatry, 28*, 861–864.

Verhulst, F. C., & van der Ende, J. (1992). Six year developmental course of internalizing and externalizing problem behaviours. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 924–931.

Verhulst, F. C., Berden, G. F. M. G., & Sanders-Woudrstra, J. A. R. (1985). Mental health in Dutch children. II. The prevalence of psychiatric disorder and relationship between measures. *Acta Psychiatrica Scandinavica, 324*, 1–47.

Verhulst, F. C., Koot, H. M., & Berden, G. F. M. G. (1990). Four-year follow-up of an epidemiological sample. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 440–448.

Walker, J. L., Lahey, B. B., Russo, M. F., Frick, P. J., Christ, M., McBurnett, K., Loeber, R., Stouthamer, M., & Green, S. M.(1991). Anxiety, inhibition, and conduct disorder in children. I. Relations to social impairment. *Journal of the American Academy of Child and Adolescent Psychiatry, 30*, 187–191.

Weissman, M. M. (1988). The epidemiology of anxiety disorders: Rates, risks and familial patterns. *Journal of Psychiatric Research, 22*, 99–114.

Werry, J. S. (1990). Classification and epidemiology. In B. Tonge, G. Burrows, J. S. Werry (Eds.), *Handbook of studies on child psychiatry* (pp. 71–82). Amsterdam: Elsevier.

Werry, J. S. (1991). Overanxious disorder: A review of its taxonomic properties. *Journal of the American Academy of Child and Adolescent Psychiatry, 30*, 533–544.

Werry, J. S., & Aman, M. G. (1980). Anxiety in children. In G. D. Burrows & B. M. Davies (Eds.), *Handbook of studies on anxiety* (pp. 165–192). Amsterdam: Elsevier.

Werry, J. S., & Quay, H. C. (1971). The prevalence of behavior symptoms in younger elementary school children. *American Journal of Orthopsychiatry, 41*, 136–143.

Werry, J. S., Reeves, J. C., & Elkind, G. S. (1987). Attention deficit, conduct, oppositional, and anxiety disorders in children. I. A review of research on differentiating characteristics. *Journal of the American Academy of Child and Adolescent Psychiatry, 26*, 133–143.

Williams, S. M., Anderson, J. C., McGee, R. O., & Silva, P. A. (1990). Risk factors for behavioral and emotional disorder in pre-adolescent children. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 413–419.

Williams, S., McGee, R., Anderson, J., & Silva, P. A. (1989). The structure and correlates of self-reported symptoms in 11-year-old children. *Journal of Abnormal Child Psychology, 17*, 55–71.

Wolfson, J., Fields, J. H., & Rose, S. A. (1987). Symptoms, temperament, resiliency, and control in anxiety-disordered preschool children. *Journal of the American Academy of Child and Adolescent Psychiatry, 26*, 16–22.

Woolston, J. L., Rosenthal, S. L., Riddle, M. A., Sparrow, S. S., Cicchetti, D., & Zimmerman, L. D. (1989). Childhood comorbidity of anxiety/affective disorders and behavior disorders. *Journal of the American Academy of Child and Adolescent Psychiatry, 28*, 707–713.

4

Cross-Cultural Issues

Antonio C. Fonseca, William Yule, and Nese Erol

INTRODUCTION

Children's fears can be defined as strong emotional reactions to actual or imaginary dangers. Most of them are common adaptive responses that serve to protect the individual from potential harm, and they tend to decrease or cease within a short period of time. New fears emerge as children become more mobile and as they appreciate social as opposed to physical threats to their well-being. The incidence of fears and their evolution have been well documented in numerous studies over the last 60 years (for reviews, see King, Hamilton, & Ollendick, 1988; Marks, 1987; Morris & Kratochwill, 1983; Smith, 1979).

Children's fears vary in a predictable way with age, gender, socioeconomic class, and other individual or social variables. Such data place any individual fear in context and help clinicians to determine when a fear is normal or pathological and, consequently, does or does not require intervention. As Barrios, Hartman, and Shigetomi (1981, p. 65) pointed out, "If certain fears dissipate quickly and without intervention, important questions are raised regarding initiation of formal intervention. This might imply for example, that childhood fears should be targeted for intervention less often than other childhood problems." It all depends on the impact of the fear on the child's adjustment and development.

Most of the normative data on fears derive from studies in English-speaking countries. Few studies have attempted to compare the patterns of incidence and development of fears in different populations and cultures. Yet, such studies could contribute to a more complete understanding of the origin of fears and their development and treatment. Until recently,

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proper cross-cultural comparisons were almost impossible, except at a crude impressionistic level. Without rigorous testing through empirical research conducted in various parts of the world, one cannot adequately answer questions such as these: "Are some fears universal?" "Do fears have the same form and the same prevalence across different countries and cultures?" "Do the same feared stimuli have the same connotation in different cultures?" "Do the same strategies of intervention have the same effects in different cultures and settings?" "Which types of situations or stimuli are more frequent, salient, or powerful in eliciting fear?"

Although some fears are probably biologically prepared (Marks, 1969; Ohman, Dimberg, & Öst, 1985; Seligman, 1971), most are the result of a process of learning (Rachman, 1977) and, as such, can be affected by cultural and social variables. For example, many years ago, Hallowell (1938) reported that Indians from Berons River, in Canada, thought that if they saw a toad approaching their camp, it was a malevolent agent. If they encountered a toad, they might experience fear and exaggerated affective response, while most people from other cultures would not perceive the toad as a source of danger, though they might show similar exaggerated responses to other stimuli. However, the same Indians were not particularly afraid of more dangerous wild animals such as bears. Such observations highlight the influence of cultural factors in the evolution and maintenance of fears; they also point to the limitations of theoretical models of fears that, when derived from a single sociocultural context, are uncritically assumed to be applicable to everyone, everywhere. Clearly, there is a need to take account of cross-cultural factors in understanding normal and abnormal fears in children.

RELEVANCE OR CROSS-CULTURAL RESEARCH ON HUMAN FEARS

Without cross-cultural studies in developmental and clinical psychology, it becomes difficult to know whether certain behaviors represent universal patterns or whether they simply reflect idiosyncrasies within the particular settings, groups, or countries in which they are observed (Butcher, 1984; Dasen, 1977; Marsella, 1980; Triandis & Brislin, 1984). As Earls (1980) pointed out, "Cross-cultural attempts at replicating results with the same method represent an essential means of assessing the extent to which features of children's behavior disorders are universal and about the validity of the theories developed to explain them." Such an approach has proved important in testing Piaget's theory of cognitive development (Dasen, 1977), demonstrating great variation in the rate of cognitive development, and consequently leading to a greater refinement of the theory. With respect to the study of human fears, there have been various theories stressing either biological or social factors or both.Comparing the pattern of fears in different cultures should help disentangle the relative contribution of biology and culture.

In addition to testing the universality of existing theories, cross-cultural studies can help to unconfound variables that generally occur together in any one culture (Triandis & Brislin, 1984). For instance, it has been generally accepted that girls are more fearful than boys, in any situation, and this supposed difference has often been associated with differences at the biological or physiological levels. However, Graziano, DeGiovanni, and Garcia (1979) argue that such studies may have confounded sex-role expectancies (e.g., the stereotype of the courageous man) with genuine gender differences rooted in biological bases. Such differences could be affected by different levels of dissimulation in different cultures. This dissimulation would help to explain why observational studies show no

significant gender differences on fears while self-report studies consistently do (Maccoby & Jacklin, 1974) and why there are sex differences in fear manifestations among humans while there are no such differences among other animals.

With respect to the relationship between fear and age, most studies have found that older children report fewer fears than younger ones, but this finding is difficult to interpret. Does it mean that development, maturation, and cognitive development make children gradually less vulnerable and more capable in the face of new and dangerous situations, or does it simply reflect the pressure of cultural stereotypes that lead to the acceptance of reporting fear by young children but not by older ones?

Cross-cultural studies can help to "clarify the relationship between experience and behaviour by extending the range of variations beyond that available in any one study" (Brislin, 1983). A good example is the fear of separation. Children's crying at the departure of their parents or other caretakers appears to be universal between the ages of 8 and 24 months. It has been consistently found in a similar form among British and American infants as well as among Kung Bushmen in Kalahari (Konner, 1972), Hopi Indians (Dennis, 1940), Ganda infants (Ainsworth, 1963), Zambian infants (Goldberg, 1972), Israeli kibbutzim (Maccoby & Feldman, 1970), and Guatemalan infants (Lester, Kotelchuck, Spelke, Sellers, & Klein, 1974). At the same time, there were also signs of cultural differences regarding other aspects of these emotional reactions in the infants. For example, the onset of separation protest is at a later age in America than in Ganda (Lester et al., 1974) or in Guatemala. While in the Guatemalan sample this fear of the stranger was expressed only by changes in playing, in the American children it was also expressed through change in crying and in proximity to the door (Lester et al., 1974). The reasons for such differences are apparently cultural: While American children are exposed to separation from parents from an early age (e.g., the infants are often placed in their own rooms to sleep), in Guatemala, where the numerous members of the family live all together in a small space and where there is always someone around, such separation is less frequent.

Cross-cultural studies can reveal the effects of other variables on children's fears, different from those found where the original theories or studies were elaborated or conducted. Among such variables are religion, magical beliefs, witchcraft, life in underdeveloped rural areas, or, more generally, the different ways people are brought up in different societies. For example, Weston and Mednick (1970) found less fear of success in black female students in America than in their white counterparts. These differences were interpreted as the result of a more aggressive sex-role identity pattern among blacks, which is well accepted in a culture where intellectual achievement is perceived as an economic asset rather than as something threatening.

Of course, attributing differences between samples to supposed cultural factors in post hoc fashion may develop interesting hypotheses, but it is generally a weak research strategy. It is far better to use knowledge of differences between cultures to generate testable predictions, as was recently done by Dong, Yang, and Ollendick (1994). They studied differences between Chinese and Western samples. They argued that Chinese child-rearing and educational practices were generally restrictive, overprotective, and emotionally unexpressive, placing considerable emphasis on the value of the opinions of others and the need to do well in school. In Western contexts, such practices should predict higher levels of fears, anxiety, and depression. These predictions were generally borne out, but especially among children aged 11–13 years as opposed to younger and older children. The differences between Chinese and Western findings on the relationship between fears and age were thought to reflect the additional pressures to achieve on the middle-age group of children,

and possibly the underrepresentative nature of the older age group within the Chinese sample. Be that as it may, such a predictive design has many advantages over the merely descriptive ones.

Although these examples illustrate the importance of social and cultural factors, this issue has usually been of secondary interest to researchers and practitioners. Until recently, the available data consisted of isolated studies, generally based on small numbers of subjects and using measures with poor psychometric qualities.

METHODOLOGICAL ISSUES

An important prerequisite for cross-cultural studies is the development of reliable and valid instruments that can provide a common measure in different settings, languages, and cultures.

In the past, investigators have employed a large number of instruments that were not always equivalent: interviews with children, with parents, or with both; unstructured and structured self-report surveys; direct observations techniques; oral questioning; projective techniques; rating scales and other methods.

Despite their great diversity, these methods can be summarized in two large categories. The first consists of unstructured written self-report methods in which children and adolescents describe the situations, persons, and events that cause them fear. The second consists of structured self-report methods that identify the factors associated with fears and measure their intensity through the use of psychometric objective measures such as rating scales and questionnaires.

Most instruments used in the earlier studies in this field can be classified in the first category. Generally, they were ad hoc measures, prepared solely for the purpose of a specific study, and little information was presented on their psychometric properties. The question that arises from those studies is whether the information obtained from such different sources can be easily compared.

In one of the best studies on children's fears, Lapouse and Monk (1959) found that, compared with children's self-reports, mothers' information underestimates their children's fears by 41%. In more recent studies of posttraumatic stress in children and adolescents, it has again been found that parents consistently underreport the emotional reactions of their children (see Chapter 12 for review). In general, different levels of difficulties have been reported by parents, teachers, and children (Rutter, Tizard, & Whitmore, 1970). Achenbach, McConaughy, and Howell (1987) reported a global average +0.28 correlation between these three different sources of information. These findings imply that because children's fears are not easily observed by adults and peers, one cannot rely so easily on the reports of others as was done in earlier studies in the field of children's fears. The ideal would be to have information from various sources, focusing on different aspects of fear. Unfortunately, to date, little effort has been made in this direction; consequently, little progress has been achieved despite the great amount of research conducted on fears for more than half a century (Graziano et al., 1979).

UNSTRUCTURED SELF-REPORT MEASURES

Table 1 summarizes the main methodological characteristics of earlier studies that focused on the identification of fear stimuli by asking children or parents, often as the sole

means of inquiry, such questions as these: "What do children fear?" "What do you fear the most?" "Which is the thing to be most afraid of?" Children's answers were subjected to content analysis, and the fears thus identified were discussed in the light of important demographic parameters such as age, sex, living area, and socioeconomic class. The numbers of fears identified in such studies varied enormously. Derevensky (1979) used the 8-category system previously developed by Maurer (1965), while Rodriguez-Tomé and Zlotowicz (1972) used 56 categories of fears; Bariaud and Rodriguez-Tomé (1975), 32; Gonzalez and Bosch (1982), 62; Assailly (1988), 82; more recently, Rodriguez-Tomé and Bariaud (1990) used 33. The statistics used were also very different, ranging from simple tally counts (as in Derevensky) to complex analysis of factorial correspondences, as in a number of more recent French studies.

In general, the findings of these studies agree with those of earlier ones (see Morris & Kratochwill, 1983), in terms of the relationship between fears and age, gender, and urbanization. Girls report more frequent fears than boys; adolescents in rural areas report slightly different fears from those in towns. Fears of darkness, fire, water, and death of a relative appear less frequently in adolescents and young adults than in children.

It is in the studies conducted, more recently, by Rodriguez-Tomé and his collaborators that we find the most systematic presentation of fears in children and adolescents, identified by this method, outside the Anglo-Saxon world. For instance, in their last study with adolescents, 33 categories of fears were identified. In descending order, the percentage

Table 1. Studies Based on Unstructured Self-Report Measures across Countries

Study	Country	Sample	Age/school level	Other variables
Assailly (1988)	France	310 Boys (55%) Girls (45%)	9–15 Primary and secondary schools	List Sex Academic achievement
Bariaud and Rodriguez-Tomé (1975)	France	564 Boys (½) Girls (½)	12–16 Secondary schools	Age Sex Urbanization
Derevensky (1979)	Canada	106 Boys Girls	6–12 Primary school	Age Sex
Rodriguez-Tomé & Zlotowicz (1972)	France	345 Boys (174) Girls (171)	14–18 Secondary school	Age Sex
Solantaus et al. (1984)	Finland	2167 Boys Girls	12–18 Secondary school	Age
Zlotovicz (1972)	France	209 Boys (92) Girls (117)	6–11 Primary shool	Age Sex
Katzenstein (1951)	Brazil	208	Preschool	—
Martinez-Gonzalez & Monreal-Bosch (1982)	Spain	160 Boys (50%) Girls (50%)	12–14 Rural schools	—
Rabello (1937)	Brazil	417	8–14	—
Rodrigues (1962)	Brazil	2194	7–18	—
Rodriguez-Tomé & Bariaud (1990)	France	180 Boys (50%) Girls (50%)	12–16 Public secondary schools	—

reporting these fears were: (1) fears and worries concerning school (52%), (2) fears of attackers and attacks (41.9%), (3) violence and dreadful death (34.6%), (4) worries concerning personal future (34.1%), (5) animals (33.5%), (6) fears of darkness and being alone (31.8%), (7) hospitals and other situations associated with medical care (30.7%), (8) death (29.8%), (9) nightmares (28.5%), (10) pain (25.1%). These patterns of fears are different from those found in younger children (Assailly, 1988; Rodriguez-Tomé & Zlotowicz, 1972), which made these authors think of a transition, with age, from phobias (in children) toward anticipation anxiety (in adolescents). As they put it (Rodriguez-Tomé & Bariaud, 1990, p. 184): "Childhood fears . . . generally carry with them the idea of an attack on bodily integrity, or a break-up in the affective security provided by the family (e.g., by being kidnapped). The course of adolescence witnesses the development of fears that are more differentiated and more abstract. They relate to social psychological events which are associated with different facets of self-fulfillment, in the present and in the future, where others are conceived of as indispensable partners and the world as the context."

To a large extent, the findings of the fears identified through unstructured self-report measures in these studies as being the most frequent were also identified as such in normative studies conducted earlier in the United States (Scherer & Nakamura, 1968) or nearly a century ago in the pioneer study of Hall (1897). This similarity represents a quite considerable consistency through time and cultures.

However, despite such stability of results, these less systematic studies also have several limitations. The list of fears reported is unlikely to be complete, since young children and adolescents may develop fears of a wide range of stimuli. The nature of the questioning was often so vague as to make it unlikely that children would report all their fears, particularly those that were less intense or less frequent or ones they might be ashamed to reveal. Little information is reported on the reliability or validity of the data obtained by such methods. The studies themselves used unstandardized measures and instructions, different numbers of categories for content analysis, varying sizes and natures of samples, and different statistical analyses. The results are difficult to compare with those from more recent and rigorous studies. It is difficult enough to determine the prevalence rates from such studies, let alone make meaningful cross-cultural comparisons.

THE SEARCH FOR GREATER PSYCHOMETRIC RIGOR

In the 1960s, rating scales and structured self-report measures emerged as instruments of choice for use in normative and cross-cultural investigations. They have several advantages over traditional list and ranking techniques: They are more flexible, are cheaper to use, can cover a large number of items, save researchers and subjects' time, provide information on the intensity of fears, and in general can be administered to a large range of ages. A good example of such an instrument is the Fear Survey Schedule for Children (FSSC). This schedule was first developed by Scherer and Nakamura (1968) and consists of 80 items or fear stimuli, taken mainly from adult fear survey schedules such as Wolpe and Lang (1964) and adapted to children whose ages ranged from 9 to 12 years.

Subsequently, Ollendick (1983) revised the scale to make it more appropriate for use with children (FSSC-R). The modifications included changing the response format into a 3-point scale (none = 1, some = 2, much = 3), and the psychometric properties of the revised scale were carefully examined. This revision resulted in an instrument with good psychometric properties that can be used across a wide range, from 7 to 18 years. The

revised scale has proven useful in identifying fears in a normal population (Ollendick, 1983), differentiating among anxiety disorders in children (Last, Francis, Hersen, Kazdin, & Strauss, 1987), examining the presence of fear in the offspring of adult parents with anxiety disorders (Turner, Beidel, & Costello, 1987), investigating the relationship of fears with anxiety and depression (Ollendick & Yule, 1991), examining the long-term evolution of such normal fears (Silverman & Nelles, 1989), and studying emotional reactions of children and adolescents who survived severe accidents and present with symptoms of posttraumatic stress disorder (Yule, Udwin, & Murdoch, 1990).

Studies in the United States and in Australia further examined the psychometric qualities of the FSSC-R, finding acceptable internal consistency, reliability, and validity and a stable factorial structure across samples, ages, and nationalities (Ollendick, King, & Frary, 1989). Such results are not surprising, since children in these countries have, to a large extent, a common cultural heritage. They speak the same language, watch similar television programs, are exposed to similar child-rearing practices, benefit from similar socioeconomic systems, and, in general, share similar religious and social values.

More recently, there have been some efforts to use this instrument with children and adolescents from other countries and cultures. Such studies, which come mainly from Portugal, the United Kingdom, the Netherlands, China, and Turkey, are presented in the next section of this chapter. Normative data from the United States (Ollendick, 1983) and Australia (Ollendick et al., 1989) will also be presented and discussed for comparison purposes. Obviously, such studies differ from each other not only in location and language but also in other cultural variables relevant to the understanding of fears. Preeminent among these variables are religious beliefs, child-rearing practices, housing conditions, health and welfare systems, literacy levels, economic and scientific developments, family structure and community support networks, job opportunities, migratory trends, sex roles, ethnic, moral, and family codes, rhythm of social changes, and other antecedents of current behavior. The importance of some of these variables for cross-cultural studies has been well demonstrated in recent studies in developmental and clinical psychology (Bhugra & Leff, 1993; Dasen, 1977; Marsella, 1980; Spielberger and Diaz-Guerrero, 1976). It must be assumed that they may also affect the intensity, prevalence, and nature of fears in normal children.

STUDIES USING THE REVISED FEAR SURVEY SCHEDULE FOR CHILDREN

The main sample characteristics of these studies are summarized in Table 2. Despite similarities in respect to demographic variables (e.g., children were all attending schools, although at different levels, and their ages ranged from 6 to 18 years), there are a few crucial differences between studies that may complicate cross-cultural comparisons. For instance, the American, Australian, Irish, Portuguese, and British samples have similar age ranges, whereas the Dutch and Turkish samples are more restricted. The Dutch study includes some children under the age of 7 years, the Portuguese sample includes some children from rural areas, and the number of children included in each study ranges from 250 in the British studies to over 2000 in the Italian studies.

Second, different studies used different adaptations of the FSSC. The Irish study used the Fear Survey Schedule for adults (Bamber, 1974, 1979) and the Italian studies used modified and shortened forms of the FSSC-R; other studies used the FSSC-R, but the

Turkish version (Erol & Sahin, 1991) incorporated some new items including a few related to religious fears, and the children had to rate the fears in a 5-point scale. The Portuguese and British versions used the conventional 3-point scale, but scored as 0, 1, 2 rather than 1, 2, 3, a difference that must be borne in mind when comparing average scores. (In this chapter, the data have been appropriately corrected for differences in scoring and length of scales used.) Furthermore, the Portuguese, British, and Turkish versions contained an additional 17 items relevant to the expression of fears in school refusal and posttraumatic stress (Yule et al., 1990), followed by an open question, at the end, inviting subjects to report any other fear they had that was not covered by the 97 items.

Table 2. Major Studies Using the Revised Fear Survey Schedule for Children or Other Equivalent Measures

Study	Country	Sample	Age/school	Measure	Other variables[a]
Fonseca (1993a)	Portugal	676 Boys (314) Girls (362)	Primary schools Secondary schools	FSSC-R[b]	SES Sex Age Urbanization
Fonseca (1993b)	Portugal	132 Normal schools Children's homes	Primary schools Secondary schools	FSSC-R[b]	Sex Age Institutionalization
Erol & Sahin (1991)	Turkey	1996 Boys (½) Girls (½)	9–13 Primary schools Secondary schools	FSSC-R[b]	Age Sex SES Country
Yule et al. (1992)	United Kingdom	327 Boys (158) Girls (169)	8–10 Primary schools	FSSC-R	Age Sex
Ollendick et al. (1991)	United Kingdom	250 Boys (124) Girls (126)	Secondary schools	FSSC-R[b]	Age Sex
Ollendick et al. (1989)	United States	594 Boys Girls	7–16 Primary schools Secondary schools	FSSC-R	Age Sex SES Urbanization
Ollendick et al. (1989)	Australia	591 Boys Girls	7–16 Primary schools Secondary schools	FSSC-R	Sex Age Urbanization
Oosterlaan et al. (1992)	Netherlands	522 Boys (253) Girls (269)	6–12 Primary schools	FSSC-R	Sex Age
Sanavio (1988)	Italy	1500 Boys (600) Girls (400)	Elementary shcools Secondary schools		Age Sex SES
Bamber (1979)	North Ireland	687 Boys Girls	12–18 Secondary schools	FSS[c]	Sex Age Personality Type of school

[a](SES) socioeconomic status.
[b]This version contained 17 new items in addition to the 80 original ones.
[c]The schedule used in this study was with some minor modifications that used by Wolpe and Lazarus (1966) for adults.

Third, the British, Dutch, Portuguese, and Turkish versions were developed primarily to meet a need in those countries rather than for the purpose of conducting cross-cultural studies. This meant that in each case, certain items were dropped and others substituted. Despite these changes, the scales still inquire about the vast majority of the 80 items on the FSSC-R.

Main Findings

Comparisons across countries can be meaningfully only for those reported from studies that used the identical 80-item FSSC-R, namely, the Australian, American, British, Portuguese, Chinese, and Dutch samples. Table 3 shows the means and standard deviations of the total fear score for the entire samples from five of the countries. The results are very similar for the three English-speaking countries, but there are important differences regarding the Dutch and the Portuguese samples. The Dutch children scored lower and the Portuguese children scored higher than the other countries.

One possible reason for the higher scores among Portuguese children is that Latin people tend to express their fears spontaneously, while Nordic people learn from an early age to control their own emotions or at least not to express them openly. Another reason may be that the Portuguese sample included a large number of children from rural areas, and such children normally report more fears, which may have disproportionately increased the global mean score. Considering only the scores of the urban children, the Portuguese mean score is much lower and closer to those reported by the English-speaking samples.

The Dutch results may have been affected by the way the researchers administered the test to the 6- and 7-year-olds, namely, by reading each item aloud to an entire class. It may well be that many of the items devised for older children are irrelevant for younger children, notwithstanding that younger children tend to report more fears (see below).

Sex Differences across Cultures

Girls consistently report significantly higher scores than boys across all samples. This difference also applies to most individual items. In the British study, in which boys appear to report more fears on a few items, the difference between the sexes never reached statistical significance.

These results are in line with the findings of earlier studies on this topic (Graziano

Table 3. Means and Standard Deviations of the Total Fear Score across Countries[a]

Study	Numbers	Mean	Standard deviation
Portugal (Fonseca, 1993)	676	64.8 (144.8)[b]	26.9
Great Britain (Yule et al. 1990)	250	49.4 (129.4)[b]	22.7
Holland (Oosterlan et al. 1992)	522	123.6	22.3
Australia (Ollendick et al. 1989)	591	133.7	26.1
United States (Ollendick et al. 1989)	594	134.5	24.3

[a]Total FSSC-R scores for the 80-item version scored 1, 2, 3.
[b]Scoring corrected.

et al., 1979; Morris & Kratochwill, 1983), but their interpretation remains controversial. For instance, Maccoby and Jacklin (1974) suggest that boys score lower in fears than girls because they have a greater tendency to lie and to be defensive on self-report questionnaires, whereas girls are characteristically more candid. However, others have failed to find sex differences in measures of social desirability (Block, 1976). What is more striking is that sex differences clearly appear across all the different cultures. Despite the considerable changes in sex-role stereotyping over the past 50 years, sex differences in fear continue to be reported as strongly as ever.

Whatever the correct interpretation, the data from the present studies on sex differences are in line with the dominant view in the area of children's fears and, in this sense, support the discriminant validity of this instrument.

Effects of Age

As expected, younger children score higher than older ones both on the total fear score and on the intensity of fears in all samples. This trend was particularly clear in the Portuguese, Turkish (Erol, Sahin, & Ozcebe, 1990), and British samples. Similar trends were identified when the analysis focused on the number of fears reported by each child (King, Ollier, Iacuone, Schuster, Bays, Gullone, & Ollendick, 1989), although there were some exceptions. Thus, a sudden increase in the number and intensity of fears was registered in the American sample by the age of 11–12 years, and by the age of 13–14 years, in the Australian sample, which seems to confirm that there is an increase in fears at the beginning of adolescence (see Morris & Kratochwill, 1983). However, Oosterlaan, Prins, and Sergeant (1992) report a linear decrease in fears only after 8 years in their Dutch study. These unusual findings in the Dutch group have already been noted and may be accounted for by procedural or sampling differences.

The Chinese results are most interesting in that the change with age is not linear. Splitting the sample into three age groups—7–10, 11–13, and 14–17—it was found that the Total Fear score increased in the middle group. The authors had noted that in comparison to American and Australian cultures, Chinese child-rearing practices and educational goals place greater emphasis on the opinions of others. Achievement in education is seen as the key to upward social mobility, so that there are strong family pressures to excel in school. The subjects of the study were not at selective schools, and so educational pressures to achieve were at their height at this middle age. As predicted, this group scored particularly high on the factor of fear of failure (Dong et al., 1994).

Some minor changes with age have been reported for the most common fears (King et al., 1989; Ollendick et al., 1989), although most of the ten most common fears remained the same.

Effects of Urbanization

Although it seems obvious that the characteristics of the areas in which children live will affect the incidence and frequency of their fears, little attention has been paid to this aspect. Data from the studies reviewed here are inconclusive. In the Portuguese studies, children from rural areas reported significantly more fears than children from urban areas. A possible explanation for these differences is that people living in rural areas are more superstitious, more exposed to actual dangers, live under more difficult conditions, and, in general, perceive their environments as more threatening. However, this explanation seems

to be contradicted by the data from one of the Australian studies (King et al., 1989). In this study, the opposite trend was found, with urban children reporting more fears than their rural ones in terms of the total number of fears reported. However, the total fear score did not differ according to urban/rural residence.

Effects of Socioeconomic Status

Socioeconomic class is an important variable in children's and adolescents' fears, with children from different social strata showing differences in the *nature* of the fears they report. Children from poor families endorse more fears of items related to such things as violence, rats, and cockroaches, while children from higher socioeconomic levels more often endorse fears of stimuli such as heights, accidents, dangerous animals, and poisonous insects. In general, children from lower socioeconomic strata show lower frequency of fears. Early studies did not address the issue of differences in the intensity of fears reported, and the studies reviewed here cast some light on this aspect. Erol and Sahin (1991) found that Turkish children from lower socioeconomic strata, including those who had emigrated to Holland, endorsed more frequent and intense fears at all age levels (see also Erol et al., 1990). In the Portuguese studies, the differences between rural and urban (Fonseca, 1993) could also be explained in terms of differences in socioeconomic status, since children from rural areas were generally from families of lower socioeconomic status. In other words, in many studies, socioeconomic status and place of residence may be confounded, and more detailed analyses with larger samples may be needed to determine the individual contributions of different social factors to the experience and reporting of fears.

Effects of Schools

Few studies have examined the influence of type of school on fear. In some countries, there is a policy of providing neighborhood schools (or comprehensive schools catering to children of all levels of ability); in other countries, there is a policy of providing education to children segregated according to ability or, in some cases, religion. In North Ireland, Bamber (1974) compared children in grammar (selective, high-ability) schools with those attending secondary modern schools (the remainder of the children). An interaction with gender was reported. Grammar-school boys reported significantly higher global fear scores than secondary modern boys; the opposite was found in girls. Looking at the specific fears, children in grammar schools reported more fears associated with social situations, while secondary modern pupils reported more fears related to physical harm.

As noted earlier in relation to age, the findings of the China study (Dong et al., 1994) indicate strongly that the greater pressure to achieve well in school coupled with the emphasis on other people's opinions of one's actions were related to higher scores on the fear of failure factor.

Fears and Children's Psychopathology

Children's self-reported fears should not be studied in isolation from other psychopathology, and some studies have looked at the results of the FSSC-R within clinically identified groups and at the relation of the FSSC-R with other measures of psychopathology in normal samples. Fortunately, in most studies, some of the children were also administered other measures in order to assess the validity of this survey schedule, e.g., the

Eysenck Personality Questionnaire for Children (Eysenck & Eysenck, 1975), the Revised Manifest Anxiety Scale for Children (Reynolds & Richmond, 1978), the Rutter Scale for Teachers (Rutter, 1967), Birleson's Depression Inventory (Birleson, 1981), or the Child Behavior Checklist (Achenbach & Edelbrock, 1981). Use of these different instruments allowed for interesting comparisons and correlations.

For instance, Ollendick (1983) showed that phobic children scored significantly higher than their well-adjusted counterparts and also that visually impaired children had higher total fear scores than normally sighted children. The latter difference was particularly striking on items related to potentially physically harmful situations (Ollendick, Matson, & Helsel, 1985).

Yule et al. (1990) studied adolescent survivors of a cruise ship sinking. The survivors did not show a general increase in fearfulness, but rather showed a significant increase in fear to stimuli associated directly with their experiences in the disaster. This finding seems in line with the suggestion by Ollendick (1983) that in interpreting individuals' responses to the FSSC-R one should look at subscale scores and not merely at total fear scores.

Erol et al. (1990) found that children referred for pediatric or psychiatric assessment reported higher frequency and intensity of fears than normal controls. However, no significant relation was found between the intensity of fear and the global score on the Rutter scale in the general population. This appears to support the hypothesis that "the intensity rather than the simple number of fears may be positively related to behavior pathology" (Graziano et al., 1979, p. 811) and reminds us that there are important differences between normal fears and clinical phobias.

Other Important Associated Factors

Other aspects of socioemotional development and personality have also been examined in different studies. Total fear scores correlate positively with scores in the Neuroticism scale of the Eysenck Personality Questionnaire—Junior (Bamber, 1974; Fonseca, 1989). Many studies in different countries report significant relationships between scores on fear survey schedules and scores on the Children's Manifest Anxiety Scale (Erol & Sahin, 1991; Fonseca, 1989; Gullone & King, 1992; McCathie & Spence, 1991; Ollendick, 1983; Scherer & Nakamura, 1968; Yule et al., 1990). Similarly, McCathie and Spence (1991) found high correlations between the FSSC and those on a parallel test intended to assess children's behavior and reactions in feared situations, and Silverman, Fleisig, Rabian, and Peterson (1991) found a high correlation between the FSSC-R and the Childhood Anxiety Sensitivity Index.

All these findings provide support for the convergent validity of the FSSC as a measure of children's fears. It is also important to consider its "divergent" validity—in other words, other aspects in which fears are distinct from child psychopathology. Thus, no significant correlations were found with personality dimensions of Extraversion, Psychoticism, Social Desirability (Fonseca, 1993), or Depression (Ollendick & Yule, 1991; Yule et al., 1990) in the Goodenough–Harris Drawing Test (Gullone & King, 1992). Negative correlations were reported with Self-Concept and Locus of Control in the American normative study (Ollendick, 1983). Dong et al. (1994) replicated the findings of Ollendick and Yule (1990) that the total FSSC-R score was positively but not highly related to depression and anxiety, while anxiety and depression were highly related to each other. Such replication across two cultures as different as those of China and Britain points to a very robust finding. Thus, the FSSC-R seems to relate to those other measures conceptually related to anxiety, but not to those intended to measure other separate aspects of psychopathology.

Factor Structure of the FSSC-R

One important requirement for testing the equivalence of the instrument across samples and cultures is that even when used in a context different from the original environment, the test should show similar factor structures (Arrendell, Pickersgill, Merkelbach, Ardon, & Cornet, 1991). When patterns of correlations are similar between groups, it becomes easier to compare their mean scores.

As to the FSSC-R, the American Australian, and British studies generally yielded five similar factors that usually account for amounts of variance that range from 41% to 77%. These factors have been named after the fears they refer to ("fear of failure and criticism," "fear of unknown," "fear of injury and small animals," "fear of danger and death," "medical fears") and correspond rather well to those previously reported by Scherer and Nakamura (1968). However, this factorial structure was not found in the studies conducted outside the Anglo-Saxon world. Thus, the Turkish data, based as they are on a slightly different version of the scale, produced a six-factor solution accounting for 85% of the common variance (47% of the total variance). Apparently, some of them (e.g., "general factor of fear," "religious fears," "social fears") are different from those found before.

In the Portuguese and Dutch studies, the five-factor solution accounted for only a modest part of the total variance, and most of it was explained by the first factor alone. Furthermore, in the Portuguese study, only three of these factors are similar to those found in earlier studies in English-speaking countries ("criticism and failure," "death and physical danger," and "medical fears"). In these factors, moreover, the correspondence across countries is far from perfect. It may be that some of the differences are accounted for by difficulties in translating, whereas others may reflect genuine cultural differences.

However, even in English-speaking countries, some recent studies have failed to replicate the original five-factor structure (King, Gullone, & Ollendick, 1990; McCathie & Spence, 1991). In most normative studies, the five factors have been highly correlated to each other, suggesting that a single-factor solution may be appropriate. If this is the case, it undermines the suggestion by Ollendick (1983) that factor scores are more useful measures than the total scores, at least within normal groups. Once again, the point must be emphasized that what may hold true for the majority in the normal population may be different for the minority who present with phobias of clinical severity.

Reliability

The internal consistency (coefficient α) of the FSSC-R was high in all samples, ranging from 0.91 in the Portuguese study to 0.96 in the Turkish, Dutch, and Chinese samples. These results compare favorably with the reliability estimates reported in previous American (Ollendick, 1983) and Australian (Ollendick et al., 1989) studies. Test–retest reliability (Erol & Sahin, 1991) and split-half reliability (Erol & Sahin, 1991; Oosterlaan et al., 1992) are also satisfactory.

Most Common Fears

Table 4 shows the percentage of endorsement and the rankings (from the most common downward) of the ten fears in the 80-item version of the FSSC-R. Seven of the same fears are found in the top ten of all five countries examined. Nine of the top ten items in the younger British sample also feature in the top ten of at least four other samples. Thus, the

most common fears endorsed by children are remarkably similar across all six samples. They are also similar to those originally identified by Scherer and Nakamura (1968).

Fear of being hit by a car or truck ranks highest in all six samples, followed by the fear of not being able to breathe and the fear of bomb attacks. Different cultures show many more similarities than differences.

However, this level of agreement masks an important methodological point. The similarities are evident only for those fears that children are asked about. The findings of close agreement across cultures and of stability in endorsement within cultures across time are dependent, in part, on the FSSC-R tapping the full range of fears children report. It will be recalled that the British, Portuguese, and Turkish studies added 17 items intended to tap fears that were thought to be relevant to children experiencing school refusal (school phobia) and a maritime disaster. In particular, items about fears of death were made very specific about which person's death was feared. The results of asking these questions were most surprising.

Approximately 75% of the children and adolescents said that they had strong fears of mother dying and father dying. The next most common fear was of nuclear explosions, which was endorsed by 55% of the United Kingdom sample and 73% of the Portuguese sample. Fear of separation from parents was also heavily endorsed, by 54% in the British and 61% in both the Portuguese and Turkish samples. This finding suggests that fears of separation, death, and other attachment-relevant items are very meaningful to children and

Table 4. Common Fears Rated "A Lot": Percentage Endorsement and Rankings

No.	Item	United Kingdom 8 yrs.	United Kingdom 11–15 yrs.	Turkey	Portugal	United States	Australia
41.	Hit by a car	69 1	56 1	57 1	63 1	48 1	61 1
76.	Not able to breathe	68 2	54 2	41 9	53 4	46 2	60 2
20.	Bomb attack	62 3	40 4	50[a] 3	60 2	39 3	58 3
34.	Fire/burned	59 4	46 3	37	48 8	38 4	53 4
26.	Burglar	55 5	28	56 2	51 6	37 5	46 7
58.	Falling from a height	54 6	39 5	43 7	54 3	37 5	49 6
70.	Serious illness	50 7	27	31	50 7		40 8
72.	Earthquake	50 7	26	49 4	52 5	29 10	53 4
15.	Sent head	42 9	29 8	36	24	30 9	
9.	Death/dying	40 10	39 5	47 5	36	36 6	37 9
5.	Looking foolish		28 10	34			
10.	Lost/strangers		28 10	39 10	44 10	32 8	
29.	Poor marks		28 10	43 7	39	33 7	34 10
40.	Failing a test		29 8	27	32		
44.	Parents arguing		37 7	25	37		
59.	Electric shock		26	46 4	46 9		
			Additional items				
83.	Choking		30	43	33		
86.	Kidnapped		42	57	58		
87.	Nuclear explosion		55	—	73		
88.	Mother dying		73	76	84		
91.	Dying		39	54	—		
94.	Separation of parents		54	61	61		
96.	Adopted		35	38	54		
97.	Father dying		73	73	81		

[a]The item was worded as "War."

should be more systematically investigated. It also suggests that some of these items deserve a permanent place in the core items of any future revised schedule.

In their Australian study, Gullone and King (1992) introduced over 30 new items and found that several of them, such as fear of sharks, were endorsed more frequently than the original items. Thus, when being used clinically, the standard FSSC-R may need to be augmented with a selection of additional, relevant items, and it may be useful to build up information on a pool of such items. As more experience is gained using the FSSC-R in different cultures, it may also be necessary to augment the core scale with items specific to that culture.

SUMMARY

Several conclusions can be drawn. First, cross-cultural research of children's fears is still a neglected topic in child psychopathology. Despite recent improvements in the construction of new measures, most notably the FSSC-R, very few studies have been reported outside the English-speaking world, although one of the first empirical investigations in this field was conducted in France almost a century ago (Binet, 1895). A well-coordinated, systematic, and complete study involving researchers and subjects from well-differentiated cultures is still needed and certainly will require more time and resources than those available for the studies reported here.

The second conclusion is that the Revised Fear Survey Schedule for Children has good psychometric properties and has proven to be a very useful research instrument in countries very different from that in which it was originally developed. In all studies, it differentiated well between boys and girls, between younger and older children, and between rural and urban subjects. High scores on the FSSC-R correlated well with other measures of fears and anxiety, but not with measure of depression or general psychopathology. The FSSC-R also discriminates the normal children from those with various identified types of psychopathologies.

The third conclusion is that the most common fears are the same across different countries and cultures. Some of these fears, such as fear of bomb attack, fear of nuclear explosion, or fear of earthquakes, might appear unexpected at first glance, since most of the countries concerned had not experienced such disasters for a long time. The question is why such infrequent accidents provoke such frequent and intense fears. The answer may be that these are life-threatening events that, even though improbable, provoke strong emotional reactions. It would be interesting to investigate the subjective probabilities children attribute to such objectively unlikely events. It is probable, of course, that children in these countries are exposed to events in many other ways, through television, books, pictures, school, and education in general. In other words, such interesting findings could be explained in terms of any one of the predominant theories of the acquisition of human fears—biological preparedness, social learning, operant conditioning—and the findings do not favor any one explanation. The one exception might be the findings from the shipping disaster (Yule et al., 1990), which largely replicated the findings of Dollinger, O'Donnell, and Staley (1984) insofar as the increase in reported fears applied only to those directly related to the experienced events and so gave added weight to the conditioning of acquisition in respect of these new fears.

The fourth conclusion is that the 17 new stimuli added in some studies were among the most highly endorsed. This result suggests that these items deserve a permanent place in the

core items in any future revision of the FSSC-R. Equally important, the Turkish study (Erol & Sahin, 1991) and a recent Australian study (Gullon & King, 1992) demonstrated the relevance of new items specific to each culture. Future cross-cultural studies should be organized in such a way that they could account for both the universal and the specific across different cultures and peoples. Cross-cultural research based on the uncritical application of the same instrument in different populations or cultures may be less useful.

The fifth conclusion is that the five-factor solution cannot be clearly replicated outside the English-speaking countries. For instance, the best solution for the Portuguese data seems to be a monofactorial one, while in the Turkish study, six factors were found, although the first accounted for by far the greatest proportion of the variance.

Overall, the results reviewed herein represent an improvement over previous cross-cultural studies, but many issues remain to be addressed. For instance, which are the variables specific for each culture that might affect the expression of children's fears? How do differences in global fear scores express themselves at the behavioral level? What are the patterns of evolution of particular fears in different cultures? When are fears considered abnormal or pathological in different cultures? How do they affect children's lives, and do these effects vary with culture? In the case of the most intense fears, bordering on phobias, what strategies are needed for intervention, and do these strategies vary by culture?

These questions have been posed for many years (Graziano et al., 1979), and with the development of a reliable and valid instrument that can be applied in different cultures, we are moving closer toward answering some of them. The answer will require the use of rigorous methodology so that any differences obtained will reflect real cultural factors and not merely be artifacts resulting from sampling and other biases.

REFERENCES

Achenbach, T. M., & Edelbrock, C. S. (1981). Behavioural problems and competencies reported by parents of normal and disturbed children ages four through sixteen. *Monographs of the Society for Research in Child Development*, 1981, 188.

Achenbach, T., McConaughy, S. H., & Howell, C. T. (1987). Child/adolescent behavioral problems and emotional problems: Implications of cross-informant correlations for situational specificity. *Psychological Bulletin, 101*, 213–232.

Ainsworth, M. D. S. (1963). The development of infant–mother interaction among the Ganda. In B. M. Foss (Ed.), *Determinants of infant behaviour*, Vol. 2. London: Methuen.

Arrendell, W. A., Pikersgill, M. J., Merkelbach, H., Ardon, A. M., & Cornet, F. (1991). Phobic dimension. III. Factor analytic approaches to the study of common phobic fears: An updated review of findings obtained with adult subjects. *Advances in Behavioural Research, 13*, 73–130.

Assailly, J. (1988). Des peurs enfantines aux angoisses de l'adolescence: Une étude de filiations. *Enfance, 41*, 61–73.

Bamber, J. H. (1974). The fears of adolescents.*The Journal of Genetic Psychology, 125*, 127–140.

Bamber, J. H. (1979). *The fears of adolescents*. London: Academic Press.

Bariaud, F., & Rodriguez-Tomé, H. (1975). Peurs et angoisse chez les adolescents de milieux rural et urbain. *Bulletin de Psychologie, 29*, 813–823.

Barrios, B. A., Hartman, D. P., & Shigetomi, C. (1981). Fears and anxieties in children. In E. J. Mash and L. G. Terdal (Eds.), *Behavioral assessment of childhood disorders* (pp. 259–304). New York: Guilford Press.

Bhugra, D., & Leff, J. (Eds.) (1993). *Principles of social psychiatry*. Oxford: Blackwell.

Binet, A. (1895). La peur chez les enfants. *Année psychologique* (pp. 223–254).

Birleson, P. (1981). The validity of depressive disorder in childhood and the development of a self-rating: A research report. *Journal of Child Psychology and Psychiatry, 22*, 73–78.

Block, J. H. (1976). Issues, problems and pitfalls in assessing sex differences: A critical review of the psychology of sex differences. *Merrill-Palmer Quarterly, 22*, 283–308.

Brislin, R. W. (1983). Cross-cultural research in psychology. *Annual Review of Psychology, 34*, 363–400.

Butcher, J. N. (1984). Cross-cultural research methods in clinical psychology. In P. C. Kendall & J. N. Butcher (Eds.), *Handbook of research methods in clinical psychology* (pp. 273–308). New York: John Wiley.

Dasen, P. R. (1977). *Piagetian psychology: Cross-cultural contributions*. New York: Gardner Press.

Dennis, W. (1940). Does culture appreciably affect patterns of infant behavior? *Journal of Social Psychology, 12*, 305–317.

Derevensky, J. L. (1979). Children's fears: A developmental comparison of normal and exceptional children. *Journal of Genetic Psychology, 135*, 11–26.

Dollinger, S. J., O'Donnell, J. P., & Staley, A. A. (1984). Lightning-strike disaster: Effects on children's fears and worries. *Journal of Consulting and Clinical Psychology, 52*, 1028–1038.

Dong, Q., Yang, B., & Ollendick, T. H. (1994). Fears in Chinese children and adolescents and their relations to anxiety and depression. *Journal of Child Psychology and Psychiatry, 35*, 351–363.

Earls, F. (1980). Prevalence of behavior problems in 3-year-old children. *Archives of General Psychiatry, 37*, 1153–1157.

Erol, N., & Sahin, N. (1991). Fears in Turkish children. Paper read to the 9th Conference of the European Society for Child and Adolescent Psychiatry, London, September 1991.

Erol, N., Sahin, N., and Ozcebe, H. (1990). Cocukluk korkulari: Norm calismasi (Childhood fears: A normative study). *Turkish Journal of Psychiatry, 1*, 31–38.

Eysenck, H. J., and Eysenck, S. B. (1975). *Manual for Eysenck Questionnaire of Personality for Children*. London: Stoughton.

Fonseca, A. C. (1993a). Fears in children and adolescents: A study on the Portuguese population. *Revista Portuguesa de Pedagogia, 27*, 75–92.

Fonseca, A. C. (1993b). Fears in children living in special institutions (submitted).

Goldberg, S. (1972). Infant care and growth in Urban Zambia. *Human Development, 15*, 77–89.

Graziano, A. M., DeGiovanni, I. S., & Garcia, K. A. (1979). Behavioural treatment of children's fears: A review. *Psychological Bulletin, 86*, 804–830.

Gullone, E., & King, N. J. (1992). Psychometric evaluation of a Revised Fear Survey Schedule for Children and Adolescents. *Journal of Child Psychology and Psychiatry, 33*, 987–998.

Hall, G. S. (1897). A study of fear. *American Journal of Psychology, 8*, 147–249.

Hallowell, A. I. (1938). Fear and anxiety as cultural and individual variables in a primitive society. *Journal of Social Psychology, 9*, 25–42.

Katzenstein, B. (1951). Ansiedade e agressividade em crianças pré-escolares. *Arquivos Brasileiros de Psicotécnica, 4*, 27–44.

King, N. J., Gullone, E., & Ollendick. H. T. (1990). Fears in children and adolescents with chronic medical conditions. *Journal of Clinical Child Psychology, 19*, 173–177.

King, N. J., Hamilton, D. I., & Ollendick, T. H.(1988). *Children's phobias: A behavioural perspective*. New York: John Wiley.

King, N. J., Ollier, K., Iacuone, R., Schuster, S., Bays, K., Gullone, E., & Ollendick, T. H. (1989). Fears of children and adolescents: A cross-sectional Australian study using the Revised Fear Survey Schedule for Children. *Journal of Child Psychology and Psychiatry, 30*, 775–784.

Konner, M. (1972). Aspects of developmental ethology of a foraging people. In N. Blurton Jones (Ed.), *Ethological studies of child behaviour* (pp. 285–304). Cambridge: Cambridge University Press.

Lapouse, R., & Monk, M. A. (1959). Fears and worries in a representative sample of children. *American Journal of Orthopsychiatry, 29*, 803–818.

Last, C. G., Francis, G., Hersen, M., Kazdin, A. E., & Strauss, C. C. (1987). Separation anxiety and school phobia: A comparison using DSM III criteria. *American Journal of Psychiatry, 144*, 653–657.

Lester, B. M., Kotelchuck, M., Spelke, E., Sellers, M. J., & Klein, R. E. (1974). Separation protest in Guatemalan infants: Cross-cultural and cognitive findings. *Developmental Psychology, 10*, 79–85.

Maccoby, E. E., & Feldman, S. (1970). Mother-attachment and stranger-reactions in the third year of life. *Monographs of the Society for Research in Child Development, 37*, 146.

Maccoby, E. E., & Jacklin, C. N. (1974). *The psychology of sex differences*. Stanford: Stanford University Press.

Marks, I. M. (1969). *Fears and phobias*. New York: Academic Press.

Marks, I. (1987). The development of normal fear: A review. *Journal of Child Psychology and Psychiatry, 28*, 667–697.

Marsella, A. J. (1980). Depressive experience and disorder across culture. In H. C. Triandis & J. C. Draguns (Eds.), *Handbook of cross-cultural psychology*, Vol. 6, *Psychopathology* (pp. 257–289). London: Allyn & Bacon.

Martinez-Gonzalez, M. C., & Monreal-Bosch, M. P. (1982). Estudio descriptivo de los differentes miedos en una población de adolescentes de zona rural. *Quaderns de Psicologia, 1*, 105–114.

Maurer, A. (1965). What children fear. *Journal of Genetic Psychology, 106*, 265–277.

McCathie, H., & Spence, S. (1991). What is the revised fear survey scheduled for children measuring? *Behaviour Research and Therapy, 29*, 495–502.

Morris, R. J., & Kratochwill, T. R. (1983). *Treating children's fears and phobias*. New York: Pergamon Press.

Ohman, A., Dimberg, U., & Öst, L. (1985). Animal and social phobias: Biological constraints on learned fear responses. In S. Reiss & R. R. Bootzin (Eds.), *Theoretical issues in behaviour therapy* (pp. 123–175). London: Academic Press.

Ollendick, T. H. (1983). Reliability and validity of the Revised Fear Survey Schedule for Children (FSSC-R). *Behaviour Research Therapy, 21*, 685–692.

Ollendick, T. H., & Yule, W. (1990). Depression in British and American children and its relationship to anxiety and fear. *Journal of Consulting and Clinical Psychology, 58*, 126–129.

Ollendick, T. H., King, N. J., & Frary, R. B. (1989). Fears in children and adolescents: Reliability and generalizability across gender, age and nationality. *Behaviour Research and Therapy, 27*, 19–26.

Ollendick, T. H., Matson, J. L., & Helsel, W. J. (1985). Fears in children and adolescents: Normative data. *Behaviour Research and Therapy, 23*, 465–467.

Ollendick, T. H., Yule, W., & Ollier, K. (1991). Fears in British children and its relationship to manifest anxiety and depression. *Journal of Child Psychology and Psychiatry, 32*, 321–331.

Oosterlaan, J., Prins, P. J. M., & Sergeant, J. (1992). A Dutch translation of the Fear Survey Schedule for Children. Paper presented at the SECAP meeting in Saratosa, Florida.

Rabello, S. (1937). *Psicologia da infância*, São Paula: Naçional.

Rachman, S. (1977). The conditioning theory of fear acquisition: A critical examination. *Behaviour Research and Therapy, 15*, 375–387.

Reynolds, C. R., & Richmond, B. O. (1978). What I think and feel: A revised measure of children's manifest anxiety. *Journal of Abnormal Child Psychology, 6*, 271–280.

Rodrigues, A. S. S. (1962). *Medos e preocupações em crianças e adolescentes*. Rio de Janeiro: Instituto de Psicologia da Pontifícia Universidade Católica do Rio de Janeiro.

Rodriguez-Tomé, H., & Bariaud, F. (1990). Anxiety in adolescence: Sources and reactions. In H. Bosma & A. E. Jackson (Eds.), *Coping and self-concept in adolescence*. Berlin: Springer-Verlag.

Rodriguez-Tomé, H., & Zlotowicz, M. (1972).Peurs et angoisse à l'adolescence. *Enfance, 3–4*, 239–306.

Rutter, M. (1967). Children's behaviour questionnaire for completion by teachers. *Journal of Child Psychology and Psychiatry, 8*, 1–11.

Rutter, M., Tizard, J., & Whitmore, K. (Eds.) (1970). *Education, health and behaviour*. New York: John Wiley.

Sanavio, E. (1988). The fears of Italian children and adolescents. In D. H. Saklofske & S. B. G. Eysenck (Eds.), *Individual differences in children and adolescents* (pp. 108–118). London: Hodder & Stoughton.

Scherer, M. W., & Nakamura, C. Y. (1968). A fear survey schedule for children (FSS-FC): A factor analytic comparison with manifest anxiety (CMAS). *Behaviour Research and Therapy 6*, 173–182.

Seligman, M. E. P. (1971). Phobias and preparedness. *Behavior Therapy, 2*, 307–320.

Silverman, W. K., & Nelles, W. B. (1989). An examination of the stability of mothers' ratings of child fearfulness. *Journal of Anxiety Disorders, 3*, 1–5.

Silverman, W. K., Fleisig, W., Rabian, and Peterson, R. A. (1991). Childhood Anxiety Sensitivity Index. *Journal of Clinical Child Psychology, 20*, 162–168.

Smith, P. K. (1979). The ontogeny of fears in children. In Sluckin (Ed.), *Fears in animals and man* (pp. 164–168). New York: Van Nostrand Reinhold.

Solantaus, T., Rimpela, M., & Taipale, V. (1984). The threat of war in the minds of 12–18 year olds in Finland. *Lancet, 1/8380*, 784–785.

Spielberger, C. D., & Diaz-Guerrero, R. (Eds.) (1976). *Cross-cultural anxiety*. Washington, DC: Hemisphere.

Triandis, N. J., & Brislin, R. (1984). Cross-cultural psychology. *American Psychologist, 39*, 1006–1016.

Turner, S. M., Beidel, D. C.,& Costello, A. (1987). Psychopathology in the offspring of anxiety disorder patients. *Journal of Consulting and Clinical Psychology, 55*, 229–235.

Weston, P. J., & Mednick, M. T. (1970). Race, social class and the motive to avoid success in women. *Journal of Cross-cultural Psychology, 1*, 284–291.

Wolpe, J., & Lang, P. J. (1964). A fear survey schedule for use in behaviour therapy. *Behaviour Research and Therapy, 2*, 27–30.

Wolpe, J., & Lazarus, A. (1966). *Behaviour therapy techniques*. Oxford: Pergamon Press.

Yule, W., Ollendick, T., & Blagg, N. (1992). Fears in British secondary school children (in prep.).

Yule, W., Udwin, O., & Murdoch, K. (1990). The Jupiter sinking: Effects on children's fears, depression and anxiety. *Journal of Child Psychology and Psychiatry, 31*, 1052–1061.

Zlotowicz, M. (1972). Peurs et angoisse chez des enfants d'âge scolaire. *Enfance, 3–4*, 175–237.

II

SPECIFIC PHOBIC AND ANXIETY DISORDERS OF CHILDHOOD

5

Specific Phobia

Wendy K. Silverman and Brian Rabian

INTRODUCTION

Although recent years have witnessed an evolution in the way in which the psychological and psychiatric communities conceptualize the childhood anxiety disorders, conceptualization of specific or simple phobia has changed very little. In fact, the classification of specific phobia in the current revisions of the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV) [American Psychiatric Association (APA), 1994] and the *International Classification of Disorders* (ICD-10) [World Health Organization (WHO), 1992] is largely consistent with the criteria for distinguishing excessive and maladaptive phobias from more "normal," nonmaladaptive fears proposed 20 years ago by Miller, Barrett, and Hampe (1974). These criteria state that a phobia, unlike a fear: (1) is excessive (i.e., out of proportion given the situation), (2) cannot be reasoned away, (3) is beyond voluntary control, (4) leads to avoidance of the feared stimulus, (5) persists over time, (6) is maladaptive, and (7) is not age- or stage-specific.

In this chapter, we first describe specific phobia of childhood and its clinical presentation. We then discuss issues related to the differential diagnosis of specific phobia, proceeding thereafter to consider the issue of comorbidity among anxiety and phobic disorders and developmental trends in the manifestation of fears. There follows a summary of the epidemiology, etiology, and course of specific phobia and a presentation of assessment and treated issues. Finally, we offer a case study that serves to illuminate the major topics outlined in this chapter.

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DESCRIPTION AND CLINICAL PRESENTATION OF THE DISORDER

According to DSM-IV-R and ICD-10, specific phobia is a persistent fear that is restricted to a circumscribed stimulus (object or situation), such that the stimulus is avoided whenever possible or is endured only with intense anxiety occurring immediately on exposure. The intensity of the fear is typically severe enough to lead to interference in functioning, such as with the children's academic, social, or family activities. In general, these criteria incorporate the description of Miller et al. (1974), namely, that a fear becomes a phobia when it is excessive, leads to avoidance, and is maladaptive (i.e., interferes with activities or relationships). Examples of phobias commonly observed among children are heights, small animals, the dentist, darkness, loud noises, and thunder/lightning.

Although the focus of a specific phobia can vary (e.g., small animals vs. darkness), there are certain clinical features of the disorder that appear to be ubiquitous. Our description of these common features is based largely on our clinical–research activities with phobic children referred for evaluation and treatment to our Child Anxiety and Phobia Program at Florida International University in Miami, Florida. In addition, our conceptualization of the typical response pattern associated with fear or phobia is based on the tripartite model originally proposed by Lang (1968, 1977), namely, that phobias or anxiety may be viewed as a response that manifests itself along three systems: the behavioral or motoric, the subjective or cognitive, and the physiological or bodily. Each of these is further described below.

Behaviorally, youngsters with specific phobia tend to display an immediate anxiety or panic response on exposure to the feared stimulus. Frequently, children will scream or cry, or run to a parent or loved one, seeking "safety" or comfort. Typically, they display an exaggerated flight or avoidance response. This flight or avoidance is also observed even when children merely anticipate confrontation with the feared object or event. For example, children who are afraid of dogs may refuse to walk down certain streets because they believe they may encounter a dog there or children who are afraid of loud noises may avoid going to Fourth of July celebrations because they do not want to hear the loud sounds of firecrackers.

In general, the more severe the phobia, the more extensive the avoidance behavior, and thus the greater the interference in functioning. Our experience has been that parents are likely to seek treatment for their child at our clinic when interference in the child's functioning has become fairly high. In such instances, the child's avoidance behavior is disrupting not only the child's daily activities (e.g., school, peer relations), but also the functioning of the entire family. That is, the child's avoidance is also making it difficult for the family to engage in many activities (such as going to Fourth of July celebrations!).

That anticipatory fear exists raises the possibility that, for some children, the experience of fear has a cognitive component. Our work with phobic children is consistent with this notion, as are the conclusions in a recent review by Kendall and Chansky (1991) regarding the cognitions of fearful and anxious children. According to these authors, fearful and anxious children tend to endorse more negative self-cognitions than do their nonfearful counterparts. In our experience, a child with a specific phobia commonly believes that exposure or confrontation with the phobic object or event will result in harm befalling him or her. A common motif is that of "safety"—that is, that the dog is likely to bite and give the child rabies, that hearing firecrackers will make the child deaf, and so on. Such thoughts frequently lead to extreme distress and can interfere in the child's ability to concentrate or attend to other material.

In addition to the behavioral and cognitive response patterns that are characteristic of phobic children, there appear to be physiological concomitants as well. The work of Beidel (1988), while it did not focus on children with phobias per se, but rather on children with "test anxiety" (who tend to be a heterogeneous group), is relevant nevertheless in shedding light on the heart rate response. Studying 83 elementary-school children, Beidel (1988) found that test-anxious children had significantly higher increases in heart rate than their nonanxious peers when engaged in social-evaluative tasks (e.g., a session of reading aloud). In addition, heart rate elevations among anxious children were maintained at a constant level, while nonanxious children showed a decline in heart rate over time, which might be indicative of habituation to the anxiety-evoking stimulus. In addition to changes in heart rate, we have found that many phobic children report other physiological changes, such as shakiness, upset stomach, and sweating.

DIFFERENTIAL DIAGNOSIS

DSM-IV requires that several other anxiety conditions be ruled out prior to assigning the diagnosis of specific phobia. According to the DSM diagnostic criteria for specific phobia, the fear of a circumscribed object or situation must not be the fear of having a panic attack (as in panic disorder), which is relatively uncommon in children, or fear of humiliation or embarrassment in certain social situations (as in social phobia) (APA, 1994). Similarly, one must determine whether the observed condition includes fears that are more characteristic of agoraphobia (i.e., fear of being in places or situations from which escape might be difficult or embarrassing or in which help might not be available).

DSM also specifies that the phobic stimulus must be unrelated to the content of the obsessions of an obsessive–compulsive disorder. Silverman and Nelles (1991) point out that phobias, like obsessions, can have a repetitive and ruminative quality, especially as the individual comes to anticipate and dread future encounters with the feared stimulus. However, one would not apply the diagnosis of specific phobia of dirt to an individual who displays obsessive fears about contamination and consequently avoids circumstances that might lead him or her to become dirty. The diagnosis of obsessive–compulsive disorder does not preclude the diagnosis of specific phobia from being made, however, as long as the feared stimulus (e.g., animals or darkness) is unrelated to the nature of the diagnosed obsessions. Similar to the necessary differentiation between specific phobia and obsessive–compulsive disorder, DSM-IV also indicates that a distinction should be made between specific phobia and posttraumatic stress disorder (PTSD). That is, in PTSD, phobic avoidance of stimuli associated with trauma is frequently present (APA, 1994), but should not result in a diagnosis of specific phobia.

ICD-10 is not as specific as DSM-IV in defining exclusionary criteria for specific phobia in that no specific exclusion is provided for disorders such as panic disorder, agoraphobia, or social phobia; only diagnoses that are hypochondriacal in nature (dysmorphophobia and nosophobia) are named as exclusionary criteria (WHO, 1992).

Finally, although not specified in the DSM or ICD classification schemes, children who exhibit school-refusal behavior are often labeled as having a "school phobia." However, numerous authors (Atkinson, Quarrington, Cyr, & Atkinson, 1985; Bernstein & Garfinkel, 1986; Burke & Silverman, 1987; Last & Francis, 1988; Ollendick & Mayer, 1984) have noted that these children, rather than being a homogeneous group as has been historically assumed, refuse school for a variety of reasons. Thus, while it is possible that a

child who refuses school may have a specific phobia of riding in the car (to school) or of heights (in a multi-story school building), diagnostically one must also consider whether the observed school-avoidant behavior reflects problems with separation from loved ones (which could suggest the presence of separation anxiety disorder) or the fear of certain social situations, such as speaking in class (which could suggest the presence of a social phobia). Such distinctions are likely to have important implications for treatment (Kearney & Silverman, 1990).

COMORBIDITY

There is mounting evidence that anxiety disorders, as a whole, tend to occur together, such that an individual with an anxiety disorder is reasonably likely to have a comorbid anxiety condition or other internalizing or externalizing behavior problems (e.g., Anderson, Williams, McGee, & Silva, 1987; Francis, Strauss, & Last, 1987; Strauss, Last, Hersen, & Kazdin, 1988). Although estimates of comorbidity among anxiety disorders vary across studies, in general, it appears that the rate may be as high as 50% (Beidel & Turner, 1988). In fact, rates of comorbidity may actually be underestimated in many studies due to the use of pooled diagnostic groups (e.g., a group of "anxious" children that includes children who present with multiple anxiety disorders, such as separation anxiety disorder, overanxious disorder, and phobic disorder).

In addition to comorbidity among the anxiety disorders, there is a considerable amount of work indicating that anxiety and depression share a high rate of comorbidity. In a review of empirical studies on this phenomenon, Brady and Kendall (1992) found evidence of considerable overlap between symptoms of the two disorders, identifying samples in which more than half of the children studied met criteria for both anxiety and depression. However, none of the studies cited in the Brady and Kendall (1992) review examined the patterns of comorbidity among children diagnosed with phobic disorders. In fact, very little work has been published specifically examining the DSM disorders most frequently associated with the presence of specific phobia in childhood. The work that has been done has focused on children with DSM-III diagnoses.

In one of the few available studies on this issue, Last, Perrin, Hersen, and Kazdin (1992) recently reported that of 80 children with diagnoses of specific phobia, 75% had a lifetime history of additional, specific anxiety disorders; 32.5% had a lifetime history of any depressive disorder; and 22.5% had a lifetime history of any disruptive behavior disorder. The most common additional, specific anxiety diagnosis was separation anxiety disorder (38.8%).

Similarly, in our own work with over 200 youngsters with anxiety disorders, we have found that, in general, children with specific phobia present with or have a history of a wide range of associated disorders—both internalizing and externalizing in nature. Such findings raise questions concerning the significance of having a particular specific anxiety disorder and, more specifically, whether subdivisions between types of anxiety disorders are warranted. As Last et al. (1992) have suggested, longitudinal studies, which closely examine the course and temporal relationships among the specific anxiety disorders, would help in clarifying the utility of each of the diagnostic categories.

However, because the findings just mentioned above were based on observations of children who presented to childhood anxiety clinics, it is possible that the presence of multiple anxiety disorders is specifically related to the greater severity of this referred

population. Thus, it is important for future studies to examine the patterns of comorbidity among other samples, such as general clinic and community samples.

DEVELOPMENTAL TRENDS AND AGE OF ONSET

As mentioned earlier, "normal" childhood fears are relatively common, with children typically experiencing a number of different fears during the course of development (see Lapouse & Monk, 1959; Morris & Kratochwill, 1983; Ollendick, 1983a, b). Indeed, the literature is heavy in coverage of the developmental trends of the fears of childhood (e.g., Croake & Knox, 1973; Eme & Schmidt, 1978), but is relatively light in coverage of the developmental trends of the more excessive fears and phobias experienced by relatively fewer children. Thus, we summarize below the age trends observed among common, nonclinical childhood fears. This work has also been nicely summarized by other authors (e.g., Morris and Kratochwill, 1983; Ollendick & Francis, 1988).

Briefly, in infancy, children show a tendency to experience fears regarding loss of support, loud noises, and unfamiliar people; in early childhood, fears of imaginary creatures, small animals, and the dark begin to predominate; and starting at about the 6th year of life, school fears (e.g., achievement) typically emerge and persist into later childhood, when fears of a more social nature and fear of bodily injury become more evident.

In a study encompassing a cross section of children 4–12 years of age, Bauer (1976) reported similar trends. Specifically, Bauer (1976), studying a sample of 54 elementary-school children, found a decrease in the frequency of fears with imaginary themes (e.g., fear of ghosts and monsters and bedtime fears involving frightening dreams) from 1st grade to 6th grade, and an increase in the frequency of realistic fears involving bodily injury and social concerns over the same age range. According to Bauer (1976), these trends reflect the Piagetian notion that children's perceptions of reality change from more global and diffuse to more sophisticated and realistic. A predominance of social fears relative to such fears as the dark, heights, and animals seems to be characteristic of adolescent children as well (McGee, Feehan, Williams, & Anderson, 1992).

With regard to excessive fears of childhood, i.e., phobias, investigators have tended to focus more of their attention on the issue of age of onset, rather than on developmental trends. Thus, it is the work on age of onset that is summarized below.

Studying relatively large samples of adults with phobic disorders, Sheehan, Sheehan, and Minichiello (1981) and Thyer, Parrish, Curtis, Nesse, and Cameron (1985) reported similar estimates, placing the mean age of onset at about 20 years and 16 years, respectively. Although earlier studies (Marks & Gelder, 1966; Liddell & Lyons, 1978) found differing ages of onset, these efforts were limited by the use of small samples.

Perhaps the most extensive and informative of the phobia-onset studies have been those conducted by Öst and colleagues (Öst & Hugdahl, 1983; Öst, 1985, 1987). Comparing six different DSM-III groups of phobic patients, i.e., agoraphobics, social phobics, and four subgroups of specific phobics (animal, blood, dental, and claustrophobia), who were referred for treatment to a clinical research center, Öst (1987) found large variations in age of onset. These results are summarized in Table 1.

With the exception of claustrophobia (mean age of onset: 20.18 years), patients with specific phobias had the earliest age of onset (all started during childhood) relative to the patients with agoraphobia and social phobia. In addition, significant differences in age

of onset were found across the four specific phobic groups. As indicated above, while claustrophobia had a rather late age of onset, animal phobia started early in childhood (at about 7 years of age), while blood phobia began somewhat later (at about 9 years of age), followed by dental phobia (at about 12 years of age). The patients with social phobia and agoraphobia had onsets in adolescence and adulthood, respectively.

According to Öst (1987), these findings suggest that specific phobia is not a homogeneous group, but rather a collection of separate, perhaps related, disorders that can be differentiated by the ages at which they tend to first appear. Additional support for this notion comes from Kendler, Neal, Kessler, Heath, and Eaves (1992), who found a similar pattern of age of onset in a large sample of adult female patients. Specifically, animal phobia had the earliest onset (at about 6 years old), followed by situational phobia (about 10 years old), social phobia (at about 11 years old), and finally agoraphobia (at about 16 years old). It should be noted, however, that research on age of onset has the limitation of being based on subjects' retrospective reports. Whether similar estimates of age of onset would be found using prospective methods has yet to be tested.

COURSE

There is a paucity of research on the natural course of childhood specific phobia. Perhaps this is due, in part, to ethical problems involved in conducting this type of research (e.g., abstinence from treatment would need to be encouraged—either implicitly or explicitly), coupled with the methodological difficulties involved in conducting longitudinal research. Despite the small number of studies that have been conducted, there are two important studies that are frequently cited in discussions about the course of specific phobia in youth. The first is the longitudinal study on the natural history of phobia conducted by Agras, Chapin, and Oliveau (1972). The second is the follow-up results of the treatment study conducted by Hampe, Noble, Miller, and Barrett (1973).

Using an epidemiological survey, Agras et al. (1972) identified 30 phobic individuals (10 children under the age of 20 years and 20 adults) with a variety of fears, including fear of illness and death, agoraphobia, animal fears, and fear of heights. These individuals were followed over a 5-year period, during which time none received psychiatric treatment or psychotherapy for the phobic condition. After 5 years, 100% of the children were viewed as "improved" compared to 43% of the adults. The authors interpreted the data to mean that many phobic conditions improve without any form of treatment and that child phobics improve more rapidly than their adult counterparts (Agras et al., 1972). Although these

Table 1. Age of Onset in Different Phobias[a]

	Type of phobia					
	Agora	Social	Claustro	Animal	Blood	Dental
Number of subjects	100	80	40	50	40	60
Mean age of onset	27.74	16.31	20.18	6.86	8.83	11.73
SD	7.25	6.63	11.51	2.81	5.73	7.36
Age range	11–53	6–40	4–51	2–17	3–30	5–46

[a]From Öst (1987).

results appear encouraging, especially for children with phobias, Ollendick (1979) has pointed out that "improved" children in the study by Agras and colleagues were not completely free from symptoms and, in fact, the majority of children assessed at follow-up continued to exhibit symptoms of sufficient intensity to be rated between "no disability" and "maximum disability." Thus, Ollendick's reinterpretation of the data of Agras et al. (1972) suggests that phobias, or at least some of the symptoms of phobias, persist over time for some children.

Hampe et al. (1973) examined 2-year follow-up data obtained on 62 children between the ages of 6 and 15 years who had received treatment for phobias. Overall, 80% of the children no longer exhibited at the end of this 2-year period the phobias for which they had been treated. A much smaller percentage of children (7%) continued to display phobias. These findings indicate that for a small proportion of youngsters, phobias persist despite treatment. However, because the Hampe et al. (1973) study employed only parent and clinician ratings and behavior checklists to assess phobic symptomology, and was conducted prior to the DSM-III or DSM-III-R classification scheme, interpretation of these findings is limited.

As Silverman and Nelles (1991) have suggested, retrospective studies such as those cited earlier (e.g., Öst, 1987; Sheehan et al., 1981; Thyer et al., 1985) are yet another source by which the course of phobias may be evaluated. As noted earlier, however, these studies are limited in that they are based on subjects' retrospective reports. Nevertheless, in another such study, Abe (1972) reported that among 86 mothers invited for routine medical checkups, approximately 30% reported having extreme fears that began during childhood or adolescence and were still present at the time of the checkup/assessment. In the Öst (1987) study cited above, the average age of the sample of agoraphobics, social phobics, and specific phobics was 34 years. Their phobia problems began, on average, between the ages of 7 and 28, with, however, the specific phobias beginning earliest. In sum, these findings, coupled with the reinterpretation by Ollendick (1979) of the Agras et al. (1972) data, suggest that specific phobias tend to persist into adulthood for some proportion of children.

EPIDEMIOLOGY

Epidemiological studies on the rate of childhood specific phobia, based on DSM or ICD defined criteria, are scant. In contrast, several studies have examined the prevalence of "excessive fears or worries" or "phobias" in children. Prudence is warranted when examining these data, however, given the blurry and differing definitions used across studies and the different samples, different procedures, and different measures these studies have employed (see Silverman & Nelles, 1991). Due to these factors, estimates of the prevalence of "excessive fears or worries" or "phobias" have varied widely, ranging from 1.7% (Kennedy, 1965) to 16% (Werry & Quay, 1971).

Despite the different samples and methodologies used, a consistent rate of about 7–8% has been reported in a number of studies (e.g., Agras, Sylvester, & Oliveau, 1969; Graziano & DeGiovanni, 1979; Rutter, Tizard, & Whitmore, 1970; Silverman & Kearney, 1992). For example, Graziano and DeGiovani (1979) estimated on the basis of information from 19 behavior therapists, that 6.8% of referred children presented with fears or phobias. More recently, Silverman and Kearney (1992), using questionnaire data compiled from randomly selected clinical psychologists nationwide found that 6.9% of referred children

had problems with fears or phobias—a figure strikingly similar to that of Graziano and DeGiovani (1979).

In terms of studies that have employed DSM-III or DSM-III-R defined criteria, Anderson et al. (1987) examined the prevalence of DSM-III disorders in 792 11-year-old children from the general population of New Zealand. Using child interviews, parent and teacher questionnaires, and behavioral histories (in contrast to previous research, which tended to rely on information from one source only), Anderson et al. (1987) found an overall prevalence rate of 2.4% for specific phobia. An almost identical rate (2.6%) was found by Bird et al. (1988) in a two-stage epidemiological survey on 4- to 16-year-old children in Puerto Rico. In addition, two cross-sectional studies (Kashani, Orvaschel, Rosenberg, & Reid, 1989; Kashani & Orvaschel, 1990) reported similar prevalence estimates for specific phobia, specifically, 3.3% across the ages of 8, 12, and 17.

Among the studies cited above, phobias were generally found to be more prevalent in females than in males (Anderson et al., 1987; Graziano & DeGiovani, 1979; Silverman & Kearney, 1992). Whether prevalence rates of specific phobia vary with age, ethnicity, and socioeconomic status is not clear. Thus, additional epidemiological studies are needed to help clarify this issue. Such studies should examine prevalence rates among diverse child groups, including African-Americans, Native Americans, Hispanics, and Asian-Americans, and should include samples that comprise a range of ages and socioeconomic groups.

ETIOLOGY

As others have pointed out (Barlow, 1988; Ollendick, 1979), a number of factors are likely to play a role in the acquisition of specific phobia. It is beyond the scope of this chapter to review all available theories regarding the etiology of specific phobia. Instead, we present a sampling of the work that has examined the influence of genetic and learning factors.

With respect to genetic factors, studying adult pairs of same-sex twins, Torgersen (1979) found evidence that monozygotic twins are more similar than dizygotic twins in the strength and nature of their phobic fears. Further, these similarities appeared to be unrelated to similarities in environmental situations (Torgersen, 1979), suggesting that at least a proportion of excessive fears are determined by genetic factors alone, with little or no environmental influence. These results corroborate findings previously reported by others (Slater & Shields, 1969; Young, Fenton, & Lader, 1971) who had concluded, using similar twin samples to study the etiology of phobias, that genetic factors contribute significantly to the onset of phobic fears.

A number of studies have established the familial aggregation of DSM-III phobias and phobic-like symptoms (Burglass, Clarke, Henderson, Kreitman, & Presley, 1977; Fyer et al., 1990; Moran & Andrews, 1985, Noyes, Crowe, Harris, Hamra, McChesney, & Chaudhry, 1986; Reich & Yates, 1988; Solyom, Beck, Solyom, & Hugel, 1974). However, only one investigation (Fyer et al., 1990) used probands diagnosed with specific phobia only, rather than including probands with other phobic disorders (i.e., agoraphobia or social phobia). Specifically, probands diagnosed with specific phobia, as well as their first-degree relatives, were interviewed with the Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS) (Endicott & Spitzer, 1978). In this study, 119 first-degree relatives of a "normal" proband group ($N = 38$) served as the comparison group. Relatives of probands with specific phobia exhibited specific phobia themselves (31%) more than the relatives of the "normal" proband group (11%). In addition, 15% of the children (27% of

daughters, 6% of sons) of the specific phobic probands were diagnosed with specific phobia, compared to 8% of the children of the normal probands. On the basis of these findings, the authors concluded that specific phobia is a highly familial disorder that breeds true. That is, probands with specific phobia did not transmit to their first-degree relatives an increased risk for any psychiatric disorder other than specific phobia.

In their recent study, Kendler et al. (1992) administered a diagnostic interview to 2163 adult female twins from a population-based twin register. The results of a univariate genetic analysis were consistent with the notion that genetic factors play a significant role in the etiology of phobias (Kendler et al., 1992). However, the results further revealed that specific phobias (specifically, animal and situation) have the lowest rate of heritability among the phobic disorders and are likely to be more influenced by specific environmental influences than are other phobic disorders. Thus, the important role of environmental factors in the transmission of specific phobias should not be overlooked. The earlier findings of Silverman, Cerny, Nelles, and Burke (1988) provide further support that phobias (and other anxiety disorders) "run in families." In this study as well, however, it was not possible to disentangle the effects of genetic vs. environmental factors.

In terms of the "environmental factors" that may be important in the etiology of specific phobia, several learning theories have been proposed. Perhaps most influential among these has been the model proposed by Rachman (1977), in which phobias are viewed to be acquired via one of, or a combination of, three pathways: (1) the direct experience of trauma (conditioning), (2) the indirect experience of trauma (vicarious exposure), or (3) the transmission of information. Each of these pathways represents one of two methods of acquisition: direct acquisition (in the case of conditioning) or indirect acquisition as (in the case of both vicarious exposure and transmission of information).

Although direct conditioning models have come under considerable criticism as being inadequate to fully explain the many types of fears and phobias (see Davey, 1992), research conducted with adult phobic patients suggests that direct conditioning plays a major role (Öst, 1985; Öst & Hugdahl, 1983). For example, the work of Öst and Hugdahl indicates that adult phobic-disordered patients attribute their phobias as being due more to direct conditioning experiences than to indirect experiences (although among adults with specific phobias of small animals and dental procedures, attributions about acquisition were more evenly distributed across Rachman's other pathways).

Unfortunately, there has been little study of the pathways proposed by Rachman in the development of phobias in children. One important exception is a study conducted by Ollendick, King, and Hamilton (1991). Ollendick and colleagues administered a questionnaire designed to assess the pathways for ten highly prevalent fears (e.g., nuclear war, fire/getting burned) among a large sample (N = 1092) of Australian and American schoolchildren (9–14 years of age). Results indicated that vicarious and instructional factors were attributed as being most influential (56% and 89%, respectively) by a majority of the children. However, consistent with the notion that childhood fears are multidetermined and overdetermined (Ollendick, 1979) was the finding that sources of fear were often combined with direct conditioning experiences.

There is some preliminary evidence that pathways of acquisition may differ in children and adults. As Davey (1992) has summarized, studies that have investigated the prevalence of indirect pathways of phobia acquisition among adult subjects have typically reported only a small number of cases that can be accounted for by vicarious methods. As just noted above, however, the findings of Ollendick et al. (1991) revealed a significant influence of indirect pathways, including vicarious ones, in the acquisition of fears in children. As

Davey (1992) has suggested, perhaps indirect acquisition in general, and vicarious acquisition in particular, play a greater role in the development of fears when previous learning experience with stimuli is limited, as is often the case in childhood.

Nevertheless, because the research that has been conducted to test Rachman's proposed pathways in youth (e.g., Ollendick et al., 1991) is based exclusively on subjects' retrospective reports and has largely employed nonclinical sample, future studies are necessary. Such studies should obtain information about etiology from a clinical sample of children with specific phobia and also obtain information from the children's parents. This methodology will serve to clarify the prime pathways involved in the acquisition of childhood phobia.

However, as we have indicated elsewhere (Silverman & Rabian, 1993), we tend to agree with the view expressed by Ollendick (1979) that specific phobias are "overdetermined and multidetermined." Thus, it is unlikely that there is any one factor (or pathway) that accounts for the development of such problems in youngsters; therefore, searching for *the* factor (or pathway) is not likely to be fruitful. Nor do we believe it is particularly fruitful to debate how much etiology is due specifically to genetics vs. learning. Such debates did not particularly pay off when it came to the study of other areas, such as intelligence. Instead, what is likely to be worthwhile is research to help account for the wide individual differences found in the development of phobias. For example, why does one child, after a conditioning or traumatic experience such as being bitten by a dog, shortly develop a severe phobia of dogs, while another child shows little or no reaction? Such differences in reactions are likely due to a combination of factors described in this volume. In essence, what is needed is the formulation of several models that indicate how these factors, and other factors as well, might interrelate, thereby leading to the development of specific phobia. Such models might then be tested with longitudinal designs and with more complex analytical procedures such as structural equation modeling.

ASSESSMENT

As noted earlier, our conceptualization of a phobia is that it is a complex multichannel response pattern of behavior, consisting of at least three different but interrelated channels: the cognitive–subjective, the behavioral, and the physiological (Lang, 1968, 1977). This conceptualization guides our assessment approach; each of these channels is assessed in all youngsters who present at our clinic. This procedure provides us with a wealth of data on each child and provides multiple indices of outcome in our treatment outcome study for childhood phobia (described below).

Our assessment of the cognitive–subjective domain involves the use of interviews, self-report measures, and self-monitoring procedures; of the behavioral domain, the use of behavioral approach tasks; and of the physiological domain, psychophysiological recording, specifically heart rate. Now follows a brief discussion of the primary measures we use to assess each of these domains.

The most prominent assessment instrument used by clinical child psychologists and psychiatrists is the structured diagnostic interview. In addition to providing the most direct assessment of the subjective–cognitive domain and eliciting information necessary for diagnosis, the interview is useful for assessing the other two domains (e.g., "Does your heart beat fast when you see a dog?" "Do you try as hard as you can to stay away from parties?"). Although several structured interviews for children and parallel parent versions

have been developed [e.g., the Diagnostic Interview Schedule for Children (DISC) (Costello, Edelbrock, Kalas, Dulcan, & Klaric, 1984) and the K-SADS (Puig-Antich & Chambers, 1978)], as discussed in Chapter 15, we have found the specificity of the Anxiety Disorders Interview Schedule for Children (ADIS-C) (Silverman & Nelles, 1988) especially well-suited to meet our concurrent clinical–research needs in a childhood anxiety specialty clinic. Moreover, our reliability studies on the ADIS-C (Silverman & Nelles, 1988; Silverman & Eisen, 1992) have found the κ coefficients to be high for DSM diagnoses of specific phobia.

The specific phobia section of the ADIS-C contains a list of objects/events (e.g., dark, dogs, high places) to which the child is instructed to rate his or her level of fear and avoidance using a 5-point (0–4) "Fear Thermometer." The Fear Thermometer is useful in that it simplifies the rating task for children and removes some of the variability attributed to language skills that occur when young children respond to questionnaires (Barrios, Hartmann, & Shigetomi, 1981). For items that elicit a fear rating of 2 or more, the child is also asked to rate the degree of interference (in terms of school, friends, and family), using the "How Much Things Get Messed Up Thermometer." Using a "Feelings in My Body Thermometer," the child also rates the degree to which he or she experiences certain physiological symptoms. The final part of the phobia section on the ADIS-C contains a list of inquiries pertaining to the history and possible etiological determinants of the phobia (e.g., "Did you ever have a bad experience with [phobic stimulus]?").

In general, children appear to have little difficulty in answering this series of questions, and they have proven to be valuable informants. However, consistent with the experience of other investigators (e.g., Beidel, Neal, & Lederer, 1991), some children have difficulty in rating their symptoms along a continuous scale. For this reason, we are considering adopting Beidel and colleagues' modification of the rating of symptoms to a simple "present/absent." Whether we make this modification will be decided subsequent to a more systematic examination of the symptom-rating data, currently ongoing.

In addition to the ADIS-C, we administer several child self-report measures to assess the phobic child's subjective–cognitive domain. We have found the Fear Survey Schedule for Children—Revised (FSSC-R) (Ollendick, 1983a) to be most useful. An 80-item fear inventory, the FSSC-R assesses a broad range of fears in children and can help assess stimulus generalization. For example, after Hurricane Andrew devastated the Miami area in the summer of 1992, we witnessed an increase in the number of children referred to our clinic for phobias of "thunder" and "lightning." An examination of the FSSC-R revealed that many items endorsed by the youngsters as eliciting "a lot" of fear, while not specific to hurricanes per se, were related to hurricanes (or the aftermath) and likely reflected generalization. Examples included "dark rooms or closets" (many families stayed in closets during the storm), "going to bed in dark" (power was out for weeks in most homes), and "a burglar breaking into our house" (the fear of looting was high). As discussed in the next section, such information about the related fears of a child is valuable, as it provides essential data for constructing the child's fear-treatment hierarchy.

Additional measures that we administer to assess other, subjective facets of childhood anxiety include the Social Anxiety Scale for Children—Revised (SASC-R) (La Greca & Stone, 1993), the Revised Children's Manifest Anxiety Scale (R-CMAS) (Reynolds & Richmond, 1978), and the State–Trait Anxiety Inventory for Children (STAIC) (Spielberger, 1973). We also administer the Childhood Anxiety Sensitivity Index (CASI) (Silverman, Fleisig, Rabian, & Peterson, 1991). This 18-item questionnaire assesses the degree to which bodily signs of anxiety (e.g., heart beating fast) are frightening to the youngster. To

the extent that a phobic child reports physiological sympatomatology, administering the CASI might be useful to gauge how much it is the symptomatology per se that is distressing to the child, and not merely the phobic stimulus.

Although the administration of these measures has intuitive appeal, their utility in diagnosis and treatment remains to be demonstrated. With respect to diagnosis, it is necessary to determine whether these measures can differentiate children with specific phobia from children with other types of anxiety and phobic disorders (i.e., provide discriminant validity). The work of Mattison, Bagnato, and Brubaker (1985), showing that scores on the RCMAS (1 SD above the mean on the worry/oversensitivity factor) confirm DSM-III diagnoses of overanxious disorder (but not other disorders), is illustrative of the type of research needed in the context of specific phobia. With respect to treatment, it is necessary to determine which of these measures, or groups of measures, can accurately predict treatment efficacy (or inefficacy). It is also necessary to delineate how these measures might be used to interface with treatment strategies. The work of Kearney and Silverman (1990), showing that a questionnaire designed to assess the maintaining variables surrounding school-refusal behavior (the School Refusal Assessment Scale; Kearney & Silverman, 1993) can be used to prescribe treatment, is illustrative of this type of research.

An additional area requiring investigation is that of construct validity. Studies that have examined the construct validity of these measures (e.g., Norvell, Brophy, & Finch, 1985; Wolfe et al., 1987) have raised serious questions about the distinctiveness of the constructs that these instruments were designed to measure (e.g., "anxiety" or "depression"). Recent reviews of the literature have reached similar conclusions (Finch, Lipovsky, & Casat, 1989). That is, either children are unable to differentiate between such constructs or the current assessment instruments lack the necessary discriminant validity. Regardless of the reason, research would clearly benefit from methodological attempts to eliminate overlapping items from self-report measures.

A final way that we ascertain children's cognitions and subjective feelings is via self-monitoring. Using our "Daily Diaries," we ask the children to keep track of each encounter they have with the phobic stimulus, during both the assessment and the treatment phase. For each encounter, the children rate their degree of fearfulness toward the fear stimulus, their accompanying cognitions, and the extent to which they approach or avoid the stimulus.

Not surprisingly, there is much variability in the quality of children's Daily Diary recordings. Although we have not examined systematically the factors that are related to "good" self-monitoring, anecdotally the following factors seem important: age (older children seem better than younger), verbal ability (more verbal children seem better than less), motivation (high motivation seems better than low), and "obsessive–compulsive" tendencies (an inverted U-shaped function). For those children who would appear to be poor candidates for self-monitoring procedures, therefore, perhaps a more structured monitoring procedure, along the lines discussed by Beidel et al. (1991), would be preferable.

In addition to the subjective–cognitive domain, we assess the behavioral domain using an analogue observation method, the Behavioral Approach Test (BAT). The BAT represents a test of the child's behavioral limits, as it measures the distance the child can approach the fear-provoking object in a natural environment before he/she feels that he/she "must stop" or avoid it. Clinically, it is informative to observe the actual extent of avoidant behavior on the part of the child. Clinically, it is informative to observe what a child actually does when in the presence of the phobic stimulus. From a research perspective, however, the ultimate conclusions that can be drawn are somewhat limited, given the absence of reliability and validity data of the procedure and the lack of standardized methods and

instructions (Silverman & Kearney, 1993). In addition, because dysynchrony among the three response systems is the rule rather than the exception (Rachman, 1977), it is difficult to determine what the "gold standard" for a BAT should be.

Concurrent with our assessment of the behavioral domain is our assessment of the physiological domain. Previous reviews of the scant childhood psychophysiological assessment literature (Silverman & Kearney, 1993) concluded that heart rate was the "preferred" physiological measure. Thus, in our work, we assess heart rate using a "Computer Instruments Heart Watch" (an electronic instrument that looks like a watch and is placed on the child's wrist) during the BAT. Following the BAT, the child's heart rate signals are counted by a computer. Recent data from our research clinic indicate that this procedure yields reliable test–retest heart rate scores in phobic children (Chapinoff, 1992). The ultimate utility of this measure remains to be determined, however.

Finally, because parents frequently view their child's problem differently than the child does (for a review, see Klein, 1991), we also obtain diagnostic and assessment data from the child's parent(s). Thus, we administer the parent version of the ADIS (ADIS-P), which yields a diagnosis based on the parent report (as well as a "composite" diagnosis, based on combining the child and parent interview data). In addition, because questionnaires specifically designed to assess parents' views about specific phobia in children have not been developed, we have modified several of the child self-report measures (e.g., the FSSC-R, the RCMAS) to make them appropriate for parents to complete on behalf of their child.

TREATMENT

As reviewed elsewhere (Silverman & Kearney, 1993; Silverman & Rabian, 1993), research conducted to date on treating childhood specific phobia is characterized by several methodological limitations. These limitations include: (1) the lack of adequately controlled experimental studies; the predominance of case reports or single case studies; (2) the lack of research conducted on clinical samples, the focus being on children with situational fears, such as fears of medical or dental procedures (e.g., Melamed & Siegel, 1975; Melamed, Hawes, Heiby, & Glick, 1975); (3) the lack of formal diagnostic procedures; (4) the lack of multimethod–multisource assessment procedures; and (5) the lack of systematic follow-up procedures. Because of these limitations, it is difficult to draw, with any degree of confidence, definitive conclusions about the "best" method of treating childhood phobia. However, in perusing the literature, there is one conclusion that can be stated rather confidently: Exposure to the fear stimulus is essential for a successful fear-reduction program (King, Hamilton, & Ollendick, 1988; Marks, 1975).

Thus, exposure is the primary element in our intervention program. We find it preferable to have child participants perform gradual exposures as delineated along the "steps of a fear hierarchy." The use of the hierarchy provides an opportunity for the child to gradually gain confidence (and reduce fear) when in the presence of the phobic stimulus, as he or she successfully completes each "step" of the hierarchy. The fear hierarchy is devised in the first treatment session by the therapist and the child (with input from the parent). Specifically, the child is asked to indicate "everything about [the phobic object]" that is frightening to him or her. Once a list of items is generated, the child, with assistance from the therapist, rank-orders each item from the least fearful to the most fearful. For example, the fear hierarchy for a child with a phobia of dogs might be: (1) seeing pictures of

dogs in magazines, (2) going to a pet shop and looking at a dog through the window, (3) going to a pet shop and petting a small puppy that is being held by somebody, (4) petting a larger dog that is on a leash, (5) petting yet a larger dog that is running loose (Silverman & Eisen, 1993).

Although breaking the exposure exercises down into small steps via the fear hierarchy makes the task of exposure easier for the children, we have found that some youngsters still find it difficult to perform these exercises—even the relatively "easy" exercises. Merely instructing them to "just do it," is insufficient. Indeed, at the very outset, many children report reluctance in participating in our 10-week treatment program on learning that exposure exercises are the key elements. Most children are willing to participate only after we tell them that the exposure phase does not begin until week 4 of the program, when they will be well along in learning "how not to be afraid."

The question that then arises is: How do we teach the children "how not to be afraid"? What strategies do we use to facilitate children's confrontation with the feared stimulus? A review of the literature on treatment of childhood phobia indicates that there are several strategies that might be used, including (1) contingency management procedures, (2) modeling, (3) systematic desensitization, and (4) cognitive or self-control procedures. Below, we highlight the key features of each strategy and indicate the types of phobias that have been successfully reduced via each strategy. This is followed by a brief discussion of our ongoing NIMH-funded childhood phobia treatment outcome study, which involves a comparison of contingency management with self-control procedures.

Briefly, contingency-management procedures, based on the principles of operant conditioning, stress the importance of the causal relationship between stimuli and behavior (Morris & Kratochwill, 1983). In our work, we rely on external agents of change (i.e., parents, therapists) to rearrange the environment to ensure that positive consequences follow exposure to the fear stimulus and that positive consequences do not follow avoidance of the fear stimulus (i.e., extinction). To ensure that positive consequences follow exposure, the parent and child sign a written contract each week that states that "if the child does [a specified exposure task] then [a specified reward] will be provided by the parent." To ensure that extinction follows avoidance, the parent is trained in basic principles of child management; the principle of extinction is a major focus of training.

Contingency management has been used most frequently to treat children with so-called "school phobia." However, as noted earlier, these children are in fact highly heterogeneous and may include children with specific phobias relating to the school setting. Other types of specific phobias for which contingency management has been successfully used are heights (Holmes, 1936) and small animals (Obler & Terwilliger, 1970).

Modeling procedures involve the child's learning to be less fearful by observing others handling the feared object or situation. The models observed may be actual or "live" models or observed on films/videotapes or "symbolic" models. Modeling procedures have been experimentally tested the most extensively (Barrios & O'Dell, 1989), although the focus has been primarily on dental and medical fears—not clinical phobias (e.g., Melamed & Siegel, 1975; Melamed et al., 1975). In addition to these situational fears, modeling procedures have been found to be effective in reducing children's fears of small animals (Bandura, Blanchard, & Ritter, 1969; Bandura & Menlove, 1968; Hill, Liebert, & Mott, 1968), water (Lewis, 1974), heights (Ritter, 1969), and test-taking (R. A. Mann, 1972).

Formally introduced by Wolpe (1958), systematic desensitization involves the following three phases: (1) teaching the child an antagonistic response (e.g., relaxation), (2) constructing a fear hierarchy, and (3) pairing the antagonistic response to each item on the

hierarchy. Some of the types of phobias that have been successfully treated with systematic desensitization include darkness (Jackson & King, 1981; Kelley, 1976), loud noises (Tasto, 1969; Wish, Hasazi, & Jurgela, 1973), test-taking (Barabasz, 1975; J. Mann & Rosenthal, 1969), water (Bentler, 1962; Ultee, Griffioen, & Schellekens, 1982), and heights (Croghan & Musante, 1975); and needles (Rainwater et al., 1989).

Finally, self-control procedures stress the important contribution of cognitive processes to behavior change, with each child directly involved in regulating his or her own behavior. In our work with phobic children, we focus on teaching specific thinking styles and on how to apply these styles when confronted with a particular feared stimulus. We use the *STOP* acronym to teach this skill: *S* stands for "*S*cared?," *T* for "*T*houghts," *O* for "*O*ther thoughts or *O*ther things I can do," and *P* for "*P*raise." In general, self-control procedures have been effective in reducing children's nighttime fears (Graziano, Mooney, Huber, & Ignasiak, 1979; Graziano & Mooney, 1980), fears of darkness (Kanfer, Karoly, & Newman, 1975), public speaking (Cradock, Cotler, & Jason, 1978; Fox & Houston, 1981), and bowel movement phobia (Eisen & Silverman, 1991).

Although there is evidence to suggest that each of these strategies has met with some success in reducing children's phobias, given the methodological limitations of the treatment research indicated in the beginning of this section, the efficacy of each strategy still warrants further scrutiny. It is also necessary to compare the relative effectiveness of each strategy and to examine effectiveness as a function of children's developmental level. As noted earlier, this is a primary focus of an NIMH-funded research project under way in our research clinic, that is, a comparison of contingency-management vs. self-control procedures with children 8–11 vs. 12–15 years old.

These two procedures were selected to study in light of previous reviews indicating that they appear to be especially promising methods of fear reduction (Morris & Kratochwill, 1983). From a theoretical perspective, these two procedures are intriguing to compare. As indicated, while contingency management emphasizes training parents in the use of appropriate contingencies to facilitate child approach behavior toward the feared stimuli, self-control emphasizes the training of self-control skills to the child to facilitate child approach behavior toward the feared stimuli. Thus, while the former relies on external agents (i.e., the parent, the therapist) serving as primary agents of change through manipulation of environmental stimuli, the latter relies on an internal agent of change (i.e., the child) serving as the primary agent of change, manipulating his or her cognitions. Both conditions are being compared to an educational support control group. Preliminary analyses suggest that both procedures are highly effective in reducing children's phobias; the effects of age as a factor will be examined after a larger sample is accumulated.

CASE REPORT

Presenting Problem

Janine, a 9-year-old Caucasian female, was referred by her school guidance counselor to the Child Anxiety and Phobia Program at Florida International University, Miami, because she cried, screamed, and ran out of the classroom during thunderstorms and whenever the firebell sounded. At the time of the referral, Janine's mother reported that Janine was "very afraid of loud noises," including thunder and loud bells as reported by the school counselor, as well as fireworks and "popping balloons." According to Janine's

mother, Janine had been exhibiting this reaction (i.e., crying, screaming, and running from the source of the noise) to loud noises since having her adenoids removed approximately 5 years earlier. Janine's pediatrician had ruled out any organic cause for her fear.

Although Janine had been fearful for several years, her mother reported that the problem seemed to be worse during the current school year. Not surprisingly, Janine's teacher found her behavior to be extremely disruptive in the classroom, and Janine's mother was also concerned that Janine's friendships were now being adversely affected, as Janine's fear of balloons popping and firecrackers caused her to avoid birthday parties and certain other social activities. In addition, Janine's family was sometimes forced to cancel outdoor activities when the appearance of storm clouds caused Janine to anticipate thunderstorms.

Both Janine and mother indicated an interference rating of "4" on the 0- to 4-point "How Much Things Get Messed Up/Interference Thermometer."

Diagnostic Workup and Differential Diagnosis

Janine and her mother were administered their respective versions of the Anxiety Disorders Interview Schedule for Children (ADIS-C and ADIS-P) (Silverman & Nelles, 1988). In addition, Janine completed a number of self-report measures, including the FSSC-R, the RCMAS, the STAIC, the SASC-R, and the CASI. Mother completed parent versions of the FSSC-R and the RCMAS, along with other measures. To determine whether Janine displayed other clinically significant internalizing or externalizing behavior problems, her mother also completed the Child Behavior Checklist (Achenbach & Edelbrock, 1983).

During the child interview, Janine reported "a lot" of fear of loud noises (a rating of "4" on the 0- to 4-point Fear Thermometer). When asked, Janine had a difficult time articulating specific thoughts experienced when exposed to loud noises except to say that she typically felt "surprised" by the noises that frightened her. She was able, however, to articulate what "feelings she had in her body" when she heard loud noises. Specifically, she indicated that her heart would beat very fast and her stomach would get upset. When asked what types of things she would do when exposed to loud noises, she indicated that she would put her hands over her ears, cry, and call out to her parents. Except for a high number of fears on the FSSC-R, all of Janine's other self-report scores were in the low range.

Janine's report that her heart would beat very fast when she was exposed to loud noises was consistent with the results obtained from the heart watch during the *in vivo* exposure task. As part of the assessment process, Janine's heart rate was measured while she was listening to an audiotape of a thunderstorm, played at a high volume.

During the parent interview, Janine's mother indicated that at times, Janine appeared to be surprised by the sudden onset of the fire alarms or firecrackers. However, she also reported that Janine was equally bothered by the loudness of thunder, the sound of which she could often anticipate by the appearance of lightning strikes, and by the sound of the television if it was turned up very loud. Similar to Janine's scores on the self-report measures, the scores obtained on the parent-completed questionnaires were unremarkable.

When her mother was asked what types of things she and her husband had tried in the past to deal with Janine's fear, she indicated that they typically tried to comfort her (verbally and physically) about her fear, while taking her away from the source of the noise. Her mother acknowledged that perhaps they were somewhat "overprotective" of Janine.

On the basis of the mother and child interview data, a composite DSM-III-R diagnosis of specific phobia of loud noises was assigned. This was the only diagnosis assigned on either the composite, child, or parent interview.

Treatment

Our 10-week treatment program requires participation by both the child and at least one of the parents. The child is seen for approximately 45 minutes, the parent for 30 minutes, and the two are then seen together for a 15-minute meeting with the therapist. For 2 weeks prior to treatment, and during treatment, Janine was asked to rate her degree of fear whenever she was exposed to a loud noise, her accompanying thoughts, and what types of things she did when she felt afraid, using the Daily Diaries. Treatment involved imaginal and *in vivo* exposure, the use of contingency contracts, and modeling. After Janine was first taught about the nature of phobias and the reactions typically experienced by children with phobias (i.e., subjective–cognitive, behavioral, and physiological), she was taught the concept of being rewarded for appropriate (i.e., nonfearful) behavior in fear-inducing situations. She was taught to identify tangible rewards, social rewards, and "activity" rewards. Together, she and her mother were taught to generate contingency contracts in which very specific rewards were given to Janine contingent on her responding without crying, screaming, or running away when confronted with a fear-provoking noise. To help Janine, the therapist modeled appropriate coping strategies, and Janine then followed or "tagged along" (Ollendick & Cerny, 1981).

In addition, gradual exposure tasks, based on a fear hierarchy developed by Janine and her mother, with the therapist's help, were conducted. Exposures were conducted both at home and in session using available noises, such as an audiotape of thunder and one of a fire alarm. Throughout these exposures, Janine received feedback and encouragement from her parents and the therapist.

During the 10-week course of treatment, Janine quickly acquired all the coping skills taught to her and progressed through the fear hierarchy with little difficulty. At the end of treatment, Janine's Daily Diary records revealed decreases in subjective experience of fear when exposed to loud noises and complete elimination of such behaviors as crying, screaming, or running to parents on hearing loud sounds. Janine's heart rate, assessed once again with the heart watch during the *in vivo* task, also suggested improvement at posttreatment. Readministration of the specific phobia section of the ADIS-C and ADIS-P further revealed that Janine no longer met criteria for specific phobia of loud noises, and there was no longer any interference in her or her family's functioning. Follow-up assessments revealed that Janine's progress was maintained at 3, 6, and 12 months posttreatment.

SUMMARY

Just as the definition of specific phobia has remained relatively static over the past 20 years, so has theoretical and conceptual understanding. Carefully conducted research, designed specifically to sharpen our knowledge of this disorder in childhood, is sparse. Compared to the study of clinically significant childhood fears, i.e., phobias, far greater attention has been paid to the study of less severe, "normal" fears. Moreover, the studies that have been conducted on childhood phobias are limited in a number of ways, such as their use of imprecise terminology (e.g., "excessive fears and worries"), their reliance on retrospective data, and so on. Despite such limitations in the research, in this chapter we have highlighted the areas that we believe to be central in a review of the disorder.

In terms of clinical presentation, although the focus of a specific phobia varies across

individuals (e.g., small animals, loud noises), the response pattern tends to be manifested along three systems: the motoric, the cognitive, and the physiological. Fear may become a "problem" (i.e., a "phobia") as evidenced by children's responses along one or more of these channels. For example, a child may present with excessive avoidance (i.e., the motoric channel) or with excessive catastrophic thinking (i.e., the cognitive channel). Accurate identification of the specific feared stimulus is also critical for proper differential diagnosis, given that the DSM requires that several other anxiety conditions (e.g., social phobia, obsessive–compulsive disorder) be ruled out prior to assigning a diagnosis of specific phobia.

Despite the growing attention to the issue of comorbidity in psychopathology research, very little work has focused on comorbidity with respect to childhood specific phobia. Although there is recent evidence that suggests that both internalizing and externalizing disorders are comorbid with specific phobia, additional research, using general clinic samples (not just children referred to anxiety specialty clinics), is necessary. Such research will help clarify the patterns of comorbidity associated with the disorder.

Although based largely on retrospective data, studies examining age of onset indicate that specific phobia has the earliest onset of the phobic disorders. In addition, there is some evidence that fear of animals, among the various types of specific phobia, may appear earlier than most other phobias. Overall, findings in the area of developmental trends suggest that specific phobia may be a collection of separate, but related, disorders. In terms of the course of the disorder, the conclusions that can be drawn are tenuous at best, due to the paucity of research in this area. The limited existing evidence suggests a tendency of some types of phobias to improve over time without treatment, although the findings suggest that some phobic symptoms persist if untreated.

Epidemiological research has placed the rate of specific phobia in children in the general population at about 3% and slightly higher among clinic-referred samples. However, apart from the finding that females tend to report more fears than males, no conclusive data have been reported on the impact of age, ethnicity, or socioeconomic status on prevalence.

The discussion of etiology in this chapter focused on familial and learning factors, with an emphasis on the notion that phobias are overdetermined and multidetermined. Also emphasized was the need for further research to clarify individual differences in the acquisition of phobias.

Consistent with the view of specific phobia as a multichannel response pattern, assessment must address cognitive, motoric, and physiological channels. In our work, interviews and questionnaires are used to assess the cognitive channel, behavior approach tasks are used to assess the motoric or behavioral channel, and a "heart watch," which measures heart rate, is used to assess the physiological channel. Each of these various methods of assessment has its advantages and disadvantages, however. Cognizance of these advantages and disadvantages is important from both a clinical and a research perspective.

Due to the limitations of the treatment literature, it is difficult to draw conclusions about the "best" method for treating specific phobia in children. However, it has been well documented that exposure to the feared stimulus must be part of any successful treatment program. The efficacy of exposure might then be facilitated by coupling it with various adjunctive strategies, such as contingency management, modeling, systematic desensitization, or self-control training. At present, the greatest need in the area of treatment is for research that systematically evaluates the relative efficacy of each of these different intervention strategies.

Overall, to the extent that this chapter kindles the initiation of this type of treatment research, as well as the other avenues of research that have been highlighted throughout, then a major aim of the chapter—as well as of the entire volume—will have been attained.

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REFERENCES

Abe, K. (1972). Phobias and nervous symptoms in childhood and maturity: Persistence and associations. *British Journal of Psychiatry, 120*, 275–283.

Achenbach, T. M., & Edelbrock, C. (1983). *Manual for the Child Behavior Checklist and Revised Child Behavior Profile*. Burlington: University of Vermont.

Agras, W. S., Chapin, H. N., & Oliveau, D. C. (1972). The natural history of phobia. *Archives of General Psychiatry, 26*, 315–317.

Agras, W. S., Sylvester, D., & Oliveau, D. C. (1969). The epidemiology of common fears and phobia. *Comprehensive Psychiatry, 10*, 151–156.

American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders*, 4th ed., Washington, DC: Author.

Anderson, J. C., Williams, S., McGee, R., & Silva, P. A. (1987). DSM-III disorders in preadolescent children. *Archives of General Psychiatry, 44*, 69–76.

Atkinson, L., Quarrington, B., Cyr, J. J., & Atkinson, F. V. (1985). Differential classification in school refusal. *British Journal of Psychiatry, 155*, 191–195.

Bandura, A., & Menlove, F. L. (1968). Factors determining vicarious extinction of avoidance behavior through symbolic modeling. *Journal of Personality and Social Psychology, 8*, 99–108.

Bandura, A., Blanchard, E. B., & Ritter, B. (1969). Relative efficacy of desensitization and modeling approaches for inducing behavioral, affective, and attitudinal changes. *Journal of Personality and Social Psychology, 13*, 173–199.

Barabasz, A. F. (1975). Classroom teachers as paraprofessional therapists in group systematic desensitization of test anxiety. *Psychiatry, 38*, 388–392.

Barlow, D. H. (1988). *Anxiety and its disorders: The nature and treatment of anxiety and panic*. New York: Guilford Press.

Barrios, B. A., & O'Dell, S. L. (1989). Fears and anxieties. In E. J. Mash & R. A. Barkley (Eds.), *Treatment of childhood disorders* (pp. 167–221). New York: Guilford Press.

Barrios, B. A., Hartmann, D. B., & Shigetomi, C. (1981). Fears and anxieties in children. In E. J. Mash & L. G. Terdal (Eds.), *Behavioral assessment of childhood disorders* (pp. 259–304). New York: Guilford Press.

Bauer, D. H. (1976). An exploratory study of developmental changes in children's fears. *Journal of Child Psychology and Psychiatry, 17*, 69–74.

Beidel, D. C. (1988). Psychophysiological assessment of anxious emotional states in children. *Journal of Abnormal Psychology, 97*, 80–82.

Beidel, D. C., & Turner, S. M. (1988). Comorbidity of test anxiety and other anxiety disorders in children. *Journal of Abnormal Child Psychology, 16*, 275–287.

Beidel, D. C., Neal, A. M., & Lederer, A. S. (1991). The feasibility and validity of a daily diary for the assessment of anxiety in children. *Behavior Therapy, 22*, 505–518.

Bentler, P. M. (1962). An infant's phobia treated with reciprocal inhibition therapy. *Journal of Child Psychology and Psychiatry, 3*, 185–189.

Bernstein, G. A., & Garfinkel, B. D. (1986). School phobia: The overlap of affective and anxiety disorders. *Journal of the American Academy of Child Psychiatry, 2*, 235–241.

Bird, H. R., Canino, G., Rubio-Stipee, M., Gould, M. S., Ribera, J., Sesman, M., Woodbury, M., Huertas-Goldman, S., Pagan, A., Sanchez-Lacay, A., & Moscoso, M. (1988). Estimates of the prevalence of childhood maladjustment in a community survey in Puerto Rico. *Archives of General Psychiatry, 45*, 1120–1126.

Brady, U., & Kendall, P. C. (1992). Comorbidity of anxiety and depression in children and adolescents. *Psychological Bulletin, 111*, 244–255.

Burglass, P., Clarke, J., Henderson, A. S., Kreitman, D. N., & Presley, A. S. (1977). A study of agoraphobic housewives. *Psychological Medicine, 7*, 73–86.

Burke, A. E., & Silverman, W. K. (1987). Prescriptive treatment for school refusal. *Clinical Psychology Review, 7*, 353–362.

Chapinoff, A. (1992). *Test–retest reliability of heart response in children with phobic disorder*. Unpublished master's thesis, Florida International University.

Costello, A. J., Edelbrock, C., Kalas, R., Dulcan, M. K., & Klaric, S. H. (1984). *Development and testing of the NIMH Diagnostic Interview Schedule for Children (DISC) in a clinical population: Final report*. Rockville, MD: Center for Epidemiological Studies.

Cradock, C., Cotler, S., & Jason, L. A. (1978). Primary prevention: Immunization of children for speech anxiety. *Cognitive Therapy and Research, 2*, 389–396.

Croake, J., & Knox, F. (1973). The changing nature of children's fears. *Child Study Journal, 3*, 91–105.

Croghan, L., & Musante, G. J. (1975). The elimination of a boy's high-building phobia by in vivo desensitization and game playing. *Journal of Behavior Therapy and Experimental Psychiatry, 6*, 87–88.

Davey, G. C. L. (1992). Classical conditioning and the acquisition of human fears and phobias: A review and synthesis of the literature. *Advances in Behaviour Research and Therapy, 14*, 29–66.

Eisen, A. R., & Silverman, W. K. (1991). Treatment of an adolescent with bowel movement phobia using self-control therapy. *Journal of Behavior Therapy and Experimental Psychiatry, 22*, 45–51.

Eme, R., & Schmidt, D. (1978). The stability of children's fears. *Child Development, 49*, 1277–1279.

Endicott, J., & Spitzer, R. L. (1978). A diagnostic interview: The Schedule for Affective Disorders and Schizophrenia. *Archives of General Psychiatry, 35*, 837–844.

Finch, A. J., Jr., Lipovsky, J. A., & Casat, C. D. (1989). Anxiety and depression in children and adolescents: Negative affectivity or separate constructs? In P. C. Kendall & D. Watson (Eds.), *Anxiety and depression: Distinctive and overlapping features* (pp. 171–202). San Diego: Academic Press.

Fox, J. E., & Houston, B. K. (1981). Efficacy of self-instructional training for reducing children's anxiety in an evaluative situation. *Cognitive Therapy and Research, 19*, 509–515.

Francis, G.,Strauss, C. C., & Last, C.G. (1987). *Social anxiety in school phobic adolescents*. Paper presented at the Annual meeting of the Association for Advancement of Behavior Therapy, Boston.

Fyer, A. J., Mannuzza, S., Gallops, M. S., Martin, L. Y., Aaronson, C., Gormon, J. M., Liebowitz, M. R., & Klein, D. F. (1990). Familial transmission of simple phobias and fears: A preliminary report. *Archives of General Psychiatry, 47*, 252–256.

Graziano, A. M., & DeGiovanni, I. S. (1979). The clinical significance of childhood phobias: A note on the proportion of child-clinical referrals for the treatment of children's fears. *Behaviour Research and Therapy, 17*, 108–112.

Graziano, A. M., & Mooney, K. C. (1980). Family self-control instruction for children's nighttime fear reduction. *Journal of Consulting and Clinical Psychology, 48*, 206–213.

Graziano, A. M., Mooney, K. C., Huber, C., & Ignasiak, D. (1979). Self-control instruction for children's fear reduction. *Journal of Behavior Therapy and Experimental Psychiatry, 10*, 221–227.

Hampe, E., Noble, M., Miller, L. C., & Barrett, C. L. (1973). Phobic children at two years post-treatment. *Journal of Abnormal Psychology, 82*, 446–453.

Hill, J. H., Liebert, R. M., & Mott, D. E. W. (1968). Vicarious extinction of avoidance behavior through films: An initial test. *Psychological Reports, 22*, 192.

Holmes, F. B. (1936). An experimental investigation of a method of overcoming children's fears. *Child Development, 7*, 6–30.

Jackson, H. J., & King, N. J. (1981). The emotive imagery treatment of a child's trauma-induced phobia. *Journal of Behavior Therapy and Experimental Psychiatry, 12*, 325–328.

Kanfer, F. H., Karoly, P., & Newman, A. (1975). Reduction of children's fear of the dark by competence-related and situational threat-related verbal cues. *Journal of Consulting and Clinical Psychology, 43*, 251–258.

Kashani, J. H., & Orvaschel, H. (1990). A community study of anxiety in children and adolescents. *American Journal of Psychiatry, 147*, 313–318.

Kashani, J. H., Orvaschel, H., Rosenberg, R., & Reid, J. C. (1989). Psychopathology in a community sample of children and adolescents: A developmental perspective. *Journal of the American Academy of Child and Adolescent Psychiatry, 28*, 701–706.

Kearney, C. A., & Silverman, W. K. (1990). A preliminary analysis of a functional model of assessment and treatment for school refusal behavior. *Behavior Modification, 14*, 340–366.

Kearney, C. K., & Silverman, W. K. (1993). Measuring the function of school refusal behavior: The School Refusal Assessment Scale. *Journal of Clinical Child Psychology, 22*, 85–96.

Kelley, C. K. (1976). Play desensitization of fear of darkness in preschool children. *Behaviour Research and Therapy, 14*, 79–81.

Kendall, P. C., & Chansky, T. E. (1991). Considering cognition in anxiety-disordered children. *Journal of Anxiety Disorders, 5*, 167–185.

Kendler, K. S., Neale, M. C., Kessler, R.C., Heath, A. C., & Eaves, L. J. (1992). The genetic epidemiology of phobias in women. *Archives of General Psychiatry, 49*, 273–281.

Kennedy, W. A. (1965). School phobia: Rapid treatment of fifty cases. *Journal of Abnormal Psychology, 70*, 285–289.

King, N. J., Hamilton, D. I., & Ollendick, T. H. (1988). *Children's phobias: A behavioural perspective*. New York: John Wiley.

Klein, R. G. (1991). Parent–child agreement in clinical assessment of anxiety and other psychopathology: A review. *Journal of Anxiety Disorders, 15*, 187–198.

La Greca, A. M., & Stone, W. (1993). The Social Anxiety Scale for Children—Revised. Factor structure and concurrent validity. *Journal of Clinical Child Psychology, 22*, 17–27.

Lang, P. J. (1968). Fear reduction and fear behavior: Problems in treating a contruct. In J. M. Shliem (Ed.), *Research in psychotherapy*. Washington, DC: American Psychological Association.

Lang, P. J. (1977). Fear imagery: An information processing analysis. *Behavior Therapy, 8*, 862–886.

Lapouse, R., & Monk, M. (1959). Fears and worries in a representative sample of children. *American Journal of Orthopsychiatry, 29*, 803–818.

Last, C. G., & Francis, G. (1988). School phobia. In B. B. Lahey & A. E. Kazdin (Eds.), *Advances in clinical/child psychology*, Vol. 11 (pp. 193–222). New York: Plenum Press.

Last, C. G., Perrin, S., Hersen, M., & Kazdin, A. E. (1992). DSM-III-R anxiety disorders in children: Sociodemographic and clinical characteristics. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 1070–1076.

Lewis, S. (1974). A comparison of behavior therapy techniques in the reduction of fearful avoidance behavior. *Behavior Therapy, 5*, 648–655.

Liddell, A., & Lyons, M. (1978). Thunderstorm phobias. *Behaviour Research and Therapy, 16*, 306–308.

Mann, J., & Rosenthal, T. L. (1969). Vicarious and direct counterconditioning of test anxiety through individual and group desensitization. *Behaviour Research and Therapy, 7*, 359–367.

Mann, R. A. (1972). The behavior-therapeutic use of contingency contracting to control an adult behavior problem: Weight control. *Journal of Applied Behavior Analysis, 5*, 99–109.

Marks, I. M. (1987). *Fears, phobias, and rituals*. New York: Oxford Press.

Marks, I. M., & Gelder, M. G. (1966). Different ages of onset in varieties of phobia. *American Journal of Psychiatry, 123*, 218–221.

Mattison, R. E., Bagnato, S. J., & Brubaker, B. H. (1985). Diagnostic utility of the Revised Children's Manifest Anxiety Scale in children with DSM-III anxiety disorders. *Journal of Anxiety Disorders, 2*, 147–155.

McGee, R., Feehan, M., Williams, S., & Anderson, J. (1992). The DSM-III disorders from age 11 to age 15 years. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 50–59.

McGee, R., Feehan, M., Williams, S., Partridge, F., Silva, P. A., & Kelly, J. (1990). DSM-III disorders in a large sample of adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 611–619.

Melamed, B. G., & Siegel, L. J. (1975). Reduction of anxiety in children facing hospitalization and surgery by way of filmed modeling. *Journal of Consulting and Clinical Psychology, 43*, 511–512.

Melamed, B. G., Hawes, R., Heiby, E., & Glick, J. (1975). Use of filmed modeling to reduce uncooperative behavior of children during dental treatment. *Journal of Dental Research, 54*, 797–801.

Miller, L. C., Barrett, C. L., & Hampe, E. (1974). Phobias of childhood in a prescientific era. In A. Davids (Ed.), *Child personality and psychopathology: Current topics* (pp. 89–134). New York: John Wiley.

Moran, C., & Andrews, G. (1985). The familial occurrence of agoraphobia. *British Journal of Psychiatry, 146*, 262–267.

Morris, R. J., & Kratochwill, T. R. (1983). *Treating children's fears and phobias: A behavioral approach*. Elmsford, NY: Pergamon Press.

Norvell, N., Brophy, C., & Finch, A. J., Jr. (1985). The relationship of anxiety to childhood depression. *Journal of Personality and Assessment, 49*, 150–153.

Noyes, R., Crowe, R. R., Harris, E. L., Hamra, B. J., McChesney, C. M., & Chaudhry, D. R. (1986). Relationship between panic disorder and agoraphobia. *Archives of General Psychiatry, 43*, 227–232.

Obler, M., & Terwilliger, R. F. (1970). Pilot study on the effectiveness of systematic desensitization with neurologically impaired children with phobic disorders. *Journal of Consulting and Clinical Psychology, 34*, 314–318.

Ollendick, T. H. (1979). Fear reduction techniques with children. In P. Miller & R. Eisler (Eds.), *Progress in Behavior Modification*, Vol. 8 (pp. 127–168). New York: Academic Press.

Ollendick, T. H. (1983a). Reliability and validity of the Revised Fear Survey Schedule for Children (FSSC-R). *Behavior Research and Therapy, 21,* 685–692.

Ollendick, T. H. (1983b). Anxiety disorders in children. In M. Hersen (Ed.), *Practice of outpatient behavior therapy: A clinician's handbook.* New York: Grune & Stratton.

Ollendick, T. H., & Cerny, H. A. (1981). *Clinical behavior therapy with children.* New York: Plenum Press.

Ollendick, T. H., & Francis, G. (1988). Behavioral assessment and treatment of childhood phobias. *Behavior Modification, 12,* 165–204.

Ollendick, T. H., & Mayer, J. A. (1984). School phobia. In S. M. Turner (Ed.), *Behavioral theories and treatment of anxiety* (pp. 367–411). New York: Plenum Press.

Ollendick, T. H., King, N. I., & Hamilton, D. I. (1991). Origins of childhood fears: An evaluation of Rachman's theory of fear acquisition. *Behaviour Research and Therapy, 29,* 117–123.

Öst, L. G. (1985). Ways of acquiring phobias and outcome of behavioral treatments. *Behaviour Research and Therapy, 23,* 683–689.

Öst, L. (1987). Age of onset in different phobias. *Journal of Abnormal Psychology, 96,* 123–145.

Öst, L. G., & Hugdahl, K. (1983). Acquisition of agoraphobia, mode of onset and anxiety response patterns. *Behaviour Research and Therapy, 21,* 623–631.

Puig-Antich, J., & Chambers, W. (1978). *The schedule for affective disorders and schizophrenia for school-aged children.* New York: New York State Psychiatric Institute.

Rachman, S. (1977). The conditioning theory of fear acquisition: A critical examination. *Behaviour Research and Therapy, 15,* 375–387.

Rainwater, N., Sweet, A. A., Elliott, L., Bower, M., McNeil, J., & Stump, N. (1989). Systematic desensitization in the treatment of needle phobias for children with diabetes. *Child and Family Behavior Therapy, 10,* 19–31.

Reich, J., & Yates, W. (1988). Family history of psychiatric disorders in social phobia. *Comprehensive Psychiatry, 29,* 72–75.

Reynolds, C. R., & Richmond, B. O. (1978). What I think and feel: A revised measure of children's manifest anxiety. *Journal of Abnormal Child Psychology, 6,* 271–280.

Ritter, B. (1969). Treatment of acrophobia with contact desensitization. *Behaviour Research and Therapy, 7,* 41–45.

Rutter, M., Tizard, J., & Whitmore, K. (1970). *Education, health, and behavior.* New York: John Wiley.

Sheehan, D. V., Sheehan, K. E., & Minichiello, W. E. (1981). Age of onset of phobic disorders: A reevaluation. *Comprehensive Psychiatry, 22,* 544–553.

Silverman, W. K. (1991). Diagnostic reliability of anxiety disorders in children using structured interviews. *Journal of Anxiety Disorders, 5,* 105–124.

Silverman, W. K., & Eisen, A. R. (1993). Phobic disorders. In R. T. Ammerman, C. G. Last, & M. Hersen (Eds.), *Handbook of prescriptive treatments for children and adolescents* (pp. 189–201). Needham Heights, MA: Allyn & Bacon.

Silverman, W. K., & Kearney, C. A. (1992). Listening to our clinical partners: Informing researchers about children's fears and phobias. *Journal of Behavior Therapy and Experimental Psychiatry, 23,* 71–76.

Silverman, W. K., & Kearney, C. A. (1993). Behavioral treatment of childhood anxiety disorders. In V. B. Van Hasselt & M. Hersen (Eds.), *Handbook of behavior therapy and pharmacotherapy for children: A comparative analysis* (pp. 33–53). Needham Heights, MA: Allyn & Bacon.

Silverman, W. K., & Eisen, A. R. (1992). Age differences in the reliability of parent and child reports of child anxious symptomology using a structured interview. *Journal of the American Academy of Child and Adolescent Psychiatry, 31,* 117–124.

Silverman, W. K., & Nelles, W. B. (1988). The Anxiety Disorders Interview Schedule for Children. *Journal of the American Academy of Child and Adolescent Psychiatry, 27,* 772–778.

Silverman, W. K., & Nelles, W. B. (1991). Simple phobia in childhood. In M. Hersen & C. Last (Eds.), *Handbook of child and adult psychopathology: A longitudinal perspective* (pp. 183–193). New York: Pergamon Press.

Silverman, W. K., & Rabian, B. (1993). Simple phobias. In H. L. Leonard (Ed.), *Child and adolescent psychiatric clinics of North America.* Philadelphia: W. B. Saunders.

Silverman, W. K., Cerny, J. A., Nelles, W. B., & Burke, A. (1988). Behavior problems in children of parents with anxiety disorders. *Journal of the American Academy of Child and Adolescent Psychiatry, 27,* 779–784.

Silverman, W. K., Fleisig, W., Rabian, B., & Peterson, R. A. (1991). Childhood anxiety sensitivity index. *Journal of Clinical Child Psychology, 20,* 162–168.

Slater, E., & Shields, J. (1969). Genetical aspects of anxiety. In M. J. Lader (Ed.), *Studies of anxiety* (pp. 62–71). Royal Medico-Psychological Association, London.

Solyom, L., Beck, P., Solyom, C., & Hugel, R. (1974). Some etiological factors in phobic neurosis. *Canadian Psychiatric Association Journal, 19,* 69–78.

Spielberger, C. D. (1973). *State–Trait Anxiety Inventory for Children*. Palo Alto, CA: Consulting Psychologist Press.

Strauss, C. C., Last, C. G., Hersen, M., & Kazdin, A. E. (1988). Association between anxiety and depression in children and adolescents. *Journal of Abnormal Child Psychology, 16*, 57–68.

Tasto, D. L. (1969). Systematic desensitization, muscle relaxation and visual imagery in the counterconditioning of a four-year-old phobic child. *Behaviour Research and Therapy, 7*, 409–411.

Thyer, B. A., Parrish, R. T., Curtis, E. C., Nesse, R. M., & Cameron, O. G. (1985). Ages of onset of DSM-III anxiety disorders. *Comprehensive Psychiatry, 26*, 113–122.

Torgersen, S. (1979). The nature and origin of common phobic fears. *British Journal of Psychiatry, 134*, 343–351.

Ultee, C. A., Griffioen, D., & Schellekens, J. (1982). The reduction of anxiety in children: A comparison of the effects of "systematic desentization in vitro" and "systematic desensitization in vivo." *Behaviour Research and Therapy, 20*, 61–67.

Werry, J. S., & Quay, H. C. (1971). The prevalence of behavior symptoms in younger elementary school children. *American Journal of Orthopsychiatry, 41*, 136–143.

Wish, P., Hasazi, J., & Jurgela, A. (1973). Automated direct deconditioning of a childhood phobia. *Journal of Behavior Therapy and Experimental Psychiatry, 4*, 279–283.

Wolfe, V. V., Finch, A. J., Jr., Saylor, C. F., Blount, R. L., Pallmeyer, T. P., & Carek, D. J. (1987). Negative affectivity in children: A multitrait–multimethod investigation. *Journal of Consulting and Clinical Psychology, 55*, 245–250.

Wolpe, J. (1958). *Psychotherapy by reciprocal inhibition*. Stanford: Stanford University Press.

World Health Organization (1992). *International classification of mental and behavioral disorders, clinical descriptions and diagnostic guidelines*, 10th ed. (ICD-10). Geneva: Author.

Young, J. P. R., Fenton, G. W., & Lader, M. J. (1971). The inheritance of neurotic traits: A twin study of the Middlesex Hospital Questionnaire. *British Journal of Psychiatry, 119*, 393–398.

6

Social Phobia

Deborah C. Beidel and Jeff Randall

INTRODUCTION

Fears in social situations appear to be a ubiquitous phenomenon. Cross-cultural investigations indicate that social fears exist among Australian, Swedish, Israeli, American, and Japanese children and adolescents (Abe & Suzuki, 1986; Ginter, Lufi, Trotzky, & Richmond, 1989; Miller, 1983; Slee & Cross, 1989; A. K. Watson, Monroe, & Atterstrom, 1984). Despite the universality of such fears, there appears to be a subset of children who express fears of social interaction to such an extent that the fears interfere with daily functioning or impede social–emotional development. These children may meet diagnostic criteria for social phobia.

In 1985, social phobia was called the "neglected anxiety disorder" (Liebowitz, Gorman, Fyer, & Klein, 1985). Although the term was used in the psychiatric literature more than 20 years ago (Marks, 1970), "social phobia" was formally introduced into the American diagnostic nomenclature with the 1980 publication of the *Diagnostic and Statistical Manual of Mental Disorders*, 3rd edition [American Psychiatric Association (APA), 1980]. Since 1985, there has been a surge of research interest in the assessment and treatment of social phobia in adult populations. Despite this increased interest, the disorder remains virtually unstudied in children and adolescents. Thus, we know very little about its etiology, course, clinical manifestations, or prognosis. It should be noted that there is an extensive behavioral literature on children and adolescents described as shy, withdrawn, or peer-neglected, and at times, data from those populations will be used to illustrate specific

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points. Nonetheless, the focus of this chapter will remain on those children who meet diagnostic criteria for DSM-III-R social phobia.

PHENOMENOLOGY

Social phobia is defined as "a persistent fear of one or more situations (the social phobic situations) in which the person is exposed to possible scrutiny by others and fears that he or she may do something or act in a way that will be humiliating or embarrassing" (APA, 1987, p. 243). The definition used in the 9th edition of the *International Classification of Mental and Behavioral Disorders* (ICD-9) (World Health Organization, 1991) is quite similar, describing social phobia as a fear of eating, speaking, or writing in public. The situations that commonly create distress for those with social phobia include speaking, eating, drinking, or writing in public, using public restrooms, or interacting at social events such as parties or meetings. For children between the ages of 8 and 12, the most commonly identified distressful situations are those that involve public speaking (reading aloud, giving a book report, giving a speech), which are endorsed as anxiety-producing by 88.8% of socially phobic children (Beidel & Turner, 1993). Other situations commonly identified include eating in public (39.3%), writing in public (27.6%), going to parties (27.6%), using public restrooms (24.1%), speaking to authority figures (20.7%), and informal speaking situations [interacting with peers, with friends of one's parents (13%)]. However, although public speaking situations are the most universally distressing, they are not the most commonly occurring events. When socially phobic children were asked to keep a diary of their social encounters for a 2-week period, 42.9% of the distressful events recorded were unstructured peer interactions (informal speaking situations) (Beidel, 1992). Taking tests was the second most frequent (19.5%), followed by performing in front of others [sports, musical, or dance recitals (11.7%)], reading aloud (10.4%), having a test handed back (7.8%), reading a report in front of others (3.9%), writing on the board (1.3%), and being called on by the teacher (1.3%). Thus, although public speaking situations may be the most universally distressing, interpersonal interactions were the events most frequently encountered.

At times, almost any child can experience distress in situations such as public speaking. However, socially phobic children can be distinguished from normal controls on the basis of the frequency of the anxiety-producing situations that they encounter, the severity of distress that they experience, their response to the occurrence of these events, and the frequency of adaptive or maladaptive coping behaviors. These parameters were examined in a group of children with social phobia, a group with overanxious disorder, and a group of normal controls (Beidel, 1991). Over a 2-week period, children with social phobia reported that a distressful event occurred approximately every other day, significantly more often than the number reported by normal control children. Socially phobic children reported significantly more distress than the normal controls as a result of these encounters, and only children with social phobia reported anxiety when reading aloud, giving a report, or writing on the board. All children were asked to record their responses to the events, and their responses were then classified as positive, negative, or neutral. Positive responses included extra preparation prior to the event and using coping statements such as telling themselves, "Don't be nervous, it will be OK." Negative responses included experiencing headaches or stomachaches, crying, refusing to do as asked, getting someone else to perform the task, and hiding to avoid performing the task. Neutral responses included just performing the behavior as instructed. The diary data indicated that socially

phobic children reported significantly more negative responses than the normal control children. The most commonly occurring negative responses were experiencing headaches or stomachaches (31%), crying (4%), refusing to do as told (4%), hiding eyes so as not to be called on (2%), getting someone else to do it instead (1%), and pretending to be sick in order to avoid the event (1%). The socially phobic children also used positive coping responses [telling self not to be nervous (31%), practicing ahead of time to decrease anxiety (8%)] to a substantial degree.

In addition to providing information on the activities and coping behaviors of socially phobic children, the data from this investigation illustrate two important points. First, the presence of positive coping behaviors indicates that children with social phobia "naturally" use cognitive coping strategies in an attempt to alleviate their distress. Because these children are still experiencing significant distress, their current attempts are inadequate. Nonetheless, formal instruction in the use of coping procedures may be an important avenue for treatment. Second, the applicability of the term "social phobia" to describe the clinical condition of socially anxious children has been a matter of some controversy, because actual avoidance of phobic situations had never been demonstrated empirically. However, these data indicate that 8% of the children's responses to distressful events involve some form of avoidance. Furthermore, behavioral avoidance in adult populations is often quite subtle (Turner, Beidel, & Townsley, 1992); assuming a degree of similarity between adults' and children's behavior, the frequency of avoidance behaviors could therefore be higher than that actually reported by the children.

In addition to these characteristic behaviors, children with social phobia present with a broad range of somatic complaints. When asked to describe the physical symptoms they experienced in situations that made them fearful, anxious children (those with social phobia or overanxious disorder) reported the following (in order of decreasing frequency): heart palpitations (70.8%), shakiness (66.7%), flushes/chills (62.5%), sweating (54.2%), nausea (54.2%), dizziness, (37.5%), tingling (33.3%), derealization (33.3%), chest pain (29.2%), fainting (25%), feeling like they were going crazy (25%), headache (20.8%), difficulty catching breath (16.7%), choking (16.7%), and feeling like they were dying (12.5%) (Beidel, Christ, & Long, 1991). Thus all the somatic complaints that are characteristic of anxiety and panic were endorsed by these children, albeit in varying frequencies. What is more important is that four of the somatic complaints most commonly endorsed (heart palpitations, shaking, flushes, and sweating) are the physical symptoms most often associated with socially phobic adults. Furthermore, this specific response profile is characteristic of β-adrenergic system activation, suggesting that this system may be important in the onset or maintenance of this disorder (Gorman & Gorman, 1987).

Few studies have measured directly the physical responses of socially phobic children when engaged in interpersonal interactions. Beidel (1991) assessed the pulse rates of children with social phobia, overanxious disorder, or no disorder when engaged in two social evaluative tasks: taking a vocabulary test and reading aloud before a small audience. During both tasks, children with overanxious disorder showed no change or a decrease in pulse rates, whereas the normal control children showed minimal or no increases. In contrast, the children with social phobia consistently had the highest pulse rate increases during the tasks. The responses were consistent with those found for socially phobic adults (Turner, Beidel, & Larkin, 1986) and behaviorally inhibited children (Kagan, Reznick, Clarke, Snidman, & Garcia-Coll, 1984), and furthermore are consistent with the characteristic response of an individual suffering from any type of phobic disorder.

Much attention has been given in the adult literature to the cognitions of social phobics, characterized by negative thoughts about their social performance and negative

evaluations by others about their social behavior. However, it is unclear whether children can make causal attributions about the social behaviors of others that are similar to those of adults. Similar concern about the applicability of the cognitive dimension of panic disorder (i.e., do children have the cognitive capacity to experience fear of dying or going crazy?) was raised by Nelles and Barlow (1988), although according to the data described earlier, a percentage do report these symptoms. With respect to social phobia, a study assessing the perceptual and conceptual abilities of 2nd, 4th, and 7th graders found that even children as young as 2nd grade viewed less socially competent characters (i.e., children who "acted" fearfully and were reticent in the social encounter) as more worried, more uneasy, and less sure of themselves than those who acted in a more socially competent fashion (Darby & Schlenker, 1986). By 4th grade, children associated higher motivation to make a favorable impression with higher social anxiety. All children expected less socially skilled characters to have more trouble communicating, fidget more, act more clumsily, refrain from looking at others, talk less, and smile less. Although the perceptual abilities became more proficient with age (7th graders were significantly better than 2nd graders at making these judgments), the results of this study demonstrate that even very young children are capable of perceiving the behaviors and motivations that are characteristic of those with social phobia. However, it may be that a certain degree of cognitive maturity is necessary in order for social phobia to manifest itself as it exists in adults. Given that children have the prerequisite conceptual abilities (even though their perceptual abilities mature with age), assessing the cognitive style of socially phobic children is relevant and feasible.

In general, the negative cognitions of socially anxious children appear to be similar to those of adults (e.g., "Everyone is looking at me, what if I do something wrong?" (Stefanek, Ollendick, Baldock, Francis, & Yaeger, 1987). Beidel (1991) noted that children with social phobia were more likely to report the presence of negative cognitions that were children with overanxious disorder or normal controls when engaged in social-evaluative tasks, although overall the children reported the presence of very few cognitions. The paucity of thoughts reported by the children may represent a genuine difference between the cognitive style of socially phobic children and their adult counterparts (e.g., Turner, Beidel, & Jacob, 1994). In contrast, it may be a result of the thought-listing procedure used in that particular investigation. Although the children were instructed in thought-listing prior to the actual assessment, this form of measurement may be too sophisticated for preadolescent children (for a further discussion of this issue, see the "Assessment Issues" section below). Further research with different forms of cognitive assessment are necessary to define more clearly the cognitive parameters of social phobia in young children.

In summary, children with social phobia endorse distress in a variety of social encounters. Their distress is accompanied by a broad range of somatic complaints. Children appear to understand the concept of social anxiety and correctly attribute social apprehension and social awkwardness in others. It is unclear at this time whether children experience the negative cognitions that are an important aspect of social phobia in adults; however, further investigations with cognitive assessments appropriate for young children are necessary.

EPIDEMIOLOGY

Social phobia appears to affect a small but significant proportion of the general population, approximately 1%. In a large epidemiological study of 11-year-old children conducted in New Zealand, the prevalence rate for social phobia was 0.9% (Anderson,

Williams, McGee, & Silva, 1987). When the children were reassessed at age 15, the prevalence rate was 1.1% (McGee et al., 1990). This rate however, may be an underestimation of the true prevalence because fear of public speaking was considered to be a simple phobia in that study. In a cross-sectional study conducted in the United States (Kashani & Orvaschel, 1990), 1% of children aged 8, 12, or 17 were diagnosed as socially phobic. With respect to prevalence rates in clinical populations, 24–29% of children with clinically significant test anxiety met criteria for a diagnosis of social phobia (Beidel, 1991; Beidel & Turner, 1993). Finally, 14.9% of children and adolescents assessed at an anxiety disorders clinic presented with a primary diagnosis of social phobia, and 32.4% had a lifetime history of the disorder (Last, Perrin, Hersen, & Kazdin, 1992).

Retrospective reports of adult social phobics indicate that the typical age of onset is early to middle adolescence; consistent with this finding, Kashani and Orvaschel (1990) reported that fears of social situations were significantly more common in 12- and 17-year-olds than in 8-year-olds. Nonetheless, Beidel and Turner (1988) identified socially phobic children as young as age 8, and the average age of onset in the Last et al. (1992) sample was 11.3 years. Thus, although middle to late adolescence may be typical, it is evident that the disorder can, and does, occur earlier.

There are few data examining gender and racial distribution for children with social phobia. Social phobia is considered unique among adults with anxiety disorders because it is the one phobic condition that is as prevalent among males as among females, at least in clinical populations. Males comprised 44.3% of the clinic-referred sample reported by Last et al. (1992), but only 14–30% of community samples (Anderson et al.,1987; Beidel & Turner, 1993). Only a few studies have examined prevalence rates with respect to race. Last et al. (1992) reported that 85.2% of their socially phobic sample was white, but the composition of the remaining 14.8% was not described. The socially phobic sample of Beidel (1991) was 61% white and 39% African-American. Finally, in a sample of clinically significant test-anxious children, 52% of children who met criteria for social phobia were white, and the other 48% were African-American (Beidel, M. Turner, & Trager, 1994). To date, differences in the symptom expression of socially phobic children based on race have yet to be examined, although this is an area sorely in need of investigation. To summarize, variations in gender and racial distribution among the studies reviewed are most likely due to differences in sampling procedures. For example, the Beidel et al. (1994) investigation made specific concerted efforts to recruit African-American children in the sample, and their results indicate that social phobia is common among African-American as it is among Caucasian children.

CLINICAL CORRELATES

In addition to the aforementioned clinical characteristics, children with social phobia are significantly more depressed and more fearful of failure and have less confidence in their cognitive ability and higher trait anxiety than normal controls (Beidel, 1992; Francis, Last, & Strauss, 1992). Temperamentally, children with social phobia are more socially withdrawn and therefore less likely to approach others (Beidel, 1992). In addition, their behavior is characterized by a more rigid temperamental style; i.e., they are less adaptable to changes in their environment. These temperamental traits are significant because they mirror closely the two personality disorders most commonly diagnosed in adult social phobics (avoidant personality disorder and obsessive–compulsive personality disorder). Currently, it is

unclear whether these temperamental factors predispose one to the development of social phobia or if they are merely correlates of the disorder. Identification of individuals at risk for the onset of social phobia is necessary in order to determine the role of these potentially important temperamental characteristics.

COMORBIDITY

Many children with social phobia also have other anxiety and affective disorders. In two studies that examined the prevalence of anxiety disorders, 87–91% of a sample of socially phobic children presenting at an anxiety disorders clinic had an additional anxiety disorder and 24–56% had an affective disorder (44.3% had a lifetime history of major depression) (Francis et al., 1992; Last et al., 1992). Among those with a comorbid anxiety disorder in the socially phobic sample, 21% had avoidant disorder, 8% had panic disorder, 13% had obsessive–compulsive disorder, 39–48% had overanxious disorder, 26% had separation anxiety disorder, and 41% had simple phobia. Interestingly, the rate of comorbidity for overanxious disorder (39–48%) is similar to the 33.3% rate of concurrent generalized anxiety disorder found in clinic samples of socially phobic adults (Turner et al., 1991). Beidel and Turner (1993) reported lower rates of concurrent disorders in their sample of socially phobic children, although the same disorders were present. Overall, 10% of the children had a comorbid diagnosis, 7% had a concurrent diagnosis of overanxious disorder, and 3.4% had a concurrent diagnosis of simple phobia. Again, differences may reflect different recruitment strategies (i.e., children recruited through school districts vs. those referred for treatment to a specialized clinic).

DIFFERENTIAL DIAGNOSIS

At present there are few empirical data available (based on child and adolescent populations) to assist the clinician in differential diagnosis. For example, the difficulty in differentiating social phobia from avoidant disorder of childhood and adolescence has already been noted. Clinically, children with separation anxiety disorder fear estrangement from a primary caregiver, whereas those with social phobia fear situations that entail the presence of and scrutiny by others. Children with a phobic disorder of school (that was social in origin) were found to be significantly older than children with separation anxiety disorder (Last, Hersen, Kazdin, Finkelstien, & Strauss, 1987). Children with panic disorder experience the sudden onset of somatic sensations such as dizziness, breathlessness, heart palpitations, and paresthesias. Some of those with panic disorder also have agoraphobia, a fear of being trapped or unable to get help should a panic attack occur. Thus, while those with panic disorder and agoraphobia fear crowds per se, those with social phobia fear the individuals who make up the crowd (Marks, 1970). Simple phobia is defined as a fear of any situation other than social situations or fear of a panic attack. Children with social phobia had a later age of onset and greater severity of illness and were more likely to have had a history of depressive disorder than children with a simple phobia (Last et al., 1992).

The diagnostic criteria for avoidant disorder of childhood and adolescence are quite similar to those for social phobia. Whereas social phobia is a fear of social encounters in which there is the possibility of humiliation or embarrassment, avoidant disorder is "excessive shrinking from contact with unfamiliar people, for a period of six months or

longer, sufficiently severe to interfere with social functioning in peer relationships" (APA, 1987, p. 61) (also see Chapter 7). Children with avoidant disorder express a desire for social involvement and usually have satisfying relationships with family and friends. Thus, both disorders involve anxiety and distress when in the company of others, although the criteria for social phobia are more specific regarding the basis for the distress. On the basis of examination of the diagnostic criteria, it would appear that avoidant disorder of childhood may represent an extreme form of social phobia, similar to the relationship that exists between social phobia and avoidant personality disorder in adult populations (e.g., Herbert, Hope, & Bellack, 1992; Holt, Heimberg, & Hope, 1992; Turner et al., 1992).

Results of comparisons in adults across a number of variables (e.g., demographic data, clinical characteristics, treatment response) indicated that those with avoidant personality disorder are more severe on several dimensions (e.g., severity of depression, general anxiety). Furthermore, there are clinical indications that those with avoidant personality disorder (1) have a cognitive style that closely resembles those with paranoid personality disorder and (2) may have a different treatment response (Turner & Beidel, 1992). To date, comparisons of social phobia and avoidant disorder in child populations have been limited to two studies of sociodemographic and clinical characteristics (Francis et al., 1992; Last et al., 1992), and no differences between the two groups have been detected. Last et al. (1992) noted that a primary diagnosis of avoidant disorder is rare, and in 90% of the cases, it is accompanied by other concurrent disorders, typically social phobia or overanxious disorder or both. Given the low frequency of cases and the lack of distinctiveness between avoidant disorder and social phobia, several investigators have suggested that there is little reason to retain avoidant disorder as a separate diagnostic category (Francis et al., 1992; Last et al., 1992). However, this conclusion may be premature. First, other researchers (e.g., Cantwell & Baker, 1989) found avoidant disorder to be the most prevalent anxiety disorder in a sample of children referred to a speech and language clinic. Second, investigations examining aspects of psychopathology other than demographic characteristics and anxiety and depression scores (e.g., temperamental characteristics, behavioral assessment data, treatment response data) are necessary in order to draw definitive conclusions about the distinctiveness of these disorders.

Perhaps the most difficult distinction is that between social phobia and overanxious disorder. As noted by Werry (1991), many of the diagnostic criteria of overanxious disorder are social-evaluative in nature (i.e., worry about the appropriateness of past behavior; concern about competence in academic, athletic, or social areas; and marked self-consciousness) (APA, 1987). Beidel (1991) compared children with social phobia, overanxious disorder, or no psychiatric disorder with respect to a number of clinical variables. The results of a discriminant function analysis indicated that the two groups could be differentiated on the basis of self-perceptions of their cognitive abilities, resting pulse rates, and trait anxiety scores. Specifically, children with social phobia had significantly lower perceptions of their cognitive competence, significantly lower resting pulse rates, and somewhat lower (but not significantly lower) trait anxiety scores. Interestingly, there were a number of variables (cognitive competence, distress ratings during an age-appropriate vocabulary test, frequency of anxiety-producing events, severity of distress produced by those events, and frequency of negative and neutral coping behaviors utilized to alleviate distress) in which the socially phobic children differed from normal controls, but the overanxious children did not. Thus, one conclusion is that children with social phobia are significantly more impaired as a result of their fears than children with overanxious disorder (Beidel, 1991).

SIMILARITY TO THE ADULT DISORDER

In DSM-III-R, social phobia is not included in the Child and Adolescent section of the manual, although the diagnosis is appropriate to give to children if it is warranted. When the clinical presentation of children and that of adults diagnosed with social phobia are compared, it becomes apparent that there are many similarities, but there are also several differences (Beidel & Turner, 1993). For example, the prevalence rate of social phobia in the general adult population is estimated to be 2% (Robins et al., 1984), whereas the prevalence rate for children and adolescents is 1%. However, if the average age of onset is mid- to late adolescence, then it is likely that many children have not yet passed through the age of risk, thus accounting for the differences between the child, adolescent, and adult samples. Public speaking is the situation most frequently endorsed by both adults and children. Eating and writing in public are also endorsed with equal frequency, but fear of informal speaking situations (parties and meetings) is more commonly endorsed by adults than by children. As noted earlier, the same physical complaints are present in both populations. Similarly, overanxious disorder (in children) and generalized anxiety disorder (in adults) are the most common comorbid disorders, although the rate of the concurrent disorders in adults is even higher than the rate for some samples of children. Obsessive–compulsive personality disorder (characterized by a rigid behavioral style) and avoidant personality disorder (characterized by social withdrawal and very limited interpersonal relationships) are common among adults with social phobia, and as noted above, interpersonal rigidity and social withdrawal are temperamental characteristics found in socially phobic children. Both groups show increased pulse rates when in social-evaluative situations. However, negative cognitions are quite common in adult populations, but are far less common in children. In summary, the clinical presentation of social phobia in children and adolescents is consistent with that of adults, although several aspects of the disorder (cognitions, prevalence rate) appear to be less developed in younger populations.

SOCIAL PHOBIA AND BEHAVIORAL INHIBITION

A series of studies by Kagan and his colleagues have examined the temperamental construct called "behavioral inhibition." Children who are behaviorally inhibited respond to novel situations and unfamiliar people by ceasing play activity, becoming quiet, and retreating to familiar individuals and circumstances (Kagan et al., 1984). Approximately 10–15% of white American children meet the definition for behavioral inhibition. Children who are behaviorally inhibited have higher heart rates and less heart rate variability when engaged in stressful cognitive and emotional tasks. They also demonstrate inhibited play and reluctance to answer difficult questions asked by an unfamiliar adult (Kagan et al., 1984). Follow-up investigations of behaviorally inhibited children indicate that the behaviors are stable from 21 or 31 months of age through at least age 7½, although a percentage of children do change classification. In addition, the stability of classifications is higher for overt behaviors than for the physiological variables. Furthermore, 66% of the behaviorally inhibited children had gastrointestinal difficulties, nightmares, and separation fears, differentiating them from those who were uninhibited (Kagan, Reznick, & Snidman, 1987).

Biederman and his colleagues (Biederman et al., 1990) examined two samples of children classified as behaviorally inhibited, including a sample of children who participated in the longitudinal study of Kagan et al. (1987). The results indicate that behaviorally

inhibited children were significantly more likely than uninhibited children or healthy controls to have more than two anxiety disorders and to have oppositional disorder. The basis of the oppositional disorder is unclear. For example, were the oppositional behaviors related to refusal to "do chores" or a refusal to attend social gatherings or interact with other children? In the latter situation, the oppositional behavior may be a form of avoidance, although confirmation by empirical studies would be necessary. Returning to the study findings, the behaviorally inhibited children in one sample were more likely than normal controls or uninhibited children to have overanxious disorder. In the second sample, the behaviorally inhibited children were more likely than uninhibited children to meet criteria for phobic disorders. Unfortunately, the diagnostic interview used in this study did not allow for specific phobic diagnoses such as agoraphobia or social phobia. However, the most commonly reported fears were standing up and speaking in front of the class, bugs, strangers, and the dark. Thus, although some of the most common fears have a social-evaluative basis, others that were endorsed with equal frequency bear no relationship to social phobia. These findings suggest that behaviorally inhibited children are at risk for anxiety disorders (as well as oppositional disorder). Despite this potential relationship, there does not appear to be a specific or consistent relationship between behavioral inhibition and any one anxiety disorder, including social phobia.

SOCIAL PHOBIA AND SHYNESS

Surveys indicate that a substantial percentage of the general population consider themselves shy. For example, among 5000 adult Americans, 40% considered themselves to be currently shy and 90% reported a history of shyness (Zimbardo, Pilkonis, & Norwood, 1975). Among children, 38% of 5th graders called themselves shy (Lazarus, 1982), while parental reports of 8- to 10-year-olds indicated that 28% of boys and 32% of girls were shy (Caspi, Elder, & Bem, 1988). The word "shy," of course, is a lay term used to describe reticence and withdrawal in social situations. Several investigators have suggested that there are subtypes of shyness: *fearful shyness*, which stems from temperamental variables and has an onset prior to age 6; and *self-conscious shyness*, which develops after the formation of a cognitive self-concept, with an onset at age 6 or later (Buss, 1985). In a retrospective study of these subtypes, those who were classified as fearful shys had an earlier age of onset, more severe shyness, and greater physiological arousal than self-conscious shys (Bruch, Giordano, & Pearl, 1986), suggesting that the former may represent a more severe subtype. An indication that self-conscious shys may be less severe is that they appeared to grow less shy with increasing age. Actually, many individuals seem to "grow out" of their shyness. For example, approximately 50% of college students who currently considered themselves not shy reported that they had been shy at some time during their childhood or adolescence (Bruch et al., 1986). These results suggest that individuals who consider themselves shy probably constitute a diverse group, a subset of whom may meet criteria for social phobia. The data indicate that the fearful shys may constitute the more severely disordered individuals (Turner, Beidel, & Townsley, 1990). Given that behaviorally inhibited children have higher physiological arousal, it is tempting to speculate that there may be significant overlap between the constructs of fearful shyness and behavioral inhibition. In addition, Buss (1985) notes that temperament may be a significant contributor to the construct of fearful shyness. Finally, a recent review of the literature suggested that there are several distinct areas of similarities as well as some differences between shyness and social

phobia (Turner et al., 1990). Nevertheless, the relationships among shyness, behavioral inhibition, and social phobia have not been studied empirically.

SOCIAL PHOBIA AND TEST ANXIETY

In the 1960s, approximately 20% of elementary-age children endorsed the presence of clinically significant test anxiety. More recently, approximately 34–42% of African-American and white children described themselves as test-anxious (Beidel et al., in press). Test anxiety in children has been the subject of empirical investigation for the past 30 years, and its correlation with poor academic performance has been well established (Campbell, 1986). More recently, however, empirical investigations have focused on the relationship of test anxiety to other childhood anxiety disorders. One impetus for this series of studies stemmed from observations that the core fear of test anxiety, like that for social phobia, is a fear of negative evaluation. Sarason (1975) has noted that test anxiety is one aspect of a broader construct that includes social anxiety, speech anxiety, and teaching anxiety. In addition, when socially phobic adults were asked to identify situations that produced significant distress, 19% of the adults identified testing situations. The relationship of childhood test anxiety to social phobia (and other childhood anxiety disorders) in elementary-school children has been the subject of several investigations. Test-anxious children were noted to have higher trait anxiety, more fears, and poorer perceptions of their cognitive competence than normal children (Beidel & Turner, 1988). In addition, they had increased pulse rates, more negative cognitions, and higher distress ratings when taking a vocabulary test or reading aloud before a small group (Beidel, 1988; Beidel & Turner, 1988). The similarity of responses across tasks indicates that children with test anxiety experience distress in social-evaluative settings other than vocabulary test. Perhaps most important, 24% of children with clinically significant test anxiety met DSM-III criteria for social phobia. The results of this investigation have been replicated with a second sample of white children (using DSM-III-R criteria) (Beidel, 1992) and with a sample of African-American children (Beidel et al., 1994). In summary, test anxiety like shyness or behavioral inhibition, may be a vulnerability factor that predisposes one to the onset of anxiety disorders. Other factors are also likely to play a role, and prospective studies are needed in order to determine the contribution of each of these components.

SOCIAL PHOBIA AND ELECTIVE MUTISM

The term "elective mutism" was coined in 1934 to describe a group of children who would speak only with a small group of intimates, usually those in the child's home (Tramer, 1934). Since that time, reports describing the psychopathology of children who exhibit this behavior have consistently described them as timid, anxious, shy, oversensitive, and fearful of strangers (Kolvin & Fundis, 1981; Lesser-Katz, 1986; Wilkins, 1985). In addition, Kolvin and Fundis (1981) reported that there was invariably a streak of negativism and poor malleability in these children, which is reminiscent of the temperamental rigidity found in children diagnosed with social phobia (Beidel, 1991) or the oppositional disorder reported in behaviorally inhibited children (Biederman et al., 1990). Consistent with the gender distribution for community samples of childhood social phobia noted earlier, elective mutism is more frequent among females than males.

Recently, there have been two case reports of successful pharmacological treatment of elective mutism: a 7-year-old girl treated with phenelzine (Goldwyn & Weinstock, 1990) and a 12-year-old girl treated with fluoxetine (Black & Uhde, 1992). The positive treatment outcome also is consistent with findings of pharmacological treatment for social phobia. Phenelzine has been established as the most effective pharmacological treatment for social phobia in adults (Liebowitz et al., 1992). The efficacy of fluoxetine for social phobia has not yet been fully demonstrated, but a preliminary report appears quite promising (Black, Uhde, & Tancer, 1992). However, placebo-controlled trials are necessary. The relationship of elective mutism to more traditional forms of social phobia and perhaps avoidant disorder is unstudied but promising (see Leonard, 1994).

ETIOLOGY

One of the most often cited explanations for the etiology of any phobic disorder is that of a traumatic conditioning event. Data on the etiology of childhood and adolescent social phobia are not available, but there are retrospective reports of adult patients. Approximately 50–58% of adult social phobics reported that the onset of their disorder followed the occurrence of a traumatic event (Öst, 1985; Stemberger, Turner, Beidel, & Calhoun, 1994). Therefore, although a substantial percentage of patients can identify a specific conditioning incident, others merely report that they have had the disorder "all my life." Nonetheless, it is currently unclear to what extent other modes of acquisition, such as social learning or information transmission, play a role in the etiology of this disorder.

Family and twin studies are often used as evidence for a biological etiology. Although there are few studies that directly addressed familial factors in social phobia, Last and her colleagues have published a series of articles assessing anxiety disorders in children and their families in which social phobia was included. In the most recent publication (Last, Hersen, Kazdin, Orvaschel, & Perrin, 1991), 69.9% of the first-degree relatives of anxious children also had an anxiety disorder, compared to 50% of the relatives of attention-deficit hyperactivity disorder (ADHD) children and 40.5% of the first-degree relatives of normal controls. The differences in the percentages of affected first-degree relatives were significant, even though percentages of families with an anxiety disorder were quite high for all the groups. When the data were examined for the presence of a specific anxiety disorder, social phobia was significantly more prevalent among the first-degree relatives of the anxious children (as were avoidant disorder and overanxious disorder) when compared to the normal controls. However, there was no difference in prevalence rates for these disorders between the anxiety and ADHD groups, and the relatives of socially phobic children were not more likely to have social phobia themselves than were the relatives of ADHD or normal control children. These data indicate that despite a significantly higher rate of anxiety disorders in the relatives of anxiety-disordered children, there was no specific relationship between the anxiety disorder of the proband and that diagnosed in the relative.

The existence of anxiety disorders in the parents and siblings of behaviorally inhibited children also has been documented (Rosenbaum et al., 1991). When compared with parents of uninhibited and normal control children, the parents of children with behavioral inhibition had significantly higher risks for the presence of (1) more than two anxiety disorders, (2) a childhood anxiety disorder, and (3) a continuing anxiety disorder (from childhood through adulthood). Interestingly, it was the significantly higher rates of *social phobia*, *avoidant disorder*, and *overanxious disorder* that accounted for the significant

differences noted above. Specifically, social phobia was present in 17.5% of the inhibited, 0% of the uninhibited, and 2.9% of the normal control children's parents. Likewise, avoidant disorder was present in 15% of the inhibited, 0% of the uninhibited, and 0% of the normal control children's parents. In addition to the presence of social fears in behaviorally inhibited children presented earlier, this family study provides further support for a relationship between behavioral inhibition and social phobia. However, the rates indicate that this is not a one-to-one relationship and that other etiological factors are important. In summary, these data suggest that there may be a familial predisposition, but the specific factors (biological, psychological, environmental) remain to be elucidated.

Torgersen (1983) examined rates of anxiety disorder in monozygotic (MZ) and dizygotic (DZ) twins. The results indicated that when generalized anxiety disorder was excluded, there was a higher concordance rate (34%) in MZ twins than in the DZ twins (17%) for the remaining disorders. However, in no case did the co-twin have the same anxiety disorder as the proband. Thus, although this study provides some support for the heritability of anxiety states, it is not a specific anxiety disorder that is inherited. Similar results were reported from a twin study examining the heritability of behaviorally inhibited and uninhibited children (Robinson, Kagan, Reznick, & Corley, 1992). MZ and DZ twins (178 and 162 pairs, respectively) were assessed at 14, 20, and 24 months of age. The aggregate index of behavioral inhibition, which was moderately stable across all ages, indicated that heritability was a significant factor in the determination of inhibition at each of the three ages. However, the heritable effects were found for the most inhibited groups, but not for the most uninhibited group, suggesting that it is the extremely inhibited behaviors that may be inherited. Still, the results of this study are limited because the determination of zygosity was based on observer ratings (albeit stringent) of physical similarities, rather than the more conservative blood-typing procedures. One note of caution is in order when interpreting the results of twin studies. As noted in Robinson et al. (1992), there is an assumption that all twins share environmental events in the same fashion, which is not necessarily the case. In addition to their identical genetic makeup, MZ twins probably share environmental events as well as genes more "identically" than DZ twins, thus clouding the interpretation of twin studies.

On the basis of the data reviewed thus far, it is evident that the development of social phobia is a complex process. An interesting model that addresses both constitutional predisposition and environmental factors is presented by Ohman (1986). The applicability of this model for the etiology of social phobia has been presented previously (Turner & Beidel, 1989). In short, for rhesus monkeys, late adolescence or early adulthood has been suggested by Ohman (1986) to be the critical period for the development of social fearfulness, conceptualized as one end of a behavioral continuum anchored on the other end by social dominance. Hierarchies among nonhuman primates who live in social groups are based on social status, determined by expressions of social dominance among group members. When these expressions are met with fearfulness or submission, the fearful or submissive individuals are relegated to lower positions on the social hierarchy. As applied to social phobia (Turner & Beidel, 1989), it is during the time period when children are confronted with establishing their place within a social system (such as a peer group) that the onset of social phobia is likely to occur. Constitutionally vulnerable children (perhaps as a result of higher trait anxiety or behavioral inhibition) are more likely to respond to the challenge of establishing themselves within the peer group with anxious or withdrawn behaviors, thereby lowering their social status. A full explanation of the relationship of Ohman's hypotheses to

the development of social phobia is beyond the scope of this chapter (for a complete discussion, see Turner & Beidel, 1989). However, this model serves a heuristic function by identifying avenues for further investigations of the etiology of social phobia.

ASSESSMENT ISSUES

Throughout this chapter, it has been noted that there exist few empirical data pertaining to the psychopathology of social phobia. One reason for this state of affairs is that instruments to diagnose or assess the clinical features of social phobia have yet to be developed. With respect to diagnosis, there are several structured and semi-structured interviews that could be used to assist in the diagnosis. Yet few of the psychometric studies that have been published have reported reliability coefficients for social phobia. One exception is Silverman and Eisen (1992), who reported a κ coefficient of 0.73 based on the Anxiety Disorders Interview Schedule for Children. Silverman (1991) provides an excellent review of the literature with respect to the diagnostic reliability of the available structured interviews. As noted in Silverman's review, there are a number of diagnostic interviews available that vary with respect to structure and flexibility but are all quite similar with respect to age-appropriateness. In addition, most of the interviews have parent and child versions, allowing diagnostic decisions based on a composite rating using multiple informants. However, Klein (1991) noted the relatively poor agreement between parents and children with respect to anxiety symptoms and identified several factors that may be influential in contributing to these inconsistencies, including the age of the child, severity of the child's psychopathology, gender, and parental psychopathology. In summary, the selection of an interview schedule depends on many factors, some of which are noted here. The interested reader is referred to Klein (1991) and Silverman (1991) for an extensive discussion of these issues.

Among the self-report inventories available to assess anxiety in children are the Fear Survey Schedule for Children—Revised (FSSC-R) (Ollendick, 1983), the Revised Children's Manifest Anxiety Scale (Reynolds & Richmond, 1978), the State–Trait Anxiety Inventory for Children (Spielberger, 1973), and the Modified State–Trait Anxiety Inventory for Children (Fox & Houston, 1983). In general, these measures have moderate to good reliability, high internal consistency, and acceptable validity correlations. Studies have consistently demonstrated that these measures differentiate clinic samples from normal controls (e.g., Beidel, 1991; Last, 1991; Ollendick, 1983). However, these instruments do not seem to differentiate anxious children from nonanxious psychiatric controls (Perrin & Last, 1992; Strauss, Last, Hersen, & Kazdin, 1988) or to discriminate among children with different anxiety disorders (Strauss et al., 1988). To be fair, these instruments were not developed specifically to discriminate among the particular anxiety disorder diagnoses, and the lack of instruments available to do so represents a significant limitation for the further study of these disorders.

Recently, several instruments have been developed specifically to assess social anxiety and social phobia in child and adolescent populations. The Social Anxiety Scale for Children—Revised (SASC-R) (LaGreca & Stone, 1991) is a rationally derived inventory designed to assess *fear of negative evaluation* and *social avoidance and distress*. As such, it is an extension of the adult scales of D. Watson and Friend (1969) of the same names. The SASC-R has three factors: fear of negative evaluation, social avoidance and distress—new

situations, and social avoidance and distress—general. The SASC-R has satisfactory test–retest reliability and internal consistency (LaGreca, 1989). The scale is moderately correlated with general measures of anxiety, self-perceptions of social competence, teacher ratings of anxiety–withdrawal, and peer nominations of rejection and neglect. In summary, the SASC-R has excellent psychometric properties, but the adult versions of these scales (D. Watson & Friend, 1969) do not discriminate between social phobics and individuals with other anxiety disorders. Likewise, the discriminative validity of the SASC-R has yet to be determined.

There are two measures that appear to have significant utility for the assessment of social phobia in child and adolescent populations because they were developed specifically to address the construct of social phobia. Although originally developed to assess adult patients, the internal consistency and validity of the Social Phobia and Anxiety Inventory (SPAI) has been assessed in an adolescent sample (Clark, Turner, Jacob, Beidel, & Donovan, in press). Results indicated that the instrument has high internal consistency and correlates well with other measures of anxiety and fear, particularly the FSSC-R Fear of Criticism subscale. In addition, adolescents with social phobia scored significantly higher on the SPAI than those with other anxiety disorders, other psychiatric disorders, and normal controls. Thus, the SPAI appears to have good validity for the assessment of adolescents with social phobia. A child version of the SPAI, the Social Phobia and Anxiety Inventory for Children (SPAI-C), is currently under development for use with child and adolescent populations (Beidel, Turner, & Morris, 1993). Preliminary results indicate that the SPAI-C has high test–retest reliability and high internal consistency. It is significantly correlated with other self-report measures of anxiety, social competence, and general self-esteem. In addition, it is significantly correlated with parental reports of internalizing behaviors and social competence. Finally, the SPAI-C successfully discriminated socially anxious children and adolescents from a normal control group. At this time, it is clear that reliable and valid self-report measures for social phobia are available, although it is unclear whether the SPAI or the SPAI-C is more appropriate for adolescent populations. In summary, although there are several self-report instruments useful for the assessment of general fears and anxiety, there are few that have been developed specifically to assess certain DSM-III-R anxiety disorders. The SPAI and the SPAI-C represent exceptions. It is to be hoped that other such measures for other anxiety disorders will be forthcoming.

Psychophysiological assessment is an understudied area of the assessment of childhood anxiety. As noted above, when engaged in social-evaluative tasks, children with social phobia have a higher pulse rate response than normal controls (Beidel, 1991). Nonetheless, basic issues of reliability have yet to be fully explored. A preliminary analysis of test-anxious children indicated that 2-week test–retest reliability coefficients for baseline systolic blood pressure and pulse rates were $r = 0.64$ and $r = 0.67$, respectively (Beidel, 1991). During two behavioral tasks, coefficients for pulse rate and systolic blood pressure were $r = 0.62$ and $r = 0.48$ when test-anxious children were taking a vocabulary test and $r = 0.78$ and $r = 0.63$ when they were reading aloud before a small group. The data from this investigation must be interpreted cautiously because the sample size was small. In addition, the psychometric properties of these physical parameters as they relate to assessment in children and adolescents should be a high research priority inasmuch as somatic responses to challenging, novel, or stressful tasks may serve as an important indicator for those at risk for or vulnerable to the development of anxiety disorders (Kagan et al., 1987; Turner, Beidel, & Epstein, 1991).

Similar to the problem with psychophysiological measures, assessment of the cogni-

tive component of childhood anxiety disorders has received very little empirical attention. The Children's Anxious Self-Statement Questionnaire (CASSQ) (Ronan, Rowe, & Kendall, 1988) is a self-statement measure containing negative and positive thoughts that anxious children might experience. The CASSQ differentiates normal controls from clinically anxious samples, but to date, there are no data to indicate that the scale is useful in differentiating among the anxiety disorders diagnostic categories. As noted earlier, thought-listing was used to assess the cognitions of children with social phobia (Beidel, 1992). Kendall and Chansky (1991) provide an excellent review of the issues related to the use of thought-listing, and these issues will be summarized here. First, anxious children appear to have a one-track response pattern; i.e., they report negative cognitions, but do not report the presence of positive thoughts, even if the latter occur. In contrast, the advantage of self-statement inventories is that they present positive and negative thoughts. A second limitation of the thought-listing method is that children may discuss the anxiety-producing situation rather than list specific cognitions. Encouraging children to (1) think of a tape recorder in their minds and to replay the tape with all their thoughts or (2) think about the thought bubbles they see in cartoons and tell what was in their thought bubbles are two useful prompts to enhance children's thought-listing capabilities (Kendall & Chansky, 1991). In summary, although these measures are potentially useful, further empirical work addressing thought-listing and self-statement questionnaires is necessary, particularly given the important role of cognitive factors in social phobia.

Two widely used measures of child psychopathology are the Child Behavior Checklist (Achenbach, 1978; Achenbach & Edelbrock, 1979) and the Child Behavior Checklist—Teacher Report Form. These instruments have good reliability and validity and contain narrow-band content scales (specific areas of psychopathology) and broad-band scales (internalizing and externalizing dimensions). Although some of the narrow-band scales appear to assess behaviors that might be characteristic of social phobia, to date there are no empirical data that examine the validity of these subscales for this specific disorder.

Self-monitoring is a common tool for the assessment of disordered behavior, and this procedure appears to have some utility in the assessment of socially phobic children. Daily diaries (recording the occurrence of specific anxiety-producing events) appear to be useful for children as young as age 8 if specific developmental considerations are observed (Beidel, Neal, & Lederer, 1991). For example, in 3rd and 4th grade children, daily diaries using a pictorial format resulted in significantly higher compliance with diary completion than an identical written format. In contrast, format was not a factor in compliance of 5th and 6th grade children. The 6-month test–retest reliability coefficient for the daily diary was $r = 0.50$, indicating moderate reliability. Higher reliability coefficients could be difficult to achieve, given that the occurrence of events (the basis for the recordings) is not under the individual's total control. Finally, the results of this study indicate that there needs to be specific attention to the child's compliance with the self-monitoring task. In this study, children were instructed to complete the diary for a 2-week period with no provision for intermittent reinforcement. The results indicated that 56% of test-anxious children and 70% of normal control children completed the diary for 10 of the 14 days; only 31% of the test-anxious and 39% of the non-test-anxious children completed the diary for the entire 14 days. The provision of frequent reinforcers may serve to increase compliance with the monitoring task. In summary, daily diary ratings provide important information on the daily functioning of socially phobic children (Beidel, 1991). However, careful attention to developmental factors is necessary in order to assure compliance with the task and the validity of the data recorded.

SUMMARY

Social phobia is an understudied aspect of childhood psychopathology. Current diagnostic practices may be a complicating factor, inasmuch as children with social-evaluative fears may be diagnosed as having social phobia, avoidant disorder of childhood, or perhaps even overanxious disorder because social anxiety is part of all these disorders. Proposed diagnostic revisions for DSM-IV may clarify some of the current diagnostic confusion, inasmuch as it has been suggested that avoidant disorder be eliminated from the diagnostic schema. Furthermore, the diagnostic criteria for overanxious disorder may be more closely aligned with those for generalized anxiety disorder, which decrease its overlap with social phobia. If both these revision are implemented, more children with social fears will be diagnosed with social phobia, which in turn may increase interest in the scientific investigation of this disorder. Many areas of assessment should be a top priority in order to understand the specific psychopathology and to lay a foundation for the study of effective treatment strategies. Prospective studies are necessary in order to determine which children "grow out" of their fears and which children do not. With respect to treatment, controlled investigations of psychological and pharmacological treatments are necessary. Given the chronic nature of social phobia, early detection and intervention could serve a valuable preventative function.

REFERENCES

Abe, K., & Suzuki, T. (1986). Prevalence of some symptoms in adolescence and maturity: Social phobias, anxiety symptoms, episodic illusions and idea of reference. *Psychopathology, 19*, 200–205.

Achenbach, T. M. (1978). The child behavior profile: I. Boys aged 6–11. *Journal of Consulting and Clinical Psychology, 46*, 478–488.

Achenbach, T. M., & Edelbrock, C. S. (1979). The child behavior profile. II. Boys aged 12–16 and girls aged 6–11 and 12–16. *Journal of Consulting and Clinical Psychology, 47*, 223–233.

American Psychiatric Association (1980). *Diagnostic and Statistical Manual of Mental Disorders*, 3rd ed. Washington, DC: Author.

American Psychiatric Association (1987). *Diagnostic and Statistical Manual of Mental Disorders*, 3rd ed., revised. Washington, DC: Author.

Anderson, J. C., Williams, S., McGee, R., & Silva, P. A. (1987). DSM-III disorders in preadolescent children. *Archives of General Psychiatry, 44*, 69–76.

Beidel, D. C. (1988). Psychophysiological assessment of anxious emotional states in children. *Journal of Abnormal Psychology, 97*, 80–82.

Beidel, D.C. (1991). Social phobia and overanxious disorder in school-age children. *Journal of the American Academy of Child and Adolescent Psychiatry, 30*, 545–552.

Beidel, D. C. (1992). Social phobia in children. Paper presented at the National Institute of Mental Health, Washington, DC, May 1992.

Beidel, D. C., & Turner, S. M. (1988). Comorbidity of test anxiety and other anxiety disorders in children. *Journal of Abnormal Child Psychology, 16*, 275–287.

Beidel, D. C., & Turner, S. M. (1993). Are socially phobic children the same as socially phobic adults? Medical University of South Carolina: Unpublished manuscript.

Beidel, D. C., Christ, M. A. G., & Long, P. J. (1991). Somatic complaints in anxious children. *Journal of Abnormal Child Psychology, 19*, 659–670.

Beidel, D. C., Neal, A. M., & Lederer, A. S. (1991). The feasibility and validity of a daily diary for the assessment of anxiety in children. *Behavior Therapy, 22*, 505–517.

Beidel, D. C., Turner, S. M., & Morris, T. L. (1993). A new self-report instrument for assessing social phobia in children: The Social Phobia and Anxiety Inventory for Children. Medical University of South Carolina: Unpublished manuscript.

Beidel, D. C., Turner, M. W., & Trager, K. N. (1994). Test anxiety and childhood anxiety disorders in African American and white school children, *Journal of Anxiety Disorders, 8*, 169–174.

Biederman, J., Rosenbaum, J. F., Hirshfeld, D. R., Faraone, S. V., Bolduc, E. A., Gersten, M., Meminger, S. R., Kagan, J., Snidman, N., & Reznick, J. S. (1990). Psychiatric correlates of behavioral inhibition in young children of parents with and without psychiatric disorders. *Archives of General Psychiatry, 47*, 21–26.

Black, B., & Uhde, T. W. (1992). Elective mutism as a variant of social phobia. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 1090–1094.

Black, B., Uhde, T. W., & Tancer, M. E. (1992). Fluoxetine for the treatment of social phobia. *Journal of Clinical Psychopharmacology, 12*, 293–295.

Bruch, M. A., Giordano, S., & Pearl, L. (1986). Differences between fearful and self-conscious shy subtypes in background and current adjustment. *Journal of Research in Personality, 20*, 172–186.

Buss, A. H. (1985). A theory of shyness. In W. H. Jones, J. M. Cheek, & S. R. Briggs (Eds.), *Shyness: Perspectives on research and treatment* (pp. 39–46). New York: Plenum Press.

Campbell, S. B. (1986). Developmental issues. In R. Gittelman (Ed.), *Anxiety disorders in children* (pp. 24–57). New York: Guilford Press.

Cantwell, D. P., & Baker, L. (1989). Stability and natural history of DSM-III childhood diagnoses. *Journal of the American Academy of Child and Adolescent Psychiatry, 28*, 691–700.

Caspi, A., Elder, G. H., Jr., & Bem, D. J. (1988). Moving away from the world: Life course patterns of shy children. *Developmental Psychology, 24*, 824–831.

Clark, D.B., Turner, S. M., Jacob, R.G.,Beidel, D.C.,& Donovan, J. (in press). The use of the Social Phobia and Anxiety Inventory in Adolescents, *Psychological Assessment*.

Darby, B. W., & Schlenker, B. R. (1986). Children's understanding of social anxiety. *Developmental Psychology, 22*, 633–639.

Fox, J. E., & Houston, B. K. (1983). Distinguishing between cognitive and somatic trait and somatic state anxiety in children. *Journal of Personality and Social Psychology, 45*, 862–870.

Francis, G., Last, C. G., & Strauss, C. C. (1992). Avoidant disorder and social phobia in children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 1086–1089.

Ginter, E. J., Lufi, D., Trotzky, A. S., & Richmond, B. O. (1989). Anxiety among children in Israel. *Psychological Reports, 65*, 803–809.

Goldwyn, D. H., & Weinstock, R. C. (1990). Phenelzine treatment of elective mutism: A case report. *Journal of Clinical Psychiatry, 51*, 384–385.

Gorman, J. M., & Gorman, L. F. (1987). Drug treatment of social phobia. *Journal of Affective Disorders, 13*, 183–192.

Herbert, J. D., Hope, D. A., & Bellack, A. S. (1992). Validity of the distinction between generalized social phobia and avoidant personality disorder. *Journal of Abnormal Psychology, 101*, 332–339.

Holt, C. S., Heimberg, R. G., & Hope, D. A. (1992). Avoidant personality disorder and the generalized subtype of social phobia. *Journal of Abnormal Psychology, 101*, 318–325.

Kagan, J., Reznick, J. S., & Snidman, N. (1987). The physiology and psychology of behavioral inhibition in children. *Child Development, 58*, 1459–1473.

Kagan, J., Reznick, J. S., Clarke, C., Snidman, N., & Garcia Coll, C. (1984). Behavioral inhibition to the unfamiliar. *Child Development, 55*, 2212–2225.

Kashani, J. H., & Orvaschel, H. (1990). A community study of anxiety in children and adolescents. *American Journal of Psychiatry, 147*, 313–318.

Kendall, P. C., & Chansky, T. E. (1991). Considering cognition in anxiety-disordered children. *Journal of Anxiety Disorders, 5*, 167–185.

Klein, R. G. (1991). Parent–child agreement in clinical assessment of anxiety and other psychopathology: A review. *Journal of Anxiety Disorders, 5*, 187–198.

Kolvin, I., & Fundis, T. (1981). Elective mute children: Psychological development and background factors. *Journal of Child Psychology and Psychiatry, 22*, 219–232.

LaGreca, A. M. (1989). Social anxiety scale for children: Scale development and validation. Paper presented at the Society for Research in Child and Adolescent Psychopathology, Miami, February, 1989.

LaGreca, A. M., & Stone, W. L. (1991). *Social Anxiety Scale for Children—Revised: Relationships with peer, teacher, and children's ratings of social and behavioral functioning*. University of Miami: Unpublished manuscript.

Last, C. G. (1991). Somatic complaints in anxiety disordered children. *Journal of Anxiety Disorders, 5*, 125–138.

Last, C. G., Hersen, M., Kazdin, A. E., Finkelstein, R., & Strauss, C. C. (1987). Comparison of DSM-III separation anxiety and overanxious disorders: Demographic characteristics and patterns of comorbidity. *Journal of the American Academy of Child and Adolescent Psychiatry, 26*, 527–531.

Last, C. G., Hersen, M., Kazdin, A.,Orvaschel, H., & Perrin, S. (1991). Anxiety disorders in children and their families. *Archives of General Psychiatry,48*, 928–934.

Last, C. G., Perrin, S., Hersen, M., & Kazdin, A. E. (1992). DSM-III-R anxiety disorders in children: Sociodemographic and clinical characteristics. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 1070–1076.

Lazarus, P. J. (1982). Incidence of shyness in elementary–school age children. *Psychological Reports, 51*, 904–906.

Leonard, H. (in press). Elective mutism. In H. Leonard (Ed.), *Child and adolescent psychiatric clinics of North America: Anxiety disorders*. Philadelphia: W. B. Saunders.

Lesser-Katz, M. (1986). Stranger reaction and elective mutism in young children. *American Journal of Orthopsychiatry, 50*, 458–469.

Liebowitz, M. R., Gorman, J. M., Fyer, A. J., & Klein, D. F. (1985). Social phobia. *Archives of General Psychiatry, 42*, 729–736.

Liebowitz, M. R., Schneier, R., Campeas, R., Hollander, E., Hatterer, J., Fyer, A., Gorman, J., Pappa, L., Davies, S., Gully, R., & Klein, D. F. (1992). Phenelzine vs. atenolol in social phobia. *Archives of General Psychiatry, 49*, 290–300.

Marks, I. M. (1970). The classification of phobic disorders. *British Journal of Psychiatry, 116*, 377–386.

McGee, R., Feehan, M., Williams, S., Partridge, F., Silva, P. A., & Kelly, J. (1990). DSM-III disorders in a large sample of adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 611–619.

Miller, L. C. (1983). Fears and anxiety in children. In C. E. Walker & M. C. Roberts (Eds.), *Handbook of clinical child psychiatry* (pp. 337–380). New York: John Wiley.

Nelles, W. B., & Barlow, D. H. (1988). Do children panic? *Clinical Psychology Review, 8*, 359–372.

Öhman, A. (1976). Face the beast and fear the face: Animal and social fears as prototypes for evolutionary analyses of emotion. *Psychophysiology, 23*, 123–145.

Ollendick, T. H. (1983). Reliability and validity of the revised Fear Survey Schedule for Children (FSSC-R). *Behaviour Research and Therapy, 21*, 685–692.

Öst, L. G. (1985). Ways of acquiring phobias and outcome of behavioral treatments. *Behaviour Research and Therapy, 23*, 683–689.

Perrin, S., & Last, C. G. (1992). Do childhood anxiety measures measure anxiety? *Journal of Abnormal Child Psychology, 20*, 567–578.

Reynolds, C. R., & Richmond, B. O. (1978). Factor structure and construct validity of "What I Think and Feel": The Revised Children's Manifest Anxiety Scale. *Journal of Personality Assessment, 43*, 281–283.

Robins, L. N., Helzer, J. E., Weissman, M. M., Orvaschel, H., Greenberg, E., Burke, J. D., Jr., & Regier, D. A. (1984). Lifetime prevalence of specific psychiatric disorders at three sites. *Archives of General Psychiatry, 41*, 949–958.

Robinson, J. L., Kagan, J., Reznick, J. S., & Corley, R. (1992). The heritability of inhibited and uninhibited behavior: A twin study. *Developmental Psychology, 28*, 1030–1037.

Ronan, K. R., Rowe, P., & Kendall, P. C. (1988). Children's anxious self-statement questionnaire (CASSQ): Development and validation. Paper presented at the Association for Advancement of Behavior Therapy Annual Convention, New York, November 1988.

Rosenbaum, J. F., Biederman, J., Hirshfeld, D. R., Bolduc, E. A., Faraone, S. V., Kagan, J., Snidman, N., & Reznick, J. S. (1991). Further evidence of an association between behavioral inhibition and anxiety disorders: Results from a family study of children from a non-clinical sample. *Journal of Psychiatric Research, 25*, 49–65.

Sarason, I. G. (1975). Test anxiety, attention, and the general problem of anxiety. In C. D. Spielberger & I. G. Sarason (Eds.), *Stress and Anxiety*, Vol. 1 (pp. 165–188). Washington, DC: Hemisphere/Wiley.

Silverman, W. K. (1991). Diagnostic reliability of anxiety disorders in children using structured interviews. *Journal of Anxiety Disorders, 5*, 105–124.

Silverman, W. K., & Eisen, A. R. (1992). Age differences in the reliability of parent and child reports of child anxious symptomatology using a structured interview. *Journal of the American Academy of Child and Adolescent Psychiatry,32*, 117–124.

Slee, P. T., & Cross, D. G. (1989). Living in the nuclear age: An Australian study of children's and adolescents' fear. *Child Psychiatry and Human Development, 19*, 270–278.

Spielberger, C. D. (1973). *Manual for the State–Trait Anxiety Inventory for Children (Form Y)*. Palo Alto, CA: Consulting Psychologists Press.

Stefanek, M. E., Ollendick, T. H., Baldock, W. P., Francis, G., & Yaeger, N. J. (1987). Self-statements in aggressive, withdrawn, and popular children. *Cognitive Behavior Therapy and Research, 2*, 229–239.

Stemberger, R. M., Turner, S. M., Beidel, D. C., & Calhoun, K. S. (1994). Etiological factors in the onset of social phobia. Unpublished manuscript, Medical University of South Carolina.

Strauss, C. C., Last, C. G., Hersen, M., & Kazdin, A. E. (1988). Association between anxiety and depression in children and adolescents with anxiety disorders. *Journal of Abnormal Child Psychology, 16*, 57–68.

Torgersen, S. (1983). Genetic factors in anxiety disorders. *Archives of General Psychiatry, 40*, 1085–1089.

Tramer, M. (1934). Electiver Mutismus bei Kindern. *Zeitschrift für Kinderpsychiatrie, 19*, 49–87.

Turner, S. M., & Beidel, D. C. (1989). Social phobia: Clinical syndrome, diagnosis and comorbidity. *Clinical Psychology Review, 90*, 3–18.

Turner, S. M., & Beidel, D.C. (1992). Behavioral treatment of social phobia. Presented at the Association for Advancement of Behavior Therapy Annual Convention, Boston, November 1992.

Turner, S. M., Beidel, D. C., Borden, J. W., Stanley, M. A., & Jacob, R. G. (1991). Social phobia: Axis I and II correlates. *Journal of Abnormal Psychology, 100*, 102–106.

Turner, S. M., Beidel, D.C., & Epstein, L. H. (1991). Vulnerability and risk for anxiety disorders. *Journal of Anxiety Disorders, 5*, 151–166.

Turner, S. M., Beidel, D. C., & Jacob, R. G. (1994). Social phobia: A comparison of behavior therapy and atenolol. *Journal of Consulting and Clinical Psychology, 62*, 350–358.

Turner, S. M., Beidel, D. C., & Larkin, K. T. (1986). Situational determinants of social anxiety in clinic and non-clinic samples: Physiological and cognitive correlates. *Journal of Consulting and Clinical Psychology, 54*, 523–527.

Turner, S. M., Beidel, D. C., & Townsley, R. M. (1990). Social phobia: Relationship to shyness. *Behaviour Research and Therapy, 28*, 497–505.

Turner, S. M., Beidel, D. C., & Townsley, R. M. (1992). Social phobia: A comparison of specific and generalized subtypes and avoidant personality disorder. *Journal of Abnormal Psychology, 101*, 326–331.

Watson, A. K., Monroe, E. E., & Atterstrom, H. (1984). American and Swedish children's apprehension about communication: A comparative study. *Perceptual and Motor Skills, 59*, 917–918.

Watson, D., & Friend, R. (1969). Measurement of social-evaluative anxiety. *Journal of Consulting and Clinical Psychology, 33*, 448–457.

Werry, J. S., (1991). Overanxious disorder: A review of its taxonomic properties. *Journal of the American Academy of Child and Adolescent Psychiatry, 30*, 533–544.

World Health Organization (1991). *International classification of mental and behavioral disorders, clinical descriptions and diagnostic guidelines*, 9th ed. Geneva: Author.

Wilkins, R. (1985). A comparison of elective mutism and emotional disorders in children. *British Journal of Psychiatry, 146*, 198–203.

Zimbardo, P. G., Pilkonis, P. A., & Norwood, R. M. (1975). The social disease called shyness. *Psychology Today, 8*, 68–72.

7

Avoidant Disorder

Greta Francis and Francine A. D'Elia

INTRODUCTION

Although anxiety disorders of childhood and adolescence have received increased clinical and research attention over the past decade, few empirical investigations or clinical case studies of avoidant disorder are to be found in the literature. While DSM-III-R [American Psychiatric Association (APA), 1987] describes avoidant disorder as a distinct disorder, the empirical data currently available raise questions as to the validity of this nosological entity. The purpose of this chapter is to review the current knowledge of avoidant disorder in children and adolescents and offer directions for future empirical research to clarify the nature of this anxiety disorder.

DESCRIPTION OF THE DISORDER

Avoidant disorder of childhood and adolescence emerged as a diagnostic entity in DSM-III (APA, 1980), and the central features of the disorder remained virtually unchanged in the revision of that psychiatric nosology (DSM-III-R) (APA, 1987). According to DSM-III-R, children and adolescents diagnosed with avoidant disorder demonstrate an excessive withdrawal of contact with unfamiliar people to a degree that interferes with social functioning in peer relationships. However, these youngsters desire social contact with familiar people and have satisfying relationships with family members and peers they know well. The age of onset may be as early as 2½ years, but the disorder more typically manifests itself during the early school years. Children diagnosed with avoidant disorder

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must exhibit the symptom criteria for a duration of at least 6 months. Additionally, the disturbance in social functioning presented by these children cannot be pervasive or persistent enough to necessitate a diagnosis of avoidant personality disorder.

In ICD-10 (World Health Organization, 1992), the diagnostic entity synonymous with avoidant disorder of childhood and adolescence is identified as social anxiety disorder of childhood. According to ICD-10 (p. 276), children and adolescents diagnosed with social anxiety disorder "show a persistent or recurrent fear and/or avoidance of strangers; such fear may occur mainly with adults, mainly with peers, or with both. The fear is associated with a normal degree of selective attachment to parents or to other familiar persons. The avoidance or fear of social encounters is of a degree that is outside the normal limits for the child's age and is associated with clinically significant problems in social functioning."

CLINICAL PRESENTATION

Children diagnosed with avoidant disorder exhibit significant social anxiety when in situations with unfamiliar people. Their fear of negative evaluations and distress in social situations with unfamiliar individuals is severe enough to cause them to withdraw and avoid interactions with strangers. Often, when social anxiety becomes overwhelming, the child may become inarticulate or mute, despite intact communication skills with familiar people. These children typically are unassertive and lacking in self-confidence. In adolescence, inhibited psychosexual activity may be a common behavioral manifestation of avoidant disorder.

Kendall, Chansky, Kane, Kim, Kortlander, Ronan, Sessa, and Siqueland (1992) differentiate between behavioral and cognitive features of avoidant disorder in children and adolescents. The behavioral indicators of avoidant disorder are public and observable. Some of the signs from which one might infer that a youngster is experiencing anxiety include avoidant and escape behaviors, shyness, trembling hands, inarticulation or muteness, crying, and nail-biting (Barrios and Hartmann, 1988). Cognitive features of avoidant disorder encompass the mental experience of what is happening or about to happen to the youngster or his or her environment. Kendall (1985) suggests that the information-processing style of anxious children is distorted rather than deficient.

Behaviorally, these youngsters may not participate in sports in school because they refuse to attend the initial meeting that includes unfamiliar peers, despite their desire to join social groups. Avoidant-disordered children may never go to birthday parties. They may exhibit significant reluctance to attend any social function, although once present in the situation, they may be able to enjoy themselves. Characteristically, these children are often found sitting in the back of the class trying to ascertain how they can make friends (Kendall et al., 1992).

Cognitively, these children possess a desire to make friends, but maintain a belief that others would not like to be friends with them. They fear that others will make fun of them or perceive them as stupid. They may assume that others do not have similar interests or enjoy the same activities as they do. They also may worry excessively that unfamiliar peers may not notice them or purposely ignore them, even deliberately want to humiliate or dislike them (Kendall et al., 1992).

Paradoxically, the social and communication skills of children diagnosed with avoidant disorder are not impaired when they are in the company of family members or familiar peers. The disturbance in interpersonal functioning is limited to interaction with unfamiliar

people. In clinical practice, avoidant-disordered children are often difficult to distinguish from social phobics (Francis, Last, & Strauss, 1992). Despite the rarity of this disorder in clinical practice, a youngster with a primary diagnosis of avoidant disorder is described in the Case Example below.

EPIDEMIOLOGY

There are three published studies in which prevalence rates for avoidant disorder are reported (Beitchman, Nair, Clegg, Ferguson, & Patel, 1986; Cantwell & Baker, 1987; Costello, 1989). Beitchman et al. (1986) examined the prevalence of psychiatric diagnoses in young children with speech and language disorders. Their sample consisted of English-language kindergarten children in Canada. In this study, 142 language-disordered children and 137 normal control children were evaluated using parent and teacher behavior checklists. In all, 45 children in the speech- and language-impaired group and 40 children in a non-language-impaired control group were interviewed by a psychiatrist, and diagnoses were assigned on the basis of DSM-III criteria. The overall estimate of psychiatric disorder was 48.7% for the speech- and language-impaired group and 11.9% for the control group. Avoidant disorder was diagnosed in 3.7% of the language-impaired group; it was the most common anxiety disorder in this group. No cases of avoidant disorder were diagnosed in the normal control group, however.

Cantwell and Baker (1987) conducted a similar study of the prevalence of anxiety disorders in children with communication disorders. They screened over 600 children under 16 years of age who were without significant hearing impairment and were referred to a community speech and hearing clinic. The sample ranged in age from 1.7 to 15.9 years, with a mean age of 5.6 years; 69% of the sample were males. Psychiatric disorders were assessed using parent and teacher behavior rating scales and a structured diagnostic interview of the child and parent, using DSM-III criteria. Results indicated that 50% of the sample had at least one Axis I psychiatric disorder. The most commonly occurring anxiety diagnosis was avoidant disorder. A total of 29 children (i.e., 4.3% of the sample) received a diagnosis of avoidant disorder. The average age of children with avoidant disorder was 5.4 years; 41% of the group were males.

Finally, Costello (1989) screened 789 patients between the ages of 7 and 11 years attending primary care pediatric clinics. Psychiatric interviews were conducted with 300 children and their parents using a structured diagnostic instrument. The total 1-year prevalence for avoidant disorder was estimated to be 1.6%. Of a sample of 143 males and 157 females, 2 and 6 children, respectively, were diagnosed with avoidant disorder.

In summary, information available as to the prevalence of avoidant disorder is sparse. Most is known about the prevalence of avoidant disorder in samples of young language-disordered children, in whom the disorder occurs in about 4% of children. Virtually nothing is known about the prevalence of the disorder in children and adolescents without language disorders.

STABILITY

Although no information is currently available as to the natural course of avoidant disorder in non-language-impaired children, the stability of the disorder in language-

disordered children has been studied by Cantwell and Baker (1989). They followed up their original sample of young children referred to a community speech and hearing clinic. These authors conducted a 4- to 5-year prospective follow-up of 151 of their original sample of 600 children. During the original evaluation of the 151 youngsters, 14 children wee diagnosed with avoidant disorder. The average age of the follow-up sample was 9.7 years. Of the original 14 children with avoidant disorder, 4 continued to have avoidant disorder, 4 had overanxious disorder, 1 had a nonanxiety diagnosis, and 5 were described as without psychiatric symptomatology. Cantwell and Baker also reported follow-up data on 8 children originally diagnosed with overanxious disorder. Of these 8 overanxious-disordered children, 2 continued to have overanxious disorder, 2 had avoidant disorder, 2 had nonanxiety diagnoses, and 2 were described as without psychiatric symptomatology. Although the stability of avoidant disorder in this sample was greater than that of the other disorders, it was nonetheless poor. However, if one looks at children with any disorder involving social anxiety (i.e., avoidant disorder and overanxious disorder), stability improves. That is, of the 22 children who originally presented with a disorder involving social anxiety, 12 continued to evidence a disorder involving social anxiety at follow-up.

DEVELOPMENTAL CONSIDERATIONS

Investigations of subclinical fears demonstrate both quantitative and qualitative changes in fears over the course of childhood and adolescence (Graziano, DeGiovanni, & Garcia, 1979; T. H. Ollendick, Matson, & Helsel, 1985). The consensus of the research examining the content of children's fears supports a general developmental sequence progressing from global, undifferentiated, and externalized fears to more specific, abstract, and internalized ones (Kendall & Ronan, 1990). Additionally, as children mature, they tend to report fewer fears (T. H. Ollendick et al., 1985). Two specific domains of fears are relevant to the discussion of avoidant disorder, i.e., stranger anxiety and social-evaluative anxiety. In normal development, fear of strangers and separation anxiety begin to emerge by the end of the first year and persist until 2½–3 years of age. Typically, by 3 years of age, toddlers may perceive strangers as more of a curiosity or an irrelevant aspect of their environment than a threat to their security. In addition, the weight of developmental research indicates an age-related increase in social-evaluative fears (Graziano et al., 1979). In the normal maturational sequence, social embarrassment and school fears begin to emerge as youngsters enter late childhood and early adolescence. In sum, then, over the course of normal development, fear of strangers occurs at an earlier age than social-evaluative fears (e.g., Campbell, 1986).

This age pattern of fears in normal development has been reflected in the results of an empirical study examining demographic variables and comorbidity patterns of children and adolescents diagnosed with avoidant disorder and social phobia (Francis et al., 1992). In a small sample of clinic-referred youngsters, Francis et al. (1992) found avoidant-disordered children to be younger at intake than the youngsters with social phobia or those with both social phobia and avoidant disorder. The mean age at intake for avoidant-disordered children was 11.3 years, while mean ages for children in the social phobia group and avoidant disorder plus social phobia group were 14.2 years and 15 years, respectively. This age pattern mirrors normal development, since the source of anxiety of avoidant disorder is unfamiliar people, while the anxiety of social phobia is focused on social-evaluative situations. These findings are supported by results of other investigations (i.e., Cantwell &

Baker, 1987; Marks, 1969; Öst, 1987). In the Cantwell and Baker (1987) study, the average age of avoidant disorder in their sample of language-disordered children under 16 years of age was 5.4 years. Marks (1969) and Öst (1987) both found the typical age of onset of social phobia to be late childhood or early adolescence. While the findings of these studies may not be generalizable to the entire population of anxiety-disordered children and adolescents, they suggest that these disorders may represent discrete points along a developmental continuum of social anxiety. The implications of these findings regarding the natural course of avoidant disorder and social phobia are evident.

The longitudinal research investigating temperament may also be relevant to the natural course of avoidant disorder in children. Kagan and his colleagues (e.g., Garcia-Coll, Kagan, & Reznick, 1984; Kagan, 1989; Kagan, Reznick, & Gibbons, 1989; Kagan, Reznick, & Snidman, 1987, 1988; Kagan, Reznick, Clarke, Snidman, & Garcia-Coll, 1984; Kagan, Reznick, Snidman, Gibbons, & Johnson, 1988; Reznick, Kagan, Snidman, Gersten, Baak, & Rosenberg, 1986) have longitudinally studied the temperamental quality of behavioral inhibition, i.e., the tendency to withdraw from unfamiliar situations and people. These researchers report behavioral inhibition to be prevalent in 10–15% of white American infants. Children identified as behaviorally inhibited at 21 and 31 months of age maintained this temperament at later assessments occurring at 4, 5, and 7½ years of age. Thus, Kagan's data suggest that behavioral inhibition is relatively stable over time. Further, children identified as behaviorally inhibited were described by these researchers as irritable infants, shy and fearful toddlers, and cautious and avoidant school-age children. This tendency to withdraw from novelty has also been documented in the primate research of Suomi (1986).

The research of Rosenbaum and colleagues (Rosenbaum, Biederman, Hirshfeld, Bolduc, & Chaloff, 1991a) has examined the temperamental trait of behavioral inhibition to the unfamiliar in children at risk for developing anxiety disorders. In one study (Rosenbaum, Biederman, Gersten, Hirshfeld, Meminger, Herman, Kagan, Reznick, & Snidman, 1988), higher rates of behavioral inhibition were found in children, aged 2–7 years, whose parents were diagnosed with an anxiety disorder—specifically, panic disorder. Children with parents diagnosed with panic disorder alone as well as those whose parents were panic-disordered and depressed demonstrated behavioral inhibition rates of 85% and 70%, respectively. In contrast, behavioral inhibition rates for children of parents in the depressed alone group and the nonanxious, nondepressed group were 50% and 15%, respectively. A second study (Biederman, Rosenbaum, Hirshfeld, Faraone, Bolduc, Gersten, Meminger, Kagan, Snidman, & Reznick, 1990) examined the hypothesis that behaviorally inhibited children in both clinical and nonclinical populations would demonstrate high rates of anxiety psychopathology. Results of this study indicated that children previously identified as behaviorally inhibited from both at-risk and nonclinical populations were more likely to be diagnosed with anxiety disorders, particularly social phobia. In a family study (Rosenbaum, Biederman, Hirshfeld, Bolduc, Faraone, Kagan, Snidman, & Reznick, 1991b), parents of behaviorally inhibited children from a nonclinical sample demonstrated significantly higher rates of social phobia as well as a childhood history of anxiety disorders, particularly avoidant and overanxious disorders. In conclusion, Rosenbaum et al. (1991b) cite their findings as support for the hypothesis that behavioral inhibition in children may be a precursor to the development of an anxiety disorder, possibly panic disorder or social phobia. Future longitudinal studies are needed to determine the impact of behavioral inhibition on the development of anxiety disorders across the life cycle.

While the research of Rosenbaum et al. (1991b) implicates behavioral inhibition as a

possible risk factor for later development of an anxiety disorder in some children (e.g., those whose parents are diagnosed with an anxiety disorder), it also suggests that this temperamental quality may reflect merely a behavioral style in other children, i.e., shyness. Shyness is an ill-defined construct that is generally perceived as a personality attribute or behavioral style. The central elements of shyness include anxiety or distress in social situations, inhibited social behavior, various somatic symptoms, and, in severe cases, avoidance of social situations. In a sample of 5th grade children, Lazarus (1982) found that 38% of the students labeled themselves as shy and 59% of these children reported that they would prefer to be less shy. While shyness is a subclinical condition, some researchers (e.g., Turner, Beidel, & Townsley, 1990) note the considerable overlap between the central features of shyness and those of social phobia. In their review of the literature, Turner et al. (1990) suggest that the high degree of similarity between the two syndromes may reflect points on the developmental continuum of social anxiety. These researchers note that discrete distinctions between shyness and anxiety disorders, such as social phobia, are impeded by the lack of comparative empirical studies as well as the heterogeneity observed in the shy population.

There is no research currently available that examines any continuity between avoidant disorder and avoidant personality disorder in children and adolescents. Furthermore, studies in the adult literature comparing avoidant personality disorder and anxiety disorders are limited. For example, using DSM-III-R (APA, 1987) criteria, Turner, Beidel, and Townsley (1992) found that the generalized subtype of social phobia and avoidant personality disorder share core features. However, social anxiety and functioning were more severely dysfunctional in patients with avoidant personality disorder. Although DSM-III-R indicates that avoidant disorder of childhood and adolescence predisposes the development of avoidant personality disorder, no data currently document such a course of avoidant disorder in children.

In sum, empirical research documenting the natural course of avoidant disorder in children and adolescents is currently limited to one study conducted by Cantwell and Baker (1989) with language-disordered children. The stability of avoidant disorder in that sample was relatively poor, although stability improved when children with disorders involving social anxiety were combined. Many researchers of anxiety disorders postulate a developmental continuum or unitary vulnerability fundamental to all the syndromes characterized by social anxiety and fear (e.g., Francis et al., 1992; Turner et al., 1990).

DIFFERENTIAL DIAGNOSIS

In children and adolescents, avoidant disorder must be differentiated from stranger anxiety and fears of social embarrassment that normally arise during these ages. First, stranger anxiety is a normal developmental phenomenon that usually disappears by the age of 2½ years. Thus, one of the DSM-III-R criteria for avoidant disorder stipulates that a youngster must be at least 2½ years of age in order to receive this diagnosis. Second, fears of social embarrassment naturally emerge during late childhood or early adolescence (e.g., Amies, Gelder, & Shaw, 1983; Campbell, 1986). Typically, youngsters experience some anticipatory anxiety when faced with social- evaluative situations, such as playing a musical instrument in front of their peers or presenting a speech in school. This anxiety usually dissipates as the child becomes involved in the activity. Normal social anxiety is not excessive or persistent enough to cause avoidance of the social situation. In sum, normal

developmental phenomena, such as stranger anxiety and fears of social embarrassment, preclude a diagnosis of avoidant disorder.

Another distinction is between avoidant-disordered and socially withdrawn children. Children who are socially withdrawn exhibit a low frequency of peer interactions (e.g., O'Connor, 1969; Evers & Schwartz, 1973; Gottman, Gonso, & Rasmussen, 1975). They usually spend more time engaged in solitary, rather than interactive, play. Additionally, the quality of peer interactions is typically impaired. Socially withdrawn children are deficient in such prosocial behaviors as smiling and sharing with and conversing with peers (Francis & Ollendick, 1988; T. H. Ollendick, Greene, Francis, & Baum, 1991). While social competence is impaired in socially withdrawn children, the social skills of avoidant-disordered children are intact in social situations with familiar people.

Avoidant disorder must also be distinguished from separation anxiety disorder. In avoidant disorder, the characteristic anxiety is focused on unfamiliar people. In separation anxiety disorder, however, the excessive anxiety and distress are centralized around separation from the major attachment figure or home. Often, these children worry about harm befalling them or their parents during the period of separation. The hallmark of separation anxiety disorder is fear of *separating* from the "familiar," rather than *avoidance* of the "unfamiliar." In separation anxiety, any avoidance, such as school refusal, is a reaction precipitated by the anxiety associated with separation, rather than anxiety regarding the social situation.

In addition, avoidant disorder must be differentiated from overanxious disorder. While avoidance is central to avoidant disorder, it is not necessarily present in overanxious disorder. Overanxious children exhibit distress and discomfort in a wide array of social and nonsocial situations. They are pervasive worriers, particularly about future events. Like avoidant youngsters, they are self-conscious and concerned about competency issues. However, they exhibit more generalized tenseness, somatic complaints, and continual need for reassurance than is typical of avoidant-disordered children.

The symptoms of avoidant disorder and social phobia demonstrate considerable overlap, and diagnostic confusion often results. Francis et al. (1992) found age at intake in a sample of clinic-referred anxiety-disordered children and adolescents to be the only factor differentiating avoidant disorder and social phobia. The essential feature of avoidant disorder is anxiety and avoidance of social situations with unfamiliar people. Thus, social phobia is not diagnosed when the anxiety is limited to social interactions with strangers. Furthermore, DSM-III-R stipulates that the diagnosis of avoidant disorder supersedes social phobia in youngsters under the age of 18 years.

Avoidance of social interactions is often present in non-anxiety disorders such as schizoid disorder, major depression, and dysthymia. However, in these disorders, anxiety is not the primary precipitant of the social avoidance or withdrawal. Children diagnosed with these nonanxiety disorders often exhibit minimal or no interest in social activities as well as social isolation and social incompetence. Thus, avoidant disorder is easily distinguished in these cases.

DIAGNOSTIC RELIABILITY

Although there are a small number of studies of the diagnostic reliability of childhood anxiety disorders, only one study that we are aware of has reported specifically on avoidant disorder. Last (1987) used the Interview Schedule for Children to assess the three childhood

anxiety disorders in a sample of 65 outpatient children and adolescents. All children were interviewed by the same pair of clinicians. A short test–retest interval was used, the children being interviewed by one clinician in the morning and by the second clinician in the afternoon of the same day. The overall agreement for the broad category of anxiety disorders of childhood or adolescence was very good (κ coefficient = 0.84). The κ coefficient reflecting diagnostic agreement for avoidant disorder was 0.64.

COMORBIDITY WITH OTHER ANXIETY DISORDERS

Last, Strauss, and Francis (1987) evaluated comorbidity in 73 consecutive admissions to an outpatient child anxiety clinic. Children and their parents were evaluated using a semistructured symptom-oriented diagnostic interview. Diagnoses were assigned using DSM-III criteria, but hierarchical rules were not used to exclude anxiety and affective disorders. Primary diagnoses were determined by identifying the diagnosis that caused the greatest impairment, this diagnosis then being targeted first for treatment. Only 1 of 73 children was assigned a primary diagnosis of avoidant disorder. Of 24 children with a primary diagnosis of separation anxiety disorder, 3 were diagnosed with comorbid avoidant disorder. Similarly, 3 of 11 children with primary overanxious disorder were diagnosed with comorbid avoidant disorder. Interestingly, the most common comorbid anxiety disorders for children with primary overanxious disorder were diagnoses indicative of a social anxiety problem (i.e., avoidant disorder and social phobia). None of 11 children with a primary diagnosis of school phobia received a concurrent diagnosis of avoidant disorder.

The characteristics of avoidant disorder were compared directly with those of social phobia in a recent study by Francis et al. (1992). The sample consisted of youngsters with avoidant disorder (N = 19), social phobia (N = 33), avoidant disorder plus social phobia (N = 12), and no psychiatric disorder (N = 32). Diagnoses were made on the basis of DSM-III-R criteria using semistructured symptom-oriented diagnostic interviews. Each parent and child was interviewed individually, and consensus diagnoses were determined by the interviewer discussing each case with two senior clinicians. Demographic information was collected, and subjects completed self-report measures of fear and depression.

Results indicated that avoidant disorder (AD) children were significantly younger at the time of intake than children in the social phobia (SP) and avoidant disorder plus social phobia (AD+SP) groups. Furthermore, there was no difference in age between the SP and AD+SP groups. Finally, there were no differences in gender, race, or socioeconomic status among the three clinical groups.

Comorbidity was assessed by observing concurrent DSM-III-R diagnoses assigned to children following their diagnostic assessments. There were no differences in the rates of additional anxiety or depressive disorders among the three clinical groups. The overwhelming majority of children in each group presented with at least one additional anxiety disorder (79% of AD, 91% of SP, and 100% of AD+SP). The most common comorbid anxiety disorder for each group was overanxious disorder. Overanxious disorder was present in 58% of AD, 39% of SP, and 83% of AD+SP children. Rates of comorbid affective disorders (i.e., major depressive disorder and dysthymic disorder) were similar among AD (37%), SP (24%), and AD+SP groups (33%).

Symptom measures of fear and depression were assessed in the three psychiatric groups and the normal control group. The groups differed significantly on depression self-ratings. Children in the SP and AD+SP groups reported significantly greater depression

than children in the normal control group. However, there were no differences in depression self-ratings among the three psychiatric groups. While there were no significant differences among the groups in total score on the fear measure, scores on one of the factors were significantly different in post hoc analyses. Children in the SP group reported greater fear of failure and criticism than did children in the normal control group. Again, there were no differences in fear of failure and criticism scores among children in the three psychiatric groups.

In summary, results of this study revealed a remarkable degree of similarity between avoidant disorder and social phobia in a sample of outpatient children and adolescents. Children with AD, SP, and AD+SP were indistinguishable in terms of comorbidity of anxiety and affective disorders and symptom measures of depression and fear. The groups differed only in age at intake. The results of this study suggest that avoidant disorder and social phobia are not distinct disorders, at least in a sample of outpatient youngsters referred for anxiety problems. The authors suggested that avoidant disorder could be considered a specific type of social phobia, i.e., a social phobia of strangers or unfamiliar people.

COMORBIDITY WITH OTHER PSYCHIATRIC DISORDERS

There are currently very few studies available that report on the specific relationship between avoidant disorder and other psychiatric disorders. In the Francis et al. (1992) study described above, 37% of children with avoidant disorder presented with a comorbid depressive disorder. Similarly, 33% of the children with avoidant disorder plus social phobia presented with a comorbid depressive disorder. Likewise, in the Last et al. (1987) study of comorbidity among childhood anxiety disorders, 11 of 73 anxiety-disordered children received a primary diagnosis of major depressive disorder. Of those 11 children, 3 were diagnosed with a concurrent avoidant disorder.

More generally, Strauss, Last, Hersen, and Kazdin (1988) evaluated the relationship between anxiety and depression in a sample of 106 outpatient youngsters referred to a childhood anxiety clinic. Children with anxiety disorders plus major depression were compared to children with anxiety disorders without major depression. Youngsters with avoidant disorder were included in both groups. Avoidant disorder was present in 9.1% of the anxiety alone group and 16.7% of the children in the anxiety plus depression group. The rates of avoidant disorder did not differ significantly between the two groups. Although Strauss et al. (1988) did not report data specifically for avoidant disorder, children with anxiety plus depression were found to be older and to demonstrate more severe anxiety symptomatology.

Preliminarily, results of the small number of studies suggest that comorbidity between avoidant disorder and depressive disorders is comparable to that between other anxiety disorders and depressive disorders. That is, about one quarter to one third of avoidant-disordered children present with comorbid depressive disorders.

COMORBIDITY WITH SPEECH AND LANGUAGE DISORDERS

A limited body of research discussed in the "Epidemiology" section above (Beitchman et al., 1986; Cantwell & Baker, 1987) has documented the prevalence of avoidant disorder in preschool children with speech and language disorders. The Beitchman et al.

(1986) study of 142 kindergarten children with speech and language impairments found that 3.7% of their sample met DSM-III criteria for avoidant disorder. Similarly, Cantwell and Baker (1987) found avoidant disorder to be the most commonly occurring anxiety diagnosis among their sample of 600 communication-disordered, primarily preschool-age children.

Elective mutism is defined by DSM-III-R (APA, 1987, p. 89) as the "persistent refusal to speak in one or more social situations, despite the ability to comprehend spoken language and to speak." Although no empirical studies have compared elective mutism with avoidant disorder, some of the behavioral features characteristic of elective mutism are consistent with an anxiety disorder, such as avoidant disorder or social phobia. Electively mute children may exhibit excessive shyness, social isolation and withdrawal, and school refusal. Often, these children demonstrate age-appropriate speech with family members, but refuse to converse with teachers and peers at school (D. G. Ollendick & Matson, 1983). Future research is needed to clarify the comorbidity, if any, of avoidant disorder and elective mutism.

CASE EXAMPLE

Rod was a 7-year-old 2nd grade student who lived with his mother. His parents had divorced when he was an infant and he had no siblings. Rod was referred by his mother to an outpatient clinic that specialized in assessing and treating childhood anxiety disorders. His mother made the referral in response to feedback from Rod's teacher that he was "much more shy" than his classmates. This shyness had been evident since Rod started school. In kindergarten, he did not speak and subsequently was teased by peers. During 2nd grade, Rod remained on the fringes of activities and typically did not participate. He spoke when spoken to, but rarely volunteered information. The teacher reported that Rod appeared particularly nervous if she asked him to read aloud in front of the class. At such times, he cried and had difficulty speaking clearly.

Rod was described by his mother as very anxious around new people, both adults and children. If his mother and Rod were in a store and Rod saw one of his classmates, he typically hid behind his mother and did not respond even if the classmate said hello. At these times, Rod appeared to be anxious, as evidenced by trembling, sweating palms, and averted gaze. His mother was concerned that Rod never invited any children to play with him, nor was he invited to play with other children. On one occasion, Rod's mother invited a small group of Rod's classmates to his birthday party. During the party, Rod cried and stayed in his room. Mother enrolled him in the Cub Scouts and church activities. Although Rod reluctantly attended at his mother's urging, he remained quiet and withdrawn. Rod's relationships with family members were described as good. In particular, he played with his cousins whenever they came to visit. At these times, Rod appeared to be somewhat shy, but did not avoid interacting. Symptoms of other anxiety disorders and depression were denied by his mother.

Rod presented as a small boy who looked younger than his chronological age. He answered questions briefly, but offered no verbal information spontaneously. He spoke in a whisper. Rod's gaze remained averted and he picked at his clothing throughout the interview. His affect appeared anxious and worried. Rod reported that he was shy and that he wished that he had more friends. He also stated that he felt very nervous when other kids talked to him. In the clinic playroom, Rod was silent. He watched other children interacting with one another, but made no attempt to join them.

Rod participated in group therapy aimed at decreasing his anxiety and increasing his involvement in peer interactions. Rod attended a small social skills group with two other socially isolated children. At first, he responded only when spoken to by the adult therapist. Over the course of a few sessions, Rod began to speak spontaneously to the adult therapist and to watch closely the behaviors of his peers. A positive reinforcement program was implemented in which the children received stickers for interacting with one another during board games and puppet play. Over the course of treatment, his mother continued to give him opportunities to interact with peers by involving him in a daycare group involving same-age peers. She also began to have Rod attend the Cub Scouts and church activities on his own. By the end of treatment, Rod interacted in a more spontaneous manner with his group therapy peers. On one occasion during group therapy, he spontaneously initiated an interaction by offering candy to his peers. In the clinic playroom, where Rod waited for his therapy sessions, he began to play with his group therapy peers. At the end of treatment, his mother reported that Rod appeared less anxious around other children and less reluctant to attend and participate in activities with peers.

SUMMARY

Despite the increasing focus on childhood anxiety disorders over the past decade, there is a paucity of knowledge about the nature of avoidant disorder in children and adolescents. The currently available literature on avoidant disorder highlights the fact that there are still more questions than answers regarding this anxiety disorder.

Among the questions that future empirical research must address in order to clarify the nature, development, and treatment of avoidant disorder in children and adolescents, are these: What is the relationship between normal developmental fears, such as stranger anxiety and social-evaluative anxiety, and childhood avoidant disorder in clinical populations? What is the impact of the early temperamental tendency to withdraw from unfamiliar situations and people on the development of avoidant disorder and other anxiety disorders across the life cycle? Is avoidant disorder distinctly different from social phobia, or is it a type of social phobia (i.e., of strangers or unfamiliar people), as some research suggests? What are the age of onset and the stability of avoidant disorder? What is the clinical presentation of avoidant-disordered children as they enter adolescence and adulthood? What is the nature of the high comorbidity of avoidant disorder with speech and language disorders in children? Is treatment effective in modifying avoidant disorders in children? How might treatment models for avoidant disorder compare with those utilized for other anxiety disorders, particularly social phobia? Only when these and other questions regarding avoidant disorder of childhood and adolescence are answered can the validity of this nosological entity be determined.

The consensus of the empirical research on avoidant disorder of childhood and adolescence currently suggests that the validity of this diagnostic category is severely in question. In fact, one option under consideration for DSM-IV (APA, 1991) is to eliminate avoidant disorder of childhood and adolescence as a separate category. In this way, diagnostic criteria would be applied to anxiety disorders across all ages, as was done for childhood and adolescent presentations of mood disorders and schizophrenia in DSM-III-R. Specifically, children and adolescents who would be diagnosed with avoidant disorder under DSM-III-R would be classified as having social phobia, generalized type, under DSM-IV. Additionally, under this option for DSM-IV, text describing particular features of

the clinical presentation in children and adolescents would be provided. An alternative proposal under consideration for DSM-IV is to maintain avoidant disorder as a nosological entity and provide more behaviorally descriptive criteria. Some of the proposed criteria address the cognitive (e.g., self-consciousness, embarrassment, or overconcern about the appropriateness of one's behavior) as well as behavioral (e.g., crying, lack of spontaneous speech, or withdrawal from the social situation) features that these youngsters exhibit when interaction with unfamiliar people. However, if this second option for DSM-IV is elected, empirical research must still address the questions posed above in order to evaluate the validity of avoidant disorder of childhood and adolescence as a distinct diagnostic entity.

REFERENCES

American Psychiatric Association (1980). *Diagnostic and statistical manual of mental disorders*, 3rd ed. Washington, DC: Author.

American Psychiatric Association (1987). *Diagnostic and statistical manual of mental disorders*, 3rd ed., revised. Washington, DC: Author.

American Psychiatric Association (1991). *DSM-IV options book* (work in progress). Washington, DC: Author.

Amies, P. C., Gelder, M. G., & Shaw, P. M. (1983). Social phobia: A comparative study. *British Journal of Psychiatry, 142*, 174–179.

Barrios, B. A., & Hartmann, D. P. (1988). Fears and anxieties. In E. J. Mash & L. G. Terdal (Eds.), *Behavioral assessment of childhood disorders*, 2nd ed. (pp. 196–264). New York: Guilford Press.

Beitchman, J. H., Nair, R., Clegg, M. A., Ferguson, B., & Patel, P. G. (1986). Prevalence of psychiatric disorders in children with speech and language disorders. *Journal of the American Academy of Child Psychiatry, 25*, 528–535.

Biederman, J., Rosenbaum, J. F., Hirshfeld, D. R., Faraone, V., Bolduc, E. A., Gersten, M., Meminger, S. R., Kagan, J., Snidman, N., & Reznick, J. S. (1990). Psychiatric correlates of behavioral inhibition in young children of parents with and without psychiatric disorders. *Archives of General Psychiatry, 47*, 21–26.

Campbell, S. B. (1986). Developmental issues in childhood anxiety. In R. Gittleman (Ed.), *Anxiety disorders of childhood* (pp. 24–57). New York: Guilford Press.

Cantwell, D. P., & Baker, L. (1987). The prevalence of anxiety in children with communication disorders. *Journal of Anxiety Disorders, 1*, 239–248.

Cantwell, D. P., & Baker, L. (1989). Stability and natural history of DSM-III childhood diagnoses. *Journal of the American Academy of Child and Adolescent Psychiatry, 28(5)*, 691–700.

Costello, E. J. (1989). Child psychiatric disorders and their correlates: A primary care pediatric sample. *Journal of the American Academy of Child and Adolescent Psychiatry, 28(6)*, 851–855.

Evers, W., & Schwartz, J. (1973). Modifying social withdrawal in preschoolers: The effects of filmed modeling and teacher praise. *Journal of Abnormal Child Psychology, 1*, 248–256.

Francis, G., & Ollendick, T. H. (1988). Social withdrawal. In M. Hersen & C. G. Last (Eds.), *Child behavior therapy casebook* (pp. 31–42). New York: Plenum Press.

Francis, G., Last, C. G., & Strauss, C. C. (1992). Avoidant disorder and social phobia in children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 1086–1089.

Garcia-Coll, C., Kagan, J., & Reznick, J. S. (1984). Behavioral inhibition in young children. *Child Development, 55*, 1005–1019.

Gottman, J. M., Gonso, J., & Rasmussen, B. (1975). Social interaction, social competence, and friendship in children. *Child Development, 46*, 709–718.

Graziano, A., DeGiovanni, I. S., & Garcia, K. (1979). Behavioral treatment of children's fears: A review. *Psychological Bulletin, 86*, 804–830.

Kagan, J. (1989). Temperament contribution to social behavior. *American Psychologist, 44*, 668–674.

Kagan, J., Reznick, J. S., Clarke, C., Snidman, N., & Garcia-Coll, C. (1984). Behavioral inhibition to the unfamiliar. *Child Development, 55*, 2212–2225.

Kagan, J., Reznick, J. S., & Gibbons, J. (1989). Inhibited and uninhibited types of children. *Child Development, 60*, 838–845.

Kagan, J., Reznick, J. S., & Snidman, N. (1987). The physiology and psychology of behavioral inhibition in children. *Child Development, 58*, 1459–1473.

Kagan, J., Reznick, J. S., & Snidman, N. (1988). Biological bases of childhood shyness. *Science, 240*, 167–171.

Kagan, J., Reznick, J. S., Snidman, N., Gibbons, J., & Johnson, M. O. (1988). Childhood derivatives of inhibition and lack of inhibition to the unfamiliar. *Child Development, 59*, 1580–1589.

Kendall, P. C. (1985). Toward a cognitive–behavioral model of child psychopathology and a critique of related interventions. *Journal of Abnormal Child Psychology, 13(3)*, 357–372.

Kendall, P. C., & Ronan, K. R. (1990). Assessment of children's anxieties, fears, and phobias: Cognitive–behavioral models and methods. In C. R. Reynolds & R. W. Kamphaus (Eds.), *Handbook of psychological and educational assessment of children* (pp. 223–244). New York: Guilford Press.

Kendall, P. C., Chansky, T. E., Kane, M. T., Kim, R. S., Kortlander, E., Ronan, K. R., Sessa, F. M., & Siqueland, L. (1992). *Anxiety disorders in youth: Cognitive–behavioral interventions*. Needham Heights, MA: Allyn & Bacon.

Last, C. G. (1987). Developmental considerations. In C. G. Last & M. Hersen (Eds.), *Issues in diagnostic research* (pp. 201–216). New York: Plenum Press.

Last, C. G., Strauss, C. C., & Francis, G. (1987). Comorbidity among childhood anxiety disorders. *Journal of Nervous and Mental Disease, 175*, 726–730.

Lazarus, P. J. (1982). Incidence of shyness in elementary-school age children. *Psychological Reports, 51*, 904–906.

Marks, I. M. (1969). *Fears and phobias*. New York: Academic Press.

O'Connor, R. D. (1969). Modification of social withdrawal through symbolic modeling. *Journal of Applied Behavior Analysis, 2*, 15–22.

Ollendick, D. G., & Matson, J. L. (1983). Stereotypic behaviors, stuttering, and elective mutism. In T. H. Ollendick & M. Hersen (Eds.), *Handbook of child psychopathology* (pp. 227–251). New York: Plenum Press.

Ollendick, T. H., Greene, R. W., Francis, G., & Baum, C. G. (1991). Sociometric status: Its stability and validity among neglected, rejected, and popular children. *Journal of Child Psychology and Psychiatry, 32*, 525–534.

Ollendick, T. H., Matson, J. L., & Helsel, W. J. (1985). Fears in children and adolescents: Normative data. *Behaviour Research and Therapy, 4*, 465–467.

Öst, L. (1987). Age of onset in different phobias. *Journal of Abnormal Psychology, 96*, 123–145.

Reznick, J. S., Kagan, J., Snidman, N., Gersten, M., Baak, K., & Rosenberg, A. (1986). Inhibited and uninhibited children: A follow-up study. *Child Development, 57*, 660–680.

Rosenbaum, J. F., Biederman, J., Gersten, M., Hirshfeld, D. R., Meminger, S. R., Herman, J. B., Kagan, J., Reznick, J. S., & Snidman, N. (1988). Behavioral inhibition in children of parents with panic disorder and agoraphobia: A controlled study. *Archives of General Psychiatry, 45*, 463–470.

Rosenbaum, J. F., Biederman, J., Hirshfeld, D. R., Bolduc, E. A., & Chaloff, J. (1991a). Behavioral inhibition in children: A possible precursor to panic disorder or social phobia. *Journal of Clinical Psychiatry, 52(11)*, 5–9.

Rosenbaum, J. F., Biederman, J., Hirshfeld, D. R., Bolduc, E. A., Faraone, S. V., Kagan, J., Snidman, N., & Reznick, J. S. (1991b). Further evidence of an association between behavioral inhibition and anxiety disorders: Results from a family study of children from a non-clinical sample. *Journal of Psychiatric Research, 25(1/2)*, 49–65.

Strauss, C. C. Last, C. G., Hersen, M., & Kazdin, A. E. (1988). Association between anxiety and depression in children and adolescents with anxiety disorders. *Journal of Abnormal Child Psychology, 16(1)*, 57–68.

Suomi, S. J. (1986). Anxiety-like disorders in young nonhuman primates. In R. Gittleman (Ed.), *Anxiety disorders of childhood* (pp. 1–23). New York: Guilford Press.

Turner, S. M., Beidel, D. C., & Townsley, R. M. (1990). Social phobia: Relationship to shyness. *Behaviour Research and Therapy, 28(6)*, 497–505.

Turner, S. M., Beidel, D. C., & Townsley, R. M. (1992). Social phobia: A comparison of specific and generalized subtypes and avoidant personality disorder. *Journal of Abnormal Psychology, 101(2)*, 326–331.

World Health Organization (1992). *International classification of mental and behavioral disorders, clinical descriptions and diagnostic guidelines*, 10th ed. (ICD-10). Geneva: Author.

8

Separation Anxiety Disorder

Bruce Tonge

INTRODUCTION

The creation of subcategories of anxiety disorders of childhood or adolescence in the American Psychiatric Association's (APA's) *Diagnostic and Statistical Manual of Mental Disorders*, 3rd edition (DSM-III) (APA, 1980) and 3rd edition, revised (DSM-III-R) (APA, 1987), has provided a heuristic framework and stimulus for research on anxiety disorders of childhood. This approach to the subcategorization of psychopathological disorders in childhood has not been free of criticism, particularly from Great Britain, where childhood psychiatric disorders are divided into two broad categories: conduct disorders and emotional disorders (which include anxiety states) (Hersov, 1985a). The proponents of this approach have argued that there is insufficient evidence to justify a further subcategorization of emotional disorders and the further specification of anxiety disorders (Hersov, 1985a; Rutter & Shaffer, 1980). However, the new *International Classification of Disorders*, 10th edition (ICD-10) [World Health Organization (WHO), 1992, pp. 273–276], specifies three types of anxiety disorders within the group of emotional disorders with a set specific to childhood, namely, separation anxiety, phobic anxiety, and social anxiety. It qualifies this categorization, though, with the statement that "emotional disorders of childhood are less clearly demarcated into supposedly specific entities."

Those who adopt a taxonometric and a dimensional approach to the description of childhood psychopathology also view anxiety disorders within the dimension of internalizing disorders and argue that there is insufficient evidence to allow reliable differentiation of anxiety disorders from the broad internalizing dimension established on the basis of multivariate statistical studies of psychopathological symptoms (Quay & LaGreca, 1986). In

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contrast, many researchers regard the development of subcategories of anxiety disorders of childhood or adolescence as a most significant development that has provided an important stimulus to research. It has led to increasing understanding of the reliability and validity of the diagnostic criteria and their distinctiveness and comorbidity with other childhood disorders, the life history and possible relationship with adult disorders, the epidemiology, and the contributing factors and biopsychosocial correlates that may have etiological and treatment implications (R. G. Klein & Last, 1989; Silverman, 1987; Werry, 1991).

This chapter will focus on the phenomenology, epidemiology, correlates, and outcome of the DSM-III-R subcategory of separation anxiety disorder and provide evidence that it is a reasonably reliable, valid, and clinically useful diagnostic category. ICD-10 (WHO, 1992) also includes a subcategory of separation anxiety disorder of childhood that is essentially similar to the diagnostic approach taken by DSM-III-R.

PHENOMENOLOGY

The central feature of separation anxiety disorder is excessive anxiety about separation from parents or others to whom the child is emotionally attached (APA, 1987, p. 58; WHO, 1992, p. 275). This anxiety reaction must persist for a period of at least 2 weeks and must be well beyond that normally seen in other children of the child's developmental level. There is an assumption, particularly in the psychoanalytical literature (Sperling, 1967), that the anxiety relates specifically to separation from, and feared loss of, the mother. This view is partly derived from etiological and developmental studies and theories regarding infant–mother attachment behavior and the anxiety normally expressed by infants on separation from the mother (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1973; Weinraub & Lewis, 1977). The assumption that separation anxiety disorder is merely a variant of normal developmental separation anxiety in relation to the mother has not been confirmed by research; therefore, this disorder should be seen as a different problem (King, Hamilton, & Ollendick, 1988). Fathers also develop significant emotional attachments with their children (Yogman, 1982), but the relative importance of separation from the father in the genesis of separation anxiety disorder is not known. Anecdotally, some children with separation anxiety disorder are anxious regarding separation from their father or another attachment figure, such as an aunt or daycare worker, or express distress in anticipation of separation from their home environment rather than a specific attachment figure.

In order to make the diagnosis of separation anxiety disorder, DSM-III-R (APA, 1987, p. 61) requires that the child demonstrate at least three of the features listed in Table 1. ICD-10 (WHO, 1992, p. 274) also lists the same features, but does not require the presence of at least three. Instead, it specifies that the separation anxiety must be of such severity as to be "statistically unusual" and associated with "significant problems in social functioning." Separation anxiety occurring during adolescence or at a later age when it is not a normal developmental phenomenon is not classified by ICD-10 as separation anxiety disorder unless it has persisted from the usual age period.

When separation occurs or is threatened, the child with separation anxiety disorder may be overwhelmed with anxiety and panic. Many of these children become extremely worried that some disaster will occur to harm their parents or that they themselves will be kidnapped or injured or involved in some accident that will separate them from their parents and home. As a consequence, these children are often uneasy and reluctant to leave the familiar environment of their home unless accompanied by their parents. They find it

difficult to go on school excursions or camps and are usually unable to sleep away from home. When faced with the possibility of separation from parents and home, the child may refuse to get dressed or cling in terror to a door handle, stair rail, or his or her mother's leg or clothing. At these times, the child may complain of physical symptoms such as headache and stomachpain and may vomit. Adolescents at the height of panic may also faint or complain of palpitations.

These physical symptoms and somatic complaints can lead to secondary consequences that further complicate matters for the child and family. Frequent visits to the family doctor occur, and these visits may lead to further costly medical investigations and even to exploratory surgical operations. A study of referrals to a hospital child psychiatry consultation/liaison team showed that at least 30% of the referrals were requests by the pediatrician to manage physical symptoms that were thought to have an emotional cause (Monnelly, Ianzito, & Stewart, 1973). Recurrent abdominal pain was the most common symptom, and this symptom has been most frequently found to be associated with anxious internalizing children, who usually have separation anxiety disorder. These children frequently have had the experience of a stressful event related to the onset of the anxieties (A. L. Wasserman, Whitington, & Rivara, 1988), and other family members, particularly a parent, often have a history of abdominal pain. Headache is another symptom in a child with separation anxiety disorder that tends to keep the child safely at home (Tonge, 1991a). These headaches are a direct symptom of the anxiety state and are associated with a high state of general arousal and muscle tension of the head and neck. They usually lead to immediate care and attention from the parent, which results in positive reinforcement and secondary gain that may perpetuate the problem.

This common association between physical symptoms and psychopathology is not specific to separation anxiety disorder. A review of 95 children admitted to a child psychiatry inpatient unit revealed that children with either psychosis or separation anxiety disorder reported a significantly greater number of medically unexplained physical symptoms than those with other diagnoses (Livingstone, Taylor, & Crawford, 1988). Specifically, abdominal pain was significantly associated with either separation anxiety disorder, psychosis, or depressive disorder. Palpitations were significantly more likely in children with a psychotic disorder or separation anxiety disorder compared with children with other psychopathological disorders. Pseudoneurological symptoms were most likely to be associated with psychosis.

Table 1. DSM-III-R Diagnostic Features of Separation Anxiety Disorder

Excessive anxiety about separation from parent or attachment figure demonstrated by at least three of the following criteria:

1. Unrealistic and persistent worry or fear that the parent or attachment figure will be harmed or leave and not return.
2. Irrational and persistent worry that a threatening, dangerous, or frightening event will separate the child from the parent and prevent them from being reunited.
3. School refusal in order to stay with the parents or at home.
4. Reluctance to go to sleep without being in close proximity to the parent, or to sleep away from the home.
5. Avoidance of being alone.
6. Nightmares with themes of separation.
7. A range of somatic symptoms and complaints, particularly when threatened with separation.
8. Distressed behavior when faced with the possibility of separation.
9. Distressed behavior during times of separation from parents or home.

Children with separation anxiety disorder often have rich, but fearful, fantasy and imagination that relates to possible events and experiences that might separate them from their home and those to whom they are attached (Last, Francis, & Strauss, 1989). For example, the child's thoughts may be preoccupied with fears of monsters, threatening persons such as robbers, or dangerous animals that might potentially threaten them or their family. These apprehensive thoughts can spill over into worries that an accident might befall a member of the family, and this worry can lead the child to become increasingly anxious about himself or herself or other members of the family traveling away from home. Often the fantasies include fears of death.

It is not surprising that many of these children have disturbed sleep. The younger children are usually unable to go to sleep by themselves and remain distressed unless a parent sits with them while they fall asleep. Some of them are unable to go to sleep in their own bed, and many usually find their way during the night into the parents' bed to cling to the mother and often disrupt the sleep of both parents. In an attempt to resolve this problem, parents, usually prompted by the father, might lock the parental bedroom door; the child may then seek out the company of a sibling, or the family pet or move bedding to sleep against the parents' bedroom door. The child may also report an increase in nightmares, the themes of which usually express threat and danger to the family's integrity and separation of the child from the family's emotional attachments. During the day, the child may refuse to let the parent out of sight, which might even include insisting that the mother leave the toilet door open.

Not all children with separation anxiety disorder are plagued with anxious and worrying thoughts in the home situation; rather, they may experience symptoms only when they are away from home. In these situations, the children rapidly become extremely homesick, yearning to return home, constantly preoccupied with thoughts of home and their return. These children might be at a school camp or staying with friends or relatives, and as the time away from home increases, they may become increasingly withdrawn, sad, and apathetic, unable to participate in games or concentrate on schoolwork, and they may become irritable or fretful, particularly at mealtimes and bedtime. Social withdrawal can become quite a problem, as these children become increasingly embarrassed about trying to provide an explanation to their relatives or peer group about their absence from school, social clubs such as Scouts, or sporting activity.

It is obvious that the most common manifestation of separation anxiety disorder occurs in relation to attending school. For example, one study found that over 80% of young adolescents with school refusal were suffering from separation anxiety (Gittelman-Klein & Klein, 1980). School refusal is discussed in detail in Chapter 9.

The disorder may be acute in onset, or it may develop more slowly over a period of months. In many instances, it commences after an emotional upset or stressful event such as serious illness in a parent, or death of a relative, or after a physical illness from which the child has recovered. The disorder may also begin after a natural or imposed transition experience, such as a long vacation, moving to a new home, or changing from primary to secondary school.

EPIDEMIOLOGY

The prevalence of separation anxiety disorder is uncertain, although the DSM-III-R states that it is "not uncommon" (APA, 1987, p. 60). Estimates of prevalence are indicated

by some studies of the community prevalence of school refusal, a more easily identified phenomenon, which probably includes a high proportion of children with separation anxiety (Leton, 1962; Ollendick & Mayer, 1984; Rutter, Tizard, & Whitmore, 1970). These studies find a prevalence of school refusal of less than 1% (about 3–5/1000 primary-school-age children, and levels of up to 10/1000 adolescents). The younger children with school refusal are most likely to have separation anxiety disorders, but the adolescent group are more likely to have either mixed anxiety and depressive disorder or other specific disorders such as depression, phobic anxiety, or schizophrenia (Bernstein, Garfinkel, & Hoberman, 1989; Hersov, 1985b; Kashani & Orvaschel, 1988, 1990).

Most other studies on prevalence refer to clinic populations, and therefore the number of milder cases treated by school counselors, general medical practitioners, and other professionals, or remaining untreated, is not known. These studies indicate that between 1% and 8% of children attending psychiatric clinics have separation anxiety disorder, which usually presents as school refusal (Hersov, 1985a,b).

A well-designed and comprehensive New Zealand study on the prevalence of DSM-III disorder in preadolescents found that separation anxiety disorder was the most common anxiety disorder, with a prevalence of 3.5% (Anderson, Williams, McGee, & Silva, 1987). Their sample consisted of 792 children aged 11 who were participating in a longitudinal study on health. The representativeness of the sample in relation to the original birth cohort was found to be satisfactory. Prior to this study, the children had been assessed on a variety of health, behavior, and development measures at ages 5, 7, 9, and 11 years. Data-collection methods included a structured interview with the child and parent- and teacher-completed questionnaires. These questionnaires focused on problems that had been experienced over the past 12 months.

The most prevalent disorders were reported to be attention-deficit disorder (6.7%), oppositional disorder (5.7%), and separation anxiety disorder (3.5%). Conduct disorder (3.4%), overanxious disorder (2.9%), and simple phobia (2.4%) had intermediate prevalence. The least prevalent disorders were depression (1.8%) and social phobia (0.9%). With the exception of overanxious disorder, more girls than boys experienced anxiety and phobic disorders (sex ratio: 1.7:1). It was also found that a proportion of the anxious and phobic children had more than one other disorder, especially depression, which confirms the findings of some other studies of children attending psychiatric clinics (e.g., Bernstein & Garfinkel, 1986; Last, Strauss, & Francis, 1987d). This New Zealand study found that overall, there was a predominance of child-identified anxiety and phobic disorders. However, as noted by the researchers, although multiple sources of data were used in assessment and diagnosis, distortions may have arisen as a result of not interviewing the parents.

In summary, although our knowledge of epidemiological aspects of separation anxiety disorder is limited, we know sufficient for it to be clear that it is one of the more common and more serious mental health problems of childhood.

Sex Distribution

There is some dispute regarding the sex distribution of the disorder. Some authors claim there is an equal sex distribution (APA, 1987; Hersov & Berg, 1980). However, a review of seven studies of children in the community concluded that anxiety symptoms were more common in girls than in boys (Orvaschel & Weissman, 1986). Another study of a clinic population also found more females than males presenting with separation anxiety disorder (Last, Hersen, Kazdin, Finkelstein, & Strauss, 1987a).

Socioeconomic Factors

There is some evidence from community surveys (Orvaschel & Weissman, 1986; Velez, Johnson, & Cohen, 1989), that children with anxiety symptoms and separation anxiety disorder come from families of lower socioeconomic status. This evidence is further supported by a study of Last et al. (1987a), which found that in contrast to other anxiety disorders seen at their clinic, 75% of the children with separation anxiety disorder came from families of lower socioeconomic level.

Little is known about any associated cultural or ethnic patterns. One review of the epidemiology of anxiety symptoms in communities in North America found that these symptoms are more common in black children than in white children (Orvaschel & Weissman, 1986). In contrast, another study, of children referred to a psychiatric clinic, found that separation anxiety disorder occurred primarily in Caucasian children (Last et al., 1987a).

RELIABILITY OF THE DIAGNOSIS

Studies of groups of children who have been through prolonged stressful experiences and traumatic events highlight the problems of reliability and specificity of the subclassification of anxiety disorders (Rey, Plapp, & Stewart, 1989; Werry, 1992), particularly in this instance, which requires a differentiation to be made between separation anxiety disorder, adjustment disorder, and posttraumatic stress disorder.

The reliability of diagnosis is an important methodological requirement for clinicians and researchers working with anxious children and adolescents. In North America, the results of the early DSM-III field trials showed very poor diagnostic agreement between clinicians for the childhood anxiety disorders (phase 1, $\kappa = 0.25$; phase 2, $\kappa = 0.44$) (Williams & Spitzer, 1980). Since then, many reliability studies have been conducted in various countries (e.g., Ray et al., 1989; Strober, Green, & Carlson, 1981; Werry, Methven, & Fitzpatrick, 1983). These investigations have used larger samples and have attempted to establish diagnostic reliability for the subcategories, as well as the overall category of childhood anxiety disorder.

In the Werry et al. (1983) study, a total of 195 admissions to a child psychiatric unit in Auckland, New Zealand, were examined. The children and adolescents were diagnosed independently by two to four clinicians on the basis of case presentations at the first ward round after admission. Good agreement was found for the overall category of anxiety disorders of childhood ($\kappa = 0.67$). However, the specific anxiety disorders produced different levels of agreement, with separation anxiety disorder having the highest level ($\kappa = 0.72$), avoidant disorder the lowest level ($\kappa = 0.05$), and overanxious disorder achieving an intermediate level ($\kappa = 0.65$).

Rey et al. (1989) examined the reliability of the DSM-III diagnostic system in a series of 393 adolescents who were referred to a Sydney adolescent unit over a period of 3 years and who were diagnosed independently by two clinicians. The reliability for the overall category of childhood anxiety disorder was 0.65. Again, however, the reliabilities were quite diverse for subcategories (separation anxiety disorder, $\kappa = 0.80$; avoidant disorder, $\kappa = 0.39$; overanxious disorder, $\kappa = 0.14$). The results of these two studies suggest that we can be reasonably confident about the reliability of diagnosis for separation anxiety disorder. The lower levels of confidence regarding the diagnostic reliability of other anxiety

disorders of childhood are challenged in more recent work. In a study of 188 anxious children attending an anxiety disorders clinic in Pittsburgh (Last, Perrin, Hersen, & Kazdin, 1992), high interrater diagnostic agreement was found for all anxiety disorders (separation anxiety disorder = 0.92, social phobia = 0.91, simple phobia = 0.84, overanxious disorder = 0.94, posttraumatic stress disorder = 0.91, obsessive–compulsive disorder = 0.89, avoidant disorder = 1.00, and panic disorder = 0.89). This study used a highly structured interview, and the clinicians worked closely together, which indicates that experienced and trained clinicians can reach a high level of agreement with their diagnostic assessments. However, Werry (1991) comments that in ordinary clinical settings, reliability of diagnosis is still an important issue, suggesting that improvements in our clinical methods are still needed. The diagnostic reliability of these other specific anxiety disorders is addressed in other chapters.

AGE AND DEVELOPMENTAL LEVEL

Separation anxiety disorder may first present in the preschool-aged child, but the mean age of presentation to a clinic setting has been reported to be around 9 years (Last et al., 1987a). The disorder is more prevalent in prepubertal children than in adolescents (Geller, Chestnut, Miller, Price, & Yates, 1985; Ryan, Puig-Antich, & Ambrosini, 1987).

There are a number of developmental differences in the phenomenology of separation anxiety disorder. A study of 45 children with the disorder found that the young children (5–8 years old) were like to experience nightmares with themes of threat and separation, but such nightmares were not usually reported by the older children and adolescents (9–16 years old) (Francis, Last, & Strauss, 1987). This study also found that the 5- to 8-year-old group worried that harm would befall their parents. The children of ages 9–12 years more frequently experienced severe distress on separation, and the adolescents (13–16 years old) most frequently described suffering physical symptoms. The prepubertal group also experienced apathy, withdrawal, sadness, and inability to concentrate when separated from their parents, but it was not clear whether these symptoms might also be related to the coexistence of depression in some of the children.

This study by Francis et al. (1987) also showed that the adolescents tended to report fewer symptoms in their checklist of nine criteria. This finding draws attention to the problem of internal consistency inherent in the DSM-III-R that has been raised by Landau, Milich, and Widiger (1991), in which, for example, in the case of separation anxiety disorder, only three of a list of nine criteria are required for the diagnosis. This means that children and adolescents receiving the same diagnosis may have very different clinical presentations and symptoms. This approach to diagnosis might also increase the likelihood of several diagnoses being able to be made in the same patient, such as separation anxiety disorder and posttraumatic stress disorder or separation anxiety disorder and mood disorder. This capacity to make several diagnoses at once (comorbidity) might contribute to the lack of diagnostic specificity for symptoms such as school refusal (Werry, 1992).

COMORBIDITY

There is considerable evidence of a high level of comorbidity between anxiety disorders and between separation anxiety disorder and depression (Werry, 1992). Probably

around 20–30% of children presenting with overanxious disorder also have separation anxiety disorder (Werry, 1991). The study by Last et al. (1987a,d) of children attending a psychiatric clinic found that a third of the 22 children with separation anxiety disorder also had a depressive illness that usually followed the onset of the separation anxiety disorder by months. Other clinic studies that have not specified the type of anxiety disorder have found that from 30% (Hershberg, Carlson, Cantwell, & Strober, 1982) to 80% (Bernstein & Garfinkel, 1986) of anxious children also have symptoms of depression.

These different findings might be due to the application of different diagnostic definitions and standards, as well as issues regarding the reliability and specificity of diagnostic systems such as DSM and ICD. But they may also indicate that children attending clinics do actually have serious multiple disturbances. The epidemiological study by Anderson et al. (1987) showed that 17% of children with an anxiety disorder also had a depressive disorder and that these children were the most disturbed and in need of help. This clinical reality might point to shared biopsychosocial vulnerabilities and predispositions in the development of both anxiety and depression, as proposed by Kovacs, Gatsonis, Paulauskas, and Richards (1989).

CORRELATES AND RISK FACTORS

Family Correlates

A considerable number of studies have produced evidence that familial factors are involved in the etiology of childhood anxiety disorders. One research approach has been to study the children of adults with anxiety disorder; the other approach is to assess the mental state and psychiatric history of the parents of children with anxiety disorders.

A series of studies by Leckman and colleagues (Leckman, Merikangas, & Pauls, 1983a; Leckman, Weissman, & Merikangas, 1983b) found a familial relationship between anxiety and depressive disorder in the first-degree relatives of probands. Specifically, mothers who suffer depression together with panic disorder carried the greatest association with anxiety in their offspring (who had a 38% risk of having separation anxiety disorder) (Weissman, Leckman, & Merikangas, 1984).

Turner, Beidel, and Costello (1987) studied the children of parents with an anxiety disorder, using a semistructured interview to derive a DSM-III diagnosis, and compared their children with the offspring of parents with dysthymia and parents without a psychiatric disorder. They found that in the group of parents with an anxiety disorder, 25% of their ($N = 16$), or 30% of a random sample of one child from each of these dysthymic families ($N = 14$), had separation anxiety disorder. This study demonstrated a significantly increased risk of anxiety disorder in children with either anxious or dysthymic parents, compared with normal controls, but did not demonstrate a significant difference between the two patient groups. This finding might add weight to the notion that there is a link between depressive states and anxiety disorders, which only a study of much larger sample size will help resolve.

In another study, the families of six children with both anxiety and depressive disorders, who presented with school refusal, were studied and compared with a matched control group of families of children with other psychiatric disorders (Bernstein & Garfinkel, 1988). This study found evidence for an increased familial risk for anxiety disorders, and to a lesser extent mixed anxiety and depressive disorders or depression alone,

although these results must be treated with caution, given the small number of children in the study.

A larger study examined the lifetime psychiatric histories of the mothers of a group of 58 children with separation anxiety disorder or overanxious disorder or both and compared them with a group of nonanxious psychiatric controls ($N = 15$) (Last, Hersen, Kazdin, Francis, & Grubb, 1987b). This study revealed that the mothers of anxiety-disordered children had a much higher lifetime rate of anxiety disorders (83%) than the control group mothers (40%). They also found that 57% of the mothers of the anxious children were currently suffering from an anxiety disorder compared to 20% of the mothers from the control group. These findings show a surprisingly high level of maternal–child linkage, and this important study deserves replication. Another study, by Last, Phillips, and Statfeld (1987c) found a relationship between a childhood history of overanxious disorder in mothers and current overanxious disorder in their children, but such a relationship was not documented for separation anxiety disorder. A structured childhood history questionnaire was used to obtain a diagnosis of the mother's childhood disorder, using DSM-III criteria. However, it may be more difficult for a parent to reliably remember having separation anxiety disorder in childhood, because it might have been of relatively brief duration or memory of such an intense emotional experience might be repressed. The known unreliability of retrospective histories limits the value of the findings from this type of studies.

In summary, it seems likely that familial factors are involved in the development of childhood anxiety disorders, although there is not yet any convincing evidence that specific childhood anxiety disorders such as separation anxiety disorder are associated with specific types of psychiatric disorders in the parents.

The finding of family patterns of disorders does not resolve the issue of nature (genetic) vs. nurture (environmental) contributions. Definitive twin and adoptive studies have yet to be done with separation anxiety disorder to determine whether a hereditary component is present. It seems likely that panic and phobic disorders, and obsessive–compulsive disorder, have a genetic component, but that generalized anxiety disorder and posttraumatic stress disorder are predominantly environmentally determined (Torgersen, 1988).

The development of separation anxiety disorder is most likely to be due to interaction of environmental events and stresses, such as changing school, with temperamental characteristics and anxiety proneness, developmental experiences of care and attachment, and various biological vulnerabilities. Parker (1983) has conducted a number of studies that offer some suggestions regarding possible underlying mechanisms for the nonspecific continuity between childhood and adult anxiety and neurotic disorders. He systematically studied the association between psychiatric disorders in adults and the type of parental care and attachment they remembered receiving in childhood. He found that a lack of affection and maternal care, associated with overprotection and control ("low care–high protection"), was significantly associated with the presence of anxiety disorder and higher levels of trait anxiety scores in clinical and nonclinical groups. The clinical group comprised 50 consecutive outpatient men and women who did not have marked phobic symptoms (they probably suffered from DSM-III generalized anxiety disorder). Of this clinical group, 40% gave a history of school refusal, and the majority of these patients described recurrent episodes of anxiety beginning in adolescence. Parker argued that his findings do not support a hereditary explanation, because in another group of 109 adoptees, he found an even stronger association between trait anxiety scores and "low care–high protection" parental characteristics than in his study of two groups of students who all had natural parents. He

concluded that lack of parental care combined with intrusive parental overcontrol may lead to anxious, insecure attachment. Both Ainsworth et al. (1978) and Bowlby (1973) had earlier argued that the experience of anxious attachments interferes with the development of secure autonomous skills, may render the child less able to cope with social stress and the demands of relationships, and may therefore provide the basis for the development of anxiety and neurotic disorders in adult life.

Medical Illness and Biological Factors

The experience of chronic illness, and of illnesses that involve hospitalization and painful or stressful experiences, might be hypothesized as the type of experience that could lead to separation anxiety disorder. There is some epidemiological evidence that, compared with other children, children with a chronic disease, particularly if it involves brain function, may show a twofold increased risk of psychopathology and adjustment problems such as conflict with parents, attention-deficit hyperactivity disorder, and anxiety symptoms (Breslau, 1985; Cadman, Boyle, Offord, Szatmari, Rae-Grant, Crawford, & Byles, 1986; Cadman, Boyle, Szatmari, & Offord, 1987; Offord, Boyle, Szatmari, Rae-Grant, Links, Cadman, Byles, Crawford, Blum, Byrne, Thomas, & Woodward, 1987; Tonge, 1991a). An early study by Lansky, Lowman, Voto, and Gyulay (1975) found that around 10% of children with cancer had separation anxiety, particularly when they were more than 10 years old, but advances in the treatment of childhood malignancies might produce different findings today.

Apart from the direct effect of any brain impairment and the experience of hospitalization or painful symptoms, there is some tentative evidence that some specific environmental and psychological factors might contribute to psychological disturbance in children with chronic illnesses. The mothers of disabled children tend to be more overprotective, controlling, and directive than mothers of nonhandicapped children (G. A. Wasserman, Allen, & Solomon, 1985). Teachers are also more likely to give unsolicited help to disabled children than to other children in their classes (Stipek & Sanborn, 1985). These reactions may be in part a response to characteristics of the disabled child, such as shorter attention span, passivity, and lack of persistence and motivation, which can be overcome by encouraging the child's independence and efforts to master tasks (Hefferman, Black, & Poche, 1982).

Some children present with persistent symptoms of pain such as recurrent headache, or abdominal or limb pains, for which no adequate physical or pathophysiological mechanism can be found. The prevalence of these pains may increase around 5 years of age and again at puberty and may be more common in girls (Werry, 1986). It has been assumed that these pains have a psychological basis. They can be classified, using the DSM-III-R criteria, as somatoform pain disorder, but if a careful history and observation of the child are made, then features of separation anxiety disorder may also be evident (Tonge, 1991a).

These children and their parents usually claim that the pain is very severe, yet often appear relatively unconcerned about the possible causes or outcome of the symptom and are reluctant to consider the possibility that psychological factors contribute to the pain. The child usually expresses feelings of unhappiness, low self-esteem, and anxiety and is often, with the active collusion of the parents, unable to attend school. Family factors predispose to the disorder (Kolvin & Nicol, 1979). Parents are likely to be tense, rigid, and overcontrolling, to have depression or alcohol dependence (Routh & Ernst, 1984), and to have a history of headache and chronic pain from painful injuries and illnesses (Werry,

1986). Aspects of this disorder may be a learned pattern of behavior that is reinforced by the parental attention it elicits and by its capacity to reduce family tension and conflict (Greene, Walker, Hickson, & Thompson, 1985).

Limited available evidence suggests that approximately a third of these children have pain that can become chronic, continuing as a somatoform disorder into adult life (Werry, 1986). This chronic abnormal illness behavior leads to social incapacity and invalidism. The common sympatomatology it shares with separation anxiety disorder suggests that further detailed study is necessary in order to determine whether it is a form of separation anxiety disorder that presents with chronic pain or a different disorder that may on occasions be associated with separation anxiety disorder or other psychopathological disorders such as depression.

The possibility that separation anxiety disorder might have a biological foundation is suggested in an uncontrolled study of 15 inpatient prepubertal children (6–12 years old) in a psychiatric unit (Livingstone, Reis, & Rigdahl, 1984). They received a comprehensive psychiatric assessment prior to a dexamethasone suppression test (DST). The DST was able to identify 75% of the depressed children and 60% of the children with separation anxiety disorder as being unable to suppress serum cortisol levels. This study compares favorably with DST studies of depressed adults that identified around 50% who had a lack of suppression of serum cortisol. This study again points to a possible neurobiological overlap between depression and separation anxiety disorder, although a controlled replication study is needed.

TEMPERAMENT AND PERSONALITY CHARACTERISTICS

An intriguing study of normal 3-year-old children, rated by parents and their preschool teachers, found that the level of separation anxiety prior to the start of nursery school was predictive of the level of separation anxiety throughout the first school year (Doris, McIntyre, Kelsey, & Lehman, 1971). Other childhood anxieties and fears did not predict subsequent separation anxiety at school. These authors concluded that separation anxiety is a phenomenon different from other anxieties and therefore merits specific study. These findings have not yet been replicated, but they may point to a developmental line for separation anxiety that might reflect temperamental characteristics and have implications for personality development.

Studies by Kagan and colleagues (Kagan, Reznick, & Snidman, 1987; Kagan, 1988) have carefully demonstrated persistence of the temperamental characteristic of social inhibition from early childhood to the age of 7. Klein and Last (1989, p. 102) argue that this finding "might identify a set of interactional features that may affect later function" and ask whether this social inhibition might also indicate anxiety proneness and predisposition to anxiety disorder.

Early findings regarding temperament in a large epidemiological sample of Australian children also support the notion that anxiety proneness persists through childhood (Prior, 1992; Sanson, Oberklaid, Pedlow, & Prior, 1991). Compelling evidence for this notion is provided in a 7½-years follow-up study of the Kagan et al. (1987) cohort of 41 children (70% of the original nonclinical sample) (Hirshfeld, Rosenbaum, Biederman, Bolduc, Faraone, Snidman, Reznick, & Kagan, 1992). The 12 children who remained shy and inhibited throughout the period of study (at 4, 5½, and 7½ years) had significantly higher rates of anxiety disorder (67%) than the other children (20%). These children with stable

behavioral inhibition were also more likely to have parents who had a history of childhood anxiety disorder (50%) and continuing anxiety disorder (35%). This study, perhaps due to its small subsample size, was not able to demonstrate that the stable temperamental characteristic of inhibition specifically predicted the development of separation anxiety disorder, although it was significantly associated with the development of phobic disorder. Therefore, specific temperamental characteristics associated with the development of separation anxiety disorder have yet to be found, if indeed any exist.

More surprisingly, there are no follow-up studies of children who have recovered from separation anxiety disorder to determine whether they have specific personality and temperamental profiles that can be equated with this assumption of anxiety proneness.

LIFE EVENTS AND STRESS

DSM-III-R states that "in most cases" separation anxiety disorder develops after a life stress, threat, loss, or change in the environment (APA, 1987, p. 60). This sequence has also been my clinical experience, although certainly not in all cases. There is, however, surprisingly little evidence for this assertion. Gittelman-Klein and Klein (1980) have reported that 80% of a sample of children with severe school refusal have had the onset of their disorder following an illness or death of a close relative or a change of house or school.

Some studies indicate that children who have experienced a major traumatic event, such as a cyclone or warfare, do not suffer from higher levels of anxiety and fearfulness than other children (Gordon, 1977; Ziv and Israeli, 1973). However, more recent studies of natural or man-made disasters have shown immediate and some persisting emotional disturbance in some of the child victims (Malmquist, 1986; Terr, 1981).

Posttraumatic stress disorder (PTSD) is defined in the DSM-III-R as an anxiety disorder which results from a stressful life experience that is "outside the range of usual human experience" (American Psychiatric Association, 1987, p. 247), such as a threat to life; destruction of one's home or community; involvement in war, torture, murder, or kidnap; or experience of a man-made or natural disaster. The event is followed by a stress response, including physiological changes; emotional reactions of fear, guilt, and sadness; impulsive disturbed behavior; and memory loss and poor concentration. PTSD is characterized by persistence of these symptoms for at least a month, together with intrusive recollections of the event (flashbacks), diminished interest and numbing of response, increased arousal and irritability, aggression, anxiety, and depression. The degree of fear and shock caused by the event, witnessing death or injury of family members or friends, the parents' capacity to cope, the quality of family and social support, and community cohesion are factors which influence the development of PTSD in children. Age, developmental stage, temperamental characteristics, and genetic endowment also act to modify the child's response to stress and his or her resilience (Tonge, 1990).

A study of the psychological adjustment of children up to 17 years of age following the experience of a major bush fire in 1983 that destroyed their township situated near Melbourne, Australia, and took six lives found a low level of child psychopathology (Tonge, 1991b). Most of the families involved received some immediate brief counseling to help them adjust to the disaster. Of a total of 1268 children under 17 years of age living in that area, 36 could not be helped by this brief counseling and were seen by a member of a psychiatric consultation team. A total of 25 of these 36 children (2% of the total group) were regarded as suffering from a severe anxiety state. Using DSM-III criteria, these children

could be diagnosed as suffering from either an adjustment disorder or a posttraumatic stress disorder, but the majority also had symptoms that would quality for a secondary diagnosis of separation anxiety disorder. A further 9 children (0.7%) presented with a severe conduct disorder. There were 3 times as many males as females with an anxiety disorder (19 compared to 6), which is remarkable, given that one would expect either an equal sex distribution or more girls than boys. All these young people with severe and persistent disturbance received psychiatric assessment, appropriate treatment, and a range of community supports.

At 12-month follow-up, only 2 of the 25 children with an anxiety disorder had not recovered. These children continued to suffer from a posttraumatic stress disorder with associated separation anxiety disorder. Of concern, 7 of the 9 young people with conduct disorder remained disturbed. In all these cases in which there had been no recovery, the families had a history of preexisting parental conflict and psychosocial problems before the fire, and these family difficulties had continued or deteriorated in its aftermath.

This study confirms that severe anxiety disorder, including separation anxiety disorder, can follow a major traumatic community event. The provision of simple mental health promotion counseling and debriefing services may have aided the natural resilience and tendency to emotional recovery inherent in children and families, but the level of persisting psychopathology was no greater or even less than that expected in the general community. In future studies of stressful events that affect large populations of children, it will be essential that details of specific diagnoses and comorbidity be recorded.

For the great majority of children with separation anxiety disorder, it is most likely that an interaction of factors, including genetic predisposition, biological vulnerability, temperament and constitutional proneness, attachment and family experiences, and ordinary but stressful transition events (e.g., changing school) or experiences that threaten the family security (such as parental illness), all combine to lead to the development of separation anxiety disorder.

ETHNIC AND CULTURAL ISSUES

Little is known about possible influences of ethnic and cultural factors on the development and phenomenology of separation anxiety disorder in children. As noted previously, one review of the epidemiology of anxiety symptoms in North America found that they were more common in black children than in white children (Orvaschel & Weissman, 1986). In contrast, another study, of children presenting to a psychiatric clinic in Pittsburgh, found that children with separation anxiety disorder were primarily Caucasian (Last et al., 1987a), but patterns of referral, the demography of the area served by the clinic, and the extent to which various ethnic groups used these clinical services may have biased the sample.

The perception of bodily symptoms and the language used to describe emotions differ among cultures. This difference may be due in part to language differences, but cultural expectations and perhaps even subtle physiological differences may be involved and may influence the expression of psychopathology (Kleinman, 1980). Evidence that the meaning and experience of emotional and somatic symptoms might be different between Western and Indochinese cultures is provided in a 2-year prospective study of all the Indochinese refugee children who arrived in Melbourne, Australia, between July and November 1981 (Tonge, Graves, Morrison, & Stolk, 1986). These workers found that the parents of children

with anxiety disorder often described this disorder in terms of headache, and factor analysis of symptoms questionnaire data placed symptoms of anxiety together with headache and stomach pain. This finding contrasted with comparison samples of Australian and English children, in which headache and other somatic complaints were not a clear marker of emotional disorder and did not cluster statistically with anxiety symptoms.

Reliable and valid assessment questionnaires used in this study were translated by skilled linguists into Vietnamese, Chinese, Khmer, and Lao. Problems were encountered in finding satisfactory translations of the questions relating to anxiety and depression, particularly with the translation into Vietnamese. Questions about anxious feelings and worries and miserable and unhappy feelings were translated into questions about headaches and somatic complaints. It appears that the Indochinese use somatic descriptions such as headache to describe depression and anxiety when they are emotionally upset.

On arrival in Australia, comprehensive questionnaire and clinical interview assessment of these Indochinese refugee children found that in the group of 5- to 14-year-old children (339), 10.3% were suffering from an emotional disorder, 1.2% had a conduct disorder, and 0.9% had a mixed emotional and conduct disorder. Within the broad group of children suffering from an emotional disorder, there was a group of children who had a specific anxiety disorder. These anxiety disorders usually presented with a mixture of symptoms including general anxiety, separation anxiety, fearfulness, school refusal, and somatic complaints (headache and stomach pain). The minimal prevalence of anxiety disorder in the 5- to 14-year-old group was about 6% during the first 12 months, but had fallen to 4% 2 years after the refugees' arrival. Approximately equal proportions of boys and girls were affected by anxiety disorder throughout the 2 years.

In the 15- to 19-year-old age group of Indochinese adolescents studied in a companion study (Krupinski & Burrows, 1986), there were more females than males who were suffering an anxiety disorder on arrival in Australia (12% of 109 compared to 9% of 170 cases). The prevalence of anxiety disorders declined in the 12 months after their arrival, but there remained more adolescent girls than boys with anxiety disorders (8% compared with 1%).

This study of young Indochinese refugees demonstrated that they were an emotionally resilient group who had coped extraordinarily well with the major stresses and loses they had experienced as refugees. They were shown to be in generally better mental health than their Australian peers in a community control sample. Around 6.2% of the total group of 5- to 14-year-old children had persisting psychiatric disorder throughout the 2-year study. This persisting disorder was mostly an anxiety disorder (4% of the total group) and was also more likely to occur in those refugees from Kampuchea compared with those from Vietnam and Laos. This difference might reflect the operation of some cultural factors and level of education and social class, but different refugee experience was also a factor. The Kampucheans probably experienced greater privations and hardship, and they certainly had been able to exercise far less choice in becoming refugees compared to the families from Vietnam and Laos.

OUTCOME

Studies of children with separation anxiety disorder indicate that the outcome is not necessarily benign. Prospective studies demonstrate that from 30% (Rodriguez, Rodriguez, & Eisenberg, 1959) to 44% (Warren, 1965) to 60% (Coolidge, Brodie, & Feeney, 1964) of

young people with school phobia continued to have adjustment problems, neurotic disorder, and social and personality difficulties continuing into adult life. Berg, Butler, and Hall (1976), in a large study of 100 adolescents who had been hospitalized for school refusal, found that 3 years after discharge, up to 70% continued to have a number of problems such as increasing difficulty at school, problems in social relationships, and the development of a range of emotional disturbance.

Follow-back studies of adults with agoraphobia and panic disorder show a strong link with histories of separation anxiety in childhood (Berg, Marks, McGuire, & Lipsedge, 1974; D. F. Klein, 1964; Zitrin & Ross, 1988). The relationship between childhood anxiety disorder (and separation anxiety disorder in particular) and adult psychopathology remains uncertain despite the suggestions of a possible link with agoraphobia and panic disorder. ICD-10 (WHO, 1992, p. 273) takes the view that there is "considerable discontinuity between emotional disorders" occurring in childhood and adulthood. Emotional disorders of childhood are understood in ICD-10 as exaggerations of features of normal development that may involve "mental mechanisms" different from the abnormal processes that occur in the psychopathology of adults and that carry a "better prognosis." Large-scale longitudinal studies of children with separation anxiety disorder are needed before we can know with any confidence whether this disorder carries any predictive implication for future adult psychopathology. As Werry (1992, pp. 477–478) recently commented, "Beyond knowing that there is some link between child and adult disorders, we do not know how large the risks are. In order to maximize the efficiency of psychiatric services for children, we need to know much more accurately who will get better without treatment, who is heading towards durable disorder, who will get real benefit from treatment, and what are risk and protective factors."

CASE STUDY

David, age 8, was referred by the family doctor because of an 18-month history of frequent stomach pains, nausea, and some headache for which no physical cause could be found. These physical symptoms mostly occurred on school days and often prevented him from going to school. He was reluctant to sleep in his own room, demanding to sleep in his parents' bed or at least in their bedroom. His sleep was frequently disturbed by nightmares. When he was at school, he often worried that some terrible event had occurred to his mother and begged the teacher to allow him to go home. When this request was not acceded to, he sometimes became verbally abusive and irritable toward the teacher and other children. The standard of his schoolwork had fallen, and the teacher reported that David lacked concentration and often appeared to be agitated. His parents had been unable to get him to attend the school camp.

David was the eldest of four children with a sister age 6, a brother age 3, and another age 23 months. His parents were both in their early 30s. The father was a tradesman with his own business, and the mother had previously been a shop sales assistant, but was now fully occupied at home since the birth of the youngest child.

The whole family came for the first assessment session. The parents gave an account of their son's symptoms, and the father added that he was fed up with his son coming into their bedroom at night and admitted that on several occasions he had given David some of his wife's sleeping tablets. David was attentive and participated in the discussion, but his siblings were all restless and disruptive. The mother appeared depressed and sat passively

throughout most of the interview, making little comment. She did complain, however, that over the past year, her husband was often not home due to his work.

David became agitated when he noticed that his youngest sister had wet the floor. The mother ignored David and was oblivious to her daughter's increasing distress and demands for attention until I suggested to the mother that she could change her daughter's wet diaper if she wished. She then ineffectively tried to change the diaper until the father, showing irritation, roughly took over the task. During this chaotic scene, David became agitated and started to whistle loudly. At this point, the mother started to tell me that she had been increasingly unable to cope since the birth of the youngest child and that she was continuing to have dysfunctional uterine bleeding and was seriously depressed with a number of associated symptoms.

I then saw David by himself. He was apprehensive about leaving his parents because his mother was upset, but was reassured that they would be nearby in the waiting room. I asked if he had any worries. He said he was worried and frightened about the "silver gun rapist," and this worry made him go to his mother's room. He explained that the silver gun rapist was a man who "kidnapped boys and pulled their pants down." (At that time, there was a child molester in the community, but several years earlier, there had been a rapist named by the media the "silver gun rapist." David was combining these two persons into one.) I asked him if he was ever unhappy. He said he was unhappy when "my mum, my mum . . . ," but was unable to complete the sentence. He then told me how he was unhappy at school, and this made him say "cheeky words." I invited him to play the squiggle game (Winnicott, 1971). He made my squiggle into a picture of the "silver gun rapist" and then elaborated this into the drawing of a man who "steals money and kidnaps boys," cutting off the "nice curly hair" of a boy (Fig. 1).

I then drew a large balloon coming from a figure in bed and suggested to David that this was a picture of him asleep in bed having a bad dream and asked that he draw this dream (Tonge, 1982). Without delay, David asked if I had any silver and then drew a picture of the silver gun rapist shooting him. He said that the silver gun rapist "did judo and got me with some sleeping pills in his gun" (Fig. 2). (I was reminded of David being given sleeping tablets by his father.) With encouragement, he then proceeded to draw "the worst part," whispering that it was his house and his mother's room. He said the silver gun rapist got into his mother's room and she screamed. I asked David if he was really telling me about his father. He nodded and said, "Yes, daddy had a knife and tried to kill her." He said that his father was angry and said "rude words." David then said that he had to go to his mother's room "to keep her safe" because he heard his mother say "Get out" and call for help (Fig. 3). He believed that his mother was "very unhappy so she wants to die." He agreed that these worries kept him from going to school and were the reason for his wanting to stay near his mother.

With David's consent, I showed the drawings to his parents and discussed what had been worrying him. This presentation allowed the parents to talk about a number of increasing difficulties they had experienced since the birth of their youngest daughter. The mother had developed a postnatal depressive illness, was irritable, and was not coping with her domestic tasks. The father felt increasingly persecuted and misunderstood by his wife, and this alienation led him to spend increasing amounts of time away from the tense family situation. Their previously satisfactory marital and sexual relationship deteriorated, and on one occasion he became angry and sexually forced himself on her. At that moment of distress, they both became aware of David silently watching them from the bedroom doorway. This incident had further angered and upset the father, who forced David to take a sleeping tablet.

Figure 1. Silver gun rapist cutting off the boy's "nice curly hair."

This assessment revealed that David was suffering from a separation anxiety disorder in the context of a dysfunctional family system, with a mother who was suffering from a postnatal depressive illness, parental marital conflict, and paternal decompensation anger and withdrawal. Treatment included the following components:

- Treatment of the mother's postnatal depressive illness with antidepressant medication and brief psychotherapy.
- Brief conjoint marital therapy that included education regarding postnatal depression and counseling on anger-management techniques and conflict resolution for the father.
- Management of David's school refusal and anxiety that comprised the father agreeing to take David to school each morning, the teacher designing an educational program that rewarded achievement and helped David catch up with lessons, and several sessions for David to learn some simple relaxation breathing techniques and have the opportunity to further discuss the anxiety he had felt for his mother.

David easily returned to school, and the teacher commented that his concentration and participation rapidly improved. At 12-month follow-up, David presented as a happy boy with no evidence of separation anxiety or other psychopathology. Moreover, satisfactory and effective parental marital and family relationships had been reestablished.

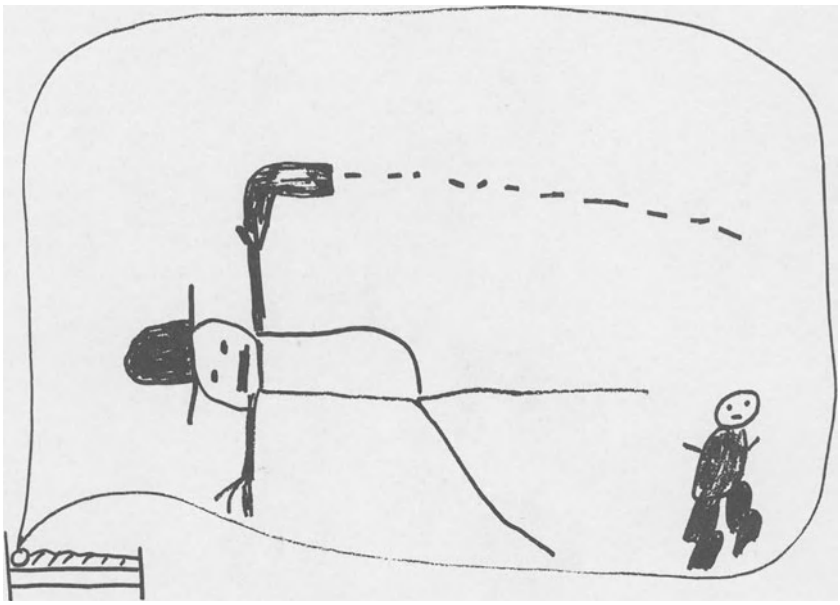

Figure 2. Silver gun rapist "got me with sleeping pills."

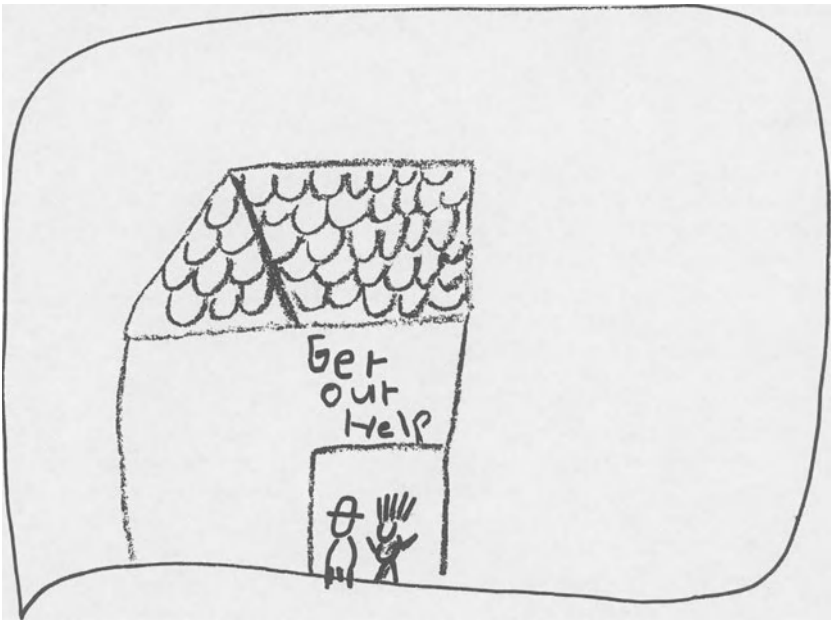

Figure 3. Silver gun rapist (Daddy) "gets mum in the bedroom." "He had a knife and tried to kill her." "She screams." He says "rude words." "I have to go to mum's room to keep her safe from him."

SUMMARY

Despite some debate regarding the validity of some of the current subclassifications of anxiety disorders, our understanding of the phenomenology and epidemiology of separation anxiety disorder is sufficient to justify its existence as a reliable, valid, and clinically useful diagnostic category. It is one of the most common and serious mental health problems of childhood that also probably carries an increased risk of enduring psychopathology into adult life.

The range of emotional, somatic, and behavioral symptoms, associated with the fear or threat of separation from an attachment figure, cripples the child's enjoyment of life and social and family relationships and his or her ability to participate and progress in school and recreational and creative activities. The disorder also carries with it an increased chance of comorbidity, particularly of other anxiety disorders or depression.

The development of separation anxiety disorder in a child is probably the result of a complex interaction of genetic predisposition, biological vulnerability, temperament and constitutional proneness, attachment and family experiences, and ordinary but stressful transition events that threaten the security of the family or child. Parental overprotection and control, together with relative lack of affection, are also likely to be common contributing experiences in the family life of these children. There is an intriguing link between chronic somatic symptoms such as headache and other pains and separation anxiety disorder that requires further definitive study, as does the suggestion that there may be some enduring temperamental characteristics, such as social inhibition, that predicate anxiety proneness. There seems to be little doubt that major unexpected life events can precipitate separation anxiety disorder, but it is even more likely to follow the more ordinary stresses of transition in everyday life, such as changing school or parental illness. Ethnic and cultural factors probably influence the presentation and phenomenology of the disorder, but the potential for separation anxiety disorder is a universal possibility in children, perhaps based on the essential nature of our species to form intense attachment relationships, but also to develop various defenses against the emotion of anxiety, engendered by threat and challenge to our security, safety, or comfort.

There remains the paradox that even though separation anxiety disorder is associated with intense emotional suffering and serious mental health and social and educational adjustment consequences, it may also contain elements of learned behavior, this behavior in turn being reinforced by parental attention and concern and by its capacity to divert attention from family conflicts or other stresses, and thus reduce tension. Jaspers (1923, p. 803) has argued that "the arousal of anxiety" leads to "a more vital humanity," but when it becomes overwhelming and maladaptive, taking the form of a clinical anxiety disorder, it can limit the development of a child's potential and increase the risk of future problems with mental health and educational and social adjustment. This danger provides every justification for the careful assessment of children presenting with separation anxiety disorder and the provision of a range of community and specialist treatment and mental health promotion services.

REFERENCES

Ainsworth, M. D. S., Blehar, M., Waters, E., & Wall, S. (1978). *Patterns of attachment*. Hillsdale, NJ: Erlbaum.

American Psychiatric Association (1980). *Diagnostic and statistical manual of mental disorders*, 3rd ed. Washington, DC: Author.

American Psychiatric Association (1987). *Diagnostic and statistical manual of mental disorders*, 3rd ed., revised. Washington, DC: Author.

Anderson, J. C., Williams, S., McGee, R., & Silva, P. A. (1987). DSM-III disorders in pre-adolescent children. *Archives of General Psychiatry, 44*, 69–76.

Berg, I., Butler, A., & Hall, G. (1976). The outcome of adolescent school phobia. *British Journal of Psychiatry, 128*, 80–85.

Berg, I., Marks, I., McGuire, R., & Lipsedge, M. (1974). School phobia and agoraphobia. *Psychological Medicine, 4*, 428–434.

Bernstein, G. A., & Garfinkel, B. D. (1986). School phobia: The overlap of affective and anxiety disorders. *Journal of the American Academy of Child Psychiatry, 25*, 235–241.

Bernstein, G. A., & Garfinkel, B. D. (1988). Pedigrees, functioning, and psychopathology in families of school phobic children. *American Journal of Psychiatry, 145*, 70–74.

Bernstein, G. A., Garfinkel, B. D., & Hoberman, H. (1989). Self reported anxiety in adolescents. *American Journal of Psychiatry, 146*, 384–386.

Bowlby, J. (1973). *Attachment and loss*, Vol. 2, *Separation*. New York: Basic Books.

Breslau, N. (1985). Psychiatric disorder in children with physical disability. *Journal of the American Academy of Child Psychiatry, 24*, 87–94.

Cadman, D., Boyle, M., Offord, D., Szatmari, P., Rae-Grant, N. I., Crawford, J., & Byles, J. (1986). Chronic illness and disability in Ontario children: Findings of the Ontario Child Health Study. *Canadian Medical Association Journal, 135*, 761–767.

Cadman, D., Boyle, M., Szatmari, P., & Offord, D. (1987). Chronic illness, disability and mental and social well being: Findings of the Ontario Child Health Study. *Paediatrics, 79*, 805–812.

Coolidge, J. C., Brodie, R. D., & Feeney, B. (1964). A ten year follow up study of sixty six school phobic children. *American Journal of Orthopsychiatry, 34*, 675–684.

Doris, J., McIntyre, A., Kelsey, C., & Lehman, E. (1971). Separation anxiety in nursery school children. *Proceedings of the annual meeting of the American Psychological Association*, pp. 145–146.

Francis, G., Last, C. G., & Strauss, C. C. (1987). Expression of separation anxiety disorder: The roles of age and gender. *Child Psychiatry and Human Development, 18*, 82–89.

Geller, B., Chestnut, E. C., Miller, M. D., Price, D. T., & Yates, E. (1985). Preliminary data on DSM-III associated features of major depressive disorder in children and adolescents. *American Journal of Psychiatry, 142*, 643–644.

Gittelman-Klein, R., & Klein, D. F. (1980). Separation anxiety in school refusal and its treatment with drugs. In L. Hersov & I. Berg (Eds.), *Out of school—modern perspectives in school refusal and truancy* (pp. 321–341). Chichester: John Wiley.

Gordon, M. (1977). Cyclone Tracey II: The effects on Darwin. *Australian Psychologist, 12*, 55–82.

Greene, J., Walker, L., Hickson, G., & Thompson, J. (1985). Stressful life events and somatic complaints in adolescents. *Paediatrics, 75*, 19–22.

Hefferman, L., Black, F. W., & Poche, P. (1982). Temperamental patterns in young neurologically impaired children. *Journal of Paediatric Psychology, 7*, 415–423.

Hershberg, S. G., Carlson, G. A., Cantwell, D. P., & Strober, M. (1982). Anxiety and depressive disorders in psychiatrically disturbed children. *Journal of Clinical Psychiatry, 43*, 358–361.

Hersov, L. (1985a). Emotional disorders. In M. Rutter & L. Hersov (Eds.), *Child and adolescent psychiatry: Modern approaches*, 2nd ed. (pp. 368–381). Oxford: Blackwell.

Hersov, L. (1985b). School refusal. In M. Rutter & L. Hersov (Eds.), *Child and adolescent psychiatry: Modern approaches*, 2nd ed. (pp. 382–399). Oxford: Blackwell.

Hersov, L., & Berg, I. (Eds.) (1980). *Out of school—modern perspectives in school refusal and truancy*. Chichester: John Wiley.

Hirshfeld, D. R., Rosenbaum, J. F., Biederman, J., Bolduc, E. A., Faraone, S. V., Snidman, N., Reznick, J. S., & Kagan, J. (1992). Stable behavioral inhibition and its association with anxiety disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 103–111.

Jaspers, K. (1923). *A general psychopathology*. Translated from the German (1963) by J. Hoenig & M. W. Hamilton. Manchester: Manchester University Press.

Kagan, J. (1988). Biological basis of childhood shyness. *Science, 240*, 167–171.

Kagan, J., Reznick, J. W., & Snidman, N. (1987). The physiology and psychology of behavioural inhibition in young children. *Child Development, 58*, 1459–1473.

Kashani, J. H., & Orvaschel, H. (1988). Anxiety disorders in mid adolescence: A community sample. *American Journal of Psychiatry, 145*, 960–964.

Kashani, J. H., & Orvaschel, H. (1990). A community study of anxiety in children and adolescents. *American Journal of Psychiatry, 147*, 313–318.

King, N. J., Hamilton, D. I., & Ollendick, T. H. (1988). *Children's phobias: A behavioural perspective*. Chichester: John Wiley.

Klein, D. F. (1964). Delineation of two drug responsive anxiety syndromes. *Psychopharmacologia, 5*, 397–408.

Klein, R. G., & Last, C. G. (1989). *Anxiety disorders in children*. Newbury Park, CA: Sage Publications.

Kleinman, A. (1980). *Patients and healers in the context of culture*. Berkeley: University of California Press.

Kolvin, I., & Nicol, A. R. (1979). Child psychiatry. In K. L. Granville-Grossman (Ed.), *Recent advances in clinical psychiatry*, Vol. 3 (pp. 297–332). Edinburgh: Churchill-Livingstone.

Kovacs, M., Gatsonis, C., Paulauskas, S. L., & Richards, C. (1989). Depressive disorders in childhood. IV. A longitudinal study of comorbidity with and risk for anxiety disorders. *Archives of General Psychiatry, 46*, 776–782.

Krupinski, J., & Burrows, G. D. (1986). Psychiatric disorders in adolescents and young adults. In J. Krupinski and G. D. Burrows (Eds.), *The price of freedom: Young Indochinese refugees in Australia* (pp. 122–135). Sydney: Pergamon Press.

Landau, S., Milich, R., & Widiger, T. A. (1991). Predictive power methods may be more helpful for making a diagnosis than sensitivity and specificity. *Journal of Child and Adolescent Psychopharmacology, 1*, 611–619.

Lansky, S. B., Lowman, J. T., Voto, T., & Gyulay, J. (1975). School phobia in children with malignant neoplasm. *American Journal of the Disabled Child, 129*, 42–46.

Last, C. G., Francis, G., & Strauss, C. C. (1989). Assessing fears in anxiety disordered children with the Revised Fear Survey Schedule for Children (FSSC-R). *Journal of Clinical Child Psychology, 18*, 137–141.

Last, C. G., Hersen, M., Kazdin, A. E., Finkelstein, R., & Strauss, C. C. (1987a). Comparison of DSM-III separation anxiety and over-anxious disorders: Demographic characteristics and patterns of comorbidity. *Journal of the American Academy of Child and Adolescent Psychiatry, 26*, 527–531.

Last, C. G., Hersen, M., Kazdin, A. E., Francis, G., & Grubb, H. J. (1987b). Psychiatric illness in the mothers of anxious children. *American Journal of Psychiatry, 12*, 1580–1583.

Last, C. G., Perrin, S., Hersen, M., & Kazdin, A. E. (1992). DSM-III-R anxiety disorders in children: Sociodemographic and clinical characteristics. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 1070–1076.

Last, C. G., Phillips, J. E., & Statfeld, A. (1987c). Childhood anxiety disorders in mothers and their children. *Child Psychiatry and Human Development, 18*, 103–112.

Last, C. G., Strauss, C. C., & Francis, G. (1987d). Comorbidity among childhood anxiety disorders. *Journal of Nervous and Mental Disease, 175*, 726–730.

Leckman, J. F., Merikangas, K. R., Pauls, D. L., Prusoff, B. A., & Weissman, M. M. (1983a). Anxiety disorders and depression: Contradictions between family study data and DSM-II convention. *American Journal of Psychiatry, 140*, 880–882.

Leckman, J. F., Weissman, M. M., Merikangas, K. R., Pauls, D. L., & Prusoff, B. A. (1983b). Panic disorder and major depression: Increased risk of depression, alcoholism, panic, and phobic disorders in families of depressed probands with panic disorders. *Archives of General Psychiatry, 40*, 1055–1060.

Leton, D. A. (1962). Assessment of school phobia. *Mental Hygiene, 46*, 256–264.

Livingstone, R., Reis, C. J., & Ringdahl, I. C. (1984). Abnormal dexamethasone suppression test results in depressed and non-depressed children. *American Journal of Psychiatry, 141*, 106–108.

Livingstone, R., Taylor, J. L., & Crawford, S. L. (1988). A study of somatic complaints and psychiatric diagnosis in children. *Journal of the American Academy of Child and Adolescent Psychiatry, 27*, 185–187.

Malmquist, C. P. (1986). Children who witness parental murder. *Journal of the American Academy of Child Psychiatry, 25*, 320–325.

Monnelly, E. P., Ianzito, B. M., & Stewart, M. A. (1973). Psychiatric consultations in a children's hospital. *American Journal of Psychiatry, 130*, 789–790.

Offord, D. R., Boyle, M. H., Szatmari, P., Rae-Grant, N. I., Links, P. S., Cadman, D. T., Byles, J. A., Crawford, J. W., Blum, H. M., Byrne, C., Thomas, J., & Woodward, E. A. (1987). Ontario Child Health Study. II. Sixth month prevalence of disorder and rates of service utilisation. *Archives of General Psychiatry, 44*, 832–836.

Ollendick, T. H., & Mayer, J. A. (1984). School phobia. In S. M. Turner (Ed.), *Behavioral theories and treatment of anxiety* (pp. 367–411). New York: Plenum Press.

Orvaschel, H., & Weissman, M. M. (1986). Epidemiology of anxiety disorders in children: A review. In R. Gittelman (Ed.), *Anxiety disorders of childhood* (pp. 58–72), New York: Guilford Press.

Parker, G. (1983). *Parental over-protection: A risk factor in psychosocial development*. New York: Grune & Stratton.

Prior, M. (1992). Childhood temperament. *Journal of Child Psychology and Psychiatry, 33*, 249–279.

Quay, H. C., & LaGreca, A. N. (1986). Disorders of anxiety, withdrawal and dysphoria. In H. C. Quay & J. S. Werry (Eds.), *Psychopathological disorders of childhood*, 3rd ed. (pp. 73–110). New York: John Wiley.

Rey, J. M., Plapp, J. M., & Stewart, G. W. (1989). Reliability of psychiatric diagnosis in referred adolescents. *Journal of Child Psychology and Psychiatry, 30*, 879–888.

Rodriguez, A., Rodriguez, M., & Eiesenberg, L. (1959). The outcome of school phobia: A follow up study based on forty one cases. *American Journal of Psychiatry, 116*, 540–554.

Routh, D., & Ernst, A. (1984). Somatization disorders in relatives of children and adolescents with functional abdominal pain. *Journal of Paediatric Psychology, 9*, 427–437.

Rutter, M., & Shaffer, D. (1980). DSM-III: A step forward or back in terms of the classification of child psychiatric disorders? *Journal of the American Academy of Child Psychiatry, 19*, 371–394.

Rutter, M., Tizard, J., & Whitmore, K. (1970). *Education, health and behaviour*, New York: John Wiley.

Ryan, N. D., Puig-Antich, J., Ambrosini, P., Rabinovich, H., & Robinson, D. (1987). The clinical picture of major depression in children and adolescents. *Archives of General Psychiatry, 44*, 854–861.

Sanson, A., Oberklaid, F., Pedlow, R., & Prior, M. Risk indicators: Assessment of infancy predictors of pre-school behavioural maladjustment. *Journal of Child Psychology and Psychiatry, 32*, 609–626.

Silverman, W. K. (1987). Childhood anxiety disorders: Diagnostic issues, empirical support, and future research. *Journal of Child and Adolescent Psychotherapy, 4*, 121–126.

Sperling, M. (1967). School phobias: Classification, dynamics, and treatment. In R. S. Eissler (Ed.), *The psychoanalytic study of the child*, Vol. 22 (pp. 375–401). New York: International Universities Press.

Stipek, D. J., & Sanborn, M. E. (1985). Teachers task related interactions with handicapped and non-handicapped pre-school children. *Merrill-Palmer Quarterly, 31*, 285–300.

Strober, M., Green, J., & Carlson, G. (1981). Reliability of psychiatric diagnosis in hospitalised adolescents. *Archives of General Psychiatry, 38*, 141–145.

Terr, L. C. (1981). Psycho trauma in children: Observation following the Chowchilla school bus kidnapping. *American Journal of Psychiatry, 138*, 14–19.

Tonge, B. J. (1982). Draw a dream: An intervention promoting change in families in conflict. In F. W. Kaslow (Ed.), *The international book of family therapy* (pp. 212–228). New York: Brunner/Mazel.

Tonge, B. J. (1991a). Children with physical impairments. In F. K. Judd, G. D. Burrows, & D. R. Lipsitt (Eds.), *Handbook of studies on general hospital psychiatry* (pp. 195–206). Amsterdam: Elsevier.

Tonge, B. J. (1991b). Anxiety in adolescents. R. Noyes, Jr., M. Roth, & G. D. Burrows (Eds.), *Handbook of anxiety*, Vol. 2, *Classification, aetiological factors and associated disturbances* (pp. 269–287). Amsterdam: Elsevier.

Tonge, B. J., Graves, G., Morrison, E., & Stolk, Y. (1986). Psychiatric disorders in children. In J. Krupinski & G. Burrows (Eds.), *The price of freedom: Young Indochinese refugees in Australia* (pp. 136–159). Sydney: Pergamon Press.

Torgerson, S. (1988). Genetics. In C. G. Last & M. Hersen (Eds.), *Handbook of anxiety disorders*. New York: Pergamon Press.

Turner, S. M., Beidel, D. C., & Costello, A. (1987). Psychopathology in the offspring of anxiety disordered patients. *Journal of Consulting and Clinical Psychology, 55*, 229–235.

Velez, C. N., Johnson, J., & Cohen, P. (1989). A longitudinal analysis of selected risk factors for childhood psychopathology. *Journal of the American Academy of Child and Adolescent Psychiatry, 28*, 861–864.

Warren, W. (1965). A study of adolescent psychiatric in-patients and their outcome six or more years later. II. The follow up study. *Journal of Child Psychology and Psychiatry, 6*, 141–160.

Wasserman, A. L., Whitington, P. F., & Rivara, F. P. (1988). Psychogenic basis for abdominal pain in children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 27*, 179–184.

Wasserman, G. A., Allen, R., & Solomon, C. R. (1985). At risk toddlers and their mothers: The special case of physical handicap. *Child Development, 56*, 73–83.

Weinraub, M., & Lewis, M. (1977). The determinants of children's responses to separation. *Monographs of the Society for Research in Child Development, 42(4)*, Serial No. 172.

Weissman, M. M., Leckman, J. F., Merikangas, K. R., Gammon, G. D., & Prusoff, B. A. (1984). Depression and anxiety disorders in parents and children. *Archives of General Psychiatry, 41*, 845–852.

Werry, J. S. (1986). Physical illness, symptoms and allied disorders. In H. C. Quay & J. S. Werry (Eds.), *Psychological disorders of childhood* (pp. 232–293). New York: John Wiley.

Werry, J. S. (1991). Overanxious disorder: A review of its taxonomic properties. *Journal of the American Academy of Child and Adolescent Psychiatry, 30*, 533–544.

Werry, J. S. (1992). Child psychiatric disorders: Are they classifiable? *British Journal of Psychiatry, 161*, 472–480.

Werry, J. S., Methven, R. J., Fitzpatrick, J., & Dixon, H. (1983). The inter-rater reliability of DSM-III in children. *Journal of Abnormal Child Psychology, 11*, 341–354.

Williams, J. B. W., & Spitzer, R. L. (1980). Appendix F. In *Diagnostic and statistical manual of mental disorders*, 3rd ed. (pp. 467–472). Washington, DC: American Psychiatric Press.

Winnicott, D. W. (1971). *Therapeutic consultations in child psychiatry*, New York: Basic Books.

World Health Organization (1992). *International classification of mental and behavioral disorders, clinical descriptions and diagnostic guidelines*, 10th ed. (ICD-10). Geneva: Author.

Yogman, M. (1982). Development of the father infant relationship. In H. Fitzgerald, B. Lester, & M. Yogman (Eds.), *Theory and research in behavioral pediatrics*, New York: Plenum Press.

Zitrin, C. M., & Ross, D. C. (1988). Early separation anxiety and adult agoraphobia. *Journal of Nervous and Mental Disease, 176*, 621–625.

Ziv, A., & Israeli, R. (1973). Effects of bombardment on the manifest anxiety level of children living in kibbutzim. *Journal of Consulting and Clinical Psychology, 40*, 287–291.

9

School Phobia

Nigel Blagg and William Yule

INTRODUCTION

It was more than 60 years ago that Broadwin (1932) described a "special kind of truancy" that delineated school phobia from other forms of nonattendance:

> The child is absent from school for periods of varying from several months to a year. The absence is consistent. At all times the parents know where the child is. It is near the mother or near the home. The reason for the truancy is incomprehensible to the parents and to the school. The child may say that it is afraid to go to school, afraid of the teacher or say that it does not know why it will not go to school.

Broadwin's description was given empirical backing in the classic study of Hersov (1961), which clearly demonstrated that school phobia (often referred to as school refusal) was part of a neurotic disorder, whereas truancy was one aspect of a conduct disorder. A replication of Hersov's work with a sample of truants drawn from a similar social class distribution confirmed and extended Hersov's findings (Blagg, 1987)—challenging the notion that differences between school phobics and truants are simply clinical artifacts of social class differences between the groups.

Nevertheless, parents, educators, and mental health professionals still argue vehemently about the precise nature and cause of the condition and the best way to treat it. In some circles, the condition as a clinical problem is denied. For instance, there is still a minority of educators who regard school phobia as "middle-class truancy." There is also an active lobby in the United Kingdom whose members imply that children exhibiting school-phobic symptoms are merely reacting to unreasonable and unnatural pressures in school

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(Chapman, 1990; Knox, 1989; Pilkington & Piersel, 1991). Certainly there are many children who experience difficulties in adjusting to school, and there are a few who find school highly aversive (Ollendick, Matson, & Helsel, 1985; Mitchell & Shepherd, 1967). However, as Ollendick & King (1990) emphasize, children who demonstrate school phobia behave in ways that are unrealistic inappropriate, and persistent. Their fears are out of all proportion to the situation, and their avoidance of school is involuntary.

CLINICAL FEATURES

School phobia has been well described by Hersov (1977), who observed that the problem

> . . . often starts with vague complaints of school or reluctance to attend, progressing to total refusal to go to school or to remain in school in the fact of persuasion, entreaty, recrimination and punishment by parents and pressures from teachers, family doctors and education welfare officers. The behavior may be accompanied by overt signs of anxiety or even panic when the time comes to go to school and most children cannot even leave home to set out for school. Many who do, return home half way there and some children, once at school, rush home in a state of anxiety. Many children insist that they want to go to school and are prepared to do so but cannot manage it when the time comes.

The fear and anxiety can manifest itself in many ways. Children may feel terrified about either leaving home or going to school, or both. They may also show somatic complaints such as stomach pains, nausea, headaches, and dizziness; in addition or instead, they may exhibit behavioral reactions such as avoidance of school with tears, fits of temper, and even aggressive behavior when forced to attend. Often, feelings, physiological states, and avoidance behaviors are not synchronous, leading to misunderstandings about the basis of the child's problems and inconsistency in management. For instance, a child may exhibit somatic complaints without any conscious anxiety feelings or avoidance behavior. In these circumstances, it is not uncommon for parents to regard the problem as a result of a mystery virus needing extensive medical investigation and a long respite from school. To complicate matters further, the condition is sometimes triggered by or coexists with a viral condition, and careful attention needs to be paid to these kinds of issues in the early diagnostic stages (Blagg, 1987). Either way, if there is no pressure to attend school, the child's fears and somatic complaints eventually subside, but reappear with a vengeance once the pressure to return to school is reapplied. This relapse may lead to a further period away from school with more medical tests to explore the child's sudden relapse, with the link between symptomatology and return to school being overlooked or ignored.

DIAGNOSTIC CRITERIA

School phobia is not a unitary syndrome, but rather a multicausal condition of varying symptomatology, severity, and duration (Blagg, 1987; King & Ollendick, 1989a, b; Hersov, 1977). It does not appear in either ICD-10 or DSM-III-R as a separate diagnostic category. In ICD-10, it is classified as either

> F93.0: Separation anxiety disorder of childhood . . . [in which] . . . the key diagnostic feature is a focused excessive anxiety concerning separation from those individuals to

> whom the child is attached (usually parents or other family members), that is not merely part of a generalized anxiety about multiple situations. This may take the form of . . . persistent reluctance or refusal to go to school because of fear over separation (rather than for other reasons such as fear over happenings at school). . . .
>
> Many situations that involve separation also involve other potential stressors or sources of anxiety. The diagnosis rests on the demonstration that the common element in the various situations giving rise to anxiety is the circumstance of separation from a major attachment figure. This arises most commonly, perhaps, in relation to school refusal (or "phobia"). Often this does represent separation anxiety but sometimes (especially in adolescence) it does not. School refusal arising for the first time in adolescence should not be coded here unless (i) it is primarily a function of separation anxiety, and (ii) that anxiety was first evident to an abnormal degree during the preschool years. Unless these criteria are met, the syndrome should be coded in one of the other F93 categories or under F40-49.

The other relevant F93 categories are Phobic anxiety of childhood and Social anxiety disorder of childhood. The F40–49 categories are the emotional, anxiety disorders, including specific phobias, that occur irrespective of age.

DSM makes similar points. It classifies many episodes of school refusal as 309.21: Separation Anxiety Disorder—under Anxiety Disorders of Childhood or Adolescence. As DSM states:

> It should be noted that some cases of school refusal are not due to separation anxiety; in such cases, usually in adolescence, the child actually fears the school situation because of anxiety about social or academic performance, whether or not he or she is accompanied by a parent.

Again, school phobia that is not part of a separation anxiety disorder should be classified as another anxiety disorder or phobia.

This failure to agree on diagnostic criteria for school phobia has undoubtedly contributed to the continuing confusion over terminology and understanding of the condition. The term "school phobia" was favored by earlier clinicians and researchers in the United States, who also tend to emphasize the links between separation anxiety and school phobia, particularly among younger children.

Following the analysis of the problem by Eysenck and Rachman (1965), British clinicians were more ready to acknowledge both that some school phobics had genuine fears of aspects of school experience and that others had separation anxiety problems. The term "school refusal" was preferred, but this term has been taken to imply a conscious decision on the part of the child to refuse school, and so there is still a need for one or more fully appropriate labels.

Given the lack of agreement on diagnostic criteria, it is not surprising that the evidence on the prevalence and the natural course of the disorder is sketchy. It is widely accepted that there are three peak ages for presentation—shortly after school entry at age 5 or 6; shortly after transfer from primary to secondary school, around the age of 11–13, depending on the school system; and after age 14. The disorder in the youngest group is most clearly related to separation difficulties (Bernstein, 1991). Children in the middle group have complex presentations and associated etiology (Yule, Hersov, & Treseder, 1980). The oldest group's breakdown in school attendance may be the precursor of more serious mental illness (Plapp, 1990; Berg, 1992).

Bernstein (1991) and Bernstein & Garfinkel (1992) have reported two overlapping samples of referrals to a Minnesota school refusal clinic. In both studies, about half the children were diagnosed as having an anxiety disorder, either a separation anxiety or an

overanxious disorder. About half of these (i.e., one quarter of the sample) also had a major depressive disorder. One quarter of the total had only a major depressive disorder. The remaining minority had oppositional behavior or other conduct disorder, so that one must question the validity of the diagnosis of school refusal. Bernstein (1991) reported that those school refusers with anxiety disorder only were the youngest group, and they presented primarily with separation anxiety.

Last (1991) reports that among her 158 anxious children seen at an anxiety disorder clinic in Pennsylvania, those with somatic complaints tended to present as school refusers. Last and Strauss (1990) confirmed that there were two primary diagnostic subgroups of school refusers—separation anxiety and phobic. Those in the separation anxiety group were younger; those in the school-phobic group had a later onset and much more severe psychopathology. Similar findings were reported in Canada by Atkinson, Quarrington, Cyr, and Atkinson (1989) and in an earlier study by Last et al. (1987).

Thus, recent studies of the differential diagnosis of school refusal have been heavily influenced by the demands of DSM-III-R. This circumstance has tended to reinforce the distinction between "separation anxiety in a school situation" among the younger group and "school phobia" in the older group—the distinction first articulated by Eysenck and Rachman (1965).

Although school refusal occurs in fewer than 1% of the school population (Rutter, Tizard, & Whitmore, 1970), its management takes up a disproportionate amount of the time of most child mental health clinics, and it arouses such concern that in the early 1970s, the ratio of papers on school phobia to other childhood phobias was at least 25 to 1 (Miller, Barrett, & Hampe, 1974).

Some 5–7% of referrals to child psychiatry clinics in Britain and in Sweden are diagnosed as presenting with school refusal (Hersov, 1985; Flakierska, Lindstrom, & Gillberg, 1988). A detailed study of 100 children taken before a school attendance committee in Leeds, England, found that 24 were school refusers, half of whom met ICD-9 criteria for psychiatric disorders (Bools, Foster, Brown, & Berg, 1990).

A more recent development has been the emphasis placed on school phobia in cultures outside the English-speaking world. A search of literature on this topic for this review identified 72 references in a 5-year period, 43 of which were published in Japan. This probably reflects the postwar Japanese preoccupation with high scholastic achievement. Honjo, Kasahara, and Ohtaka (1992) note that school refusal is the most popular diagnosis in the clinical practice of child and adolescent psychiatry.

SUBTYPES OF SCHOOL REFUSAL?

Coolidge, Hahn, and Peck (1957), in a study of 21 cases, presented evidence to distinguish two types of school phobia: "neurotic" and "characterological." The neurotic group consisted of younger children, mostly girls, who showed a dramatic onset of the condition. The primary conflict in this group was seen as a "symbiotic tie" to the mother (i.e., a type of separation anxiety). The characterological group was described as more disturbed and consisted mainly of older boys. The onset of the problem was gradual; however, typically there had been an early history of school-phobic symptoms that had shown spontaneous remission.

The typology of Coolidge et al. (1957) was expanded on by Kennedy (1965), who distinguished Type 1 and Type 2 school phobia according to the ten differential symptoms

Table 1. Ten Differential School Phobia Symptoms[a]

Type 1	Type 2
1. The present illness is the first episode	1. The present illness is the second, third, or fourth episode.
2. Monday onset, following an illness the previous Thursday or Friday.	2. Monday onset following minor illness not a prevalent antecedent.
3. Acute onset.	3. Incipient onset.
4. Lower grades most prevalent.	4. Upper grades most prevalent.
5. Expressed concern about death.	5. Death theme not present.
6. Mother's physical health in queston; actually or child thinks so.	6. Mother's health not an issue.
7. Good communication between parents.	7. Poor communication between parents.
8. Mother and father well adjusted in most areas.	8. Mother shows neurotic behavior, father a character disorder.
9. Father competitive with mother in household management.	9. Father shows little interest in household or children.
10. Parents achieve understanding of dynamics easily	10. Parents very difficult to work with.

[a]From Kennedy (1965).

illustrated in Table 1. A diagnosis of Type 1 or Type 2 depended on the child's showing at least seven of the ten characteristics of one group. However, Kennedy's typology is not without problems. Some of the items are not operationally defined (e.g., what is meant by "good communication" or competitiveness?), and one item is in part an outcome of treatment rather than a criterion for an initial diagnosis ("Parents achieve understanding of dynamics easily").

Hersov (1961) classified school phobics into three groups according to predominant patterns of behavior in the father, mother, and child. Other authors do not favor typologies. For instance, Kahn, Nursten, and Carroll (1981) view the condition as a complex psychosocial problem; Shapiro and Jegede (1973) argue for a systems approach with attention to: (1) chronological age in relation to developmental factors; (2) transactions with the mother, family, and community; (3) intrapsychic dynamics; and (4) the child's personal view toward symptoms as "ego alien" or "ego syntonic."

At the very least, these various perspectives illustrate that school phobia is a complex and heterogeneous problem (Blagg, 1987; King & Ollendick, 1989a, b; Ollendick & Mayer, 1984).

TREATMENT ISSUES

Arguments about the management and treatment of school phobia are intimately linked to theories about etiology. Nevertheless, whether one takes a psychodynamic or behavioral perspective, there are a number of recurring issues that still divide many therapists. In particular:

1. What key factors should be explored?
2. Who should be involved in treatment?
3. Should the child be treated before attempting a return to school, or should return to school and treatment be coterminous?

4. Should return to school be an incremental, gentle process or immediate, full-time, and, if necessary, enforced?

These issues will be revisited and illustrated in relation to some of the major treatment studies.

Psychodynamic Treatment Approaches

Early studies (Coolidge et al., 1957; Klein, 1945; Sperling, 1961; Thomson, 1948; Warren, 1948) and the majority of large-scale treatment investigations have used therapeutic approaches derived from psychoanalytic theory (Barker, 1968; Berg, 1970; Davidson, 1961; Glaser, 1959; Rodriguez, Rodriguez, & Eisenberg, 1959; Skynner, 1974; Warnecke, 1964). Nevertheless, historically, strategies and styles of intervention have varied enormously.

An initial and exclusive focus on the child (Bornstein, 1949; Jung, 1911) was fairly quickly replaced by recognition of the need to consider the mother–child relationship (Johnson, Falstein, Szurek, & Svendsen, 1941; Van Houten, 1948), with later studies (Bryce & Baird, 1986; Framrose, 1978; Hsia, 1984; Skynner, 1974) arguing that treatment should be based on a family system model with the father occupying a crucial role in therapy. In this model, the real problem is seen to lie in the relationships between the family members rather than in the mother, the school-phobic child, or any one individual or one relationship. Some family therapists also address school factors under the guise of "additional practical measures." Bryce and Baird (1986) take the systemic approach further, arguing that therapists need to take care that dysfunctional relationships in families are not mirrored in parallel interprofessional conflicts.

The psychodynamic literature has usually emphasized community-based outpatient treatment (at a clinic or hospital). However, in certain circumstances, hospital admission to an adolescent unit has been recommended (Barker, 1968; Berg, 1970; Hersov, 1960, 1961; Weiss & Cain, 1964). Weiss & Cain (1964) that hospitalization provides:

1. Managed separation experiences (with parents visiting according to an agreed plan).
2. Full-time attendance at the hospital school—removing the secondary buildup of worries associated with falling behind with schoolwork.
3. Demonstration to the parents that the child's difficulties are more related to leaving home than to going to school (by immediate success in hospital school attendance).
4. A "therapeutic milieu" (with benefits such as the opportunity to develop new relationships and cope with new social situations).

Nevertheless, as Table 2 shows, the treatment outcome for school phobics who have been hospitalized and given traditional therapy is very poor. Similarly disappointing outcome figures were recorded for the hospitalized group in the Blagg and Yule (1984) comparative study reported later. Only the Barker (1968) study, involving younger children (below the age of 12) showed a successful treatment outcome.

The issue of whether to delay the child's return to school or insist on an immediate return has been viewed in different ways by different community-based therapists. Some advise that pressure to attend school should be removed while treatment is directed toward unraveling an overly close, unhealthy mother–child relationship (Davidson, 1961; Greenbaum, 1964; Radin, 1967; Thomson, 1948; Waldfogel, Coolidge, & Hahn, 1957). Sperling (1961) comments:

Table 2. Patient Details and Treatment Outcome Figures for a Number of Studies Involving Traditional Psychotherapy and Hospitalization[a]

Study	*N*	Age range	Length of phobia	Length of treatment	Returning to day school		Follow-up period	In school at follow-up	
					N	%		*N*	%
Warren (1948)	8	9–14 yr	Not stated	Not stated	4	50	Not stated	—	—
Hersov (1960, 1961)	8	7–9 yr	2 mo–2 yr	6–12 months	34	68	6–18 months after discharge	29	58
Weiss and Cain (1964)	16	8–16 yr	2 mo–2.5 yr	Mean 9 months	6	37.5	No follow-up	—	—
Barker (1968)	6	All <12 yr	Not stated[b]	3–14 months	6	100	6–12 months	6	100
Berg (1970)	29	10–15 yr	3 days–2 yr+	1–19 months Mean 9 months	—	—	3–24 months Mean 13 months	16	59

[a]From Blagg (1987). [b]Details were given for only 3 cases.

> If psychotherapy is planned it is better to uncover the dynamics underlying the phobic behaviour and treatment and when this is achieved, the child will return to school voluntarily and assume responsibility for doing so himself. Any other method exempts the child from this responsibility and places it instead on parents, teachers, principal, truant officer or therapist.

However, the prevailing view among psychodynamic therapists is typified by Berryman (1959), who favors an early but gradual return to school via carefully agreed manageable steps. More recently, some psychodynamic therapists have emphasized the value of an immediate and enforced return to school using the threat of legal action as a therapeutic lever (Framrose, 1978; Rodriguez et al., 1959; Skynner, 1974; Warnecke, 1964). Rodriguez et al. (1959) reported the first major trial (with long-term follow-up) of a rapid-return approach. They supported their methods with reference to an earlier paper by Eisenberg (1958), who had observed that school-phobic symptoms were a response to contradictory, verbal and behavioral cues provided by parents. The involved parent "initiated and reciprocated the child anxiety." Thus, an immediate return to school broke the circle of anxiety and provided other therapeutic advantages, as noted by Rodriguez et al. (1959):

> . . . it brings into sharp focus the primary issue of separation and dissociates the therapist from the family's displacement onto fantasized dangers in the school situation. Secondly, it emphasises our recognition of the core of good health in the child; the fact that we act upon this premise constitutes effective reassurance to a panic stricken family. . . . Finally, the return to school restores the child to a growth promoting environment and removes him from his emersion in the cycle of mutually reinforced anxieties in the home.

Warnecke (1964) reports a long-term treatment study of 47 school phobics modeled on the approach of Rodriguez et al. (1959). Cases of school refusal were treated as emergencies, with the primary concern being the return of the child to full-time schooling. The diagnostic interview was concerned with considering what steps would be needed to secure the child's return to school. Pressure was applied in all cases with the use of escorts and, if necessary, legal action. At the same time, changes within school such as class transfer were arranged where necessary. The child and the parents were encouraged to live with their emotions in an active way. It was suggested that immediate confrontation played a critical role in treatment:

> In dealing with these situations the ego of the child is supported and the feeling of inadequacy in the parents is diminished. Such an approach does not imply that unconscious determinants are ignored but that they should be dealt with at the proper time.

Of the 46 cases in which a follow-up was possible, 40 (87%) returned to "satisfactory" attendance at school. Warnecke reports that 24 of the successfully treated cases (60%) were over the age of 11 years. The 6 failures, however, all fell into this older age range, which means that for the children of 11 years plus, successful outcome in terms of satisfactory school attendance was 80%. For children younger than 11 years of age, satisfactory school attendance was achieved in 100% of cases.

In a similar way, the conjoint family therapy approach of Skynner (1974) uses an immediate and, if necessary, enforced return to school as a focus for exposing and confronting inappropriate communications between family members. In a retrospective

study of 20 cases, Skynner claims highly impressive outcome figures, with 88% successfully treated on long-term follow-up. His results were surprising, given the small amount of time devoted to treatment. In most cases, only one interview was required. Skynner (1974) recognizes the overlap between his approach and other explicitly behavioral strategies such as that of Kennedy (1965). However, he argues that the success of Kennedy (1965) was probably more an outcome of the implicit focus on faulty family mechanisms than of the explicit focus on behavioral techniques.

In the main, psychodynamic treatments have either ignored or deemphasized the role of school factors in the etiology and treatment of school phobia. However, a few therapists have written about the importance of coordinating family-based treatment with school personnel (Bryce & Baird, 1986; Davidson, 1961; Eisenberg, 1958; Framrose, 1978; Hsia, 1984). Such an approach is vividly illustrated by strategic family therapy illustrated in four case studies reported by Framrose (1978). In addition to a focus on family transactions, explicit use is made of behavioral techniques; a range of school factors are also addressed, and the importance of establishing a foolproof system of attendance checks once a child is back in school is strongly emphasized.

School issues were also very clearly addressed by Waldfogel, Tessman, and Hahn (1959), who dealt with incipient cases of school phobia and outlined a number of therapeutic advantages of operating directly in the school situation:

> The therapist can offer direct support to the child in a feared situation. In addition, he can help the principal and the teacher by relieving them of their sense of helpless bewilderment and guilt. By modifying their feelings toward the child, he is able to work with them towards altering whatever reality factors exist to aggravate the child's fears. Sometimes, adjustments need to be made, such as reducing the pressure of work and allowing the child to attend only part of the day. On rare occasions, the child must be transferred to another class.

Behaviorally Based Treatment Approaches

The work of Wolpe (1954, 1958) on systematic desensitization stimulated interest in behavioral treatment, and from the early 1960s a large number of behavioral studies were reported. In common with the early psychodynamic studies, early behavioral studies were oversimplistic, focusing almost exclusively on the child and often on only one aspect of the child's problem. As Berecz (1968) pointed out, early behavioral studies were often "one-shot attempts to prove the effectiveness of certain techniques." Nevertheless, they were important in developing and refining the behavioral art.

In parallel with developments in the psychodynamic field, behavioral treatments have become increasingly sophisticated and complicated, with treatment involving the application of a wide variety of behavioral techniques selected to address many child, family, and school factors (Blagg, 1987; Blagg & Yule, 1984; Kennedy, 1965; Phillips & Wolpe, 1981). In recent years, behaviorally oriented researchers and practitioners have formalized their more inclusive and systematic methods within a cognitive–behavioral framework (Kendall & Hollon, 1979; Morris & Kratochwill, 1983; Ollendick & Hersen, 1984).

Some authors (including Blagg, 1987; Hersen, 1971a,b; Miller et al., 1974) have drawn attention to the overlap between behavioral and psychodynamic approaches. Within the context of traditional psychotherapy, fear hierarchies may be worked through incidentally and informally in the course of discussions, with desensitization happening in a variety of ways. The mere business of establishing a relationship between the child and the therapist

may involve a nonspecific desensitization effect. Moreover, as Miller et al. (1974) point out, the interpretation of unconscious material may involve "a psychic shock process which combines emotional arousal with flooding of ideational material similar to that employed in implosive techniques."

Just as traditional psychotherapists may informally use approaches that can be framed in behavioral terms, behavior therapists may often incidentally rely on techniques associated with traditional psychotherapy. For instance, Hersen (1968, 1971b) stresses that behavioral therapists often overcome resistance to treatment by utilizing support, interpretation, and reality confrontation techniques.

As Miller et al. (1974) point out, most treatments can be reduced to four essential elements: (1) establishment of a relationship, (2) clarification of the stimulus, (3) desensitization of the stimulus, and (4) confrontation of the stimulus.

Some behavior therapists have favored a gradual process of return to school using procedures from both the classic and operant conditioning paradigms.

In the classic conditioning paradigm, both imaginal and *in vivo* systematic desensitization procedures have been commonly used. Essentially, systematic desensitization (SD) involves taking the child through a carefully graded hierarchy of feared situations, starting with the least worrying and building up to the most frightening. At teach stage, the child is helped to overcome any anxieties by concentrating on a behavior that is antagonistic to the anxiety (Wolpe, 1958). The approach is often very time-consuming and highly dependent on a range of therapist skills, including the ability to analyze the anxiety-provoking circumstances in the school phobia, construct a carefully graded fear hierarchy, and find and deploy a means of relaxing the child at each stage of the hierarchy. Imaginal approaches can be conveniently arranged in the therapist's office, but rely on the child's ability to visualize. Desensitization sessions in real life overcome the problems of poor visualization, but may require more of the therapist's time and effort, with frequent visits to the school. Despite these various problems, a variety of single case studies have demonstrated the effectiveness of both imaginal and *in vivo* SD (Chapel, 1967; Garvey & Hergrenes, 1966; Lazarus & Abramovitz, 1962; Schermann & Grover, 1962).

SD has also been used with techniques derived from the operant conditioning paradigm. For instance, Lazarus, Davidson, and Polefka (1964) deliberately set out to demonstrate the value of both classic operant procedures at different stages in the treatment of a 9-year-old boy with a long history of unresolved separation anxiety in school situations. Imaginal SD was abandoned in favor of *in vivo* SD because of the boy's "inarticulateness and acquiescent response tendency." At the 15th SD session, the boy appeared minimally anxious, and the authors switched to an operant strategy as a means of securing school attendance, independent of the therapist. A comic book and tokens (to be exchanged later for a baseball glove) were given contingent on the boy's returning to full-time schooling. Despite this reward, the therapist was able to withdraw only after the mother had emphasized that school attendance was compulsory and would be enforced if necessary. Tangible reinforcers were withdrawn 3 weeks later. All gains had been maintained at 10-month follow-up.

The theoretical implications of this study are interesting. Viewed in operant terms, *in vivo* SD may unwittingly reinforce dependent behavior and avoidance responses by allowing the child to return home after anxiety has been aroused during treatment. On the other hand, an operant-based approach might lead to premature exposure to the maximally feared situation, a rise in anxiety, and a strengthening of the avoidance response should the child be able to escape. However, if the escape route is blocked and the child is held in the

fear-provoking situation, desensitization should occur through a process of habituation. If operant procedures were then implemented to reinforce regular attendance, the classic and operant paradigms would not be in conflict. These authors suggest that high levels of anxiety indicate the need for desensitization, whereas low levels of anxiety call for the use of operant procedures.

Certainly, a number of authors have reported successful single case studies using operant techniques such as contingency management and contingency contracting with minimally anxious pupils (Cantrell, Cantrell, Huddleston, & Woolridge, 1969; Hersen, 1968; Welch & Carpenter, 1970). In addition, a number of therapists have successfully followed the approach of Lazarus et al. (1964) using a combination of SD and operate techniques (Phillips & Wolpe, 1981; Tahmisian & McReynolds, 1971). The successful use of shaping techniques has also been reported (Ando, 1991).

In contrast to gradual-return approaches, some therapists have preferred an immediate return to school without any careful preparation. The approach can be theoretically justified in terms of the classic extinction model (Stampfl, 1967, 1968). When implemented imaginally by helping the child to visualize highly threatening situations in school, it is referred to as "implosion" (see Smith & Sharpe, 1970).

When implemented *in vivo*, it is referred to as "flooding" (Blagg & Yule, 1984; Kennedy, 1965; Rines, 1973). Flooding has the advantage of offering a very rapid approach to treatment, but typically results in short-term heightened anxiety in the child before the process of habituation takes over. Not surprisingly, considerable care needs to be taken in making a very detailed analysis of the child's problems as well as school and family circumstances, so that numerous practical measures can be implemented to deal with any reality issues (Blagg & Yule, 1984). Detailed planning of practical arrangements can win the parents' confidence and have a desensitization effect on the child, family, and teachers (Blagg, 1987). This approach was an important feature in the large-scale treatment study of Kennedy (1965). Kennedy's treatment package draws on both classic and operant paradigms and involves (1) immediate and enforced school attendance, (2) positive reinforcements for school attendance, and (3) contingency management to deal with somatic complaints.

The author acknowledges the importance of establishing good interpersonal relations to ensure consistency of management and the ability to inspire confidence in the parents so that they give the treatment approach a chance. The study involved 50 Type 1 school phobics. All 50 cases returned to school with only 3 days' treatment. Furthermore, gains were maintained over 8 years. Kennedy doubted that this approach could be used with more severe cases, but this doubt was subsequently refuted by Rines (1973) and Blagg and Yule (1984).

Comparative Treatment Studies

Blagg and Yule (1984) report a comparative treatment study dealing exclusively with adolescent school phobia. A treatment series of 30 cases (10–16 years of age) received a systematic problem-solving approach that addressed many child, family, and school issues, in keeping with the additive stress model of Yule et al. (1980). In this model, school phobia is precipitated by not one but rather a series of additive stresses (both at home and at school) occurring over a relatively short period of time and affecting a child who is in various ways vulnerable (e.g., youngest or only child, history of illness, introverted and more inclined to worry than most children of the same age group). Once the school-refusal episode is

triggered, absence from school leads to the development of secondary factors (falling behind with schoolwork, becoming anxious about facing teachers and friends, fearing comments about malingering). The diagnostic approach of Blagg and Yule (1984) (reported more fully in Blagg, 1979, 1987) depends heavily on establishing good relationships with the child, family, school, and any medical specialists who might be involved. The approach pays great attention to detail in clarifying both real and imagined precipitating and maintaining factors and then deploys a comprehensive range of behavioral measures to deal with them, including (1) *desensitization* (of the child, parents, and teachers) using a variety of techniques, including humor, role rehearsal, and emotive imagery; (2) *flooding* (an immediate return to school using an escort if necessary); and (3) *contingency management* at home and at school (to deal with somatic complaints and the reinforcement of appropriate behaviors).

The 30 behavioral treatment cases were compared with 16 children admitted to an adolescent psychiatric unit and a further 20 cases who received psychotherapy and home instruction. The treatment outcomes are summarized in Tables 3 and 4. Briefly, 93% of the behavioral group returned to school and were attending regularly without further problems at 2-year follow-up. This compared to similar improvements in only 38% of the hospitalized group and 10% of the home-tutored group. Moreover, children in the behavioral group took an average of 2 weeks to treat compared to 45 weeks and 72 weeks, respectively, for the hospitalized and home-tutored groups. These dramatic differences conceal even greater variations in terms of financial cost. Hospital inpatient treatment costs are considerable. Home tuition with psychotherapy is obviously less costly, but still an expensive option, especially when it goes on for months and even years.

While the rapid-return-to-school approach was obviously stressful for both the children and their parents, the remarkably quick adjustment in the majority of cases more than justified the heightened initial anxiety. Long-term improvements in the behavioral group were not confined to narrow behavioral gains relating solely to attendance. There was no evidence of separation anxiety or symptom substitution at follow-up. Furthermore, the children's scores on the Eysenck Personality Questionnaire normalized between treatment and follow-up, suggesting that the children became less concerned about everyday events at home and at school and more outgoing in their social behavior. These trends were substantiated by data gathered from both parents and teachers on the Rutter Behavior Rating Scales.

Although the treatment groups were not randomly allocated, the huge variations in treatment outcome cannot be accounted for in terms of differences between the groups at the

Table 3. Comparison of Treatment Outcomes for the Hospital Unit (HU), Home Instruction (HI), and Behavioral Treatment Approach (BTA) Groups[a]

Child attending school at follow-up	HU		HI		BTA		X^2 values and significance levels		
	N	%	*N*	%	*N*	%	HU × HI	HU × BTA	BTA × HI
Failure	10	62.5	18	90	1	3.3	No significant difference	$X^2 = 20.21$	$X^2 = 38.27$
Partial success	0	0	0		1	3.3		$p < 0.001$	$p < 0.001$
Success	6	37.5	2	10	28	93.3			
Total *N*	16		20		30				

[a]From Blagg (1987).

Table 4. Comparison of Treatment Outcomes for Each Group in Terms of Percentage Attendance at Follow-up[a]

Attendance at follow-up (%)	HU		HI		BTA		X^2 values and significance levels		
	N	%	*N*	%	*N*	%	HU × HI	HU × BTA	BTA × HI
0–80	11[b]	68.8	20	100	5	16.7	$X^2 = 4.88$	$X^2 = 10.29$	$X^2 = 30.08$
81–100	5	31.3	0		25	83.3	$p < 0.05$	$p < 0.001$	$p < 0.001$
Total *N*	16		20		30				

[a]From Blagg (1987).
[b]Three cases in this group were attending boarding school at follow-up. They had been placed in residential schools because their return to normal day school was not possible. In the circumstances, they were placed in the 0–80% attendance group.

start of treatment (Blagg & Yule, 1984). The hospitalized cases were closely matched to the two community-treated groups on all significant indices (e.g., length and severity of the phobia, symptomatology, age, family background).

From what has been said earlier, it is clear that many therapists accept the wisdom of a quick return to school, backed up by sympathetic support and reinforcement for continued attendance, and yet many seem reluctant to apply such an approach in case it is aversive or interferes with their therapeutic relationship with the child. Gullone and King (1991) examined the acceptability of alternative treatments for school refusal by asking 376 people, including pupils, parents, teachers, and mental health professionals, to read a case vignette and evaluate several treatment options. Behavioral management proved to be the most acceptable treatment, followed by home tuition with psychotherapy, hospital admission, and drug treatment. Thus, despite the caveats of therapists about the stress that behavioral treatment may cause in its early stages, the rationale is accepted by those who matter most: the children, their parents, and their teachers.

A number of clinicians and researchers argue the case for adopting a broad perspective in the diagnostic evaluation of school phobia and school refusal (Blagg, 1987; Blagg & Yule, 1984; King & Ollendick, 1989a, b; Burke & Silverman, 1987; Kearney & Silverman, 1990). Factors involving the child, the family, and the school all need to be considered within a developmental perspective. Measuring ability and attainment can help clarify whether the child is placed well within a particular school or whether there are previously undiscovered special educational needs to be considered. Measuring anxiety, fears, depression, self-esteem, and personality through the use of self-completed questionnaires can all add to the formulation of appropriate interventions.

OUTCOME AND FOLLOW-UP

While, in general, poor attendance in secondary school is associated with a range of conduct disorder, poor attainment, and adjustment problems in early adulthood (Berg, 1992), school refusal is associated with an increased risk of minor psychiatric disorders, particularly anxiety and depression. The Flakierska et al. (1988) 15- to 20-year follow-up study of 37 school refusers found that 30% of them, compared with only 10% of controls, had attended out-patient psychiatric clinics as adults. The Berg and Jackson (1985) 10-year follow-up of 168 school refusers treated as inpatients also found that one third had received additional psychiatric treatment, mainly for depression and anxiety. Follow-back (retro-

spective) studies of adults presenting with anxiety, depression, and agoraphobia confirm this association (Tyrer & Tyrer, 1974; Berg, Marks, McGuire, & Lipsedge, 1974; Burns & Thorpe, 1977). Thus, school refusal makes great demands on mental health services both while the child and adolescents are of school age and in early adulthood.

CASE STUDY

Sebastian, 14 years old, was the only child of elderly parents. He had been a little reluctant to attend school at age 5 years, but had transferred to another school at age 8 years without difficulty. The new school was directly opposite his house, and he went home daily for lunch. When he transferred to senior school miles away at the age of 14, however, his attendance broke down quickly.

Sebastian complained that he did not like the long journey. His father left for work before Sebastian left for school, and his mother, in increasingly poor health, did not have the energy to make Sebastian attend.

His family doctor arranged for extensive pediatric investigations of the abdominal pains of which he complained each morning. No abnormality was found. A psychiatrist prescribed tranquilizers and arranged that Sebastian attend school only part-time, but this treatment did not progress to complete reintegration. The morning battles continued, and eventually Sebastian refused to attend school altogether.

When seen at school for a diagnostic conference, Sebastian was found to be of average verbal ability and to be achieving well. On personality testing, he was found to be extremely introverted, socially overconforming, and somewhat neurotic. He was overweight and complained of being teased during physical education classes.

His parents said that he had become increasingly anxious about their well-being after he had been scared by a television program involving a car crash when, coincidentally, they returned late from an outing. This fear became much more marked after he transferred schools.

The psychologist explained to Sebastian and his parents how a series of events had conspired to increase his anxiety about leaving home and attending school and how he had to face up to his anxiety. A modified timetable for return to school was suggested, with built-in incentives for attending regularly. A teacher visited his home daily for 2 weeks to drive Sebastian to school, where his primary teacher made extra efforts to make him feel welcome. Although initially he resisted the forced return, he recognized that it was for his own good, and his protests reduced quickly; 15 months later, he was attending over 90% of the time.

Sebastian's case illustrates how a series of events coupled with a particular personality and family system can conspire to produce school refusal. A careful analysis of all the ingredients helped to form a successful intervention. Cooperation between parents and teachers proved vital.

[A fuller version of this case study is contained in Blagg (1987).]

SUMMARY

School phobia (or school refusal) is a complex, multicasual syndrome with varying pathology and severity. The condition has been shown to respond to a wide range of

treatment approaches, although systematic, controlled trials with long-term follow-ups are rare. Moreover, as Blagg (1987) and Ollendick and King (1990) emphasize, the majority of studies are bedeviled by methodological flaws. Relatively few authors are clear about their definition of school phobia. Those who have included follow-ups often provide only sketchy details (not even including attendance rates, let alone information about long-term social adjustment). Nevertheless, methodological inadequacies are not uniform across studies, and a careful analysis of both the psychodynamic and the behavioral literature reported in Blagg (1987) does point to some tentative conclusions:

1. Younger children (10 years and below) have a better treatment prognosis than older children, with success rates exceeding 95% being reported for both behavioral and psychodynamic community and hospital-based studies.
2. The prognosis for older children (11–16 years) is far less favorable, with treatment outcomes varying widely from study to study. Interestingly, the more successful treatment approaches (as illustrated in Blagg & Yule, 1984; Framrose, 1978; Rines, 1973; Skynner, 1974; Warnecke, 1964) share a number of common features that seem to be critical to the success of the intervention. These features include an emphasis on:
   a. Taking a problem-solving approach that recognizes the uniqueness of each case while addressing a complex interplay of child, family, schooling, community, and, where necessary, medical factors.
   b. Attention to detail in considering numerous practical issues at home and at school that are likely to hinder or enhance the return to school process, such as arranging for one or two sensitive, understanding pupils to make a point of accompanying the child around school during the settling-in period or helping the child to rehearse confident responses to tricky questions or criticisms on his or her return to school (Blagg, 1987).
   c. A vigorous, energetic approach to treatment. It is never a questions of *whether* the child will return to school, but merely *when* and *how*. With particularly demanding cases, escort systems are arranged during the early confrontational stages, with easier options for the child and family (e.g., home tuition with psychotherapy) ruled out and the threat of legal intervention being used as a legitimate therapeutic lever.
   d. A foolproof system of attendance checks and follow-ups, with particular care being taken after holidays, weekends, and illnesses.

REFERENCES

Ando, S. (1991). Treatment of school refusal by shaping technique: Two stage treatment by shaping readiness and school attendance behavior. *Japanese Journal of Behavior Therapy, 17*, 33–42.

Atkinson, L., Quarrington, B., Cyr, J. J., & Atkinson, F. V. (1989). Differential classification in school refusal. *British Journal of Psychiatry, 155*, 191–195.

Barker, P. (1968). The in-patient treatment of school refusal. *British Journal of Medical Psychology, 41*, 381–387.

Berecz, J. M. (1968). Phobias of childhood: Aetiology and treatment. *Psychological Bulletin, 70*, 694–720.

Berg, I. (1970). A follow up study of school phobic adolescents admitted to an in-patient unit. *Journal of Child Psychology and Psychiatry, 11*, 37–47.

Berg, I. (1992). Absence from school and mental health. *British Journal of Psychiatry, 161*, 154–166.

Berg, I., & Jackson, A. (1985). Teenage school refusers grow up: Follow-up study of 168 subjects ten years on average after in-patient treatment. *British Journal of Psychiatry, 147*, 366–370.

Berg, I., Marks, I., McGuire, R., & Lipsedge, M. (1974). School phobia and agoraphobia. *Psychological Medicine, 4*, 428–434.

Bernstein, G. A. (1991). Comorbidity and severity of anxiety and depressive disorders in a clinic sample. *Journal of the American Academy of Child and Adolescent Psychiatry, 30*, 43–50.

Bernstein, G. A., & Garfinkel, B. D. (1992). The Visual Analogue Scale for Anxiety—Revised: Psychometric properties. *Journal of Anxiety Disorders, 6*, 223–239.

Berryman, E. (1959). School phobia: Management problems in private practice. *Psychological Reports, 5*, 19–24.

Blagg, N. R. (1979). *The behavioural treatment of school refusal*, Institute of Psychiatry, University of London: Unpublished Ph.D. thesis.

Blagg, N. R. (1987). *School phobia and its treatment*. London: Routledge.

Blagg, N. R., & Yule, W. (1984). The behavioral treatment of school refusal: A comparative study. *Behaviour Research and Therapy, 22*, 119–127.

Bools, C., Foster, J., Brown, I., & Berg, I. (1990). The identification of psychiatric disorders in children who fail to attend school: A cluster analysis of a non-clinical population. *Psychological Medicine, 20*, 171–181.

Bornstein, B. (1949). The analysis of the phobic child. *Psychoanalytic Study of the Child, 3&4*, 181–226.

Broadwin, I. T. (1932). A contribution to the study of truancy. *Orthopsychiatry, 2*, 253–259.

Bryce, G., & Baird, D. (1986). Precipitating a crisis: Family therapy and adolescent school refusers. *Journal of Adolescence, 9*, 119–213.

Burke, A. E., & Silverman, W. K. (1987). The prescriptive treatment of school refusal. *Clinical Psychology Review, 7*, 353–362.

Burns, L. E., & Thorpe, G. L. (1977). Fears and clinical phobias: Epidemiological aspects and the national survey of agoraphobics. *Journal of International Medical Research, 5(Suppl. 1)*, 132–139.

Cantrell, R. P., Cantrell, M. L., Huddleston, C. M., & Woolridge, R. L. (1969). Application of contingency contracts to four school attendance problems. *Journal of Applied Behavioral Analysis, 2*, 215–220.

Chapel, J. L. (1967). Treatment of a case of school phobia by reciprocal inhibition. *Canadian Psychiatric Association Journal, 12*, 25–28.

Chapman, G. (1990). *An education in fear*. Speech on Patricia Knox's BBC2 Open Space television programme.

Coolidge, J. C., Hahn, P. B., & Peck, A. L. (1957). School phobia: Neurotic crisis or way of life? *American Journal of Orthopsychiatry, 27*, 296–306.

Davidson, S. (1961). School phobia as a manifestation of family disturbance: Its structure and treatment. *Journal of Child Psychology and Psychiatry, 1(4)*, 270–287.

Eisenberg, L. (1958). School phobia—a study of the communication of anxiety. *American Journal of Psychotherapy, 10*, 682–695.

Eysenck, H. J., & Rachman, S. (1965). *The causes and cures of neurosis*. London: Routledge and Kegan Paul.

Flakierska, N., Lindstrom, M., & Gillberg, C. (1988). School refusal: A 15–20-year follow-up study of 35 Swedish urban children. *British Journal of Psychiatry, 152*, 834–837.

Framrose, R. (1978). Outpatient treatment of severe school phobia. *Journal of Adolescence, 1*, 353–361.

Garvey, W. P., & Hegrenes, J. R. (1966). Desensitisation techniques in the treatment of school phobia. *Behavioural Psychotherapy, 6*, 7–10.

Glaser, K. (1959). Problems in school attendance: School phobia and related conditions. *Paediatrics, 23*, 227–248.

Greenbaum, R. S. (1964). Treatment of school phobias: Theory and practice. *American Journal of Psychotherapy, 18*, 616–633.

Gullone, E., & King, N. J. (1991). Acceptability of alternative treatments for school refusal: Evaluations by students, caregivers, and professionals. *British Journal of Educational Psychology, 61*, 346–354.

Hersen, M. (1968). Treatment of a compulsive and phobic disorder through a total behavior therapy program: A case study. *Psychotherapy, 5*, 220–225.

Hersen, M. (1971a). Resistance to direction in behavior therapy: Some comments. *Journal of Genetic Psychology, 118*, 121–127.

Hersen, M. (1971b). The behavioral treatment of school phobia. *Journal of Nervous and Mental Disease, 153*, 99–107.

Hersov, L. A. (1960). Refusal to go to school. *Journal of Child Psychology and Psychiatry, 1*, 137–145.

Hersov, L. A. (1961). Persistent non-attendance at school. *Journal of Child Psychology and Psychiatry, 1*, 130–136.

Hersov, L. A. (1977). School refusal. In M. Rutter & L. A. Hersov (Eds.), *Child psychiatry: Modern approaches*. Oxford: Blackwell.

Hersov, L. (1985). School refusal. In M. Rutter and L. Hersov (Eds.), *Child and adolescent psychiatry: Modern approaches*, 2nd ed. (pp. 382–399). Oxford: Blackwell.

Honjo, S., Kasahara, Y., & Ohtaka, K. (1992). School refusal in Japan. *Acta Paedopsychiatrica, 55*, 29–32.

Hsia, H. (1984). Structural and strategic approach to school phobia/school refusal. *Psychology in the Schools, 21*, 360–367.

Johnson, A. M., Falstein, E. K., Szurek, S., & Svendsen, M. (1941). School phobia. *American Journal of Orthopsychiatry, 11*, 702–711.

Jung, C. G. (1911). A case of neurosis in a child. In *The collected works of C. J. Jung*. New York: Bollington Foundation.

Kearney, C. A., & Silverman, W. K. (1990). A preliminary analysis of a functional model of assessment and treatment for school refusal behavior. *Behavior Modification, 14*, 340–366.

Kendall, P. C., & Hollon, S. D. (1979). Cognitive–behavioral interventions: Overview and current status. In P. C. Kendall & S. D. Hollon (Eds.), *Cognitive–behavioral interventions: Theory, research and procedures* (pp. 1–13). New York: Academic Press.

Kennedy, W. A. (1965). School phobia: Rapid treatment of 50 cases. *Journal of Abnormal Psychology, 70(4)*, 285–289.

Khan, J. H., Nursten, J. P., & Carroll, H. C. (1981). *Unwillingly to school*, 3rd ed. Oxford: Pergamon Press.

King, N. J., & Ollendick, T. H. (1989a). Children's anxiety and phobic disorders in school setting: Classification, assessment, and intervention issues. *Review of Educational Research, 59(4)*, 431–470.

King, N. J., & Ollendick, T. H. (1989b). School refusal: Graduated and rapid behavioural treatment strategies. *Australian and New Zealand Journal of Psychiatry, 23*, 213–223.

Klein, E. (1945). The reluctance to go to school. *The Psychoanalytic Study of the Child, 1*, 263–279.

Knox, P. (1989). Home-based education: An alternative approach to school phobia. *Educational Review, 41*, No. 2.

Last, C. G. (1991). Somatic complaints in anxiety disordered children. *Journal of Anxiety Disorders, 5*, 125–138.

Last, C. G., Francis, G., Hersen, M., Kazdin, A. E., & Strauss, C. C. (1987). Separation anxiety and school phobia: A comparison using DSM-III criteria. *American Journal of Psychiatry, 144*, 653–657.

Last, C. G., & Strauss, C. C. (1990). School refusal in anxiety disordered children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 31–35.

Lazarus, A. A. (1960). The elimination of children's phobias by deconditioning. In H. J. Eysenck (Ed.), *Behaviour, therapy and neuroses*. Oxford: Pergamon Press.

Lazarus, A. A., & Abramovitz, A. (1962). The use of "emotive imagery" in the treatment of children's phobias. *Journal of Abnormal Psychology, 70*, 225–229.

Lazarus, A. A., Davidson, G. C., & Polefka, D. A. (1964). Classical and operant factors in the treatment of a school phobia. *Journal of Abnormal Psychology, 70*, 225–229.

Miller, L. C., Barrett, C. L., & Hampe, E. (1974). Phobias of childhood in a pre-scientific era. In A. Davies (Ed.), *Child personality and psychopathology: Current topics*, Vol. 1 (pp. 89–134). New York: John Wiley.

Mitchell, S., & Shepherd, M. (1967). The child who dislikes going to school. *British Journal of Educational Psychology, 37*, 32–40.

Morris, R. J., & Kratochwill, T. R. (1983). *Treating children's fears and phobias: A behavioral approach*. New York: Plenum Press.

Ollendick, T. H., & Hersen, M. (Eds.). (1984). *Child behavioral assessment: Principles and procedures*. New York: Pergamon Press.

Ollendick, T. H., & King, N. J. (1990). School phobia and separation anxiety. In H. Leitenberg (Ed.), *Handbook of social anxiety*. New York: Plenum Press.

Ollendick, T. H., & Mayer, J. A. (1984). School phobia. In S. M. Turner (Ed.), *Behavioral theories and treatment of anxiety*. New York: Plenum Press.

Ollendick, T. H., Matson, H. L., & Helsel, W. J. (1985). Fears in children and adolescents: Normative data. *Behavior Research and Therapy, 23*, 465–467.

Phillips, D., & Wolpe, S. (1981). Multiple behavioral techniques in severe separation anxiety of a twelve year old. *Journal of Behavior Therapy and Experimental Psychiatry, 12(4)*, 329–332.

Pilkington, C. L., & Piersel, W. C. (1991). School phobia: A critical analysis of the separation anxiety theory and an alternative conceptualization. *Psychology in the Schools, 28*, 290–303.

Plapp, J. M. (1990). Tourette's and school refusal. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 149–150.

Radin, S. (1967). Psychodynamic aspects of school phobia. *Comprehensive Psychiatry, 8(2)*, 119–128.

Rines, W. B. (1973). Behavior therapy before institutionalisation. *Psychology: Theory, Research and Practice, 10*, 281–283.

Rodriguez, A., Rodriguez, N., & Eisenberg, L. (1959). The outcome of school phobia: A Follow up study based on 41 cases. *American Journal of Psychiatry, 116*, 540–544.

Rutter, M., Tizard, J., & Whitmore, K. (Eds.) (1970). *Education, health, and behaviour*. London: Longmans.

Schermann, A., & Grover, V. M. (1962). Treatment of children's behavior disorders: A method of re-education. *Medical Procedures, 8*, 151–154.

Shapiro, T., & Jegede, R. O. (1973). School phobia—Babel of tongues. *Journal of Autism and Child Schizophrenia, 3*, 168–186.

Skynner, A. C. R. (1974). School phobia—a Babel of tongues. *British Journal of Medical Psychology, 47*, 1–16.

Smith, R. E., & Sharpe, T. M. (1970). Treatment of a school phobic with implosive therapy. *Journal of Consulting Clinical Psychology, 35*, 239–243.

Sperling, M. (1961). Analytic first aid for school phobics. *Psychoanalytic Quarterly, 30*, 504–518.

Stampfl, T. G. (1967). Implosive therapy. 1. The theory. In S. G. Armitage (Ed.), *Behavior modification techniques in the treatment of emotional disorders*. Battle Creek: Veterans Administration.

Stampfl, T. G. (1968). Implosive therapy: A behavioral therapy? *Behaviour Research and Therapy, 6*, 31–36.

Tahmisian, J. A., & McReynolds, W. T. (1971). Use of parents as behavioral engineers in the treatment of a school phobic girl. *Journal of Counseling Psychology, 18*, 225–228.

Thompson, J. (1948). Children's fears in relation to school attendance. *Bulletin of the National Association of Social Workers, 24*, 1.

Tyrer, P., & Tyrer, S. (1974). School refusal, truancy and adult neurotic illness. *Psychological Medicine, 4*, 416–421.

Van Houten (1948). Mother–child relationships in twelve cases of school phobia. *Smith College Studies in Social Work, 18*, 161–180.

Waldfogel, L., Coolidge, J. C., & Hahn, P. B. (1957). The development, meaning and management of school phobia. *American Journal of Orthopsychiatry, 27*, 754–780.

Waldfogel, L., Tessman, E., & Hahn, P. B. (1959). A program for early intervention in school phobia. *American Journal of Orthopsychiatry, 27*, 324–332.

Warnecke, R. (1964). School phobia and its treatment. *British Journal of Medical Psychology, 37*, 71–79.

Warren, W. (1948). Acute neurotic breakdown in children with refusal to go to school. *Archives of the Disturbed Child*, 266–272.

Weiss, M., & Cain, B. (1964). The residential treatment of children and adults with school phobia. *American Journal of Psychiatry, 23*, 103–114.

Welch, M. W., & Carpenter, C. (1970). Solution of school phobia by contingency contracting. *School Applications of Learning Theory, 2*, 11–17.

Wolpe, J. (1954). Reciprocal inhibition as the main basis of psychotherapeutic effects. *Archives of Neurological Psychiatry, 72*, 205–226.

Wolpe, J. (1958). *Psychotherapy by reciprocal inhibition*. Stanford: Stanford University Press.

Yule, W., Hersov, L., & Treseder, J. (1980). Behavioural treatments of school refusal. In L. Hersov and I. Berg (Eds.), *Out of school*. Chichester: John Wiley.

10

Overanxious Disorder

Cyd C. Strauss

INTRODUCTION

Overanxious disorder is a childhood anxiety disorder subtype characterized by anxiety that is not focused on a specific situation or object. Instead, overanxious children are general "worriers" who tend to worry excessively or unrealistically about future or past events. As with other anxiety disorders evident in childhood and adolescence, overanxious disorder is characterized by physiological symptoms, covert feelings of distress and irrational thoughts, and overt behaviors such as anxious mannerisms and avoidance behavior.

The *Diagnostic and Statistical Manual of Mental Disorders*, 3rd edition, revised (DSM-III-R) (American Psychiatric Association, 1987), presents seven specific diagnostic criteria to define overanxious disorder: (1) excessive or unrealistic worry about future events, (2) excessive or unrealistic concern about the appropriateness of past behavior, (3) overconcern about competence in one or more areas (e.g., social, academic, athletic), (4) somatic complaints for which no physical basis can be established, (5) excessive need for reassurance about a variety of concerns, (6) marked self-consciousness, and (7) marked feelings of tension or an inability to relax. Using the DSM-III-R classification system, children with overanxious disorder must show frequent occurrence of a minimum of four of these symptoms over a period of at least 6 months to meet the criteria for the disorder. In addition, the diagnosis of overanxious disorder can be made if the individual is 18 years or older only if he or she does not meet criteria for generalized anxiety disorder. Finally, overanxious disorder cannot be diagnosed when it occurs exclusively during the course of a pervasive developmental disorder, schizophrenia, or any other psychotic disorder.

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The childhood category of overanxious disorder appears to have many features in common with the adult-onset diagnosis of generalized anxiety disorder presented in the DSM-III-R classification system, but currently there is insufficient information as to whether overanxious disorder is the developmental precursor of generalized anxiety disorder. Briefly, generalized anxiety disorder is characterized by excessive worrying for 6 months or longer, as well as symptoms of motor tension, autonomic hyperactivity, and vigilance and scanning when anxious. Excessive worrying is present in both this diagnosis and overanxious disorder, but the somatic symptoms required for the generalized anxiety disorder diagnosis are not necessary for a DSM-III-R diagnosis of overanxious disorder. Whether, in fact, somatic symptoms associated with generalized anxiety disorder are also present in overanxious youngsters has yet to be examined empirically. Another distinction between overanxious disorder in youngsters and generalized anxiety disorder in adults is that many of the criteria for overanxious disorder are not part of the constellation of features for generalized anxiety disorder. For instance, generalized anxiety disorder is not necessarily characterized by self-consciousness, overconcern about competence in a variety of areas, or an excessive need for reassurance from others, which are features found in overanxious disorder.

The International Classification of Disorders, 10th edition (ICD-10) (World Health Organization, 1992), similarly presents a diagnostic category labeled overanxious disorder, which is subsumed under a broader category, Disturbance of Emotions Specific to Childhood and Adolescence. Although no specific diagnostic criteria are delineated to describe overanxious disorder using the ICD-10 classification scheme, exclusionary rules are provided: Abnormal separation anxiety, anxiety states, hospitalism in children, and phobic states are excluded.

Thus, DSM-III-R and ICD-10 both provide for a specific diagnostic category of overanxious disorder. The differentiation into subtypes (e.g., overanxious disorder, separation anxiety disorder) of a broad category of anxiety/emotional disorders occurring in childhood has been the subject of recent research evaluating and contrasting clinical characteristics, epidemiology, clinical course, associated pathology, and family history. These findings, as related to overanxious disorder, will be presented below. In particular, this chapter will present a description of the clinical picture of overanxious disorder in youngsters, assessment of overanxious disorder, findings of epidemiological studies examining the rate of this anxiety disorder subtype, developmental course, concurrent psychopathology related to overanxious disorder, family psychopathology, differential diagnosis, and a case example. Research examining anxiety disorders in childhood and adolescence has increased dramatically over the past 5 years, so that more empirical information is now available in each of these areas than was available only a few years ago.

CLINICAL PRESENTATION

Children and adolescents with overanxious disorder are commonly referred for clinical outpatient services. In a study conducted by Last, Hersen, Kazdin, Finkelstein, and Strauss (1987a), 52% of children referred to a child and adolescent anxiety disorder clinic over an 18-month period met DSM-III criteria for overanxious disorder. The clinical importance of this disorder is underscored by its association with other forms of impairment, such as depression, suicidal ideation, and social impairment.

The hallmark of overanxious disorder appears to be excessive or unrealistic worry

about future events. This diagnostic criterion has been shown to be present in more than 95% of a clinic sample of children diagnosed with overanxious disorder (Strauss, Lease, Last, & Francis, 1988b). Overanxious children and adolescents report a variety of future worries, including worries about upcoming tests, social activities, what teachers will say to them, what will happen when they get older, natural disasters, whether another child will sit with them at lunch at school, family problems, health-related issues for themselves or family members, what will happen the next day, next week, and so on. The minimum rate of worrying about future events considered to be clinically significant is a frequency of three times each week. Children with more severe forms of the disorder are described as worrying "constantly."

The second diagnostic criterion, preoccupation with the appropriateness of past behavior, typically involves rumination about having done or said the wrong thing at school, or while with friends or family members. For example, children who are overanxious report frequent worries about having made mistakes on tests at school, having given the wrong answer when raising their hands in school, having said something to a peer that might have made the other child angry, having performed poorly in gym class, and minor critical comments made to them by teachers. As with worries about future events, concerns about appropriateness of past behavior are considered clinically meaningful when they occur an average of three times per week or more. Strauss et al. (1988b) found that older children (over 11 years of age) diagnosed with overanxious disorder were significantly more likely than were younger overanxious children (children 11 years and younger) to demonstrate this symptom. In particular, 90% of older overanxious-disorder children exhibited excessive or unrealistic worries about past behavior, whereas 62% of younger children reported problems with past worries.

In terms of overconcern about the child's competence in a variety of areas, overanxious children are often described by parents as "perfectionistic" about their schoolwork, appearance, abilities in sports, completion of chores, or how they act in social situations. Children with overanxious disorder become overconcerned about minor mistakes they make academically, socially, or in family relationships. These concerns must be expressed a minimum of three times each week to be considered pathological.

Physical complaints expressed by overanxious children include stomachaches, headaches, and minor aches and pains. It is common for medical practitioners to have been consulted regarding such physical concerns; however, no physical basis for the somatic complaints can be established. Even though no such physical basis can be identified, the overanxious child may indeed be experiencing physical discomfort that results from anxiety. Therefore, it is important that the family not be given the impression that the child is not really experiencing somatic symptoms. It is also necessary to evaluate the pattern of occurrence of physical concerns, in order to differentiate between somatic complaints that occur only in separation-related situations (such as only on school mornings, as in separation anxiety disorder) and those evident at various times throughout the child's week (as in overanxious disorder). Overanxious children complain of aches and pains an average of once per week or more.

Parents and teachers report an excessive need to reassure the overanxious child about worries and concerns. For instance, overanxious children may solicit reassurance from others by repeatedly asking if what they are doing is okay, asking for confirmation of choices they make, or criticizing their own actions in hopes that others will deny these negative remarks. It is common for parents to have to repeat reassurances many times before the child's anxiety diminishes. Parents also report that reassurances have only a

temporary effect, so that they often have to repeat the same type of reassurance on different occasions. A minimum frequency of three times per week again is used to define clinical significance for this fifth criterion.

The sixth diagnostic criterion, marked self-consciousness, refers to the overanxious child's tendency to experience extreme anxiety when he or she is the center of attention, such as in social situations, when called on in class, when giving presentations, and when discussed or complimented by others. Overanxious children may be described as blushing easily or frequently, as evidence of their embarrassment. They may also avoid being the center of attention due to self-consciousness by refusing to attend parties, staying home from school on days of class presentations, or not volunteering to give answers in class. Self-consciousness does not occur only in a single social situation such as public speaking or eating in public (as in social phobia); rather, overanxious children show this characteristic in many social situations. The overanxious child demonstrates self-consciousness a minimum of three times per week, on average, and in response to most situations in which he or she feels evaluated by others.

The seventh and final criterion for this disorder, marked tension and difficulty relaxing, is characterized by frequent physiological symptoms associated with anxiety (such as heart palpitations, shortness of breath, and sweaty palms), nervous mannerisms including nail-biting and fidgetiness, an exaggerated startle response, or feelings of being "uptight." Parents and children report that this symptom occurs once each week or more.

Although avoidance behavior is not included in the criteria for the disorder, overanxious children and adolescents often display subtle avoidance behaviors in a variety of situations that provoke worries and tension. For instance, overanxious children may procrastinate on class projects or delay studying for tests due to concerns about their performance. Another common example is reluctance or refusal to try new activities, due to an overconcern about performance or worries that something bad will happen. As noted, overanxious children might avoid being the center of attention by never raising their hands in class to avoid being called on, by refusing to participate in class presentations, or by not going to parties. Similarly, they also may make frequent excuses so that they are not required to participate in gym class. In more extreme cases, overanxious youngsters may fail to complete classroom assignments, and ultimately refuse school attendance, due to an overconcern about academic performance and perfectionism.

Additional descriptions provided by parents characterize overanxious youngsters as eager to please, overly mature in social situations, and very well behaved. Typically, overanxious children seek the approval of others and try to prevent criticism of their behavior by behaving like "model students" in school and by rarely misbehaving at home. Socially, overanxious children are sometimes described as more comfortable in the company of adults, tending to discuss adult topics and using a more mature verbal style in conversation. It is not uncommon for overanxious children to have one or two close friends and otherwise to be overlooked by their peers.

ASSESSMENT

The modes of assessing the motor, physiological, and cognitive aspects of anxiety in overanxious children and adolescents have included structured clinical interviews with children and parents, self-report questionnaires, and parent and teacher ratings. Most

research and clinical experience to date suggests that a multimethod assessment approach should be taken in assessing a child's need for treatment.

Structured Clinical Interviews

Several structured clinical interviews have been devised recently that evaluate the presence and severity of overanxious symptoms in children. These include the Diagnostic Interview Schedule for Children (DISC) (Costello, Edelbrock, Dulcan, Kalas, & Klaric, 1984), the Diagnostic Interview for Children and Adolescents (DICA) (Herjanic & Reich, 1982), the Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS) (Puig-Antich, Orvaschel, Tabrizi, & Chambers, 1978), the Child Assessment Schedule (CAS) (Hodges, Kline, Stern, Cytryn, & McKnew, 1982), and the Interview Schedule for Children (ISC) (Kovacs, 1983a). Each of these assessment instruments involves interviewing children and their parents individually with a standard set of questions covering all symptoms of psychopathology in children. Overanxious disorder is assessed by portions of each of these interview formats.

The reliability and validity of anxiety diagnoses using these instruments are beginning to be examined. Preliminary studies have found acceptable interrater reliability of overanxious *symptoms* using the DISC (Edelbrock, Costello, Dulcan, Kalas, & Conover, 1985) and the ISC (Kovacs, 1983a). High interrater reliability has been obtained for the *diagnosis* of overanxious disorder using the CAS (Verhulst, Berden, & Sanders-Woudstra, 1985). High short-term test–retest reliability was also achieved for the diagnosis of overanxious disorder using the ISC (Last et al., 1987a). On the other hand, poor concordance between parent and child reports of anxiety symptoms using structured interviews has typically been found (Edelbrock, Costello, Dulcan, Kalas, & Conover, 1986; Herjanic & Reich, 1982; Kovacs, 1983a), with children tending to report more anxiety features than parents. The validity of these interviews has only begun to be examined (see Chapter 15 for an extended discussion of structured diagnostic interviews).

Self-Report Measures

Children's reports have been viewed as critical in assessment of anxiety or fearfulness. Several questionnaires have been developed that may be useful in evaluating the severity of self-reported anxiety in overanxious children and measuring the effectiveness of interventions designed for children with overanxious disorder.

One measure that appears to be useful in evaluating overanxious children is the Revised Children's Manifest Anxiety Scale (RCMAS) (Reynolds & Richmond, 1978). The RCMAS measures chronic levels of anxiety. Three factors have emerged for the measure, including physiological, worry/oversensitivity, and concentration factors. This 37-item scale has been shown to have construct (Reynolds & Richmond, 1978), concurrent (Reynolds, 1981), content (Reynolds & Richmond, 1978), and predictive (Reynolds, 1981) validity. In addition, national normative and adequate reliability data have been obtained for the RCMAS, at least for children and adolescents from the United States (Reynolds & Paget, 1982). In an investigation of developmental differences between children (11 years old and younger) and adolescents (over 11 years old) with overanxious disorder, adolescents had a tendency to report more worry and oversensitivity on the RCMAS than did younger children ($p < 0.07$) (Strauss et al., 1988b).

A second self-report questionnaire, derived from the Wolpe–Lang Scale for adults, is the Fear Survey Schedule for Children (FSSC) (Scherer & Nakamura, 1968). Children rate their degree of fearfulness on a 5-point scale for each of the 80 items, which represent specific objects or situations. A factor analysis yielded numerous factors for this measure, such as fear of failure/criticism, fear of the dark, home–school fears, and so on. Ollendick (1983) has provided data that support the internal consistency, test–retest reliability, and convergent and discriminant validity of a slightly modified version of the Fear Survey Scale for Children (FSSC-R). This scale has also been used with Australian (Ollendick, King, & Frary, 1989), British (Ollendick, Yule, & Ollier, 1990), and Chinese children and adolescents (Dong, Yang, & Ollendick, in press).

The State–Trait Anxiety Inventory for Children (STAIC) (Spielberger, 1973) is a third frequently employed self-report measure. Two 20-item scales comprise the inventory. The two scales, State and Trait anxiety scales, attempt to assess separately anxiety that varies across situations and anxiety that is stable across time and situations, respectively. Studies have generally failed to support the validity of this state–trait distinction, however. High split-half and moderate test–retest reliabilities have been reported for both scales of the STAIC (Morris & Kratochwill, 1983). Developmental differences have emerged between children vs. adolescents with overanxious disorder on the trait portion of the STAIC, such that older children report higher levels of anxiety than do younger children (Strauss et al., 1988b).

Parent and Teacher Ratings

Numerous parent and teacher rating scales are available for evaluating anxiety in children, including the Child Behavior Checklist (CBCL) (Achenbach & Edelbrock, 1983), the Teacher Report Form (TRF) (Achenbach & Edelbrock, 1986), and the Revised Behavior Problem Checklist (RBPC) (Quay & Peterson, 1983). The validity and reliability of these indices of anxiety have been well established (Fombonne, 1989, 1991; Quay, 1979).

These parent and teacher rating scales contain an anxiety or withdrawal factor, as part of a broader internalizing dimension, that appears to correspond to the diagnosis of overanxious disorder (Quay, 1986). That is, multivariate research has repeatedly extracted a factor of anxious–withdrawal that subsumes general anxiety, as well as sadness and social withdrawal. Items contained on the anxious–withdrawal factor of these scales resemble features of overanxious disorder, including worrying, nervousness, self-consciousness, and fearfulness.

The relationship between parent and teacher ratings of individual items of the parent-completed CBCL and the TRF was examined in a large Dutch sample of 1161 children aged 4–12 from the general population (Verhulst & Akkerhuis, 1989). Overall, correlations were found to be low to moderate, with agreement being higher for externalizing than for internalizing problems. Significant parent–teacher agreement at the $p < 0.01$ level was obtained for specific internalizing items related to overanxious disorder (e.g., fearfulness, nervousness, self-consciousness, shyness) for certain age groups of either male or female children. One exception was the item that evaluates frequency of worrying, for which there was a lack of consistency between parents and teachers for both sexes of all age groups.

Overall, a number of assessment measures have been developed that evaluate overanxious features. In particular, research to date indicates that structured interviews provide a reliable and valid evaluation of overanxious disorder symptomatology. Additional empiri-

cal study is needed, however, to examine the utility of self-report measures and parent/teacher checklists to assess overanxious disorder in youngsters.

EPIDEMIOLOGY

Research examining the epidemiology of anxiety was first advanced by the comprehensive and extensive studies begun in the early 1960s on the Isle of Wight (Rutter, Tizard, & Whitmore, 1970). Physical health, intelligence, education, and psychological adjustment were evaluated for the entire population of 10- and 11-year-old children on the Isle of Wight. The prevalence rate for the overall category of anxiety disorders obtained in this population was 2.5%. Subsequent epidemiological research focused primarily on rates of subclinical fears and school phobia in the general population, with estimates of the prevalence of intense anxiety at about 7% or 8% in children (Graziano, DeGiovanni, & Garcia, 1979).

Since the advent of the DSM-III classification system, a number of studies have appeared in the literature reporting on the prevalence of childhood anxiety disorders in nonreferred samples of children or adolescents or both. These studies have utilized rigorous methodologies, by employing structured interview formats, reporting moderate to good reliability in anxiety diagnoses, and using good sampling procedures. The findings from these studies generally indicate that anxiety disorders are among the most prevalent disorders in childhood and adolescence, even when stringent impairment criteria (i.e., requiring intervention) are implemented (Bird, Canino, Rubio-Stipec, 1988; Kashani & Orvaschel, 1988). The studies to date have evaluated prevalence rates of DSM-III and DSM-III-R anxiety disorder subtypes in both child and adolescent samples.

Two investigations have examined the prevalence of overanxious disorder in samples of young children. Anderson, Williams, McGee, and Silva (1987) studied the prevalence of DSM-III disorders in 792 11-year-old children from the general population in New Zealand. Child interviews using the DISC (Costello et al., 1984) and parent and teacher questionnaires were used to evaluate psychopathology. The findings indicated that the rate of overanxious disorder in this sample was 2.9%. This prevalence was moderate relative to the most common anxiety disorder in the sample, separation anxiety disorder (rate of 3.5%), and the least frequently diagnosed anxiety disorder, social phobia (2.4%).

Costello (1989) studied the prevalence of overanxious disorder, as well as other anxiety disorders, in a pediatric sample of 789 children aged 7–11 years. Children attending two pediatric outpatient clinics were initially screened for psychopathology using the parent-completed CBCL (Achenbach & Edelbrock, 1983). Subsequently, proportions of children scoring in the normal range and those with high ratings on the CBCL were selected for parent and child diagnostic interviews using the DISC. The following 1-year-prevalence rates were reported: overanxious disorder, 4.6%; separation anxiety disorder, 4.1%; avoidant disorder, 1.6%; simple phobia, 9.2%; social phobia, 1.0%; and agoraphobia, 1.2%.

Several studies have evaluated the prevalence of overanxious disorder in adolescent community samples. Kashini and Orvaschel (1988) studied the 6-month prevalence rate of anxiety disorders in 150 adolescents between the ages of 14 and 16 years who were systematically drawn from a public school population of 1703 students. Anxiety disorder diagnoses were based on structured interviews with the adolescents using the DICA (Herjanic & Reich, 1982), with confirmation of diagnoses using structured parent interview data from the DICA and a psychiatrist's review of sympatomatology. Results indicated that as many as 17.3% of adolescents met the DSM-III criteria for one or more anxiety disorder;

however, this rate was reduced to a prevalence of 8.7% when the criterion of functional impairment requiring treatment was included. Overanxious disorder (7.3%) was the most common anxiety subtype in this sample, with the least common diagnosis assigned being separation anxiety disorder (0.7%). Simple phobia was diagnosed in 4.7% of the sample.

McGee, Feehan, Williams, Partridge, Silva, and Kelly (1990) examined the prevalence of DSM-III disorders in a sample of 943 adolescents aged 15 years using adolescent structured interviews with the DISC. Parent interview data derived from the DISC-P served to confirm information from the adolescents' self-reported interview data. The most prevalent disorder in the entire sample (including both internalizing and externalizing disorders) was overanxious disorder (5.9%). Simple phobia was diagnosed in 3.6%, separation anxiety in 2.0%, and social phobia in 1.1% of this sample.

Finally, Bowen, Offord, and Boyle (1990) examined the prevalence of both overanxious and separation anxiety disorders in a sample of 1869 12- to 16-year-old adolescents in Ontario. DSM-III-R diagnoses of overanxious and separation anxiety disorders were based on specific items from the CBCL. This idiosyncratic method of diagnosis resulted in a 3.6% prevalence rate for overanxious disorder and 2.4% for separation anxiety disorder. It was observed that 59% of overanxious disorder adolescents and 65% of those with separation anxiety were given a sole diagnosis of anxiety disorder. A female/male ratio of 4:1 for overanxious disorder was found in this sample, which is higher but consistent with the trend found in other adolescent community samples. It was interesting to note that anxiety-disordered youngsters were as impaired as those with depression and externalizing disorders, on a range of measures of impairment (e.g., poor competence, in need of professional help).

Overall, the consistent finding of these epidemiological studies is that overanxious disorder is indeed common in both younger children and adolescents. The rate of overanxious disorder diagnoses appears to remain stable or increase in frequency from childhood to adolescence; however, use of cross-sectional methods (but not follow-up investigations) to date does not allow us to determine whether it is the same children who continue to suffer over time. Overanxious disorder appears to be the most prevalent anxiety disorder subtype in adolescence.

COURSE AND PROGNOSIS

Only two studies have been conducted to date concerning the course of overanxious disorder across childhood and adolescence. The first study employed a cross-sectional approach, in which differences in the manifestation of overanxious disorder were examined in different age groups of children. Although this approach is not as satisfactory as following children over time, these data provide preliminary information regarding changes in overanxious features that may occur over the course of childhood and adolescence. In the second investigation, children with overanxious disorder were followed and examined over time.

In the first study, Strauss et al. (1988b) studied developmental patterns in 55 consecutive clinic-referred children diagnosed with overanxious disorder. Two age groups were compared: children younger than 12 years at the time of referral ($N = 23$) and children 12 years and older at intake ($N = 32$). It was interesting to note that overanxious disorder did not occur at significantly different rates in younger vs. older children referred for clinical services.

Examination of the symptom patterns for the two age groups revealed that older overanxious children were significantly more likely to have a greater number of DSM-III symptoms comprising the disorder than were younger children. Older children (66%) presented with six or seven overanxious disorder symptoms significantly more often than younger children (35%). In addition, data derived from self-report inventories demonstrated significantly more state and trait anxiety, greater worry and oversensitivity, and higher levels of depression in older than in younger children with overanxious disorder. Comparison of the two age groups in rates of concurrent DSM-III diagnoses indicated that younger children more commonly had comorbid diagnoses of separation anxiety disorder or attention-deficit hyperactivity disorder, whereas older children were more likely to receive a concurrent diagnosis of simple phobia or major depression.

Evaluation of the stability of overanxious disorder was conducted in a second small sample of speech- and language-impaired children (Cantwell & Baker, 1989). A total of 8 children initially diagnosed with overanxious disorder (mean age 7.3 years) were reevaluated an average of 4 years later using the DICA and parent and teacher checklists. The following results were reported: 2 children (25%) were well, 2 children (25%) received the same diagnosis, and the remaining 4 children were diagnosed at follow-up with other behavioral or emotional disorders or both. This recovery rate was the lowest of the children initially diagnosed with anxiety disorders. Replication of these findings in larger samples derived from the general population is needed.

Although they did not directly examine the course of overanxious disorder in particular, Rutter, Tizard, Yule, Graham, and Whitmore (1976) followed anxious children from age 10 to age 14 in their large Isle of Wight study. They found that about one-half of children with emotional problems at age 10 continued to display similar difficulties at age 14. Neither IQ nor reading attainment at age 10 influenced whether emotional problems persisted over this time period.

In sum, information regarding the course of overanxious disorder is limited. The results of the cross-sectional investigation suggest that older overanxious children or adolescents demonstrate more severe symptomatology than younger children, including a greater number of overanxious symptoms, higher levels of state and trait anxiety, and higher rates of depression. The only longitudinal study of overanxious disorder employed a very small sample of language-impaired children, thus limiting the generalizability of findings to other overanxious children. Results did suggest, however, that overanxious disorder may indeed persist over time or be associated with the development of other forms of psychopathology. Overall, it appears that approximately 50% of anxious children continue to show difficulties during the 10- to 14-year age period. Further study of the course of overanxious disorder, by following children longitudinally, is needed.

IMPAIRMENT AND COMPLICATIONS

Children with overanxious disorder show a range of impairment. Some overanxious youngsters report no additional complications other than worrying and tension, whereas other youngsters with overanxious disorder may describe serious concurrent problems such as major depression or substance abuse.

Clinical observations indicate that children with mild overanxious symptomatology may report difficulty falling asleep at night due to excessive worrying that may occur at bedtime, problems interacting with large groups of peers due to self-consciousness, or mild

interference with academic performance because of overconcern about abilities. Mildly overanxious children may be described as functioning well in most areas despite their excessive worrying. For instance, overanxious children are often very conscientious about schoolwork and may devote considerable time and energy to achieve high marks. In fact, it is not uncommon for overanxious children to be overachievers. Although overanxious children may not be exceptionally popular among peers, they may have one or two close friends with whom they interact frequently at home and school. Thus, children with less severe overanxious symptoms may demonstrate few associated problems, even though their rates of worrying and tension are considered excessive and problematic due to the discomfort of the anxiety.

In contrast, youngsters with severe overanxious symptomatology are likely to have serious forms of impairment. Clinical observations suggest that overanxious disorder may be accompanied by serious interference with academic performance. Anxiety about performance may be so intense that overanxious youngsters may be unable to complete assignments for fear of failure or may perform poorly on tests due to severe test anxiety. As the overanxious youngster procrastinates due to fear of poor performance, he or she may fall behind in schoolwork, grades may decline, and the child may even begin to avoid school attendance. Severe overanxious symptoms may also seriously impair social relationships, such that overanxious children or adolescents may avoid most social contacts for fear of negative evaluation or rejection by peers. Overanxious disorder has been found to be associated with school refusal, with one study reporting a prevalence of school phobia in 38% of a sample of 35 children meeting DSM-III-R criteria for overanxious disorder (Strauss & Last, 1994).

Empirical investigations evaluating psychopathology associated with overanxious disorder have substantiated clinical observations that this anxiety disorder subtype is related to additional forms of impairment. In particular, children diagnosed with overanxious disorder have been found to meet diagnostic criteria for additional anxiety disorder subtypes. One study demonstrated that approximately 58% of a sample of 47 overanxious children received a concurrent anxiety disorder diagnosis (Last et al., 1987a). Most notably, 45% of children diagnosed with overanxious disorder met criteria for a coexisting diagnosis of separation anxiety disorder. In addition, approximately 27% were simultaneously diagnosed with simple phobia, 15% with panic disorder, and 12% with avoidant disorder.

In a second study of this type, Last, Strauss, and Francis (1987d) examined patterns of comorbidity among childhood anxiety disorders in a sample of 73 consecutive referrals to an outpatient anxiety disorder clinic. Coexisting diagnoses were evaluated in children with *primary* or *secondary* DSM-III-defined anxiety diagnoses. Findings revealed that the most common concurrent anxiety disorder subtype for children with a *primary* diagnosis of overanxious disorder ($N = 11$) was social phobia, with 36% of children with a primary diagnosis of overanxious disorder receiving social phobia as a coexisting disorder. In addition, 27% of children with a primary overanxious disorder diagnosis simultaneously met criteria for avoidant disorder. Interestingly, only 9% of this small group of children with a primary diagnosis of overanxious disorder had a concurrent diagnosis of separation anxiety disorder. However, there was greater overlap between these two disorders (33%) when separation anxiety disorder was identified as the primary diagnosis.

Children and adolescents with overanxious disorder further have been found to display concurrent major depression. Last et al. (1987a) found that 35% of overanxious children demonstrated a concurrent major depression. Only 8% of overanxious children in this

sample were diagnosed with a coexisting dysthymic disorder. Strauss et al. (1988b) further examined the relationship between overanxious disorder and major depression by comparing the rate of major depression in younger vs. older children with overanxious disorder. Findings revealed that older children and adolescents with overanxious disorder (47%) were significantly more likely than young children with overanxious disorder (17%) to be diagnosed with a concurrent major depression. Moreover, Brent, Kalas, Edelbrock, Costello, Dulcan, and Conover (1986) showed that the syndrome of overanxious disorder was correlated significantly with severity of suicidality reported by children and adolescents, ranging from nonspecific ideation to suicidal behavior.

Several studies have examined the overlap between overanxious disorder and attention-deficit hyperactivity disorder (ADHD) in children. Two large-scale epidemiological studies have demonstrated that approximately one fourth of ADHD children concurrently meet DSM-III-R criteria for overanxious disorder (Anderson et al., 1987; Bird et al., 1988). Conversely, Strauss et al. (1988b) showed that over one third (35%) of overanxious children under age 12 years simultaneously met diagnostic criteria for ADHD. Pliszka (1992) further examined the overlap between these two disorders, by comparing children with both disorders to children with ADHD alone and to a normal control group on a range of clinical and laboratory measures. Results indicated that children with comorbid overanxious disorder and ADHD demonstrated less impulsivity, less hyperactivity, and a trend to exhibit fewer conduct problem symptoms than children with an ADHD alone. However, children with both disorders were more impaired on these dimensions than the control group.

The association between overanxious disorder and somatic complaints in children has been explored in two preliminary studies. Beidel, Christ, and Long (1991) showed that children with anxiety disorders in general displayed significantly more somatic complaints than a normal control group. Overanxious children, in particular, were observed to have a broad range of somatic complaints, including shakiness, heart palpitations, and flushes and chills. These latter results were considered tentative, however, since the overanxious group was small ($N = 6$) and findings therefore could not be analyzed statistically. In a second study, the presence of anxiety disorders was examined in a sample of 31 children referred to a pediatric gastroenterology clinic for recurrent abdominal pain (Wasserman, Whitington, & Rivara, 1988). DSM-III-defined anxiety disorders were diagnosed in 39% of recurrent abdominal pain patients, with 13% meeting diagnostic criteria for overanxious disorder. These two studies suggest that somatic symptoms may be problematic for overanxious children, although findings are still considered tentative.

Finally, fears endorsed by overanxious disorder children have been evaluated in a sample of 33 clinic children with this disorder (Last, Francis, & Strauss, 1989), using the FSSC-R (Ollendick, 1983). Overanxious children were found to endorse evaluative and performance concerns, such as being criticized, looking foolish, getting poor grades, making mistakes, and being teased. They also reported more common fears such as those of not being able to breathe, high places, burglars, and fire.

Overall, correlates of overanxious disorder in childhood and adolescence to date have included concurrent anxiety disorders, major depression, attention deficits, somatic complaints, and social-evaluative and other specific fears. Social impairment may also be associated with overanxious disorder, since empirical studies have found that anxiety-disordered youngsters in general display social deficits (Strauss, Lahey, Frick, Frame, & Hynd, 1988a); investigations have not yet evaluated social functioning in children with specific anxiety disorder subtypes.

FAMILIAL PATTERNS

A growing literature has begun to document a relationship between family psychopathology and anxiety disorders in children and adolescents. Two methods have been used to study familial aggregation of anxiety disorders: evaluation of the prevalence of anxiety in the offspring of adult psychiatric patients and examination of psychopathology in the parents of children with anxiety disorders.

Studies investigating the offspring of adults with affective or anxiety disorders or both have found, in general, an increased prevalence of anxiety disorders in the children. Only a few recent studies have evaluated the specific prevalence of overanxious disorder in the children of anxiety-disordered adults, however. Turner, Beidel, and Costello (1987) assessed the children (7–12 years old) of adult patients with two anxiety disorder subtypes, agoraphobia or obsessive–compulsive disorder. Comparison groups in this study included children of adult patients diagnosed with dysthymic disorder, children of normal adults, and normal control children. Children of anxiety-disordered patients (38%) were found to have a significantly higher rate of DSM-III anxiety disorders than children in the two normal comparison groups, but not greater than children of dysthymic patients (21%). Examination of specific anxiety disorder subtypes displayed by the youngsters revealed that approximately 12% of the children of anxiety-disordered adults met diagnostic criteria for overanxious disorder, whereas 25% were diagnosed with separation anxiety disorder.

The rate of anxiety disorders in the children of mothers with generalized anxiety disorder was investigated by Breslau, Davis, and Prabucki (1987). These investigators found that children of mothers with generalized anxiety disorder were not at increased risk for overanxious disorder or other anxiety disorder subtypes. Interestingly, these investigators found that major depression in the mothers was associated with an increased rate of overanxious disorder in the offspring. In particular, 27% of a sample of 30 offspring of mothers with major depression were diagnosed with overanxious disorder. In contrast, only 13% of the children had separation anxiety disorder and 3% had major depression.

Several studies have investigated the psychiatric history of relatives of children and adolescents diagnosed with anxiety disorders. First, the family histories of 11 depressed and 12 anxious children admitted to an inpatient unit were compared in a pilot study conducted by Livingston, Nugent, Rader, and Smith (1985). The sample of anxious children consisted of 8 children with overanxious disorder and 4 with separation anxiety disorder. Results indicated that the family histories of the two groups did not differ for the most part, with affective illness and alcoholism prevalent in both groups. Methodological limitations of this study (i.e., small sample sizes, instruments that did not directly assess anxiety disorders in families) indicate that replication of findings is warranted. Conclusions cannot be drawn regarding family psychopathology associated with overanxious disorder, specifically, due to inclusion of a combined sample of both children with overanxious and separation anxiety disorders.

Last and her colleagues presented a series of studies evaluating psychiatric illness in relatives of anxiety-disordered children. In the first study, Last, Phillips, and Statfeld (1987c) investigated the prevalence of separation anxiety disorder and overanxious disorder in the histories of mothers of children diagnosed with these two diagnoses. Maternal psychiatric history was compared for overanxious children ($N = 26$), separation-anxious children ($N = 21$), and a control group of children with psychiatric disorders other than anxiety or affective disorders ($N = 33$) using a Childhood History Questionnaire (CHQ) developed by the authors. The CHQ was completed by the mothers and contained a list of

DSM-III criteria for diagnosing overanxious and separation anxiety disorders, including duration criteria. DSM-III diagnoses derived from these checklists revealed that mothers of overanxious children reported an increased prevalence (42%) of overanxious disorder themselves as children, relative to mothers of separation anxious (9%) and control (15%) children. In contrast, there was no significant difference among the three groups in maternal history of separation anxiety as children.

Last, Hersen, Kazdin, Francis, and Grubb (1987b) examined the maternal lifetime history of the full range of anxiety and affective disorders in a sample of children with overanxious disorder (N = 22), separation anxiety disorder (N = 19), and psychiatric disorders other than anxiety or affective disorders (N = 15). The mothers' diagnoses were based on structured clinical interviews using the Structured Clinical Interview for DSM-III—Non-Patient Version (SCID-NP) (Spitzer & Williams, 1984). Findings indicated that mothers of anxiety-disordered children demonstrated a significantly higher prevalence of anxiety disorders (83%) than did mothers of control children (40%), although differences in rates of maternal history of anxiety diagnoses did not emerge for overanxious vs. separation-anxious youngsters. Interestingly, there were no statistically significant differences between anxiety disorder groups and the control group in rates of maternal affective disorders.

In the most extensive and methodologically rigorous study of this type, Last, Hersen, Kazdin, Orvaschel, and Perrin (1991) compared the psychiatric histories of first- and second-degree relatives of clinic-referred children diagnosed with anxiety disorders (N = 94), clinic children with ADHD (N = 58), and children with a history of no psychiatric disorder (N = 87). Results indicated an increased rate of anxiety disorders in the first-degree relatives of anxiety-disordered children (34.6%) compared to both control groups (23.5% for clinic controls, 16.3% for normal controls). Evaluation of the association between specific childhood anxiety disorder subtypes and adult anxiety diagnoses revealed that relatives of overanxious children had higher rates of anxiety disorders (50%) than did relatives of children with separation anxiety disorder (32%) or children with other anxiety disorder subtypes (27%). Overanxious children were significantly more likely than children with anxiety disorders other than overanxious and separation anxiety disorders to have relatives with a history of separation anxiety disorder, overanxious disorder, or panic disorder (with or without agoraphobia). Contrary to expectation, panic disorder also was more prevalent in relatives of overanxious children than in relatives of children with separation anxiety disorder.

Overall, these studies document a relationship between overanxious disorder in youngsters and anxiety disorders in their relatives. It should be noted that studies to date have demonstrated such a familial pattern in clinic-referred probands only, so that it is unclear whether such findings are generalizable to the population of overanxious children as a whole. Further, whether genetic or environmental actors contribute to the observed relationship between overanxious disorder in childhood and familial anxiety disorders cannot be determined from available data, so that genetic research and family interaction studies are still needed in this area (Last et al., 1991).

DIFFERENTIAL DIAGNOSIS

Assessment and diagnosis of anxiety disorders in childhood and adolescence have undergone changes so that anxiety can now be reliably identified in youngsters. Specific

anxiety disorder subtypes can be diagnosed reliably, with interrater reliability for overanxious disorder diagnoses ranging from modest ($\kappa = 0.59$) to very good ($\kappa = 0.85$) across studies (Werry, 1991). There are a number of diagnostic considerations, however, that facilitate differentiation of this anxiety disorder subtype from normal phenomena, other forms of anxiety, and other psychiatric conditions.

Differentiation of overanxious disorder from normal worrying that is not excessive or unrealistic requires assessment of rate and duration of worrying and tension, evaluation of life events or stressors that may realistically be contributing to worries, and determination of interference of worries with the child's adjustment. Children and adolescents ordinarily worry about tests, academic performance, family conflict, their appearance, and other concerns. The frequency and duration of worries, however, are considerably less in children not considered overanxious. It is common for children to report occasional worries (e.g., one time each week) that are of brief duration (e.g., 5–10 minutes). It is also important to distinguish frequent and enduring worrying that is reasonable in specific circumstances (e.g., worries about impending major surgery of a family member, frequent conflict between parents, failing grades in school, actual rejection by most peers at school) from unreasonable and excessive worrying. Worries and tension sufficiently severe to warrant a diagnosis of overanxious disorder are described by children or their parents, or both, as causing the children considerable concern and as excessive relative to the children's peers.

A distinction between overanxious disorder and social phobias also needs to be made in childhood and adolescence. As presented in DSM-III-R, social phobias tend to involve a circumscribed stimulus that the individual fears and avoids, with most people having only one social phobia. Children diagnosed with overanxious disorder may also show excessive discomfort associated with situations involving possible scrutiny by others, but they tend to have discomfort associated with a range of situations in which their behavior may be evaluated (e.g., school performance, athletic performance, social interactions with peers). Moreover, in overanxious disorder, worrying and tension are not related only to social situations. Finally, overanxious children demonstrate additional symptoms that are not necessarily present in youngsters with social phobias, such as an excessive need for reassurance about a variety of worries, somatic complaints, and marked feelings of generalized tension or an inability to relax.

Overanxious children may also show excessive worrying and tension concerning specific situations other than those involving possible scrutiny by others. Overanxious disorder, therefore, must be distinguished from simple phobia, in which a child shows a persistent fear of a circumscribed object or situation. Unlike children with simple phobias, overanxious children have multiple fears and worries, and anxiety is not restricted to a single stimulus or situation. As with social phobia, children with a simple phobia do not show the whole constellation of symptoms associated with overanxious disorder.

In separation anxiety disorder, anxiety is focused exclusively on situations involving separation. In some cases of separation anxiety disorder, the anxiety is so extensive that children report worries in a wide range of circumstances, but careful assessment will uncover the circumstance that such anxiety is consistently related to separation. Somatic complaints can also be present in both children with overanxious disorder and those with separation anxiety disorder, but the *pattern* that characterizes separation anxiety disorder, in which the child demonstrates physical symptoms on school mornings and in anticipation of separation, is absent in children with overanxious disorder.

Overanxious disorder and depression have a number of common features as well, including associated sleep disturbance, somatic complaints, low self-esteem, and impaired

concentration. These symptoms are core features of depression, but also may accompany anxiety disorders. Careful assessment of the onset, course, and description of each symptom, however, generally leads to clear differentiation between overanxious disorder and depression. For instance, anxious children may report difficulty falling asleep due to worries at bedtime, whereas depressed children rarely identify worrying as the cause for sleep disturbance.

Children with ADHD sometimes appear nervous and jittery and may be described by parents as "worriers." On further inquiry, however, it becomes apparent that parents are mislabeling overactivity and excessive talking or inquisitiveness in children with ADHD as nervousness and expression of worries. Children with ADHD often ask many questions about upcoming events, but rarely demonstrate concern or worry about these upcoming events. The fidgety behavior of attention-deficit children may also be viewed by parents as general tension, but this excessive motor behavior is not specific to anxiety-provoking situations and, instead, appears to be almost constant. In addition, children with ADHD rarely show other features characteristic of overanxious disorder, such as overconcern about competence, marked self-consciousness, and an excessive need for reassurance.

Children younger than 18 years of age who meet the diagnostic criteria for overanxious disorder are not given the diagnosis of generalized anxiety disorder, even if criteria for the latter disorder are met. On the other hand, if the individual is 18 years old or older and meets diagnostic criteria for both disorders, a diagnosis of generalized anxiety disorder is assigned. As noted previously, despite the overlap between these two categories, the symptoms of autonomic hyperactivity and vigilance/scanning required for a diagnosis of generalized anxiety disorder (e.g., shortness of breath, palpitations, sweating, and so on) need not be present in children with overanxious disorder. In fact, many children with overanxious disorder deny the presence of these symptoms.

Finally, the diagnosis of adjustment disorder with anxious mood is assigned when anxiety and worrying occur following a psychosocial stressor and have occurred over less than 6 months. Although symptoms of overanxious disorder may intensify following stressful events, children with overanxious disorder meet diagnostic criteria for the disorder prior to the event or demonstrate symptoms for a period of longer than 6 months.

CASE ILLUSTRATION

Blake is a 13-year-old male who was referred for evaluation and treatment in an outpatient psychology clinic by his mother due to concerns regarding anxiety displayed during tests at school. Blake attends advanced classes in the 8th grade at a public middle school in a suburban community. He resides with both biological parents and his 8-year-old sister. His mother is a teacher and his father is employed as a plant pathologist.

A multimethod assessment approach was used to evaluate anxiety, depression, and other behavior problems. In particular, semistructured child and parent interviews, self-report inventories, and a teacher questionnaire were administered at the initial assessment and immediately following treatment. During structured interviews using the K-SADS, Blake and his father indicated that Blake has demonstrated anxiety during math tests since he entered the 8th grade, 3 months prior to referral for treatment. He reportedly becomes "choked up," feels nervous, and cannot concentrate during tests in his math class. Blake noted that this anxiety during tests has interfered with his performance in math, in that his grades have declined from A's and B's (i.e., excellent and good grades) to C's, D's, and F's

(i.e., average, poor, and failing grades) on tests. He has not displayed similar problems with test anxiety in other subject areas, or in math in the past.

Blake noted that the onset of difficulties occurred following his math teacher's statement to the class that each student was required to earn an A or B average in the class in order to remain in the advanced math class. Blake felt pressured to perform well, even though he had easily earned such high marks in math classes in the past. Subsequent to this statement made by the math teacher, Blake noticed that he was able to complete homework assignments without difficulty, but was unable to perform well during tests due to his "mind going blank."

Diagnostic interviews with Blake and his father using the K-SADS further revealed that Blake has a history of symptomatology indicative of a DSM-III-R diagnosis of overanxious disorder that predated the onset of test anxiety. In particular, Blake reportedly worries excessively about future events, such as performance in all academic subjects, grades on his report card, and competence during athletic activities. He therefore also demonstrates an overconcern about competence in academics and sports, another overanxious disorder diagnostic criterion. He reportedly worries excessively about making mistakes, according to his father. Blake also experiences somatic complaints for which there is no physical basis, including headaches and stomachaches. The frequency of somatic problems was estimated as being once each week. In addition, Blake was described as generally tense and anxious, in that he startles easily, demonstrates nervous mannerisms, and has difficulty relaxing. These four DSM-III-R criteria for overanxious disorder were present "as long as [Blake and his father] can remember," estimated as far back as when Blake was in the 1st grade.

Blake and his father also indicated that Blake has shown some sadness during the 1-year period preceding the interview. He did not exhibit additional symptoms of depression, however. He is also somewhat argumentative and noncompliant and occasionally displays temper outbursts, but these behaviors were not considered sufficiently severe to warrant intervention or to be of concern.

In addition to information provided during interviews, Blake completed several self-report measures. These included the STAIC, the FSSC-R, the Children's Depression Inventory (CDI) (Kovacs, 1983b), and the Loneliness Scale (LS) (Asher, Hymel, & Renshaw, 1984). Blake's responses on self-report measures of anxiety were consistent with descriptions obtained from interviews. Specifically, he reported high levels of state (score of 30) and trait (score of 46) anxiety on the STAIC. He also indicated that he had a high number of intense fears (i.e., 28) on the FSSC-R. His total FSSC-R score (165) was substantially higher than the mean obtained for a normative sample. Examination of factor scores on this measure revealed that Blake showed excessive fearfulness on two dimensions: (1) failure and criticism and (2) minor injury and small animals.

In addition, Blake described himself as having concurrent difficulties with depression on the CDI (score of 23). There was no evidence of social impairment on the LS.

Teacher perceptions of Blake's behavior at school were obtained using the TRF. Using this measure, the math teacher indicated that Blake demonstrated high levels of anxious–withdrawn behavior in the classroom setting, but that otherwise he did not display problematic classroom behavior.

Treatment for Blake consisted of a behavioral treatment program that addressed overanxious features generally and test anxiety more specifically. Treatment procedures included instruction in progressive muscle relaxation, graduated *in vivo* exposure to timed math tasks, and use of coping self-statements in anticipation of tests and while taking tests.

Blake also learned cognitive coping skills to help reduce worrying and tension in anticipation of stressful situations and to implement whenever he experiences anxiety. These skills were associated with significant reductions in overanxious features and eliminated test anxiety in math.

Following treatment, assessment measures were administered to evaluate treatment gains. In particular, Blake and his father were interviewed using the K-SADS to assess directly the presence of overanxious symptomatology. In addition, Blake completed all self-report measures filled out prior to treatment. The teacher also provided perceptions of Blake's adjustment at school. Blake and his father rated Blake's overall progress in therapy on a 7-point Likert scale ranging from "very much worse" to "completely well."

Information obtained from the K-SADS interviews revealed that Blake no longer met DSM-III-R criteria for a diagnosis of overanxious disorder. All symptoms had reduced in frequency and severity to subclinical levels. Both Blake and his father noted that Blake's anxiety concerning math had diminished substantially so that he was able to complete tests without experiencing significant anxiety. His grades reportedly improved from below average and failing to high marks. Teacher ratings on the TRF revealed that Blake no longer displayed clinically significant levels of anxiety on this measure.

Blake also reported lower state (score of 9) and trait (score of 28) anxiety on the STAIC. Substantial reductions in the number and intensity of fears were found on the FSSC-R, such that his number of intense fears decreased from 28 at pretreatment to 16 at posttreatment, and his total FSSC-R score declined from 165 to 122 over the course of treatment. Dramatic improvement in depressive symptoms was also evident, with Blake's CDI score decreasing from 23 at pretreatment to a score of 5 following treatment. Finally, both Blake and his father provided global progress ratings indicating that he was "much better" at termination of therapy.

SUMMARY

Overanxious disorder is a common anxiety disorder subtype found in clinic and nonclinic populations. This chapter describes the clinical presentation, assessment, epidemiology, developmental course, concurrent functioning, family psychopathology, differential diagnosis, and a case example of overanxious disorder in children.

In terms of clinical presentation, the DSM-III-R diagnostic criterion of excessive or unrealistic worry about future events appears to be the hallmark of the disorder, with this feature present in more than 95% of clinic children diagnosed with overanxious disorder. Assessment methods used to identify overanxious disorder in youngsters have included structured clinical interviews with children or parents or both, self-report measures, and parent and teacher checklists. Research indicates that structured interviews provide a reliable and valid evaluation of overanxious symptoms. More study is needed to examine the utility of self-report, teacher, and parent questionnaires in assessing this anxiety disorder subtype in youngsters.

Epidemiological research has demonstrated that overanxious disorder is indeed prevalent in both young children and adolescents. The rate of overanxious disorder appears to remain stable or increase in frequency from childhood (estimates range from 2.9% to 4.6%) to adolescence (estimates range from 3.6% to 7.3%) in large-scale epidemiological studies. Use of cross-sectional methods, and not follow-up investigations, to date does not allow us, however, to determine whether it is the same children who continue to suffer over time.

Overanxious disorder appears to be the most prevalent of the anxiety disorder subtypes in adolescence.

Our understanding of the course of overanxious disorder is limited primarily to findings of one cross-sectional study of clinic children and a longitudinal study of a very small sample of language-impaired children. Results of the cross-sectional study suggest that overanxious adolescents demonstrate more severe symptomatology than younger children, including a greater number of overanxious symptoms, higher levels of state and trait anxiety, and higher rates of depression. Findings of the longitudinal study suggested that overanxious disorder may indeed persist over time or be associated with the development of other forms of psychopathology, but generalizability of these results is limited by the nature and size of the sample in this investigation.

Psychopathology found to be associated with overanxious disorder has included concurrent anxiety disorders, major depression, attention deficits, somatic complaints, and social-evaluative and other specific fears. Studies of family psychopathology have demonstrated a relationship between overanxious disorder in children and anxiety disorders in their relatives. In particular, overanxious disorder in children has been found to be associated with a history of separation anxiety disorder, overanxious disorder, or panic disorder in the relatives. Discussion of differential diagnosis of overanxious disorder in childhood and presentation of a case example can be found in the chapter.

REFERENCES

Achenbach, T. M., & Edelbrock, C. (1983). *Manual for the Child Behavior Checklist and Revised Child Behavior Profile*. Burlington, VT: University Associates in Psychiatry.

Achenbach, T. M., & Edelbrock, C. (1986). *Manual for the Teacher's Report Form and Teacher Version of The Child Behavior Profile*. Burlington, VT: Department of Psychiatry, University of Vermont.

American Psychiatric Association (1987). *Diagnostic and statistical manual of mental disorders*, 3rd ed., revised. Washington, DC: Author.

Anderson, J. C., Williams, S., McGee, R., & Silva, P. A. (1987). DSM-III disorders in preadolescent children. *Archives of General Psychiatry, 44*, 69–76.

Asher, S. R., Hymel, S., & Renshaw, P. D. (1984). Loneliness in children. *Child Development, 55*, 1456–1464.

Beidel, D. C., Christ, M. G., & Long, P. J. (1991). Somatic complaints in anxious children. *Journal of Abnormal Child Psychology, 19*, 659–670.

Bird, H. R., Canino, G., Rubio-Stipec, M., Gould, M. S., Ribera, J., Sesman, M., Woodbury, M., Huertas-Goldman, S., Pagan, S., Sanchez-Laćay, A., & Moscoso, M. (1988). Estimates of the prevalence of childhood maladjustment in a community survey in Puerto Rico. *Archives of General Psychiatry, 45*, 1120–1126.

Bowen, R. C., Offord, D. R., & Boyle, M. H. (1990). The prevalence of overanxious disorder and separation anxiety disorder: Results from the Ontario Child Health Study. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 753–758.

Brent, D. A., Kalas, R., Edelbrock, C., Costello, A. J., Dulcan, M. K., & Conover, N. (1986). Psychopathology and its relationship to suicidal ideation in childhood and adolescence. *Journal of the American Academy of Child and Adolescent Psychiatry, 25*, 666–673.

Breslau, N., Davis, G. C., & Prabucki, K. (1987). Searching for evidence on the validity of generalized anxiety disorder: Psychopathology in children of anxious mothers. *Psychiatry Research, 20*, 285–297.

Cantwell, D. P., & Baker, L. (1989). Stability and natural history of DSM-III childhood diagnoses. *Journal of the American Academy of Child and Adolescent Psychiatry, 28*, 691–700.

Costello, A. J., Edelbrock, C., Dulcan, M. K., Kalas, R., & Klaric, S. H. (1984). *Development and testing of the NIMH Diagnostic Interview Schedule for Children (DISC) in a clinic population: Final report*. Rockville, MD: Center for Epidemiological Studies, National Institute of Mental Health.

Costello, E. J. (1989). Child psychiatric disorders and their correlates: A primary care pediatric sample. *Journal of the American Academy of Child and Adolescent Psychiatry, 28*, 851–855.

Dong, Q., Yang, B., & Ollendick, T. H. (in press). Fears in Chinese children and adolescents and their relations to anxiety and depression. *Journal of Child Psychology and Psychiatry*.

Edelbrock, C., Costello, A. J., Dulcan, M. K., Kalas, R., & Conover, N. C. (1985). Age differences in the reliability of the psychiatric interview of the child. *Child Development, 56*, 265–275.

Edelbrock, C., Costello, A. J., Dulcan, M. K., Kalas, R., & Conover, N. C. (1986). Parent–child agreement on child psychiatric symptoms assessed via structured interview. *Journal of Child Psychology and Psychiatry, 27*, 181–190.

Fombonne, E. (1989). The Child Behavior Checklist and the Rutter Parental Questionnaire: A comparison between two screening instruments. *Psychological Medicine, 19*, 777–785.

Fombonne, E. (1991). The use of questionnaires in child psychiatry research: Measuring their performance and choosing an optimal cut-off. *Journal of Child Psychology and Psychiatry, 32*, 677–693.

Graziano, A., DeGiovanni, I. S, & Garcia, K. (1979). Behavioral treatment of children's fears: A review. *Psychological Bulletin, 86*, 804–830.

Herjanic, B., & Reich, W. (1982). Development of a structured psychiatric interview for children: Agreement between child and parent on individual symptoms. *Journal of Abnormal Child Psychology, 10*, 307–324.

Hodges, K., Kline, J., Stern, L., Cytryn, L., & McKnew, D. (1982). The development of a child assessment schedule for research and clinical use. *The Journal of Abnormal Child Psychology, 10*, 173–189.

Kashani, J. H., & Orvaschel, H. (1988). Anxiety disorders in mid-adolescence: A community sample. *American Journal of Psychiatry, 145*, 960–964.

Kovacs, M. (1983a). The Interview Schedule for Children (ISC): Form C, and the follow-up form. Unpublished manuscript.

Kovacs, M. (1983b). The Children's Depression Inventory: A self-rated depression scale for school-aged youngsters. University of Pittsburgh School of Medicine: Unpublished manuscript.

Last, C. G., Francis, G., & Strauss, C. C. (1989). Assessing fears in anxiety-disordered children with the Revised Fear Survey Schedule for Children (FSSC-R). *Journal of Clinical Child Psychology, 18*, 137–141.

Last, C. G., Hersen, M., Kazdin, A. E., Finkelstein, R., & Strauss, C. C. (1987a). Comparison of DSM-III separation anxiety and overanxious disorders: Demographic characteristics and patterns of comorbidity. *Journal of the American Academy of Child Psychiatry, 26*, 527–531.

Last, C. G., Hersen, M., Kazdin, A. E., Francis, G., & Grubb, H. J. (1987b). Psychiatric illness in the mothers of anxious children. *American Journal of Psychiatry, 144*, 1580–1583.

Last, C. G., Hersen, M., Kazdin, A. E., Orvaschel, H., & Perrin, S. (1991). Anxiety disorders in children and their families. *Archives of General Psychiatry, 48*, 928–934.

Last, C. G., Phillips, J. E., & Statfeld, A. (1987c). Childhood anxiety disorders in mothers and their children. *Child Psychiatry and Human Development, 18*, 103–112.

Last, C. G., Strauss, C. C., & Francis, G. (1987d). Comorbidity among childhood anxiety disorders. *Journal of Nervous and Mental Disease, 175*, 726–730.

Livingston, R., Nugent, H., Rader, L., & Smith, G. R. (1985). Family histories of depressed and severely anxious children. *American Journal of Psychiatry, 142*, 1497–1499.

McGee, R., Feehan, M., Williams, S., Partridge, F., Silva, P. A., & Kelly, J. (1990). DSM-III disorders in a large sample of adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 611–619.

Morris, R. J., & Kratochwill, T. R. (1983). *Treating children's fears and phobias*. New York: Pergamon Press.

Ollendick, T. H. (1983). Reliability and validity of the Revised Fear Survey Schedule for Children (FSSC-R). *Behaviour Research and Therapy*, 21, 685–692.

Ollendick, T. H., King, N. J., & Frary, R. B. (1989). Fears in children and adolescents: Reliability and generalizability across gender, age, and nationality. *Behaviour Research and Therapy, 27*, 19–26.

Ollendick, T. H., Yule, W., & Ollier, K. (1990). Fears in British children and their relationship to manifest anxiety and depression. *Journal of Child Psychology and Psychiatry, 32*, 321–331.

Pliszka, S. R. (1992). Comorbidity of attention-deficit hyperactivity disorder and overanxious disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 197–203.

Puig-Antich, J., Orvaschel, H., Tabrizi, R. N., & Chambers, W. J. (1978). *Schedule for affective disorders and schizophrenia for school-age children*. New York: New York State Psychiatric Institute.

Quay, H. C. (1979). Classification. In H. C. Quay & J. S. Werry (Eds.), *Psychopathological disorders of childhood*, 2nd ed. (pp. 1–42). New York: John Wiley.

Quay, H. C. (1986). DSM-III as a taxonomy of psychopathology in childhood and adolescence. In T. Millon & G. Klerman (Eds.), *Contemporary directions in psychopathology: Toward the DSM-IV*. New York: Guilford Press.

Quay, H. C., & Peterson, D. R. (1983). *Revised Behavior Problem Checklist*, 1st ed. Coral Gables: University of Miami.

Reynolds, C. R. (1981). Long-term stability of scores on the Revised Children's Anxiety Scale. *Perceptual and Motor Skills*, *53*, 702.

Reynolds, C. R., & Paget, K. D. (1982). National normative and reliability data for the Revised Children's Manifest Anxiety Scale. Paper presented at the annual meeting of the National Association of School Psychologists, Toronto.

Reynolds, C. R., & Richmond, B. O. (1978). "What I Think and Feel": A revised measure of children's manifest anxiety. *Journal of Abnormal Child Psychology*, *6*, 271–280.

Rutter, M., Tizard, J., & Whitmore, K. (1970). *Education, health, and behaviour*. London: Longmans.

Rutter, M., Tizard, J., Yule, W., Graham, P., & Whitmore, K. (1976). Research report: Isle of Wight studies, 1964–1974. *Psychological Medicine*, *6*, 313–332.

Scherer, M. W., & Nakamura, C. Y. (1968). A Fear Survey Schedule for Children (FSS-FC): A factor analytic comparison with manifest anxiety. *Behaviour Research and Therapy*, *6*, 173–182.

Spielberger, C. D. (1973). *Manual for the State–Trait Inventory for Children*. Palo Alto, CA: Consulting Psychologists Press.

Spitzer, R. L., & Williams, J. B. W. (1984). Structured Clinical Interview for DSM-III—Non-Patient version (SCID-NP 5/1/84). Unpublished manuscript.

Strauss, C. C., & Last, C. G. (1994). Overanxious disorder in children and adolescents (in prep.).

Strauss, C. C., Lahey, B. B., Frick, P., Frame, C. L., Hynd, G. W. (1988a). Peer social status of children with anxiety disorders. *Journal of Consulting and Clinical Psychology*, *56*, 137–141.

Strauss, C. C., Lease, C. A., Last, C. G., & Francis, G. (1988b). Developmental differences between children and adolescents with overanxious disorder. *Journal of Abnormal Child Psychology*, *16*, 433–443.

Turner, S. M., Beidel, D. C., & Costello, A. (1987). Psychopathology in the offspring of anxiety disorders patients. *Journal of Consulting and Clinical Psychology*, *55*, 229–235.

Verhulst, F. C., & Akkerhuis, G. W. (1989). Agreement between parents' and teachers' ratings of behavioral/emotional problems of children aged 4–12. *Journal of Child Psychology and Psychiatry*, *30*, 123–136.

Verhulst, F. C., Berden, G. F. M. G., & Sanders-Woudstra, J. A. R. (1985). Mental health in Dutch children. II. The prevalence of psychiatric disorder and relationship between measures. *Acta Psychiatrica Scandinavica*, *72(Suppl. 324)*, 1–44.

Wasserman, A. L., Whitington, P. F., & Rivara, F. P. (1988). Psychogenic basis for abdominal pain in children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, *27*, 179–184.

Werry, J. S. (1991). Overanxious disorder: A review of its taxonomic properties. *Journal of the American Academy of Child and Adolescent Psychiatry*, *30*, 533–544.

World Health Organization (1992). *International classification of mental and behavioral disorders, clinical descriptions and diagnostic guidelines*, 10th ed. (ICD-10). Geneva: Author.

11

Obsessive–Compulsive Disorder

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INTRODUCTION

Obsessive–compulsive disorder (OCD) is characterized by DSM-III-R [American Psychiatric Association (APA), 1987] as recurrent obsessions or compulsions or both that are distressful or interfere in one's life. Obsessions are defined as persistent thoughts, images, or impulses that are ego-dystonic, intrusive, and, for the most part, senseless. According to DSM-III (APA, 1987, p. 245), "Compulsions are repetitive, purposeful, and intentional behaviors that are performed in response to an obsession, according to certain rules, or in a stereotyped fashion."

In OCD, a person may have either obsessions or compulsions or both. An individual typically attempts to ignore, suppress, or neutralize the intrusive obsessive thoughts. The specific content of the obsessions cannot be related to another Axis I diagnosis, such as thoughts about food resulting from an eating disorder or guilty thoughts (ruminations) from depression. Generally, compulsions serve to neutralize or alleviate anxious discomfort or to prevent a dreaded event. The person recognizes that the behavior is excessive or unreasonable, although young children may not always do so. Children and adolescents are diagnosed using unmodified DSM-III-R criteria. For the obsessions and compulsions to be severe enough to meet DSM-III-R diagnostic criteria for OCD (APA, 1987, p. 245), they must "cause marked distress, be time-consuming (take more than an hour a day), or significantly interfere with the person's normal routine, occupational functioning, or usual social activities or relationships with others." Tourette's syndrome is no longer an exclu-

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sionary criterion and may be an associated diagnosis. Compulsive eating, drinking, gambling, shopping, or sexual behavior is not considered to be part of this disorder.

Obsessive–compulsive disorder is defined in essentially the same manner in ICD-10 [World Health Organization (WHO), 1992]. To meet ICD-10 criteria (WHO, 1992, p. 143), the "obsessive symptoms or compulsive acts must be present most days for at least 2 successive weeks and be a source of distress or interference with activities." The disorder is broken into specific subtypes that include predominantly obsessional thoughts, predominantly compulsive acts, mixed obsessional thoughts and acts, other obsessive–compulsive disorders, and unspecified. Interestingly, "other obsessive–compulsive disorders" is not described, and it is unclear what disorders would be subsumed under this subtype.

PREVALENCE

Increased attention in the past decade has demonstrated that OCD in children and adolescents is not uncommon. However, historical references are limited to single case reports or small series of pediatric patients. Janet (1903) first described a 5-year-old with obsessive–compulsive behavior in 1903, writing: "No reassuring satisfies: the patient must be forever verifying his honesty, cleanliness, sanity, perceptions, and what he did last." In 1935, Kanner (1962) reported that some children suffering from OCD had "constricted" premorbid personalities and had been raised with an "overdose of parental perfectionism." In 1942, Berman described four cases of OCD and noted the similarity of the content of their obsessions (sexual thoughts, counting, fear of harm coming to others, and doubts) to that seen in adults. The chapter by Louise Despert (1955), "Differential Diagnosis between Obsessive–Compulsive Neurosis and Schizophrenia in Children," presented 68 cases and noted that the children were acutely aware of the abnormality of their thoughts. The report by Judd (1965) of 5 cases noted normal premorbid behavior and no obviously intrusive or strict parents. The book of Adams (1973) entitled *Obsessive Children* described 49 obsessive–compulsive children and found that precipitating events were not common and that boys were more likely than girls to be afflicted.

Early estimates of the prevalence of pediatric OCD ranged from 0.2% to 1.2% and were based on psychiatric clinic patient samples (Berman, 1942; Judd, 1965; Hollingsworth, Tanguay, Grossman, Pabst, 1980). In the only general population survey of children, Rutter, Tizard, and Whitmore (1970) found a 0.3% prevalence among over 2000 10- and 11-year-olds on the Isle of Wight. The epidemiological survey by Flament, Whitaker, Rapoport, Davies, Berg, Kalikow, Sceery, and Shaffer (1988) of 5596 high school students reported (weighted) calculated estimates of 1% (current) and 1.9% (lifetime) for adolescents.

PHENOMENOLOGY

At the National Institute for Mental Health (NIMH), 70 consecutive child and adolescent patients were prospectively studied (Swedo, Rapoport, Leonard, Lenane, & Cheslow, 1989c). These 47 boys and 23 girls had a mean age of onset of 10 years of age, and 7 of the patients had had the onset of their OCD prior to the age of 7 years. Boys tended to have a prepubertal onset of obsessive–compulsive symptoms (mean age 9), while girls had their onset around puberty (mean age 11 years). Thus, the gender ratio changed with age, with the earliest age of onset having the greatest male predominance.

Surprisingly, the clinical symptoms manifested in childhood OCD are essentially identical to those seen in adults (Rapoport, 1986). In the NIMH sample, the most common obsessions were concerns of germs or contaminants (40%), fears that harm would come to self or others (24%), scrupulosity (excessive religiosity or scrutiny of one's thoughts or actions) (13%), or forbidden thoughts (4%). The most common rituals were excessive washing (85%), repeating (51%), checking (46%), touching (20%), counting (18%), ordering/arranging (17%), and hoarding (11%). Others have described essentially the same presentation (Riddle, Scahill, King, Hardin, Towbin, Ort, Leckman, & Cohen, 1992b; Khanna & Srinath, 1988; Thomsen & Mikkelsen, 1991). The illness in both children and adults is characterized by a waxing and waning course, often exacerbated by some psychosocial stress. Sometimes parents would not become aware of the behaviors until the child could no longer conceal them. In a retrospective analysis of this NIMH group, Rettew, Swedo, Leonard, Lenane, and Rapoport (1992) found that usually multiple obsessions and compulsions were present at any one time. Specifically, in 90% of the cases, the symptoms changed over time, although no clear pattern of progression could be found. "Pure obsessives" were rare, but "pure ritualizers" were fairly common.

COMORBIDITY

In the 70 consecutive children studied at the NIMH, comorbidity was common, with only 18 (26%) having no other psychiatric diagnosis (Swedo et al., 1989c). At initial presentation, the children and adolescents had the following current diagnoses: tic disorder (30%), major depression (26%), specific developmental disability (24%), simple phobia (17%), overanxious disorder (16%), adjustment disorder with depressed mood (13%), oppositional disorder (11%), attention-deficit disorder (10%), conduct disorder (7%), separation anxiety disorder (7%), enuresis (4%), alcohol abuse (4%), and encopresis (3%) (Swedo et al., 1989c). The relationship between OCD and anxiety is complicated, as other anxiety disorders may coexist. It appears that anxiety may exacerbate the underlying OCD symptoms, although this has not been well studied (of note, mental retardation, psychosis, eating disorders, and Tourette's syndrome were initial exclusionary criteria). Interestingly, only 11% could be diagnosed as having obsessive–compulsive personality disorder, although the diagnosis of personality disorders in children is obviously problematic. Riddle et al. (1992b) reported similar findings: 38% received an anxiety disorder diagnosis; 29% a mood disorder diagnosis, and 24% a tic diagnosis. Thus, comorbidity is common and frequently requires its own diagnostic and treatment interventions. Obviously, the current systematic studies reporting comorbidity are limited by assessment measures and current diagnostic criteria.

DIFFERENTIAL DIAGNOSIS

Normal developmental rituals of childhood are different from the compulsions of OCD. After age 2, ritualistic behavior typically becomes evident in most children. Young children want things to be done "just so" and have elaborate bedtime rituals (Gesell, Ames, & Ilg, 1974). Usually, developmental rituals are usually gone by age 8 or 9 (van Amerongen, 1980) and are replaced by collecting, hobbies, and "focused interests." Generally, the specific content of the OCD ritual does not resemble that of the developmen-

tal ritual, and the OCD rituals have a later age of onset (Leonard, Goldberger, Rapoport, Cheslow, & Swedo, 1990).

The differential diagnosis of OCD most commonly includes disorders with obsessional features, such as major depression or anxiety disorders. Typically, the depressive symptoms would predominate in a depressive disorder. Other anxiety disorders may be difficult to distinguish from OCD if the primary worry is a fear of harm coming to self or others. The eating and exercising rituals of the anorexic may resemble those of an OCD patient; however, the anorexic patient usually denies any ego dystonicity. The bulimic patient may recognize that her behaviors are abnormal, but nevertheless feel compelled to perform them. The compulsive nature of these symptoms (Kasvikis, Tsakiris, & Marks, 1986; Crisp, Lacey, & Crutchfield, 1987) suggests that the relationship between these disorders merits further study. If the obsessions or compulsions are particularly bizarre but are nevertheless seen by the patient as reasonable, a comorbid diagnosis of psychosis should be considered.

Stereotypies in mentally retarded and autistic patients may resemble OCD rituals in that they are repetitive formalized behaviors. Presumably, stereotypies are not associated with an obsession and are not ego-dystonic, although it is difficult to assess whether they are. A recent report suggested that stereotypies may respond to the serotonin reuptake inhibitor clomipramine (Gordon, Rapoport, Hamburger, State, & Mannheim, 1992). This finding raises some theoretical questions about underlying etiology; however, stereotypies are not typically confused with OCD compulsions because of the distinctions between the primary diagnoses.

With the frequent association of OCD and tic disorders (Pauls, Towbin, Leckman, Zahner, & Cohen, 1986; Riddle et al., 1992b; Leonard et al., 1992), it becomes important to distinguish carefully between rituals and tics, as each requires different treatments. Although motor tics can be complex and many dispel an "urge" or tension, they are not typically initiated by a thought or accompanied by anxiety. Complex motor tics preceded by a sensation or urge sometimes resemble rituals, thus making the distinction difficult. Leckman (personal communication) has described premonitory experiences that may precede the tic and disappear after the tic is completed.

NEUROBIOLOGY AND ETIOLOGY

Biological data have implicated neurophysiological, neuroanatomical, neuroimmunological, and genetic factors in the etiology of OCD. The "serotonin hypothesis of obsessive–compulsive disorder" was initially based on drug treatment and challenge studies (Insel, Mueller, Alterman, Linnoila, & Murphy, 1985). Controlled drug trials have shown the efficacy and specificity of the serotonin reuptake inhibitors (clomipramine, fluoxetine, fluvoxamine) (Insel, Murphy, Cohen, Alterman, Kilts, & Linnoila, 1983; Goodman, Price, Rasmussen, & Delgado, 1989), and challenge studies with the serotonergic agonist *m*-chlorphenylpiperazine (Zohar, Mueller, Insel, Zohar-Kadouch, & Murphy, 1987; Charney, Goodman, Price, Woods, Rasmussen, & Heninger, 1988) are consistent with the hypothesis of the dysregulation of the serotonergic system.

More recently, others have speculated that alterations in dopamine may also play a role (Swedo & Rapoport, 1990; Goodman, McDougle, Price, Riddle, Pauls, & Leckman, 1990a). This hypothesis is based on the association of OCD and Tourette's syndrome (Pauls et al., 1986), the worsening of OCD symptoms following stimulant medication (methyl-

phenidate and dextroamphetamine) (Koizumi, 1985; Borcherding, Keysor, Rapoport, Elia, & Amass, 1990), and the use of a dopamine-blocking agent (haloperidol) as an augmenting agent in the treatment of OCD (McDougle, Goodman, Price, Delgado, Krystal, Charney, & Heninger, 1990). However, cerebrospinal fluid (CSF) studies have yet to confirm these hypotheses definitely (Thoren, Asberg, Cronholm, Jornestedt, Traskman, 1980; Lydiard, Fossey, Krishnan, & Goli, 1990; Kruesi, Rapoport, Hamburger, Hibbs, Potter, Lenane, & Brown, 1990; Swedo, Leonard, Kruesi, Rettew, Listwak, Berretini, Stipetic, Hamburger, Gold, Potter, & Rapoport, 1992).

Neurohormonal dysregulation has also been hypothesized to play a role in the etiology of OCD. Boys were more likely to have a prepubertal onset of OCD than girls (Swedo et al., 1989d), and affected boys were shorter than both the normal and psychiatric controls in an epidemiological study (Hamburger, Swedo, Whitaker, Davies, & Rapoport, 1989). Although antiandrogenic treatment has been reported to show short-term efficacy in a few cases (Casas, Alvarez, Duro, 1966; Swedo & Rapoport, 1990), the improvement did not continue long-term. Interestingly, arginine vasopressin was significantly (negatively) correlated with OCD severity in a CSF study of OCD children (Swedo et al., 1992). Although these observations are interesting, further investigations are clearly indicated.

The association of OCD with basal ganglia illnesses and the results from brain-imaging studies have led to a hypothesis about a frontal lobe–basal ganglia abnormality. Specifically, there appears to be an increased rate of OCD in several illnesses of the basal ganglia: Tourette's syndrome (Pauls et al., 1986), postencephalitic Parkinson's disease (von Economo, 1931), Huntington's chorea (Cummings & Cunningham, 1992; S. Folstein, personal communication), and Sydenham's chorea (Swedo et al., 1989b). Preliminary prospective data suggest that Sydenham's chorea may be a medical model for OCD (Swedo, 1993) on the basis of an increased incidence of OCD in pediatric patients with Sydenham's chorea (an autoimmune inflammation of the basal ganglia triggered by a bacterial streptococcal infection), when compared with nonchoreic rheumatic fever patients. Brain-imaging studies are consistent with these clinical observations. Luxenberg, Swedo, Flament, Friedland, Rapoport, & Rapoport (1988) found smaller caudate volumes on computerized tomography scans in 10 male adults with childhood onset OCD when compared to controls. Swedo et al. (1989d) reported orbital frontal regional hypermetabolism and alterations in the left anterior cingulate in adults with childhood onset OCD. Most recently, Baxter and colleagues (1992) reported that both medication and behavioral therapy resulted in the same physiological changes as measured on positron emission tomography scans.

In general, pediatric OCD probands to not have either gross or clinically impairing neurological or neuropsychological abnormalities. Pediatric OCD probands had a full-scale IQ in the average to high average range, although they scored significantly lower than controls on mean performance score. This could not be attributed to a rigid or perfectionistic style of task completion (Keller, 1989). In general, the OCD children's performance on neuropsychological measures was close to that of controls; however, increased errors on a select subset of tests were interpreted to be consistent with frontal lobe or caudate lesions or both (Cox, Fedio, & Rapoport, 1989). On stressed neurological examination of 54 pediatric OCD patients, over 80% (44) had some positive "soft" neurological finding (Denckla, 1989). The subtle neurological findings on stressed neurological examination and on complete neuropsychological testing are suggestive of underlying abnormalities.

Swedo (1989) has hypothesized that OCD may be a "grooming behavior gone awry." The most compelling of these grooming behaviors, trichotillomania, is the act of pulling out one's own hair and is sometimes considered part of the "obsessive–compulsive spectrum

disorders." Trichotillomania patients report an overwhelming urge to perform the behavior, and the symptoms may have a therapeutic response to clomipramine. Both these characteristics are similar to those seen in OCD (Swedo et al., 1989a). However, the relationship of the "spectrum disorders" and other impulsive disorders to OCD remains controversial at this time (Jenike, 1989).

Family Studies

Recent systematic studies have also concluded that there may be a genetic basis for OCD in some families. Lenane, Swedo, Leonard, Pauls, Sceery, and Rapoport (1990) reported that 20% of directly interviewed first-degree relatives (9% of mothers and 25% of fathers) of 46 pediatric OCD probands met diagnostic (lifetime) criteria for OCD. The dissimilarity between the primary OCD symptom of the proband and that of the parents led them to conclude that a modeling/learning hypothesis did not account for this familial transmission. Riddle et al. (1992b) found similar results, reporting that 15 of 21 childhood OCD patients had a parent with either OCD (19%) or obsessive–compulsive symptoms (52%).

One of the most intriguing findings has been the elucidation of the relationship between OCD and Tourette's syndrome (TS) (and less severe tic disorders). There is both an increased rate of tics in OCD probands (Pitman, Green, Jenike, & Mesulam, 1987; Swedo et al., 1989c; Riddle et al., 1992b) and a high rate of OCD in TS patients (Grad, Pelcovitz, Olson, Matthews, & Grad, 1987; Frankel, Cummings, Robertson, Trimble, Hill, & Benson, 1986; Pauls, Raymond, Stevenson, & Leckman, 1991). Pauls et al. (1986, 1991), in the first systematic study of its kind, reported an increased rate of OCD in the first-degree relatives of TS probands compared to that of the control sample consisting of adoptee relatives. This finding was not related to the OCD status of the TS proband. Pauls et al. (1986) have hypothesized that some forms of OCD may represent alternative expressions of the gene(s) responsible for TS, and the mode of transmission is thought to be autosomal dominant with variable penetrance and sex-influenced specificity. It is still unknown, however, what percentage of OCD patients have a genetic vulnerability, as there are cases that have no demonstrable family history of OCD or TS.

MORBIDITY AND PROGNOSIS

Impact on the Child and the Family

Obsessive–compulsive disorder, by definition, is characterized by causing distress and interference in the patient's life. The child may have interference in his interpersonal relationships, peer activities, and school performance. Children often become withdrawn and isolated, feel overwhelmed by distressing obsessions, and may even fear that they are going crazy. Frequently, they are isolated from peers and their families. Some children and adolescents have had to give up their normal activities (i.e., quit sports because one would get dirty, or stop going to school because use of the public bathrooms or one's locker was too overwhelming and painful). Some children have found that they were unable to complete tests and homework because of having to reread lines, retrace letters, or erase repeatedly to make it all "right."

The impact on the family is usually significant. At first, many parents may wonder

why their child is behaving so strangely. Even when the illness is diagnosed, most parents cannot understand why their child cannot just stop the compulsions (Lenane, 1989). A major difficulty for the parents is how *not* to be drawn into participating in the rituals, as understandably they might want to respond to their child's request, so that the child will be spared some anxiety. Parents often struggle with the balance between being empathic and not becoming overinvolved in the child's rituals. For a detailed discussion of family issues, see Lenane (1989).

Follow-up Studies

Follow-up studies of adult OCD patients have for the most part reported continued significant morbidity. The 10-year follow-up report of 85 patients by Kringlen (1965) found that 72% had impaired occupational functioning because of the OCD. There are only a few follow-up studies of children with OCD. Warren (1960) reported that at 7-year reevaluation of 15 youths with "obsessive-compulsive state," 2 (13%) had no symptoms, 8 (53%) had mild to moderate symptoms, and 5 (33%) were "severely handicapped," with one having been leucotomized. Hollingsworth et al. (1980) reported that at 1½- to 14-year follow-up, of 10 of 17 patients with severe obsessive compulsive neurosis, only 3 (30%) were symptom-free, and one of the children had had an acute schizophrenic reaction. In the follow-up study by Flament, Koby, Rapoport, Berg, Zahn, Cox, Denckla, and Lenane (1990) of 25 (93%) of 27 OCD patients seen 2–7 years after presentation, it was found that 17 (68%) still met criteria for OCD, and the majority had a comorbid diagnosis. Bolton, Collins, and Steinberg (1983) reported slightly better outcomes in 15 OCD adolescents who had received behavior therapy; 7 of 14 (50%) had no symptoms, 5 (36%) had mild to moderate symptoms, and 1 (7%) was severely affected. In the only community-based follow-up study of OCD adolescents, 31% (5 of 16) of those who had initially met criteria for OCD still did so 2 years later (Berg et al., 1989b).

The largest systematic follow-up study of pediatric OCD patients was recently completed and took place at a time when the patients had access to the serotonin reuptake inhibitor medications (which had not been previously commercially available) and to behavior therapy (Leonard, Swedo, Lenane, Rettew, Hamburger, Bartko, & Rapoport, 1993). Of the 54 patients who were reevaluated 2–7 years later, 23 (43%) still met diagnostic criteria for OCD, and only 6 (11%) were totally asymptomatic. Of note, 38 (70%) were on psychoactive medication for their OCD at the time of follow-up. The group as a whole was improved from baseline, although 10 (19%) were unchanged or worse. One might want to infer that the new treatment interventions could improve long-term outcome; without concurrent untreated control groups, however, one cannot determine whether they could. Despite the new treatments, these results still support previous reports of the chronicity of the illness.

TREATMENT

Psychodynamic

Freud described the ruminations and rituals of the obsessional patient in a developmental and interpersonal context (Esman, 1989); it is debated, however, whether OCD symptoms really are derivatives of intrapsychic conflicts or not. The disorder has for the

most part been refractory to the more traditional psychodynamically oriented treatments, although psychotherapy may be an important adjunctive treatment in a comprehensive approach. Psychotherapy may treat the accompanying anxiety and depressive symptoms, teach coping skills, and help improve peer and family relationships. Typically, the OCD illness has impacted on the child's life in numerous ways, such that a comprehensive psychotherapeutic approach becomes necessary. Family therapy may be required to delineate boundaries of the various members and to understand how the illness impacts on others.

Behavior Therapy

Exposure with response prevention is the behavior therapy treatment of choice. This technique was developed over the last two decades for the treatment of obsessional patients (Marks, Hodgson, & Rachman, 1975; Rachman and Hodgson, 1980; Marks, 1981). The treatment is based on the principle that the patient is exposed to the feared situation, and the response is then prevented by helping the patient resist the urge to perform the ritual. Exposure and response prevention appear to be more successful for patients with compulsions than for patients with obsessions without compulsions. Baer and Minichiello (1990) report that patients with only obsessive thoughts are typically given a trial of medication with the technique of thought-stopping. Baer and Minichiello (1990), in their thorough review of behavior therapy, suggest that psychopharmacology and behavior therapy complement one another and that the use of antidepressants may help improve compliance with behavioral treatment. Behavior therapy has been reported to be successful in 60–70% of patients after brief treatment, and improvements have been maintained at 2- to 3-year follow-up (Marks, 1981; Rachman and Hodgson, 1980).

Behavior therapy is considered one of the treatments of choice in children with OCD. In general, the technique of exposure with response prevention that is used in adults (Marks, 1981) is applicable to the pediatric population (Berg, Rapoport, & Wolff, 1989b). However, the child needs to be very motivated and capable of understanding and following directions. Bolton et al. (1983) used response prevention in 15 OCD adolescents and reported achieving a "very good" response in 11. Thus, a trial of behavior therapy should be considered either with or without concomitant medication, but it is important that exposure with response prevention be the specific behavioral approach.

Psychopharmacological

Systematic studies suggest that the serotonin reuptake inhibitors are effective in treating OCD symptoms in many patients and that these medications are superior to placebo or other tricyclic antidepressants that are not specific for the serotonergic system. Currently, clomipramine, fluoxetine, and sertraline are available commercially, and fluvoxamine is available in research investigations.

Clomipramine, a tricyclic similar in structure to imipramine, is a potent serotonin reuptake inhibitor and is the most thoroughly studied of the antiobsessional agents. Numerous studies have shown it to be superior to placebo (Thoren et al., 1980; Montgomery, 1980; Mavissakalian, Turner, Michelson, & Jacob, 1985) and to other antidepressants (Insel et al., 1983; Volavka, Neziroglu, & Yaryura-Tobias, 1985) in adult patients with OCD.

Until recently, clomipramine was the only medication that had been systematically

studied in the pediatric OCD population. In the first pediatric OCD study, Flament and colleagues (1985) found that comipramine was superior to placebo in a placebo-controlled double-blind crossover study of 19 subjects. Of these subjects, 74% (N = 14) had a moderate to marked improvement, and only 16% (N = 3) of the patients were unchanged. These results were confirmed by a large 8-week multicenter double-blind parallel comparison of clomipramine and placebo. DeVeaugh-Geiss and colleagues (1992) concluded that clomipramine was effective, as the 31 patients receiving clomipramine had mean reduction in their OCD severity score of 37%, compared to 8% in the 29 patients receiving placebo. In order to assess the effectiveness of clomipramine over other antidepressants, a comparison with desipramine was chosen, since it is more noradrenergic but has antidepressant and anxiolytic effects similar to those of clomipramine (Leonard et al., 1989). In this study, 48 children and adolescents completed a 12-week controlled trial, with 2 weeks of placebo and 5 weeks each of double-blind trials of clomipramine and desipramine. Clomipramine was superior to desipramine in ameliorating the OCD symptoms at 5 weeks of treatment (Leonard et al., 1989).

Clomipramine is generally well tolerated in children (trial in age 6 and above) and adolescents, with mild anticholinergic side effects being reported (Leonard et al., 1989). The most common side effects were dry mouth, constipation, tiredness, sweating, stomachache, and tremor. In general, a therapeutic trial of clomipramine would be a dosage of 3 mg/kg per day for 3 months. Dosages should not exceed 5 mg/kg per day or 250 mg/day because of risks or toxicity, including seizures and electrocardiogram changes. Due to the potentially cardiotoxic effects of all the tricyclic antidepressants (Elliott & Popper, 1991), baseline and periodic electrocardiograms are suggested.

How long is maintenance clomipramine required for those who respond to the medication? Periodic tapering of the medication should be attempted in order to assess whether it is still required. In a double-blind desipramine-substitution study of long-term clomipramine-maintained responders, 8 of 9 desipramine-substituted patients relapsed within 2 months, whereas only 2 of 11 nonsubstituted patients relapsed in the same interval. Of note, even those on long-term clomipramine maintenance manifested some continued OCD symptoms, which waxed and waned over time (Leonard et al., 1991).

Fluoxetine, a bicyclic and highly selective serotonin reuptake blocker, has been reported to be effective in several open studies (Jenike et al. 1989b; Riddle, Hardin, King, 1992a) and superior to placebo in a controlled trial (Riddle et al., 1994). It is reasonably well tolerated in children and adolescents (Riddle et al., 1991, 1992a, 1994), and the most common side effects include nervousness, insomnia, and restlessness. In order to minimize side effects, lower initial dosages are used, sometimes 2.5–5.0 mg/day depending on the child's age and weight.

Fluvoxamine, a unicyclic serotonin reuptake inhibitor, has been reported to be superior to placebo (Goodman et al., 1989; Jenike et al., 1990) and to desipramine (Goodman, Price, & Delgado, 1990b). The most common side effects of fluvoxamine include sedation, nausea, anorexia, tremor, and sexual dysfunction. Its safety and efficacy in children and adolescents are currently under study in a multicenter trial.

Sertraline is less extensively studied for the treatment of OCD than the medications described above. Results have been mixed, with sertraline proving to be superior to placebo in a multi-center trial (Chouinard, Goodman, Greist, & Jenike, 1990), but not in a smaller trial (Jenike, Baer, Summergrad, Minichiello, Holland, & Seymour, 1990). The most common side effects of sertraline include nausea, dyspepsia, and agitation. Controlled trials in children and adolescents are ongoing.

Thus, the serotonin reuptake inhibitors have made dramatic changes in the psychopharmacological treatment of patients with OCD. However, a group of patients remain either partial responders or poor responders, or they cannot tolerate the medications. Currently, investigations with augmentation agents are under way to determine their efficacy in the treatment strategy.

RESEARCH ISSUES

Despite the recent attention that OCD has received, many questions remain unanswered. What is the long-term prognosis for patients with this illness? Can the new psychopharmacological and behavior therapies improve outcome? What is the genetic relationship between obsessive–compulsive personality and OCD? Should OCD be classified as an anxiety disorder? What is the relationship between other compulsive and stereotypic behaviors (not currently classified as part of OCD) and OCD? Perhaps the most challenging question is to understand how neurobiology, learning, environmental stressors, and emotional conflicts interact to determine both the specific symptoms and cause of this illness, as the etiology remains unknown.

CASE STUDY

M.T. is a 16-year-old girl who had checking rituals as the predominant symptom. Approximately 1 year prior to presentation, she rather suddenly had begun to spend an hour at night checking whether the doors and windows were locked and all electrical plugs were pulled out. She could not trust her parents' efforts. Her elaborate pattern of checking the house included many repetitions until she felt "it had been done right." When her symptoms increased and she began to wake her parents up at 3 a.m. to recheck the house, help was sought.

M.T. showed a dramatic response to clomipramine (80% reduction in time spent doing her rituals), but not to desipramine, during the NIMH double-blind study. M.T. was maintained on clomipramine at 3 mg/kg per day with minimal side effects (dry mouth, mild tiredness). After 1 year of maintenance, she was tapered off the clomipramine to assess whether it was necessary, and her symptoms returned 3 weeks after discontinuing the medication. M.T. resumed her previous dosage of clomipramine, and she regained her clinical response within 3 weeks. Subsequent attempts to taper her medication have resulted in symptom exacerbation, such that the patient is currently maintained on medication. Currently, the patient is essentially symptom-free and without functional impairment.

SUMMARY

Increased attention in the past decade has demonstrated that obsessive–compulsive disorder in children and adolescents is not uncommon. An epidemiological survey (Flament et al., 1988) reported (weighted) calculated estimates of 1% (current) and 1.9% (lifetime) for adolescents. Surprisingly, the clinical symptoms manifested in childhood OCD are essentially identical to those seen in adults (Rapoport, 1986). The illness in both children and adults is characterized by a waxing and waning course, often exacerbated by some

psychosocial stress. Biological data have implicated neurophysiological neuroanatomical, neuroimmunological, and genetic factors in the etiology of OCD. Recent systematic studies have concluded that there may be a genetic basis for OCD in some families.

The largest systematic follow-up study of pediatric OCD patients was recently completed. This took place at a time when the patients had access to the serotonin reuptake inhibitor medications (which had not been previously commercially available) and to behavior therapy (Leonard et al., 1993). The group as a whole was improved from baseline, although 10 (19%) were unchanged or worse. It might be possible to infer that the new treatment interventions could improve long-term outcome; without concurrent untreated control groups, however, one cannot determine whether they could. Despite the new treatments, these results will support previous reports of the chronicity of the illness. Thus, the serotonin reuptake inhibitors have made dramatic changes in the psychopharmacological treatment of patients with OCD. However, a group of patients remain either partial responders or poor responders, or they cannot tolerate the medications.

Behavior therapy is considered one of the treatments of choice in children with OCD. Thus, a trial of behavior therapy should be considered either with or without concomitant medication, but it is important that exposure with response prevention be the specific behavioral approach.

Despite the recent attention that OCD has received, many questions remain unanswered. Perhaps the most challenging question is to understand how neurobiology, learning, environment stressors, and emotional conflicts interact to determine both the specific symptoms and cause of this illness, as the etiology remains unknown.

REFERENCES

Adams, P. L. (1973). *Obsessive children*. New York: Penguin Books.

American Psychiatric Association (1987). *Diagnostic and statistical manual of mental disorders*, 3rd ed., revised. Washington, DC: Author.

Baer, L., & Minichiello, W. E. (1990). Behavior therapy for obsessive–compulsive disorder. In M. Jenike, L. Baer, & W. Minichiello (Eds.), *Obsessive compulsive disorders: Theory and management* (pp. 203–232). Chicago: Year Book Medical Publishers.

Baxter, L. R., Schwartz, J. M., Bergman, K. S., Szuba, M. P., Guze, B. H., Mazziotta, J. C., Alazraki, A., Selin, C. E., Ferng, H.-K., Munford, P., & Phelps, M. E. (1992). Caudate glucose metabolic rate changes with both drug and behavior therapy for obsessive–compulsive disorder. *Archives of General Psychiatry*, 49(9), 681–689.

Berg, C. Z., Rapoport, J. L., Whitaker, A., Davies, M., Leonard, H., Swedo, S. W., Braiman, S., & Lenane, M. (1989a). Childhood obsessive compulsive disorder: A two-year prospective follow-up of a community sample. *Journal of the American Academy of Child and Adolescent Psychiatry*, *28*, 528–533.

Berg, C. Z., Rapoport, J. L., & Wolff, R. P. (1989b). Behavioral treatment for obsessive compulsive disorder in childhood. In J. L. Rapoport (Ed.), *Childhood obsessive compulsive disorder* (pp. 169–185). Washington, DC: American Psychiatric Press.

Berman, L. (1942). The obsessive–compulsive neurosis in children. *Journal of Nervous and Mental Disease*, *95*, 26–39.

Bolton, D., Collins, S., & Steinberg, D. (1983). The treatment of obsessive–compulsive disorder in adolescence: A report of 15 cases. *British Journal of Psychiatry*, *142*, 456–464.

Borcherding, B. G., Keysor, C., Rapoport, J. L., Elia, J., & Amass, J. (1990). Motor/vocal tics and compulsive behaviors on stimulant drugs: Is there a common vulnerability? *Psychiatry Research*, *33*, 83–94.

Casas, M., Alvarez, E., Duro, P., & Garcia-Ribera, C. (1986). Antiandrogenic treatment of obsessive–compulsive neurosis. *Acta Psychiatrica Scandinavica*, *73*, 221–222.

Charney, D. S., Goodman, W. K., Price, L. H., Woods, S. W., Rasmussen, S. A., & Heninger, G. R. (1988). Serotonin function in obsessive compulsive disorder: A comparison of the effects of tryptophan and *m*-chlorophenylpiperazine in patients and healthy subjects. *Archives of General Psychiatry*, *45*, 177–185.

Chouinard, G., Goodman, W. K., Griest, J. & Janike, M. (1990). Results of a double-blind placebo controlled trial of a new serotonin uptake inhibitor, sertraline, in the treatment of obsessive–compulsive disorder. *Psychopharmacology Bull., 26,* 279–284.

Cox, C. S., Fedio, P., & Rapoport, J. L. (1989). Neuropsychological testing of obsessive compulsive adolescents. In J. L. Rapoport (Ed.), *Obsessive–compulsive disorder in children and adolescents* (pp. 73–86). Washington, DC: American Psychiatric Press.

Crisp, A. H., Lacey, J. H., & Crutchfield, M. (1987). Clomipramine and "drive" in people with anorexia nervosa: An in-patient study. *British Journal of Psychiatry, 150,* 355–358.

Cummings, J. L., & Cunningham, K. (1992). Obsessive–compulsive disorder in Huntington's disease. *Biological Psychiatry, 31,* 263–270.

Denckla, M. B. (1989). The neurological examination. In J. L. Rapoport (Ed.), *Obsessive–compulsive disorder in children and adolescents* (pp. 107–118). Washington, DC: American Psychiatric Press.

Despert, L. (1955). Differential diagnosis between obsessive–compulsive neurosis and schizophrenia in children. In P. H. Hoch & J. Zubin (Eds.), *Psychopathology of childhood* (pp. 240–253). New York: Grune & Stratton.

Deveaugh-Geiss, J., Moroz, G., Biederman, J., Cantwell, D., Fontaine, R., Greist, J. H., Reichler, R., Katz, R., & Landau, P. (1992). Clomipramine hydrochloride in childhood and adolescent obsessive–compulsive disorder—A multicenter trial. *Journal of the American Academy of Child and Adolescent Psychiatry, 31(1),* 45–49.

Elliott, G. R., & Popper, C. W. (1991). Editorial: Tricyclic antidepressants: The QT interval and other cardiovascular parameters. *Journal of Child and Adolescent Psychopharmacology, 1,* 187–191.

Esman, A H. (1989). Psychoanalysis and general psychiatry: Obsessive–compulsive disorder as paradigm. *Journal of the American Psychoanalytic Association, 37(2),* 319–336.

Flament, M. F., Koby, E., Rapoport, J. L., Berg, C. J., Zahn, T., Cox, C., Denckla, M., & Lenane, M. (1990). Childhood obsessive compulsive disorder: A prospective two-year follow-up study. *Journal of Child Psychology and Psychiatry, 31(3),* 363–380.

Flament, M., Rapoport, J. L., Berg, C. J., Sceery, W., Kilts, C., Mellstrom, B., & Linnoila, M. (1985). Clomipramine treatment of childhood obsessive compulsive disorder: A double-blind controlled study. *Archives of General Psychiatry, 42,* 977–983.

Flament, M., Whitaker, A., Rapoport, J., Davies, M., Berg, C., Kalikow, K., Sceery, W., & Shaffer, D. (1988). Obsessive compulsive disorder in adolescence: An epidemiological study. *Journal of the American Academy of Child and Adolescent Psychiatry, 27(6),* 764–771.

Frankel, M., Cummings, J. L., Robertson, M. M., Trimble, M. R., Hill, M. A., & Benson, D. F. (1986). Obsessions and compulsions in Gilles de la Tourette's syndrome. *Neurology, 36,* 378–382.

Gesell, A., Ames, L. B., & Ilg, F. L. (1974). *Infant and child in the culture today.* New York: Harper and Row.

Goodman, W. K., McDougle, C. J., Price, L. H., Riddle, M. A. Pauls, D. L., & Leckman, J. F. (1990a). Beyond the serotonin hypothesis: A role for dopamine in some forms of obsessive compulsive disorder? *Journal of Clinical Psychiatry, 51(Suppl.),* 36–43.

Goodman, W. K., Price, L. H., & Delgado, P. L. (1990b). Specificity of serotonin reuptake inhibitors in the treatment of obsessive–compulsive disorder: Comparison of fluvoxamine and desipramine. *Archives of General Psychiatry, 47,* 577–585.

Goodman, W. K., Price, L. H., Rasmussen, S. A., & Delgado, P. L. (1989). Efficacy of fluvoxamine in obsessive–compulsive disorder: A double-blind comparison with placebo. *Archives of General Psychiatry, 46,* 36–44.

Gordon, C. T., Rapoport, J. L., Hamburger, S. D., State, R. C., & Mannheim, G. B. (1992). Differential response of seven subjects with autistic disorder to clomipramine and desipramine. *American Journal of Psychiatry, 149(3),* 363–366.

Grad, L., Pelcovitz, D., Olson, M., Matthews, M., & Grad, G. (1987). Obsessive–compulsive symptomatology in children with Tourette's disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 26,* 69–73.

Hamburger, S. D., Swedo, S., Whitaker, A., Davies, M., & Rapoport, J. L. (1989). Growth rate in adolescents with obsessive–compulsive disorder. *American Journal of Psychiatry, 46,* 652–655.

Hollingsworth, C. E., Tanguay, P. E., Grossman, L., & Pabst, P. (1980). Long-term outcome of obsessive–compulsive disorder in childhood. *Journal of the American Academy of Child Psychiatry, 19,* 134–144.

Insel, T. R., Mueller, E. A., Alterman, I., Linnoila, M., & Murphy, D. L. (1985). Obsessive–compulsive disorder and serotonin: Is there a connection? *Biological Psychiatry, 20,* 1174–1188.

Insel, T. R., Murphy, D. L., Cohen, R. M., Alterman, I., Kilts, C., & Linnoila, M. (1983). Obsessive–compulsive disorder: A double-blind trial of clomipramine and clorgyline. *Archives of General Psychiatry, 40,* 605–612.

Janet, P. (1903). *Les obsessions et la psychiatrie,* Vol. 1. Paris: Felix Alan.

Jenike, M. A. (1989). Obsessive–compulsive and related disorders: A hidden epidemic. *The New England Journal of Medicine, 321(8),* 539–541.

Jenike, M. A., Baer, L., Summergrad, P., Minichiello, W. E., Holland, A., & Seymour, R. (1990). Sertraline in obsessive–compulsive disorder: A double-blind comparison with placebo. *American Journal of Psychiatry, 147*, 923–928.

Jenike, M. A., Buttolph, L., Baer, L., Riccrard, J., & Holland, A. (1989). Open trial of fluoxetine in obsessive–compulsive disorder. *American Journal of Psychiatry, 146*, 909–911.

Jenike, M. A., Hynan, S., Baer, L., Holland, A., et al. (1990). A controlled trial of fluoxetine in obsessive–compulsive disorder: Implications for a serotinergic theory. *American Journal of Psychiatry, 147*, 1209–1215.

Judd, L. L. (1965). Obsessive compulsive neurosis in children. *Archives of General Psychiatry, 12*, 136–143.

Kanner, L. (1962). *Child psychiatry*, 3rd ed. Springfield, IL: Charles C. Thomas.

Kasvikis, Y. G., Tsakiris, F., Marks, I. M. (1986). Women with obsessive compulsive disorder frequently report a past history of anorexia nervosa. *International Journal of Eating Disorders, 5*, 1069–1075.

Keller, B. (1989). Cognitive assessment of obsessive–compulsive children. In J. L. Rapoport (Ed.), *Obsessive–compulsive disorder in children and adolescents* (pp. 33–39). Washington, DC: American Psychiatric Press.

Khanna, S., & Srinath, S. (1988). Childhood obsessive compulsive disorder. *Psychopathology, 21*, 254–258.

Koizumi, H. M. (1985). Obsessive–compulsive symptoms following stimulants (letter). *Biological Psychiatry, 20*, 1332–1333.

Kringlen, E. (1965). Obsessional neurotics: A long-term follow-up. *British Journal of Psychiatry, 111*, 709–722.

Kruesi, M. J. P., Rapoport, J. L., Hamburger, S., Hibbs, E., Potter, W. Z., Lenane, M., & Brown, G. L. (1990). CSF monoamine metabolites, aggression and impulsivity in disruptive behavior disorders of children and adolescents. *Archives of General Psychiatry, 47*, 419–426.

Lenane, M. (1989). Families and obsessive compulsive disorder. In J. L. Rapoport (Ed.), *Obsessive–compulsive disorder in children and adolescents* (pp. 237–249). Washington, DC: American Psychiatric Press.

Lenane, M. C., Swedo, S. E., Leonard, H. L., Pauls, D. L., Sceery, W., & Rapoport, J. L. (1990). Psychiatric disorders in first degree relatives of children and adolescents with obsessive compulsive disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 29(3)*, 407–412.

Leonard, H. L., Goldberger, E. L., Rapoport, J. L., Cheslow, D. L., & Swedo, S. E. (1990). Childhood rituals: Normal development or obsessive compulsive symptoms. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 17–23.

Leonard, H. L., Lenane, M. C., Swedo, S. E., Rettew, D. C., Gerson, E. S., & Rapoport, J. L. (1992). Tics and Tourette's disorder: A 2–7 year follow-up of 54 obsessive compulsive children. *American Journal of Psychiatry, 149*, 1244–1251.

Leonard, H. L., Swedo, S. E., Lenane, M. C., Rettew, D. C., Cheslow, D. C., Hamburger, S. D., & Rapoport, J. L. (1991). A double-blind desipramine substitution during long-term clomipramine treatment in children and adolescents with obsessive compulsive disorder. *Archives of General Psychiatry, 48*, 922–927.

Leonard, H. L., Swedo, S. E., Lenane, M. C., Rettew, D. C., Hamburger, S. D., Bartko, J. J., & Rapoport, J. L. (1993). A two to seven year follow-up study of 54 obsessive compulsive children and adolescents. *Archives of General Psychiatry, 50*, 429–439.

Leonard, H. L., Swedo, S. E., Rapoport, J. L., Koby, E. V., Lenane, M. C., Cheslow, D. L., & Hamburger, S. D. (1989). Treatment of childhood obsessive compulsive disorder with clomipramine and desipramine: A double-blind crossover comparison. *Archives of General Psychiatry, 46*, 1088–1092.

Luxenberg, J. S., Swedo, S. E., Flament, M. F., Friedland, R. P., Rapoport, J. L., & Rapoport, S. I. (1988). Neuroanatomic abnormalities in obsessive–compulsive disorder detected with quantitative x-ray computed tomography. *American Journal of Psychiatry, 145*, 1089–1093.

Lydiard, R. B., Fossey, M., Krishnan, R., & Goli, V. (1990). CSF monoamine metabolites in obsessive–compulsive disorder. Presented as a poster at the American Psychiatric Association Meeting, May 5, 1990, New York.

Marks, I. M. (1981). Review of behavioral psychotherapy. I. Obsessive–compulsive disorders. *American Journal of Psychiatry, 138*, 584–592.

Marks, I. M., Hodgson, R., & Rachman, S. (1975). Treatment of chronic obsessive–compulsive neurosis by in-vivo exposure: A two-year follow-up and issues in treatment. *British Journal of Psychiatry, 127*, 349–364.

Mavissakalian, M., Turner, S. M., Michelson, L., & Jacob, R. (1985). Tricyclic antidepressants in obsessive–compulsive disorder: Antiobsessional or antidepressant agents? II. *American Journal of Psychiatry, 142*, 572–576.

McDougle, C. J., Goodman, W. K., Price, L. H., Delgado, P. L., Krystal, J. H., Charney, D. S., & Heninger, G. R. (1990). Neuroleptic addition to fluvoxamine-refractory obsessive–compulsive disorder: An open case series. *American Journal of Psychiatry, 147*, 652–656.

Montgomery, S. A. (1980). Clomipramine in obsessional neurosis: A placebo-controlled trial. *Pharmacologic Medicine, 1*, 189–192.

Pauls, D. L., Raymond, C. L., Stevenson, J. M., & Leckman, J. F. (1991). A family study of Gilles de la Tourette syndrome. *Human Genetics, 48*, 154–163.

Pauls, D. L., Towbin, K. E., Leckman, J. F., Zahner, G. E., & Cohen, D. J. (1986). Gilles de la Tourette's syndrome and obsessive–compulsive disorder: Evidence supporting a genetic relationship. *Archives of General Psychiatry, 43*, 1180–1182.

Pitman, R. K., Green, R. C., Jenike, M. A., & Mesulam, M. M. (1987). Clinical comparison of Tourette's disorder and obsessive compulsive disorder. *American Journal of Psychiatry, 144*, 1166–1171.

Rachman, S. J., & Hodgson, R. J. (1980). *Obsessions and compulsions*. Englewood Cliffs, NJ: Prentice-Hall.

Rapoport, J. L. (1986). Annotation: Childhood obsessive compulsive disorder. *Journal of Child Psychology and Psychiatry, 27*, 289–296.

Rettew, D. C., Swedo, S. E., Leonard H. L., Lenane, M. C., & Rapoport, J. L. (1992). Obsessions and compulsions across time in 79 children and adolescents with obsessive compulsive disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 31(6)*, 1050–1056.

Riddle, M. A., Hardin, M. T., King, R., Scahill, L., & Woolston, J. L. (1992a). Fluoxetine treatment of children and adolescents with Tourette's and obsessive compulsive disorders: Preliminary clinical experience. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 45–48.

Riddle, M. A., King, R. A., & Hardin, M. T. (1991). Behavioral side effects of fluoxetine in children and adolescents. *Journal of Child and Adolescent Psychopharmacology, 1*, 193–198.

Riddle, M. A., Scahill, L., King, R. A., Hardin, M. T., Anderson, G. M., Ort, S. I., Smith, J. C., Leckman, J. F., & Cohen, D. J. (1994). Double-blind, crossover trial of fluoxetine and placebo in children and adolescents with obsessive–compulsive disorder. *Journal of the American Academy of Child and Adolescent, 31(6)*, 1062–1069.

Riddle, M. A., Scahill, L., King, R., Hardin, M. T., Towbin, K. E., Ort, S. I., Leckman, J. F., & Cohen, D. J. (1992b). Obsessive compulsive disorder in children and adolescents: Phenomenology and family history. *Journal of the American Academy of Child and Adolescent Psychiatry, 29(5)*, 766–772.

Rutter, M., Tizard, J., & Whitmore, K. (1970). *Education, health and behavior*. London: Longmans.

Swedo, S. E. (1989). Rituals and releasers: An ethological model of OCD. In J. L. Rapoport (Ed.), *Obsessive–compulsive disorder in children and adolescents* (pp. 269–288). Washington, DC: American Psychiatric Press.

Swedo, S. E., & Rapoport, J. L. (1990). Neurochemical and neuroendocrine considerations of obsessive compulsive disorders in childhood. In S. I. Deutsch, A. Weizman, & R. Weizman (Eds.), *Application of basic neuroscience to child psychiatry* (pp. 275–284). New York: Plenum Press.

Swedo, S. E., Leonard, H. L., Kruesi, M. J. P., Rettew, D. C., Listwak, S. J., Berretini, W., Stipetic, M., Hamburger, S., Gold, P. W., Potter, W. Z., & Rapoport, J. L. (1992). Cerebrospinal fluid neurochemistry in children and adolescents with obsessive compulsive disorder. *Archives of General Psychiatry, 49*, 29–36.

Swedo, S. E., Leonard, H. L., Rapoport, J. L., Lenane, M. C., Goldberger, E. L., & Cheslow, D. L. (1989a). A double-blind comparison of clomipramine and desipramine in the treatment of trichotillomania. *New England Journal of Medicine, 321*, 497–501.

Swedo, S. E., Leonard, H. L., Schapiro, M. B., Casey, B. J., Mannheim, G. B., Lenane, M. C., & Rettew, D. C. (1993). Sydenham's chorea: Physical and psychological symptoms of St. Vitus' dance. *Pediatrics, 91(4)*, 706–713.

Swedo, S. E., Rapoport, J. L., Cheslow, D. L., Leonard, H. L., Ayoub, E. M., Hosier, D. M., & Wald, E. R. (1989b). High prevalence of obsessive–compulsive symptoms in patients with Sydenham's chorea. *American Journal of Psychiatry, 146(2)*, 246–249.

Swedo, S. E., Rapoport, J. L., Leonard, H., Lenane, M., & Cheslow, D. (1989c). Obsessive–compulsive disorder in children and adolescents. *Archives of General Psychiatry, 46*, 335–344.

Swedo, S. E., Schapiro, M. B., Grady, C. L., Cheslow, D. L., Leonard, H. L., Kumar, A., Friedland, R., Rapoport, S. I., & Rapoport, J. L. (1989d). Cerebral glucose metabolism in childhood-onset obsessive compulsive disorder. *Archives of General Psychiatry, 46*, 518–523.

Thomsen, P. H., & Mikkelsen, H. U. (1991). Children and adolescents with obsessive–compulsive disorder: The demographic and diagnostic characteristics of 61 Danish patients. *Acta Psychiatrica Scandinavica, 83*, 262–266.

Thoren, P., Asberg, M., Cronholm, B., Jornestedt, L., & Traskman, L. (1980). Clomipramine treatment of obsessive–compulsive disorder. I. A controlled clinical trial. *Archives of General Psychiatry, 37*, 1281–1285.

van Amerongen, S. T. (1980). Latency and prepubertal children. In J. Noshpitz (Ed.), *Basic Handbook of Child Psychiatry*, Vol. III (pp. 495–504). New York: Basic Books.

Volavka, J., Neziroglu, F., & Yaryura-Tobias, J. A. (1985). Clomipramine and imipramine in obsessive–compulsive disorder. *Psychiatry Research, 14*, 83–91.

von Economo, C. (1931). *Encephalitis lethargica: Its sequelae and treatment*. London: Oxford University Press.

Warren, W. (1960). A study of adolescent psychiatric in-patients and the outcome six or more years later. *Journal of Child Psychology and Psychiatry, 6*, 141–160.

World Health Organization (1992). *International classification of mental and behavioral disorders, clinical descriptions and diagnostic guidelines*, 10th ed. (ICD-10). Geneva: Author.

Zohar, J., Mueller, E. A., Insel, T. R., Zohar-Kadouch, R., & Murphy, D. (1987). Serotonergic responsivity in obsessive–compulsive disorder: Comparison of patients and healthy controls. *Archives of General Psychiatry, 44*, 946–951.

12

Posttraumatic Stress Disorder

William Yule

INTRODUCTION

The past decade has shown that children react to life-threatening stressors with various forms of distress. Depression, anxiety, fears, and bereavement reactions as well as Posttraumatic stress disorder (PTSD) can occur. The form of PTSD varies according to the age of the child, and, sadly, the internal distress often goes unrecognized for long periods by parents and teachers. Indeed, one of the reasons that there was doubt as to whether PTSD occurred in children was that few investigators had asked the children themselves how they were affected.

CASE EXAMPLE

Barbara was 14 when she went with a party of 15 other girls from her school in London on a cruise of the eastern Mediterranean. She was a very self-confident girl, popular with others, and achieving well academically. The trip had been planned for 2 years.

Shortly after the ship left Athens harbor, it was hit below the waterline by an oil tanker. Barbara was in the dining room at the time and felt the bump. She recalls being unsure of what had happened and feeling upset. Along with all the other children on board, she went up to a lounge just below the top deck as ordered by the crew. She started to cry and was told by someone to be quiet. She was very scared that the ship was going to turn upside down.

The lounge became very crowded. The ship began to list badly, causing glasses to roll off the bar and smash. It also meant that as more and more people crowded into the lounge,

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they were pressed together. Furniture slid across the room and people fell, getting entangled with it. Barbara tried to leave the room to get to the stairs. As she crossed the slippery dance floor, she lost her footing, fell, and became trapped in the furniture. Others fell on top of her, and she thought she was going to die.

Eventually, she managed to negotiate the winding staircase and got out on the upper deck. She felt a sense of relief and thought she was safe. Then she realized that the ship was sinking quickly. Electrical cables were sparking around her. She was terrified that she was going to be electrocuted, but she had to jump into the sea. There was a great deal of debris floating in filthy, oily water. She was scared that the rescue vessels might not see her in the dark. She wanted to cry, but could not. She felt very sad and upset when thinking about her family, realizing that she might die and they would not know how much she loved them. She felt dreadfully alone and helpless.

After some time, she was spotted by a rescue vessel and pulled on board. She saw people with injuries, as well as one girl having an epileptic attack. She was tired and dirty, but not physically injured, so once ashore she did not have to go to the hospital. Instead, along with all the other survivors, she spent a sleepless night aboard the sister ship, "Pegasus," that was moored in the harbor. She remembers feeling numb, even after telephoning her parents. She was flown home the next day.

For the first few weeks, she suffered from poor sleep. She constantly dreamed she was back on board the ship, trapped and drowning. She developed headaches and a recurrence of her asthma. She had a poor appetite and enormous difficulties in concentrating on her schoolwork and became very much more irritable than she had ever been previously.

When she was first assessed 10 months after the accident, she presented with severe PTSD, depression, and anxiety. She joined a small group for therapy, but did not find it helpful. She did less well than expected in her public school examinations. Reluctantly, she agreed to accept individual therapy based on cognitive–behavioral approaches.

Although she attended regularly, she refused to close her eyes when asked to imagine the various frightening scenes that she had experienced. If anything, this approach sensitized her, and the hoped-for habituation in anxiety did not occur. A reassessment of her needs led to her being trained in progressive relaxation, and this helped her to get to sleep, but she still found any exposure very difficult. She then told the therapist that she carried out a continuous monologue throughout the day to block out the distressing intrusive thoughts and images.

Much later, she confessed that she had been terrified to close her eyes during exposure sessions, as it was all so real to her that she feared she might go back to the traumatic event and never return to the present. At one point, she became very depressed and suicidal. Attention was paid to her negative automatic thoughts, and her mood lifted slowly. She found it easier to write down the scenes of what had happened to her, as she retained control over the pace of what she was recounting. When she tried to relate the events orally, her words could not keep up with her thoughts, and this made her angry and upset. She then made very slow but steady progress, as can be seen in Fig. 1.

She remained at school for a further 2 years, but did badly in her A-level examinations and so was unable to get a place at university as she had planned. These examinations put much greater emphasis on memory load, whereas the earlier examinations had involved a high proportion of continuous assessment and course work that she could complete in her own time. She went to a college to study at a lower level and again found that she could do well in course work and practicals, but badly in formal examinations that demanded memorizing lots of technical material.

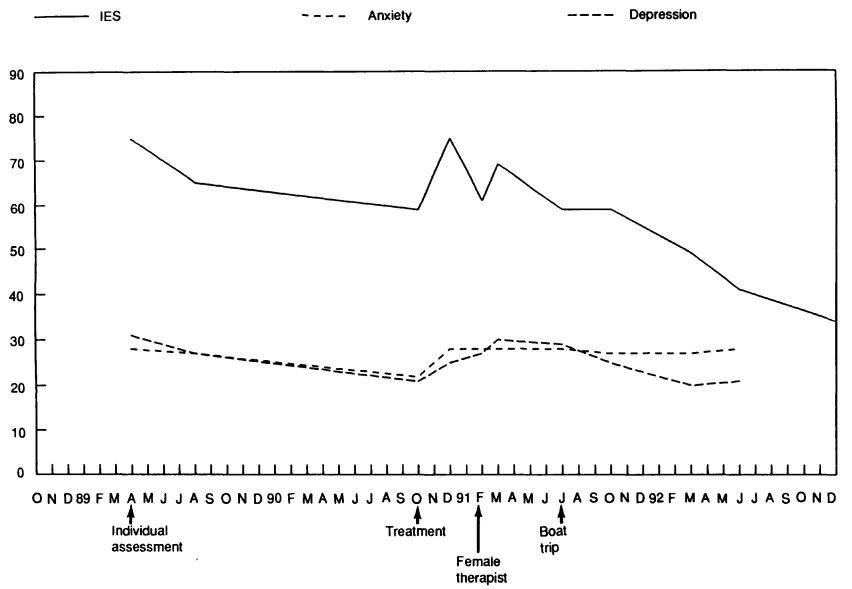

Figure 1. Exposure therapy in a 16-year-old "Jupiter" survivor.

This case illustrates many of the manifestations of PTSD in adolescents. Barbara developed very vivid memories of what happened to her during the disaster, and these memories troubled her for years afterward. Indeed, so great was the distress caused by the intrusive phenomena that she could not face up to them initially in treatment, instead developing self-defeating coping strategies. The accident occurred at a crucial time in relation to her schooling and resulted in much poorer academic grades than expected. In turn, this limited her choice of higher education courses. Thus, a single acute stressor that threatened her life had a very far-reaching effect on her. Unfortunately, she found treatment threatening, and so it took a very long time to begin to gain control over her problems.

CONCEPT OF POSTTRAUMATIC STRESS DISORDER

The concept of PTSD was first developed in relation to studies of adult reactions to major stress. Major stress reactions had been recognized in soldiers in battle in the 19th century and in civilians following railway accidents, but it was not until the persisting problems of Vietnam veterans were better documented that it was realized that three major groups of symptoms—distressful recurring recollections of the traumatic event, avoidance of stimuli associated with the trauma, and a range of signs of increased physiological arousal—formed a coherent syndrome that came to be labeled "posttraumatic stress disorder" [Horowitz, 1976; American Psychiatric Association (APA), 1980].

PTSD was classified in DSM as an anxiety disorder. It was increasingly described as "a normal reaction to an abnormal situation," and so, logically, there was a question whether it should be regarded as a psychiatric disorder at all (O'Donohue & Eliot, 1992).

PTSD in adults differs from other anxiety disorders in important ways. Thus, Foa, Steketee, and Olasov-Rothbaum (1989) showed that the trauma suffered violated more of the patients' safety assumptions than did events giving rise to other forms of anxiety. There was a much greater generalization of fear responses in the PTSD groups, and, unlike other anxious patients, they reported far more frequent reexperiencing of the traumatic event. Indeed, it is this internal, subjective experience that seems most to mark out PTSD from other disorders (Jones & Barlow, 1992; Keppel-Benson & Ollendick, 1993).

One question is whether there is a spectrum of posttraumatic stress disorders (Kolb, 1988). While many patients meet criteria as proposed in DSM-III-R (APA, 1987) and DSM-IV (APA, 1994), some show many but insufficient symptoms to meet full criteria. Some researchers and clinicians argue for an additional grouping to be recognized—disorders of extreme stress not otherwise specified (DESNOS) (Herman, 1992). To some extent, this category is being sought to encompass the complex symptomatology shown by people who have been incarcerated or otherwise suffered repeated traumatization, as in cases of child sexual abuse. To that extent, the distinction between PTSD and DESNOS is similar to the distinction drawn by Terr (1991) between Type I and Type II PTSD in children.

Thus, even in adult patients, in whom the condition has been recognized far longer and many fundamental studies have been undertaken, there is still incomplete agreement on the phenomenology of PTSD and its overlap with other psychopathological conditions. Indeed, the two major classificatory systems disagree on the symptoms they include in the constellation, the criteria required to make the diagnosis, and the weight given to the different symptoms.

DSM AND ICD CRITERIA FOR POSTTRAUMATIC STRESS DISORDER

DSM-III-R: Posttraumatic Stress Disorder

As stated in DSM-III-R (APA, 1987, p. 247):

> The essential feature of this disorder is the development of characteristic symptoms following a psychologically distressing event that is outside the range of usual human experience (i.e., outside the range of such common experiences as simple bereavement, chronic illness, business losses, and marital conflict). The stressor producing this syndrome would be markedly distressing to almost anyone, and is usually experienced with intense fear, terror, and helplessness. The characteristic symptoms involve re-experiencing the traumatic event, avoidance of stimuli associated with the event or numbing of general responsiveness, and increased arousal. The diagnosis is not made if the disturbance lasts less than one month.

DSM-III-R goes on to note that PTSD can occur during childhood. Children may refuse to talk about the trauma, but they may well remember it vividly. They especially may show a marked change in orientation to the future, and they may show a variety of physical symptoms such as stomachaches or headaches.

Very recently, the revised criteria for DSM-IV have been published (APA, 1994). These criteria are presented in Table 1. As can be seen, the definition of criterion A, the precipitating traumatic event, has been greatly clarified, placing much greater emphasis on the threat to the self. Also, in a number of instances, the way in which the symptom may manifest in children is spelled out more clearly. These developments reflect the growing

evidence summarized below, but it must be emphasized that much still requires empirical investigation.

ICD-10: Posttraumatic Stress Disorder

As stated in ICD-10 (World Health Organization, 1992), PTSD

> arises as a delayed or protracted response to a stressful event or situation . . . of an exceptionally threatening or catastrophic nature, which is likely to cause pervasive distress in almost everyone.

Table 1. DSM-IV Criteria for Posttraumatic Stress Disorder

A. The person has been exposed to a traumatic event in which both of the following have been present:
   1. The person has experienced, witnessed, or been confronted with an event or events that involve actual or threatened death or serious injury, or a threat to the physical integrity of onself or others.
   2. The person's response involved intense fear, helplessnes, or horror. Note: In children, it may be expressed instead by disorganized or agitated behavior.

B. The traumatic event is persistently reexperienced in at least one of the following ways:
   1. Recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions. Note: In young children, repetitive play may occur in which themes or aspects of the trauma are expressed.
   2. Recurrent distressing dreams of the event. Note: In children, there may be frightening dreams without recognizable content.
   3. Acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur upon awakening or when intoxicated). Note: In young children, trauma-specific reenactment may occur.
   4. Intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.
   5. Physiologic reactivity upon exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.

C. Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by at least three of the following:
   1. Efforts to avoid thoughts, feelings, or conversations associated with the trauma.
   2. Efforts to avoid activities, places, or people that arouse recollections of the trauma.
   3. Inability to recall an important aspect of the trauma.
   4. Markedly diminished interest or participation in significant activities.
   5. Feeling of detachment or estrangement from others.
   6. Restricted range of affect (e.g., unable to have loving feelings).
   7. Sense of a foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal life span).

D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by at least two of the following:
   1. Difficulty falling or staying asleep.
   2. Irritability or outbursts of anger.
   3. Difficulty concentrating.
   4. Hypervigilance.
   5. Exaggerated startle response.

E. Duration of the disturbance (symptoms in B, C, and D) is more than 1 month.

F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

Specify if:

Acute: If duration of symptoms is less than 3 months.

Chronic: If duration of symptoms is 3 months or more.

Specify if:

With delayed onset: Onset of symptoms at least 6 months after the stressor.

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Predisposing personality traits or prior history are neither sufficient nor necessary to explain the onset of PTSD. ICD-10 lists symptoms similar to those listed by DSM-III-R, but emphasizes the repetitive intrusive memories and states:

> A conspicuous emotional detachment, numbing of feeling, and avoidance of stimuli that might arouse recollections of the trauma are often present but are not essential for the diagnosis. The autonomic disturbances, mood disorder, and behavioural abnormalities are all contributory to the diagnosis but not of prime importance.

Thus, ICD places most emphasis on the troublesome phenomena of reexperiencing and much less emphasis on the emotional numbing, which has proven difficult to elicit in many adults and also proved difficult to define in children and adolescents. It should also be noted that ICD says that PTSD should normally be diagnosed only when it arises within 6 months of a major trauma, whereas DSM allows the diagnosis to be made with onset after 6 months following the traumatic event, although this fact should be noted.

POSTTRAUMATIC STRESS DISORDER IN CHILDREN

As noted elsewhere (Keppel-Benson & Ollendick, 1993; Yule, 1991), there have been relatively few studies of the effects of major trauma on children, so that the full range of posttraumatic symptoms and their prevalence at different ages are not clearly established. Both DSM and ICD criteria have been valuable in focusing the attention of researchers and clinicians on the disorder, but there is still a need for careful descriptive studies of representative groups of traumatized children to establish the natural history of the disorder in children.

Following my experience of assessing and working with child and adolescent survivors of the capsize of the "Herald of Free Enterprise" car ferry (Yule & Williams, 1990) and those from the sinking of the cruise ship "Jupiter" (Yule, Udwin, & Murdoch, 1990; Yule, 1992a), I noted the common reactions described below.

Most children are troubled by *repetitive, intrusive thoughts* about the accident. Such thoughts can occur at any time, but particularly when the children are otherwise quiet, as when they are trying to fall asleep. At other time, the thoughts and vivid recollections are triggered by reminders in their environment. Vivid *flashbacks* are not uncommon. *Sleep disturbances* are very common, particularly in the first few weeks. *Fears* of the dark and bad dreams, *nightmares*, and waking through the night are widespread.

Separation difficulties are frequent, even among teenagers. For the first few days, children may not want to let their parents out of sight, even reverting to sleeping in the parental bed. Many children become much more *irritable and angry* than previously, with both parents and peers.

Although child survivors experience a *pressure to talk* about their experiences, paradoxically, they also find it very *difficult to talk with their parents and peers*. Often, they do not want to upset the adults, and so parents may not be aware of the full extent of their children's suffering. Peers may hold back from asking what happened in case they upset the child further; the survivor often feels this as a rejection.

Children report a number of *cognitive changes*. Many experience *difficulties in concentration*, especially in schoolwork. Others report *memory problems*, both in mastering new material and in remembering old skills such as reading music. They become very *alert to danger* in their environment, being adversely affected by reports of other disasters.

Survivors have learned that life is very fragile. This can lead to a loss of faith in the future or a *sense of foreshortened future*. Their priorities change. Some feel they should live each day to the full and not plan far ahead. Others realize they have been over-concerned with materialistic or petty matters and resolve to rethink their values. Their "assumptive world" has been challenged (Janoff-Bulman, 1985).

Nor surprisingly, many develop *fears* associated with specific aspects of their experiences. They avoid situations they associate with the disaster. Many experience "*survivor guilt*"—about surviving when others died, about thinking they should have done more to help others, about what they themselves did to survive.

Adolescent survivors report significantly high rates of *depression*, some becoming clinically depressed, having suicidal thoughts, and taking substance overdoses in the year after a disaster. A significant number become highly *anxious* after accidents, although the appearance of *panic attacks* is sometimes considerably delayed. When children have been *bereaved*, they may need bereavement counseling.

In summary, children and adolescents who survive a life-threatening disaster show most of the same range of symptoms as adults do. There may be considerable comorbidity with depression, generalized anxiety, or pathological grief reactions.

To give an idea of the relative prevalence of the different symptoms, Table 2 shows the findings from a study of over 100 adolescents assessed clinically following the sinking of the "Jupiter" cruise ship (Yule, Bolton, & Udwin, 1992). As can be seen, the most common symptoms within this sample sent for assessment included intrusive thoughts, distress at exposures to reminders, and avoidance of things associated with the disaster. Some 40–60% showed evidence of increased physiological arousal. Many fewer showed emotional numbing or flashbacks.

Table 2. Prevalence of Posttraumatic Stress Disorder Symptoms in Survivors of the "Jupiter" Sinking[a]

PTSD individual items	No	Yes
Recurrent, intrusive thoughts	25.6	74.4
Recurrent dreams	64.4	35.6
Flashbacks	80	15.6
Distress at exposure	24.4	74.4
Avoids thoughts/feelings	31.1	65.6
Avoids acitivities	27.8	71.1
Amnesia	68.9	28.9
Loss of interest	43.3	54.4
Feelings of detachment	51.1	42.2
Restricted affect	80.0	8.9
Foreshortened future	84.4	7.8
Sleep difficulties	48.9	51.1
Irritability, anger	41.1	58.9
Poor concentration	35.6	63.3
Hypervigilance	55.6	40
Exaggerated startle	38.9	51.1
Physiological reactivity	45.6	51.1

[a]From Yule *et al.* (1992). The average score was 7.92 (SD = 4.64).

Effects on Younger Children

Many writers agree that it is very difficult to elicit evidence of emotional numbing in children (Frederick, 1985). Many do show loss of interest in activities and hobbies that previously gave them pleasure. Preschool children show much more regressive behavior as well as more antisocial, aggressive, and destructive behavior. There are many anecdotal accounts of preschool children showing repetitive drawing and play involving themes about the trauma they experienced.

Although parents and teachers initially report that young children do not easily talk about the trauma, recent experience has been that many young children easily give graphic accounts of their experiences and are able to report how distressing the reexperiencing in thoughts and images is (Sullivan, Saylor, & Foster, 1991; Misch, Phillips, Evans, & Berelowitz, 1993). All clinicians and researchers need to have a good understanding of children's development to be able to assist them to express their inner distress.

Nature of the Traumatic Event

In the original formulation by APA (1980), PTSD was assumed to occur in any person provided the traumatic event was sufficiently threatening. However, it is clear that not everyone responds to objectively the same trauma with identical symptoms. There are individual differences in responses. In part, these differences may be determined genetically, or at least constitutionally; in part, they may be determined by the different ways people interpret the threats to themselves. Thus, as Rachman (1980) argued, one has to take into account both the objective and the subjective factors when trying to understand why any particular individual has such difficulties processing emotional reactions that PTSD may result.

In one of the earliest studies of exposure–effect relationships, Weisaeth (1983) demonstrated that following a paint factory explosion in Norway, workers who were at the center of the explosion developed considerably higher levels of distress than those at the periphery, with the lowest levels being recorded among those who were at home. There are four studies showing similar exposure–effect relationships in children.

Following the California school sniper attack, Pynoos and his colleagues (Pynoos & Eth, 1986; Pynoos, Frederick, Nader, Arroyo, Steinberg, Eth, Nunez, & Fairbanks, 1987; Pynoos & Nader, 1988) investigated 159 children (14.5% of those attending the school) who were exposed to a sniper attack on the school in which one child and a passerby were killed and 13 other children were injured. On average, the children were 9.2 years old at the time of the trauma. Approximately 1 month after the event, nearly 40% of the children were found to have moderate to severe PTSD on their PTSD Reaction Index. There was a very strong relationship between exposure and later effects in that children who were trapped in the playground scored much higher than those who had left the vicinity of the school before the attack or were not in school that day.

At 14-month follow-up, Nader, Pynoos, Fairbanks, and Frederick (1991) reported that 74% of the most severely exposed children in the playground still reported moderate to severe levels of PTSD, contrasted with 81% of the unexposed children reporting no PTSD. Earlier PTSD Reaction Index scores were strongly related to those obtained at follow-up. In a more detailed analysis of the data, Nader et al. (1991) investigated the effect of the survivors' knowledge of the child who was killed on their PTSD Reaction Index scores. They found that only among the less exposed children did greater knowledge of the victim

increase the strength of the emotional reaction to the trauma. In other words, the level of exposure to the life-threatening trauma was more important than other factors such as knowledge of the victim. In this study, the moderating effects of families' reactions was not reported, but the strength of the relationships noted challenges the claim made by McFarlane (1987) that most effects are mediated by parental reaction.

Following the 1988 Armenian earthquake, Pynoos, Goenjian, Karakashian, Tashjian, Manjikian, Manoukian, Steinberg, and Fairbanks (1993) used the PTSD Reaction Index in translation in three groups of children—one from a town at the epicenter where buildings were totally demolished, one from a town at the periphery of the devastation, and one control group from outside the affected area. There was a clear exposure–effect relationship, with the most exposed children reporting highest scores.

At 5 months after the sinking of the cruise ship "Jupiter," with over 400 British schoolchildren on board, Yule et al. (1990) studied self-reported fears, anxiety, and depression in a party of 24 adolescent girls from one school. Compared to girls who had wanted to go on the cruise (but did not get a place), other girls in the same school who expressed no interest in the cruise (but may have been upset by subsequent events), and controls from a similar school elsewhere, a "subjective exposure"–response effect was found for depression and anxiety, but not for reported fears.

Hurricane Hugo hit the eastern seaboard of the United States just north of Charleston, South Carolina, on September 21, 1989. Lonigan, Shannon, Finch, Daugherty, and Saylor (1991) obtained self-report data from 5687 children and adolescents aged 9–19 years. The degree of exposure was significantly associated with increased scores on both anxiety and stress reaction. Girls scored significantly higher than boys on both scales. The percentage showing mild, moderate, or severe PTSD, as categorized on their total PTSD Reaction Index scores, was also highly related to the degree of exposure, being 5.06% in the no-exposure group, 10.35% in the mild, 15.54% in the moderate, and 28.95% in the high-exposure group. The average anxiety scores for the hurricane survivors were much lower than those obtained from the 334 survivors of the "Jupiter" sinking (Yule, 1992a), suggesting that the hurricane was less of a direct threat to the children.

Thus, considering a single disaster, there is a strong relationship between degree of exposure to the stressor and subsequent adjustment. However, subjective factors also play a role. Studies of adult survivors find that high levels of pathology are related to the belief that the survivors were going to die during the incident, as well as to the experience of seeing dead and mutilated bodies (Williams, Joseph, & Yule, 1993). Similar findings are emerging from the study of the most severely affected children assessed individually after the sinking of the "Jupiter" (Yule et al., 1992).

It should also be noted that when investigators use the same measures of posttraumatic distress, direct comparison between the studies is possible. In turn, one can then see that disasters that differ in terms of severity or type may produce differing degrees of morbidity, which is in accordance with the model put forward by Rachman (1980). Thus, the scores on the Impact of Events Scale among survivors of the "Herald of Free Enterprise" capsizing are higher than those of survivors of the "Jupiter" sinking. The former disaster was much more sudden and involved greater loss of life than the latter, suddenness and degree of life threat being two of the Rachman (1980) predictors of difficulties in emotional processing. In turn, both these disasters gave rise to greater distress than did Hurricane Hugo (Lonigan et al., 1991), in which loss of life was fortunately low, or the explosion at Lockerbie following the terrorist bombing of the Pan Am flight (Parry-Jones, 1992).

Risk and Protective Factors

Age

There are too few studies to examine whether children of different ages are at different risk of developing PTSD. The *form* of the disorder may vary with age, with children under 6 being more likely than older children to show repetitive play and drawing of the trauma (Terr, 1988; Yule, 1991). Age was not found to correlate with PTSD Reaction Index scores in the Armenian earthquake (Pynoos et al., 1993). However, Keppel-Benson and Ollendick (1993) note that young children's cognitive development will influence their interpretation of traumatic events as well as their ability to report symptoms. Thus, very young children may not be fully aware of the realistic threat of harm to themselves and so may be protected from strong emotional reactions. However, this lack of awareness should not be assumed, as children vary markedly in their understanding of danger and death.

Sex

Gibbs (1989) concludes that females are more vulnerable to the effects of disasters than males. This was confirmed in studies of the "Jupiter" sinking (Yule, 1992a), in which girls scored higher than boys on anxiety, depression, and fears as well as on the Horowitz, Wilner, and Alvarez (1979) Impact of Events Scale; in Hurricane Hugo (Lonigan et al., 1991); and in the Armenian earthquake (Pynoos et al., 1993).

Contradictory findings are reported by Burke et al. (1982; 1986). In their earlier study, they reported that 6-year-old boys were more affected by floods and blizzards than girls, but that in the 5th grade (age 10), girls were more affected than boys. Following the Yom Kippur war, Milgram and Milgram (1976) reported increased anxiety in boys but not in girls.

Ability

Given that poor concentration and difficulties with new learning are said to be characteristic of PTSD, one might expect that children's schoolwork would suffer after a disaster. Martin and Little (1986) investigated this expectation following a tornado in Wichita Falls, Texas, in April 1979 and failed to show any meaningful differences across the groups. Girls who survived the sinking of the "Jupiter" were above average in attainment during the 3 years prior to the cruise, but their attainment plummeted significantly to merely average levels 1 year after the accident. At 2 years after the accident, in their achievement results, the survivors still performed less well than expected, although the difference was no longer as marked (Tsui, Dagwell, & Yule, in press).

Two other factors need to be emphasized. In the same group of adolescent girls studied by Tsui et al. (1994), Yule and Udwin (1991) had identified 10 girls as being at higher risk than others solely on the basis of self-completed screening questionnaires. It was found that these high-risk girls had significantly *lower* preaccident attainment. Thus, lower attainment can be seen as a high-risk factor, and higher attainment, and by implication higher ability, can be seen as a protective factor in this group.

Thus, the experience of a major disaster can have an adverse effect on scholastic attainment. If the disaster occurs at a crucial examination time, there may well be long-term consequences. Schools must plan ahead with mental health and social services to ensure that any effects of a major crises are minimized (Yule & Gold, 1993).

School Factors

Many schools were affected by the "Jupiter" sinking, and 334 pupils were screened on the same battery (Yule, 1992a). It was therefore possible to compare one school that accepted the offer of outside help with one that chose to cope with its own internal resources. Pupils in the school that accepted help showed slightly lower scores on anxiety and depression 5 months after the accident and significantly lower scores on a fear survey schedule and the Impact of Events Scale. This finding provides some suggestive evidence for the value of early intervention as well as suggests that how schools react to disasters is important in maintaining distress.

Family Factors

Following the Australian bush fires, it was found that families were affected, particularly in respect of increased levels of conflict and increased levels of maternal overprotection (McFarlane, 1987). Where parents had difficulties processing their own emotional reactions, they were less successful in helping their children. The families who found it difficult to share their immediate reactions had more difficulties coming to terms with the disaster. Child and adolescent survivors of the "Herald of Free Enterprise" and "Jupiter" sinkings found it difficult to confide their inner feelings to their parents, in part to protect the parents from getting upset (Yule, 1991; Yule & Williams, 1990). Other risk and protective factors are more fully discussed by Yule (1992b).

ASSESSING POSTTRAUMATIC STRESS DISORDER IN CHILDREN

There are now a variety of measures suitable for establishing posttraumatic reactions in children (Finch & Daugherty, 1993). The Children's PTSD Reaction Index first developed by Frederick and Pynoos (1988) has undergone some revisions and has been used in a number of important studies (Nader et al., 1991; Pynoos et al., 1987, 1993; Pynoos & Nader, 1988). It shows good internal consistency and relates well to clinical judgment of severity of PTSD (Yule et al., 1992). The Saigh (1989) Children's PTSD Inventory also has good psychometric properties. Horowitz's Impact of Events Scale (Horowitz et al., 1979) has been found useful with children aged 8 and over (Yule & Williams, 1990; Yule & Udwin, 1991; Parry-Jones, 1992), especially in conjunction with a battery that also measures anxiety and depression (Yule & Udwin, 1991). Various semi-structured interviews are beginning to appear, but they mainly turn DSM criteria ito question form and do not inquire about a sufficiently broad range of reactions to be useful for research purposes.

These instruments are useful in quantifying the effects of disasters on children and, as argued earlier, by allowing comparisons within and between disasters, permit examination of many important questions. However, given that the phenomenology of PTSD in children is not yet fully established empirically, they can be only a guide to assessment and diagnosis. They are useful as screening devices, but are no substitute for a careful, individual, but expensive clinical interview. For those new to the field, the suggestions of Pynoos and Eth (1986) for an interview method have considerable heuristic value. They suggest using drawings as a way of freeing the child to discuss difficult emotional reactions.

The emphasis here is on obtaining information directly from the child, as it is now very

well established that parents and particularly teachers grossly underestimate the levels of distress experienced by child survivors of disasters (Belter, Dunn, & Jeney, 1991; Earls, Smith, Reich, & Jung, 1988; Galante & Foa, 1986; Handford, Mayes, Mattison, Humphrey, Bagnato, Bixler, & Kales, 1986; Martini, Ryan, Nakayama, & Ramenofsky, 1990; McFarlane, 1987; McFarlane, Policansky, & Irwin, 1987; Yule & Williams, 1990). The reason parents and teachers do so is, in part, that many children do not show their feelings to their parents for fear of upsetting them and, in part, that adults do not want to think that children may be as distressed as they in fact are.

Critics have suggested that survivors involved in compensation cases may exaggerate their symptoms. Since many recent studies have involved claimants, this issue is important. Gleser, Green, and Winget (1981) interviewed a number of survivors who had chosen not to pursue legal redress. No significant differences were found in the levels of reported symptoms between litigants and nonlitigants. Given that 14 years after the collapse, the estimated rate of PTSD had dropped only from 44% to 28% among adult survivors, the compensation did not seem to have made a dramatic difference in morbidity. To date, no similar study has been undertaken with child survivors involved in litigation.

TREATMENT OF POSTTRAUMATIC STRESS DISORDER IN CHILDREN

Crisis Intervention: Critical Incident Stress Debriefing

Debriefing was originally developed to assist emergency personnel in adjusting to their emotional reactions to events encountered in the course of their rescue work. It makes use of group support techniques within a predominantly male, macho culture in which expressing and sharing feelings is not the norm. The technique has now been adapted for use with children following a wide variety of traumas (Dyregrov, 1991).

Within a few days of an incident, the survivors are brought together in a group with an outside leader. During the introductory phase, the leader sets the rules for the meeting, emphasizing that they are there to share feelings and help each other and that what goes on in the meeting is private. The information should not be used to tease other children. No one *has* to talk, although all are encouraged to do so. They then go on to clarify the facts of what actually happened in the incident. This clarification reduces the rumors that frequently abound. The group members are asked about what they thought when they realized something was wrong, and this leads naturally into discussions of how they felt and of their current emotional reactions. In this way, children share the various reactions they have experienced and usually learn that others feel similarly. The leader labels their responses as normal (understandable) reactions to an abnormal situation. Many children are relieved to learn that they are not the only ones experiencing strange feelings and so are relieved that there is an explanation and that they are not going mad. The leader summarizes the information arising in the group and educates the children regarding what simple steps they can take to control some of their reactions. They are also told of other help available, should their distress persist.

There is evidence that this structured crisis intervention is helpful in preventing later distress in adults (Duckworth, 1986; Dyregrov, 1988; Robinson & Mitchell, 1993). Yule and Udwin (1991) describe their use of critical incident stress debriefing with girls who survived the sinking of the "Jupiter." Self-report data 5 months after the incident suggest that this

treatment reduced levels of stress, particularly those manifested in intrusive thoughts (Yule, 1992a). Stallard and Law (1993) show more convincing evidence that debriefing greatly reduced the distress of girls who survived a school bus crash. However, we still do not know when best to offer such debriefing to survivors of a disaster, or indeed whether all survivors benefit.

Group Treatment

Where natural groupings exist in communities and schools, it makes sense to direct some therapeutic support through such groups (Ayalon, 1988; Farberow & Gordon, 1981; Galante & Foa, 1986; Yule & Udwin, 1991; Yule & Williams, 1990). The aims of such therapeutic groups should include the sharing of feelings, boosting children's sense of coping and mastery, and sharing ways of solving common problems.

Gillis (1993) suggests that it is optimal to work with groups of 6–8 children. His experience following a school sniper attack was that it was better to run separate groups for boys and girls because of the different reactions they had to the attack. Boys showed more externalizing problems, and girls showed more internalizing ones.

Different authors have imposed varying degrees of structure on their groups, with Galante and Foa (1986) adopting a fairly structured approach in which different topics were tackled at each meeting, while Yule and Williams (1990) not only used a very unstructured, problem-solving approach but also ran a parallel group for the parents. Different incidents will require different approaches.

Group approaches seem to be very therapeutic for many children, but not all problems can be solved in the group. Gillis (1993) suggests that high-risk children—those whose lives were directly threatened, who directly witnessed death, who were physically injured, who had preexisting problems, or who lack family support—should be offered individual help. More generally, children whose problems persist despite group help should be treated individually.

Individual Treatment

To date, there is little evidence that drug treatments have a central role, so the focus has been mainly on cognitive–behavioral treatments that aim to help the survivors both to make sense of what happened and to master their feelings of anxiety and helplessness.

Asking children to draw their experience often assists recall of both the event and the emotions (Blom, 1986; Galante & Foa, 1986; Newman, 1976; Pynoos & Eth, 1986). Drawings are not used as "projective" techniques, but as ways of assisting children to talk about the experience.

Most survivors recognize that sooner or later they must face up to the traumatic event. The problem for the therapist is how to help the survivor reexperience the event and the emotions that it engenders in such a way that the distress can be mastered rather than magnified. Therapeutic exposure sessions that are too brief may sensitize rather than desensitize (Rachman, 1980), so the therapist may need to use much longer exposure sessions than normal (Saigh, 1986). Fuller suggestions of useful techniques to promote emotional processing are given elsewhere (Rachman, 1980; Richards & Lovell, 1990; Richards & Rose, 1991; Saigh, 1992; Yule, 1991).

Exposure under supportive circumstances seems to deal well with both intrusive thoughts and behavioral avoidance. The other major symptom of child PTSD that requires

attention is sleep disorder. A careful analysis will reveal whether the problem is mainly one of getting to sleep or of being awakened by intrusive nightmares related to the disaster. In the former case, implementing relaxation routines before bed and masking thoughts with music may help. In the latter, there are now some promising cognitive–behavioral techniques for alleviating nightmares (Halliday, 1987; Marks, 1978, 1987; Palace & Johnston, 1989; Seligman & Yellen, 1987).

Ayalon (1983) suggested the use of stress-inoculation techniques (Meichenbaum, 1975, 1977; Meichenbaum & Cameron, 1983), among many others, to prepare Israeli children to cope with the effects of terrorist attacks. These ideas seem eminently sensible, but their implementation awaits systematic evaluation.

PLANNING FOR PREVENTION

Disasters, by their nature, are unexpected. However, those responsible for delivering community mental health services can reasonably anticipate that a variety of disasters, large and small, will hit their community each year. They need to plan ahead not only to decide on how to mobilize resources to deal with a disaster after it hits, but also to consider what preventive techniques should be implemented.

As far as children are concerned, schools are the most obvious focus for such preventive work. This suitability is recognized by a number of authors (Johnson, 1993; Klingman, 1993; Yule & Gold, 1993). Schools can not only plan ahead how they will deal with a variety of predictable events—such as the death of a teacher or pupil in school, death on a school outing, arson, or a sniper attack—but also can consider how to deal with related events in the school curriculum. Thus, an actual crisis should not be the first time that teachers and pupils have discussed death and its surrounding rituals. Schools need to be aware of the variety of faiths practiced by pupils and their families so that they know which faiths welcome children at funerals and which do not.

Some consideration might be given to providing children with an introduction to simple stress-management techniques that can be augmented when a disaster does strike.

SUMMARY

Garmezy (1986) has noted that most studies of the effects of disasters on children have been methodologically flawed. They were often little more than clinical anecdotes using unstandardized measures and making no pretense at having appropriate control groups. Indeed, the methods used were so primitive that many investigators did not even ask the children about their symptoms, relying instead on reports of parents and teachers. This strategy resulted in the overlooking of psychopathology and allowed Garmezy and Rutter (1985) to conclude that most child reactions to single acute stressors were fleeting and resulted in only temporary adjustment disorders. In the past decade, by interviewing children sensitively and by using more standard and appropriate measures, a great deal has been clarified.

It is now well established that children and adolescents can manifest adult-like PTSD after experiencing a life-threatening stressor (for reviews, see Gordon & Wraith, 1993; Pynoos & Nader, 1993; Saylor, 1993; Yule, 1991, 1993). DSM and ICD have helped focus on this disorder, but still the symptoms listed therein do not fully encompass the range of

reactions children can manifest. There is still a need for longitudinal, descriptive studies to establish the natural history of children's posttraumatic symptomatology.

It is now established that in some disasters, the effects are widespread and long-lasting. Children's schooling may be thrown off course at crucial periods. Treatment studies have only just begun. There is evidence that early intervention in the form of debriefing can be of benefit, but many more evaluative studies are needed to ensure that more good than harm is done in the current trend toward instant counseling following disasters. Cognitive–behavioral interventions show great promise, but it is still not clear how these interventions need to be adapted to take account of children's different developmental levels. Again, there is an urgent need for well-controlled treatment trials in this area. Disasters will continue to happen while such evidence accumulates, however, and so schools will continue to form a natural focus for both preventive action and early intervention (Nader & Pynoos, 1993; Yule & Gold, 1993).

Advances in our understanding of PTSD have come about as the adult-oriented classificatory system drew attention to the possibility that PTSD existed in children. In turn, this led to people asking more appropriate questions and then developing standard measures to quantify the results. Various investigators have shown that when disasters do strike, it is possible to mount appropriate service intervention while also gathering data that address fundamental questions of scientific interest. The more often investigators include a standard core of measures of known validity in their studies, the more will we be able to compare the effects of different types of disasters and investigate issues related to risk and protective factors. The need for more treatment studies has already been highlighted.

The study of children's reactions to acute stressors has turned out to be a very fruitful area for the investigation of anxiety disorders in children. Major disasters happen infrequently, but life-threatening events such as automobile accidents happen far too frequently. Study of children's emotional reactions to automobile accidents will throw light on many of the issues raised here (Canterbury, Yule, & Glucksman, 1993; Keppel-Benson & Ollendick, 1993).

REFERENCES

American Psychiatric Association (1980). *Diagnostic and statistical manual of mental disorders*, 3rd ed. Washington, DC: Author.

American Psychiatric Association (1987). *Diagnostic and statistical manual of mental disorders*, 3rd ed., revised. Washington, DC: Author.

American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders*, 4th ed. Washington, DC: Author.

Ayalon, O. (1983). Coping with terrorism: The Israeli case. In D. Meichenbaum & M. E. Jaremko (Eds.), *Stress reduction and prevention* (pp. 293–339). New York: Plenum Press.

Ayalon, O. (1988). *Rescue! Community oriented preventive education for coping with stress*. Haifa: Nord Publications.

Belter, R. W., Dunn, S. E., & Jeney, P. (1991). The psychological impact of Hurricane Hugo on children: A needs assessment. *Advances in Behaviour Research and Therapy, 13*, 155–161.

Blom, G. E. (1986). A school disaster—intervention and research aspects. *Journal of the American Academy of Child Psychiatry, 25*, 336–345.

Burke, J. D., Borus, J. F., Burns, B. J., Millstein, K. H., & Beasley, M. C. (1982). Changes in children's behavior after a natural disaster. *American Journal of Psychiatry, 139*, 1010–1014.

Burke, J. D., Moccia, P., Borus, J. F., & Burns, B. J. (1986). Emotional distress in fifth-grade children ten months after a natural disaster. *Journal of the American Academy of Child Psychiatry, 25*, 536–541.

Canterbury, R., Yule, W., & Glucksman, E. (1993). PTSD in child survivors of road traffic accidents. Paper presented to the Third European Conference on Traumatic Stress, Bergen, June 6–10, 1993.

Duckworth, D. (1986). Psychological problems arising from disaster work. *Stress Medicine*, *2*, 315–323.

Dyregrov, A. (1988). Critical incident stress debriefings. Research Center for Occupational Health and Safety, University of Bergen, Norway: Unpublished manuscript.

Dyregrov, A. (1991). *Grief in children: A handbook for adults*. London: Jessica Kingsley.

Earls, F., Smith, E., Reich, W., & Jung, K. G. (1988). Investigating psychopathological consequences of a disaster in children: A pilot study incorporating a structured diagnostic approach. *Journal of the American Academy of Child and Adolescent Psychiatry*, *27*, 90–95.

Farberow, N. L., & Gordon, N. S. (1981). *Manual for child health workers in major disasters*. DHHS Publication No. ADM 81-1070. Washington, DC: U.S. Government Printing Office.

Finch, A. J., & Daugherty, T. K. (1993). Issues in the assessment of posttraumatic stress disorder in children. In C. F. Saylor (Ed.), *Children and disasters* (pp. 45–66). New York: Plenum Press.

Foa, E. B., Steketee, G., & Olasov-Rothbaum, B. (1989). Behavioral/cognitive conceptualizations of post-traumatic stress disorder. *Behavior Therapy*, *20*, 155–176.

Frederick, C. J. (1985). Children traumatized by catastrophic situations. In S. Eth & R. Pynoos (Eds.), *Post-traumatic stress disorder in children* (pp. 73–99). Washington: American Psychiatric Press.

Frederick, C. J., & Pynoos, R. S. (1988). The Child Post-Traumatic Stress Disorder (PTSD) Reaction Index. Los Angeles: University of California.

Galante, R., & Foa, D. (1986). An epidemiological study of psychic trauma and treatment effectiveness after a natural disaster. *Journal of the American Academy of Child Psychiatry*, *25*, 357–363.

Garmezy, N. (1986). Children under severe stress: Critique and comments. *Journal of the American Academy of Child Psychiatry*, *25*, 384–392.

Garmezy, N., & Rutter, M. (1985). Acute reactions to stress. In M. Rutter & L. Hersov (Eds.), *Child and adolescent psychiatry: Modern approaches*, 2nd ed. (pp. 152–176). Oxford: Blackwell.

Gibbs, M. S. (1989). Factors in the victim that mediate between disaster and psychopathology: A review. *Journal of Traumatic Stress*, *2*, 489–514.

Gillis, H. M. (1993). Individual and small-group psychotherapy for children involved in trauma and disaster. In C. F. Saylor (Ed.), *Children and disasters* (pp. 165–186). New York: Plenum Press.

Gleser, G. G., Green, B. L., & Winget, C. (1981). *Prolonged psychosocial effects of disaster: A study of Buffalo Creek*. New York: Academic Press.

Gordon, R., & Wraith, R. (1993). Responses of children and adolescents to disaster. In J. P. Wilson & B. Raphael (Eds.), *International handbook of traumatic stress syndromes* (pp. 561–575). New York: Plenum Press.

Halliday, G. (1987). Direct psychological therapies for nightmares: A review. *Clinical Psychology Review*, *7*, 501–523.

Handford, H. A., Mayes, S. O., Mattison, R. E., Humphrey, F. J., Bagnato, S., Bixler, E. O., & Kales, J. D. (1986). Child and parent reaction to the TMI nuclear accident. *Journal of the American Academy of Child Psychiatry*, *25*, 346–355.

Herman, J. L. (1992). Complex PTSD: A syndrome in survivors of prolonged and repeated trauma. *Journal of Traumatic Stress*, *5*, 377–391.

Horowitz, M. J. (1976). *Stress-response syndromes*. New York: Jason Aronson.

Horowitz, M. J., Wilner, N., & Alvarez, W. (1979). Impact of Event Scale: A measure of subjective stress. *Psychosomatic Medicine*, *41*, 209–218.

Janoff-Bulman, R. (1985). The aftermath of victimization: Rebuilding shattered assumptions. In C. R. Figley (Ed.), *Trauma and its wake*, Vol. 1. New York: Brunner/Mazel.

Johnson, K. (1993). *School crisis management: A team training guide*. Alameda, CA: Hunter House.

Jones, J. C., & Barlow, D. H. (1992). A new model of posttraumatic stress disorder. In P. A. Saigh (Ed.), *Posttraumatic stress disorder: A behavioral approach to assessment and treatment* (pp. 147–165). New York: Macmillan.

Keppel-Benson, J. M., & Ollendick, T. H. (1993). Posttraumatic stress disorders in children and adolescents. In C. F. Saylor (Ed.), *Children and disasters* (pp. 29–43). New York: Plenum Press.

Klingman, A. (1993). School-based intervention following a disaster. In C. F. Saylor (Ed.), *Children and disasters* (pp. 187–210). New York: Plenum Press.

Kolb, L. C. (1988). A critical survey of hypotheses regarding post-traumatic stress disorders in light of recent findings. *Journal of Traumatic Stress*, *1*, 291–304.

Lonigan, C. J., Shannon, M. P., Finch, A. J., Daugherty, T. K., & Saylor, C. M. (1991). Children's reactions to a natural disaster: Symptom severity and degree of exposure. *Advances in Behaviour Research and Therapy*, *13*, 135–154.

Marks, I. M. (1978). Rehearsal relief of a nightmare. *British Journal of Psychiatry, 133*, 461–465.
Marks, I. M. (1987). Nightmares. *Integrative Psychiatry, 5*, 71–73.
Martin, S., & Little, B. (1986). The effects of a natural disaster on academic abilities and social behavior of school children. *British Columbia Journal of Special Education, 10*, 167–182.
Martini, D. R., Ryan, C., Nakayama, D., & Ramenofsky, M. (1990). Psychiatric sequelae after traumatic injury: The Pittsburgh Regatta accident. *Journal of the American Academy of Child Psychiatry, 29*, 70–75.
McFarlane, A. C. (1987). Family functioning and overprotection following a natural disaster: The longitudinal effects of post-traumatic morbidity. *Australia and New Zealand Journal of Psychiatry, 21*, 210–218.
McFarlane, A. C., Policansky, S., & Irwin, C. P. (1987). A longitudinal study of the psychological morbidity in children due to a natural disaster. *Psychological Medicine, 17*, 727–738.
Meichenbaum, D. (1975). Self instructional methods. In F. Kanfer & A. Goldstein (Eds.), *Helping people change* (pp. 357–391). New York: Pergamon Press.
Meichenbaum, D. (1977). *Cognitive behavior modification: An integrated approach*. New York: Plenum Press.
Meichenbaum, D., & Cameron, R. (1983). Stress inoculation training: Toward a general paradigm for training coping skills. In D. Meichenbaum & M. E. Jaremko (Eds.), *Stress reduction and prevention* (pp. 115–154). New York: Plenum Press.
Milgram, R. M., & Milgram, N. A. (1976). The effects of the Yom Kippur war on anxiety level in Israeli children. *Journal of Psychology, 94*, 107–113.
Misch, P., Phillips, M., Evans, P., & Berelowitz, M. (1993). Trauma in pre-school children: A clinical account. In G. Forrest (Eds.), *Trauma and crisis management*. Association for Child Psychology and Psychiatry, Occasional Paper No. 8, pp. 11–18.
Nader, K., & Pynoos, R. S. (1993). School disaster: Planning and initial interventions. *Journal of Social Behavior and Personality, 8*, 1–22.
Nader, K., Pynoos, R. S., Fairbanks, L., & Frederick, C. (1991). Childhood PTSD reactions one year after a sniper attack. *American Journal of Psychiatry, 147*, 1526–1530.
Newman, C. J. (1976). Children of disaster: Clinical observation at Buffalo Creek. *American Journal of Psychiatry, 133*, 306–312.
O'Donohue, W., & Eliot, A. (1992). The current status of post traumatic stress syndrome as a diagnostic category: Problems and proposals. *Journal of Traumatic Stress, 5*, 421–439.
Palace, E. M., & Johnston, C. (1989). Treatment of recurrent nightmares by the dream reorganization approach. *Journal of Behavior Therapy and Experimental Psychiatry, 20*, 219–226.
Parry-Jones, W. (1992). Children of Lockerbie. Paper presented at the Guys Hospital meeting.
Pynoos, R. S., & Eth, S. (1986). Witness to violence: The child interview. *Journal of the American Academy of Child Psychiatry, 25*, 306–319.
Pynoos, R. S., & Nader, K. (1988). Psychological first aid and treatment approach for children exposed to community violence: Research implications. *Journal of Traumatic Stress, 1*, 243–267.
Pynoos, R. S., & Nader, K. (1993). Issues in the treatment of posttraumatic stress in children and adolescents. In J. P. Wilson & B. Raphael (Eds.), *International handbook of traumatic stress syndromes* (pp. 535–549). New York: Plenum Press.
Pynoos, R. S., Frederick, C., Nader, K., Arroyo, W., Steinberg, A., Eth, S., Nunez, F., & Fairbanks, L. (1987). Life threat and posttraumatic stress in school-age children. *Archives of General Psychiatry, 44*, 1057–1063.
Pynoos, R. S., Goenjian, A., Karakashian, M., Tashjian, M., Manjikian, R., Manoukian, G., Steinberg, A. M., & Fairbanks, L. A. (1993). Posttraumatic stress reactions in children after the 1988 Armenian earthquake. *British Journal of Psychiatry, 163*, 239–247.
Rachman, S. (1980). Emotional processing. *Behaviour Research and Therapy, 18*, 51–60.
Richards, D., & Lovell, K. (1990). Imaginal and in-vivo exposure in the treatment of PTSD. Paper read at the Second European Conference on Traumatic Stress. Amsterdam, Netherlands, September 1990.
Richards, D., & Rose, J. (1991). Exposure therapy for post-traumatic stress disorder: Four case studies. *British Journal of Psychiatry, 158*, 836–840.
Robinson, R. C., & Mitchell, J. T. (1993). Evaluation of psychological debriefings. *Journal of Traumatic Stress, 6*, 367–382.
Saigh, P. A. (1986). In vitro flooding in the treatment of a 6-yr-old boy's posttraumatic stress disorder. *Behaviour Research and Therapy, 24*, 685–688.
Saigh, P. A. (1989). The development and validation of the Children's Posttraumatic Stress Disorder Inventory. *International Journal of Special Education, 4*, 75–84.
Saigh, P. A. (1992). The behavioral treatment of child and adolescent posttraumatic stress disorder. *Advances in Behaviour Research and Therapy, 14*, 247–275.

Saylor, C. F. (Ed.) (1993). *Children and disasters*. New York: Plenum Press.

Seligman, M. E., & Yellen, A. (1987). What is a dream? *Behaviour Research and Therapy, 25*, 1–24.

Stallard, P., & Law, F. (1993). Screening and psychological debriefing of adolescent survivors of life-threatening events. *British Journal of Psychiatry, 163*, 660–665.

Sullivan, M. A., Saylor, C. F., & Foster, K. Y. (1991). Post-hurricane adjustment of preschoolers and their families. *Advances in Behaviour Research and Therapy, 13*, 163–171.

Terr, L. C. (1988). What happens to early memories of trauma? A study of twenty children under age five at the time of documented traumatic events. *Journal of the American Academy of Child and Adolescent Psychiatry, 27*, 96–104.

Terr, L. C. (1991). Childhood traumas—An outline and overview. *American Journal of Psychiatry, 148*, 10–20.

Tsui, E., Dagwell, K., & Yule, W. (in press). Effect of a disaster on children's academic attainment. Manuscript in preparation.

Weisaeth, L. (1983). The study of a factory fire. Doctoral dissertation. University of Oslo.

Williams, R., Joseph, S., & Yule, W. (1993). Disaster and mental health. In J. Leff and D. Bhugra (Eds.), *Principles of social psychiatry* (pp. 450–469). Oxford: Blackwell.

World Health Organization (1992). *International classification of mental and behavioral disorders, clinical descriptions and diagnostic guidelines*, 10th ed. (ICD-10). Geneva: Author.

Yule, W. (1991). Work with children following disasters. In M. Herbert (Ed.), *Clinical child psychology: Social learning, development and behavior* (pp. 349–363). Chichester: John Wiley.

Yule, W. (1992a). Post traumatic stress disorder in child survivors of shipping disasters: The sinking of the "Jupiter." *Psychotherapy and Psychosomatics, 57*, 200–205.

Yule, W. (1992b). Resilience and vulnerability in child survivors of disasters. In B. Tizard & V. Varma (Eds.), *Vulnerability and resilience: A Festschrift for Ann and Alan Clarke* (pp. 82–98). London: Jessica Kingsley.

Yule, W. (1993). Technology related disasters. In C. F. Saylor (Ed.), *Children and disasters* (pp. 105–121). New York: Plenum Press.

Yule, W., & Gold, A. (1993). *Wise before the event: Coping with crises in schools*. London: Calouste Gulbenkian Foundation.

Yule, W., & Udwin, O. (1991). Screening child survivors for post-traumatic stress disorders: Experiences from the "Jupiter" sinking. *British Journal of Clinical Psychology, 30*, 131–138.

Yule, W., & Williams, R. (1990). Posttraumatic stress reactions in children. *Journal of Traumatic Stress, 3(2)*, 279–295.

Yule, W., Bolton, D., & Udwin, O. (1992) Objective and subjective predictors of PTSD in adolescents. Paper presented at the World Conference of International Society for Traumatic Stress Studies, "Trauma and Tragedy." Amsterdam, June 21–26, 1992.

Yule, W., Udwin, O., & Murdoch, K. (1990). The "Jupiter" sinking: Effects on children's fears, depression and anxiety. *Journal of Child Psychology and Psychiatry, 31*, 1051–1061.

13

Panic Disorder

E. Steven Dummit, III, and Rachel G. Klein

INTRODUCTION

While pathological anxiety states have been described in the scientific and popular literature for centuries, panic disorder as a distinct syndrome has only recently been characterized and studied. DaCosta's syndrome, or "irritable heart" due to anxiety rather than a physical abnormality, was described in soldiers shortly after the American Civil War [DaCosta, 1871 (as quoted in Kaplan & Sadock, 1985, p. 883)]. Cardiac neurosis, effort syndrome, nervous exhaustion, nervous tachycardia, soldier's heart, neurocirculatory asthenia, vasomotor neurosis, hyperventilation syndrome, and anxiety neurosis are other names the disorder may have masqueraded under through the years. Panic disorder was first formally recognized in the *Diagnostic and Statistical Manual of Mental Disorders*, 3rd edition (DSM-III), of the American Psychiatric Association (APA, 1980), based on the work of D. F. Klein (1964).

In the short time since panic disorder gained formal recognition in adults, it has become the focus of intensive research, but little has been published about the disorder in childhood. Research with adult patients has revealed physiological abnormalities that suggest a specific biological substrate for the disorder, and specific treatments have been found effective. Thus, a great deal is known about panic disorder in adults; therefore, a brief review of important findings is presented, followed by a review of reports in children.

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NATURE OF PANIC DISORDER IN ADULTS

Definitions

The DSM-III-R diagnosis of panic disorder (APA, 1987) requires that the individual experience an occurrence of one full-symptom unexpected panic attack followed by either four attacks occurring within any 4-week period or any fear of having another attack (anticipatory anxiety) for at least one month. Panic attacks are defined as rapid-onset, discrete periods of intense fear or discomfort, characterized by at least four symptoms from an array consisting of shortness of breath, palpitations or accelerated heart rate, dizziness or faintness, trembling or shaking, sweating, choking or smothering sensations, nausea or abdominal distress, depersonalization or derealization, paresthesias, flushes or chills, chest pain or discomfort, fear of dying, and fear of going crazy or losing control. A panic attack that has fewer than four of these symptoms is considered a limited-symptom attack. Prototypically, panic attacks are spontaneous and unexpected, in the sense that they occur without exposure to a specific phobic object or feared situation and therefore cannot be kept at bay completely by avoiding provocative experiences. Situationally predisposed panic attacks may develop if spontaneous panic attacks occur repeatedly in specific situations. Included are cases in which the avoidant behavior originated from active panic disorder, even if the person does not attribute it to fear of panicking or the panic attacks no longer occur. The disorder is divided into two subtypes: with and without agoraphobia. Agoraphobia is defined as the fear of "being in places from which escape might be difficult (or embarrassing) or in which help might not be available in the event of a panic attack" (APA, 1987, p. 236), resulting in restriction of travel, the need for a companion when away from home, or intense anxiety about independent travel.

It is important to make a distinction between patient self-reports of diffuse, generalized anxiety, performance anxiety, or situational anxiety, which may be described as panic, and the panic attacks of panic disorder, which are spontaneous and crescendo. Another potential source of confusion is that the experience of panic is not limited to panic disorder, but may occur in other anxiety disorders, such as in social and simple phobias and posttraumatic stress disorder when the person finds himself in the feared situations.

Classically, many patients with adult-onset panic disorder remember their first spontaneous panic attack vividly and can describe the circumstances in detail. This initial attack occurs in a setting that had not provoked fear previously. Typically, the individual experiences rapid onset, within a few minutes, of several physical symptoms, accompanied by a fear of death or loss of control and an intense desire to flee. The episode usually lasts a few minutes. Patients usually deny that there were immediate stressors, specific thoughts, or anxiety that preceded the attack, although some clinicians argue from a psychodynamic perspective for unconscious processes leading to the anxiety attacks. Most adults report life stressors, particularly loss, in the months preceding the onset of panic (Hoehn-Saric & McLeod, 1988). Subsequent attacks may not be limited to settings in which a previous attack occurred, and often become more frequent. The sudden onset of physiological symptoms may lead the individual to seek medical attention due to fear of having a heart attack or dying. The victim may do so repeatedly, leading to expensive medical evaluations because the psychiatric nature of the physical complaints is not appreciated. Individuals may develop situationally predisposed panic attacks, which occur more frequently in a certain place or situation that has become associated with the attacks. A state of chronic

anxiety may develop due to anticipation of further attacks. The fear of repeated attacks can progress to a set of avoidances, commonly referred to as a "agoraphobia" (literally, a "fear of the marketplace," which is not entirely accurate as a description of this behavior), with the person restricting travel to avoid settings in which panic attacks have occurred or requiring the company of a special confidant to leave the safety of home or enter a place where rapid escape during a panic attack would be difficult or embarrassing. The interval between onset of the disorder and accurate diagnosis with effective treatment is often years, with agoraphobia, demoralization or depression (with possible suicidality), and significant impairments in quality of life often developing in the interim (D. F. Klein & H. M. Klein, 1989a; Weissman, 1991).

The proposed criteria for DSM-IV (APA, 1993) have changed little from those in DSM-III-R (American Psychiatric Association, 1993). Greater emphasis is placed on the distinction between spontaneous "unexpected (uncued) panic attacks" and "situationally bound (cued) panic attacks." Spontaneous panic attacks will be clearly required for the diagnosis of Panic disorder, whereas "situationally bound panic attacks are most characteristic of Social and Specific Phobias." An intermediate third type, "situationally-predisposed panic attacks," which are not invariably associated with a cue or situational trigger, will also be described. It is hoped that defining these subtypes of panic attacks will lead to research that clarifies the current confusion about differential diagnosis of anxiety disorders.

The *International Classification of Disorders*, 10th edition (ICD-10) (World Health Organization, 1992), delineates research diagnostic criteria similar to the DSM-IV criteria, in an effort to bring diagnostic practices and research criteria into greater international agreement. However, there remain several key differences between the two classification systems with respect to panic disorder and agoraphobia.

In the ICD-10 system, agoraphobia is a diagnosis separate from panic disorder, and is subtyped by whether panic attacks are present or absent. Therefore, the emphasis is on agoraphobia rather than panic disorder, and spontaneity of panic attacks is not a requirement for panic disorder. Research diagnostic criteria for panic disorder (episodic paroxysmal anxiety) define panic attacks as discrete, abrupt, crescendo episodes of intense fear or discomfort that are not consistently associated with a specific situation or object, are often spontaneous and unpredictable, and are not associated with exertion or life-threatening situations. However, a panic attack requires only two of the checklist of physiological and psychological symptoms, rather than a minimum of four symptoms described in DSM-IV, with only one symptom of autonomic arousal required (palpitations/accelerated heart rate, sweating, trembling, or dry mouth). The published clinical diagnostic guidelines for panic disorder in ICD-10 are even less restrictive, requiring the absence of specific phobic situations causing panic attacks (including agoraphobia), and "several severe attacks of autonomic anxiety . . . within a period of about 1 month" in the absence of objective danger, not confined to predictable situations (phobias), and comparatively free from anxiety between panic attacks. Diagnosis of panic disorder using ICD-10 *does not require that spontaneous panic attacks occur* at some time in the disorder, and if panic attacks occur in the course of a depressive disorder, the diagnosis of panic disorder is excluded. This definition reflects the view that panic attacks are extreme variants of fear, rather than separate and distinct clinical phenomena. Therefore, panic attacks are typically subsequent to agoraphobia or other disorders, rather than indicative of a separate disorder, and agoraphobia is subtyped by the presence or absence of panic attacks, which is the converse

of DSM-IV, in which panic disorder is subtyped by the presence of agoraphobia. The DSM-IV system is based on the view of panic attacks as separable into categories of spontaneous and situational attacks, with spontaneous attacks giving rise to panic disorder and subsequent avoidance of situations in which panics occur giving rise to agoraphobia. This conceptual difference represents an important distinction from both a research and a clinical perspective.

This issue of whether agoraphobia exists in the absence of panic has arisen from the Epidemiologic Catchment Area (ECA) study, which found individuals in nonclinical samples who reported symptoms of agoraphobia without meeting criteria for panic disorder. Consequently, in DSM-III-R, there is a separate category for agoraphobia without history of panic disorder, which is reported to be uncommon, and usually involves limited-symptom attacks or fear of attacks that do not meet full criteria for panic disorder. The inclusion of this category was based on the finding that 68% of 961 cases of agoraphobia identified in the ECA study had no history of panic attacks, relying on structured interviews conducted by nonclinicians. D. F. Klein and H. M. Klein (1989b) note that among clinic referrals, agoraphobia without preceding panic attacks has not been reported. They question whether the wording of interview questions for the ECA study could have led to misidentification of social and specific phobias as agoraphobia. To address this question, Horwath, Lish, Johnson, Hornig, and Weissman (1993) reinterviewed 22 of the cases identified in the ECA study as having agoraphobia without panic disorder, using clinicians and different methodology. Of these subjects, 19 (86%) had simple or social phobias or fears, 1 had definite panic disorder with agoraphobia, 1 had probable agoraphobia with limited-symptom panic attacks, and 1 did not meet full criteria for agoraphobia without panic attacks. The authors conclude that agoraphobia without panic is rare and that the methodology of the ECA, which relied on lay interviewers, overestimated its prevalence. Until further research has clarified this controversy, agoraphobia without panic will remain in DSM-IV.

Epidemiology

In adult population studies (Weissman, 1988), panic disorder has been found to be more common in females, ages 25–44, and the separated and divorced. Most surveys have found a male/female ratio of about 1:2. The 6-month prevalence is remarkably consistent across varying United States geographical sites, at 0.6–1.0%; surveys in other countries have yielded very similar rates of panic disorder. Lifetime prevalence is somewhat higher at 1.4–1.5% (Robins, Helzer, Weissman, Orvaschel, Greunberg, Burke, & Regier, 1984). No consistent relationship to race or education has been found. The findings point to a peak of onset of first panic attacks between the ages of 15 and 19, suggesting that panic disorder often begins in adolescence.

THEORETICAL MODELS

The existence of multiple theoretical models that attempt to explain the symptoms found in panic disorder reflects the lack of a true understanding of the disorder. The theories also reflect the diversity of scientific disciplines that have contributed to the study and treatment of anxiety disorders. The theories fall into three groups: human physiology, human cognitive psychology, and behavioral neurophysiology of other mammals.

Biological and Physiological Studies

A detailed discussion of the large literature regarding biological and physiological features of adult anxiety disorders is beyond the scope of this chapter. Several recent publications review this area (see Levin & Liebowitz, 1988; Uhde & Tancer, 1989; Ballenger, 1990). One theory involves hypothesized abnormalities in autonomic regulation, which is mediated through adrenergic neurons both centrally in the brain and peripherally in the sympathetic nervous system. Biochemical measures indicative of increased adrenergic function in panic patients include increased peripheral catecholamines, elevated platelet monoamine oxidase activity, and decreased platelet β-adrenergic receptors.

Pharmacological challenge with agents known to affect adrenergic neurons has been another method of investigating the role of these systems in anxiety, and the ability of drugs known to ameliorate panic disorder to modulate the effects of such challenges supports the model of adrenergic dysfunction. Challenge with yohimbine (an α_2-adrenergic receptor antagonist) causes anxiety and physiological symptoms associated with panic attacks in adults with panic disorder at doses not found to be anxiogenic in normal controls, an effect that can be blocked by treatment with the antipanic drug alprazolam. Similarly, isoproterenol (a β-adrenergic receptor agonist) induces panic in patients that is blocked after treatment with imipramine, another effective agent in panic disorder. Caffeine, in very high doses, can cause panic-like symptoms even in normal subjects, but intermediate high doses induce significantly more panic in panic disorder patients than in controls. Despite these findings, the hypothesis of adrenergic dysfunction as an etiological explanation for panic disorder remains controversial because of conflicting data.

The most specific agent found to precipitate panic attacks in adults with panic disorder but not in controls is infusion of 0.5 M sodium lactate. The mechanism by which lactate induces panic, and whether adrenergic neurons are involved, is unknown. Lactate-induced panic is blocked by effective treatment with agents that have proven efficacious for panic disorder, e.g., alprazolam, imipramine, and monoamine oxidase inhibitors, but not by propranolol, a β-adrenergic blocker, which is not an effective treatment.

Similarly, inhalation of 5% carbon dioxide induces panic attacks in panic disorder patients but not in controls. During studies of CO_2 inhalation and respiratory physiology, panic disorder patients have been found to have resting respiratory parameters indicative of chronic hyperventilation (increased tidal volume, decreased pCO_2 and serum bicarbonate) and exaggerated ventilatory response to CO_2, implicating an abnormality of central CO_2 receptors; these differences are no longer found after effective pharmacological treatment. *In vivo* monitoring of cardiovascular physiology has documented rapid increases in heart rate during spontaneous panic attacks, as distinct from nonpanic anxiety states, which lack these abrupt changes. Altogether, although the exact mechanisms for these differences remain speculative, the weight of the evidence points to panic sufferers having distinct autonomic physiology not found in normals or in other psychiatric disorders. A recent hypothesis proposes that dysfunctional respiratory regulatory mechanisms, which cause a "suffocation false alarm," may be antecedents of panic disorder (D. F. Klein, 1993).

While there are no published studies of the physiology of children with anxiety disorders comparable to the work in adults, an important body of literature has come from Kagan's Harvard Infant Study Laboratory on the physiology and development of normal children who demonstrate behavioral inhibition when placed in unfamiliar situations (Kagan et al., 1990). This work may have relevance to anxiety in children because of parallels with findings in anxious adults. In this model, children who demonstrate a marked

tendency as infants to withdraw from novel stimuli or strangers, seek a parent, and inhibit play and vocalization are labeled inhibited vs. uninhibited, who approach and explore and remain talkative in new situations. The inhibited temperament appears to be related to other theoretical constructs such as fearfulness, intraversion–extraversion, and shyness as a personality trait. Kagan's group has been following nonclinical cohorts of inhibited children, compared to groups of sociable, bold, and fearless children, identified at 21 and 31 months of age. When followed into school age, these behavioral characteristics tend to persist. Of note, physiological measures of arousal, including heart rate and heart rate variability, correlate with inhibited behavior and are also maintained over time. The inhibited children have been found to have higher heart rates and decreased variability at all ages. Further, those inhibited children who became more outgoing have a drop in heart rate over time. Other measures of autonomic arousal in response to cognitive tasks, including increases in salivary cortisol and urinary metabolites of norepinephrine, pupillary dilation, and decreased voice pitch variability, also correlated with behavioral inhibition. The children with consistently high heart rates had the largest number of specific fears, night terrors, and maternal reports of shyness and fear of school. While this finding does not represent panic disorder, it demonstrates that signs of physiological arousal correlated with anxiety disorders in adults also exist in children with a propensity for anxious responses to novelty. This difference in autonomic responsiveness is believed to be a manifestion of the neural substrate out of which anxiety disorders can arise.

Kagan's group reported a similar study measuring the responses of children of panic disorder patients compared to matched controls who had parents with depression or other diagnoses (Kagan et al., 1990; Rosenbaum, et al., 1988). Although they did not demonstrate statistically significant heart rate differences, they did find significantly increased latency to first utterance and decreased overall spontaneous utterances in a novel situation in the children of panic patients. Similar speech differences were found in inhibited children in the original studies. Longitudinal follow-up assessment of both the original cohorts of normal children and these "at risk" children of panic-disordered adults revealed that children who were inhibited developed significantly more anxiety disorders in both groups, supporting the hypothesis that behavioral inhibition to the unfamiliar is a risk factor for later anxiety disorders (Biederman et al., 1993; Hirshfeld et al., 1992). These investigators have also examined the parents of both clinical and nonclinical cohorts of children studied in the inhibited-child paradigm. There were more anxiety disorders in the parents of inhibited children who had anxiety disorders than in the parents of inhibited children free of anxiety disorders or in the parents of noninhibited children (Rosenbaum, Biederman, Bolduc, Hirshfeld, Faraone, & Kagan, 1992). Further studies are needed to clarify whether anxious children (or the children of anxious parents, presumed at risk) show the physiological differences that characterize anxious adults.

Cognitive Models

Cognitive models of panic make a distinction between anxiety, as a loose negative cognitive–affective structure or mood state, and fear, an inborn and basic emotional alarm response to environmental cues. Fear-producing stimuli trigger the autonomic processes needed for flight to safety, including increased heart rate, ventilation, and metabolic output to prepare for increased muscle activity. Some cognitive theorists conceptualize panic attacks as the initial occurrence of a fear response without an environmental reason or cue, a false alarm (Clark & Beck, 1989). This false alarm triggers the physiological symptoms of

hyperventilation (increased need for oxygen), rapid heart rate (increased circulation to support flight activity), and so on, which are then negatively and catastrophically misinterpreted. The presence of fear without a stimulus that the individual can avoid or flee creates a sense of uncontrollability. The resulting distorted cognition is the belief that something catastrophic will happen: that one is going crazy, losing control, or about to die. Others do not invoke the notion of a false alarm and attribute the panic to negative interpretation of somatic experience. Fundamental to cognitive models is the idea that ordinary physiological processes are misinterpreted, producing thoughts such as, "I am going to have a heart attack/die/pass out/suffocate/vomit," causing rapid escalation of the anxiety to the point of panic. Both the initial false-alarm fear and the anxiety that reinforces it to create panic are presumed to be due to innate individual psychological and biological vulnerability, but the cognitive process of attributing disastrous consequences to "body sensations" is not. It is this cognitive process that is responsible for the development of panic disorder. Repeated experience of the unprovoked fear or panic leads to further anticipatory anxiety, and possibly to avoidance of situations that the individual cognitively associates with the panic feeling state, both common features of panic disorder.

The cognitive model, while contributing significantly to treatment research, does not completely account for the phenomena of panic disorder. The theoretical constructs that cognitions, as measured by self-report, are (1) distinct from "body sensations" and (2) causative, independently of somatic processes, in the genesis of panic attacks have not been convincingly demonstrated (Costello, 1992). It has been found that behavioral relaxation techniques, often advocated as a treatment for anxiety, induce panic in some patients, possibly due to sensitivity to changes in blood pCO_2 during relaxation (Adler, Craske, & Barlow, 1987; Ley, 1988). Another criticism of this model would be the inability to explain the commonly reported phenomenon of patients awaking from a sound sleep with panic. Patients report that it is not attributable to a bad dream, and sleep laboratory studies have demonstrated that panic attacks can occur in non-REM (i.e., nondream) sleep (Levin & Liebowitz, 1988). The model also fails to account for patients who have panic attacks and meet criteria for panic disorder, who experience the somatic symptoms and discomfort, but report no fear (Kushner & Beitman, 1990). These "nonfearful panic disorder" patients have been shown to be lactate-sensitive and respond to antipanic medications. Such patients are typically identified in medical settings, where they present with cardiac symptoms in the absence of demonstrable coronary disease.

Animal Models

Since anxiety and autonomic arousal are normal responses to stressors in all vertebrates, it would seem natural to look to animal models to further our understanding of anxiety disorders in humans. Indeed, much has been learned about the neurophysiology of anxiety and its treatment through the study of animals. However, no known model of spontaneous panic in animals in normal settings has been found. The search for an animal model for panic disorder has mostly involved studies of either pharmacologically induced anxiety or conditioned responses to extremely stressful noxious situations that the animal would normally never encounter. Whether these represent accurate models of unprovoked panic attacks is questionable. From an evolutionary perspective, the response of increased arousal or anxiety when confronted with noxious or dangerous stimuli has adaptive value and is qualitatively different from the spontaneous arousal of panic disorder. Other models of animal anxiety that have relevance to panic disorder include selective breeding of

"nervous" pointer dogs and Maudsley high-reactive rats, which have provided better models of spontaneous abnormal responsiveness that can be modulated by the same pharmacological treatments useful in humans. These models are particularly cogent in the light of evidence for heritability of panic disorder in humans. Nonetheless, the theoretical dilemma remains of whether these are analogous vs. homologous behaviors across species (Weiss & Uhde, 1990).

Another relevant approach to the study of anxiety and panic has been the many studies of separations and intrusions in primates. These paradigms involve separation of infant monkeys from their mothers, mother-surrogates, and peers. Early experiences of separation, in addition to the well-documented immediate responses of agitated protest and autonomic arousal (anxiety) and subsequent despair and withdrawal (depression), can have long-lasting effects. These effects have included altered autonomic reactivity, increased susceptibility to stress, and increased anxiety-like behaviors, both spontaneously and in response to novel stimuli, such as strange monkeys and new environments (Suomi, 1985, 1986). This pattern parallels the phenomena of separation anxiety disorder and mixed depression and panic in humans. Another model involves exposure of a monkey to an unfamiliar group of monkeys (who are familiar to each other), which produces autonomic and behavioral signs of distress and long-lasting sensitivity to other anxiogenic stimuli, along with decreased exploratory behavior. There is individual variability in responses, but selective breeding has produced two strains of high-reactive and low-reactive monkeys with differences in behavior, neurophysiology, autonomic responsiveness, and susceptibility to these effects. High-reactive monkeys explore less, have a greater depressive response to separation, are more disrupted by stress with greater physiological arousal, and are more rejecting as mothers. These high-reactive monkeys appear similar to Kagan's inhibited children. This model is still in its early developmental stages, but may provide an experimental strategy for investigating the contribution of organismic and environmental characteristics to the development of anxiety.

PANIC DISORDER IN CHILDREN

Panic disorder is listed in DSM-III-R in the adult anxiety disorders section and is not considered one of the disorders first evident in childhood. Whether spontaneous panic attacks occur in prepubertal children remains an area of controversy. However, studies of adults with panic disorder have reported that some patients trace the onset of their panic symptoms to childhood or adolescence. Onset of panic disorder in older adolescents who are postpubertal is well established (NIH, 1991), although no prospective epidemiological data are yet available for this age group. The Epidemiologic Catchment Area Survey of adults found a peak age of onset for panic attacks between 15 and 19 years of age, with many reporting onsets before age 10 (Von Korff, Eaton, & Keyl, 1985). Thyer, Parrish, Curtis, Nesse, and Cameron (1985) reviewed charts of adults with anxiety disorders and noted that 39% of patients with panic disorder reported onset before age 20 and 13% before age 10. These reports must be interpreted cautiously due to the potential inaccuracy of retrospective recall of symptom onset. While some patients may remember well their early attacks, accurate recall of frequency, context, and other symptoms that could differentiate panic disorder from other childhood diagnoses, such as separation anxiety disorder and phobias, is more difficult. Whether such patients indeed had panic disorder in childhood is unclear.

D. F. Klein posited a developmental relationship between childhood separation anxiety disorder and adolescent- or adult-onset panic disorder (Gittelman & Klein, 1984; D. F.

Klein, 1964). Klein and others have found high rates of histories of separation anxiety disorder in clinical samples of adults with panic disorder. The issues of whether separation anxiety with panic symptoms at times of separation is an antecedent of panic disorder and whether spontaneous panic in young children is misdiagnosed as separation anxiety disorder contribute to the controversy surrounding panic in children. Nonetheless, the possibility that panic disorder may arise in childhood has alerted clinicians and researchers to the need to study panic symptoms in children. If panic disorder or its antecedents can be identified at an earlier age, preventive strategies might be developed to lessen the long-term morbidity and health care costs associated with the disorder in adulthood.

Although no controlled or prospective studies of children with panic disorder have been reported, there have been a number of single-case and case-series reports to date, as summarized in Table 1. These reports vary in their methodology, diagnostic criteria, and reports of comorbidity and course. There have been no epidemiological studies of young children that can address the questions of incidence and prevalence. Panic disorder appears to be rare in prepubertal children.

Because of the incertitude regarding pubertal status in many reports, we shall refer to children under age 12 as "preadolescents" and specify "prepubertal" when we are confident that we are referring to children at Tanner stages I or II. For simplicity, we shall use "children" and "childhood" to refer to all ages up to 18, unless otherwise specified.

Van Winter and Stickler (1984) were the first to report "panic attack syndrome" in children attending a pediatric clinic. They identified 7 cases, ranging in age from 8 to 16, at least two of which may have had prepubertal onset. The authors noted a high prevalence of panic attacks in first- or second-degree relatives of each case and association with mitral valve prolapse. Whether the patients met full DSM-III criteria for spontaneous panic or had other psychiatric diagnoses was not specified.

Biederman (1987) described 3 prepubertal children with panic attacks who responded favorably to clonazepam, a drug thought to be effective in adults with panic disorder. All cases had multiple anxiety diagnoses, including separation anxiety disorder or overanxious disorder, and two had mothers with panic disorder with agoraphobia.

Alessi and Magen (1988) reported 7 prepubertal inpatients diagnosed with panic disorder retrospectively based on clinical assessment and diagnosis at discharge. Of these patients, 6 (86%) had concurrent separation anxiety disorder, 4 had mood disorders, and 4 had disruptive behavior problems. The authors raise the questions of whether hospitalization brings out panic symptoms in separation-anxious or depressed patients and whether panic disorder had been previously overlooked in this group due to a tendency to identify severe childhood anxiety as separation anxiety disorder, overanxious disorder or "school phobia," rather than consider a diagnosis from the adult nomenclature.

Another 3 children with DSM-III-R panic disorder with agoraphobia were described by Ballenger, Carek, Steele, and Cornish-McTighe (1989). Ages at report were 8, 11, and 13, although pubertal status was not mentioned. Comorbid diagnoses were not indicated, although the case histories suggest symptoms of separation anxiety, school refusal, and social avoidance. Specifically, the 8- and 11-year-old girls' "agoraphobic" symptoms included abdominal pain at school, school refusal or calling to be taken home from school, and avoidance of, or protest about, separation from parent or home—classic features of separation anxiety disorder. It is not clear that panic attacks in these girls were independent of situations that required separation from parents.

In a family history study of adults, 7 children and adolescents with panic disorder were identified from 220 children of depressed mothers, on the basis of structured interviews of

Table 1. Reports of Panic in Children

Study	*N*	Female (%)	Study type	Systematic assessment and structured interviews[c]	Age range: At report	Age range: At onset	Other diagnoses[a,b]: Sep. anx. *N* (%)	Other diagnoses[a,b]: Mood dis. *N* (%)	Family history[a]: Panic *N* (%)	Family history[a]: Mood *N* (%)
Van Winter & Stickler (1984)	7	71	Case report	None	9–17	8–16	NR	NR	7 (100)	NR
Herskowitz (1986)	4	50	Case report	None	13–16	9–15	1[b] (25)	4[b] (100)	NR	NR
Alessi et al. (1987)	10	60	Inpatient (N = 61)	SADS	14–17	12–15	4 (40)	9 (90)	NR	NR
Biederman (1987)	3	33	Case report	None	8–11	6–11[b]	3 (100)	0	2 (67)	NR
Vitiello et al. (1987)	2	0	Case report	DISC	8–10	1–5	2 (100)	NR	2 (100)	NR
Alessi & Magen (1988)	7	43	Inpatient (N = 136)	None	7–12	3–12	6 (86)	4 (57)	NR	NR
Ballenger et al. (1989)	3	67	Case report	None	8–13	8–13[b]	1 (33)	0	1 (33)	1 (33)
Last & Strauss (1989)	17	65	Outpatient (N = 177)	K-SADS	14–18	9–18	2 (12)	2 (12)	3/9[d] (33)	NR
Moreau et al. (1989)	7	57	Familial risk (N = 220)	K-SADS	11–23	5–18	4 (57)	5 (71)	NR	7 (100)
Black et al. (1990)	2	100	Case report	Yes[e]	8–12	8–9	1 (50)	1 (50)	1 (50)	2 (100)
Black & Robbins (1990)	6	67	Case report	None	14–28	4–15	3 (50)	5 (83)	1 (17)	3 (0)
Garland & Smith (1990)	4	50	C&L chart review	None	8–15	8–13	1[b] (17)	NR	1 (25)	2 (50)
Vitiello et al. (1990)	6	17	Case report	DICA, DIS (panic)	8–13	5–11	4 (67)	0	6 (100)	NR
Total or mean for all cases reported	78	55%			13.97	11.63	32/71 (45%)	30/65 (46%)	24/42 (57%)	15/22 (68%)

[a](NR) Information on comorbid diagnoses and family history was not given in some reports.
[b]Diagnosis and onset may be estimated from case material.
[c](SADS) Schedule for Affective Disorders and Schizophrenia for Children; (DISC) Diagnostic Interview Schedule for Children; (K-SADS) SADS for School-Age Children; (DICA) Diagnostic Interview for Children and Adolescents; (DIS) Diagnostic Interview Schedule.
[d]Only 9 parents participated in the family history assessment.
[e]K-SADS for one case, ADISCP for the other.

parents and children (Moreau, Weissman, & Warner, 1989). No case of panic disorder was found in the group from nondepressed parents. In this study, 4 cases were reported retrospectively to have had an onset before age 12. Further, 4 had a parent with panic disorder in addition to depression, and 5 (71%) had separation anxiety disorder or depression themselves. All cases with separation anxiety disorder reported panic attacks that were not limited to separation experiences (Moreau, personal communication). The authors noted that children were less likely than parents to recall past episodes if they were not currently symptomatic. This finding raises questions regarding the ability to provide reliable retrospective reports.

In another study, 6 cases of prepubertal children with panic disorder diagnosed with structured psychiatric interviews were reported by Vitiello, Behar, Wolfson, and McLeer (1990), with concurrent diagnoses (separation anxiety disorder in 4), and family histories of panic disorder. Of these cases, 3 were referred because of school refusal. The authors argue for the independence of panic disorder from separation anxiety disorder, pointing out that 2 children had no history of school refusal or separation anxiety disorder, and the panic attacks of those who did were not always in a separation context.

Females were overrepresented in 17 cases of panic disorder identified in 177 consecutive admissions to an outpatient child anxiety clinic (11:6). Only 1 reported a prepubertal onset (age 9) (Last & Strauss, 1989). Comorbidity and past history obtained through structured interviews most commonly included other anxiety disorders and depression, but half the cases had no previous psychiatric history or concurrent additional diagnosis. In contrast to other reports, only 2 of the cases (12%) had separation anxiety disorder.

Black and Robbins (1990) reported 6 cases, all with a history of major depression and half with a history of separation anxiety disorder. At least 4 seemed to have responded to a tricyclic. Pubertal status at onset of panic disorder is not stated, and reports were retrospective in the cases that may have had preadolescent onset. In response to questions regarding the accuracy of retrospective report of childhood onset (D. F. Klein & R. G. Klein, 1990), Black, Uhde, and Robbins (1990) reported 2 more cases with onset before age 10 of typical panic disorder with agoraphobia in which separation anxiety symptoms were absent or were preceded by the onset of panic attacks.

In a review of records from 4 years of a child psychiatric–liaison service in a children's hospital, Garland and Smith (1990) identified 4 cases felt to meet DSM-III-R criteria for panic disorder. Three of the four had been referred to psychiatry after extensive negative medical investigations. Only one, an 8-year-old boy, was preadolescent, and the description of onset of his symptoms detailed situational anxiety rather than clearly spontaneous attacks. Specifically, "He had recently reentered school with a new, strict teacher in grade 3, and a reading disability had been recognized. He had some realistic worries about his father's physical health. Five minutes before the first panic attack, he had seen a grizzly bear in the wild very close to his small boat."

Despite these reports, the recent scientific literature regarding panic disorder in children reflects an ongoing debate about the existence of spontaneous panic in young children (Abelson & Alessi, 1992; Hayward, Killen, Hammer, Litt, Wilson, Simmonds, & Taylor, 1992; Kearney, 1991; D. F. Klein & H. M. Klein, 1990; Nelles & Barlow, 1988). Cognitive theorists contend that panic may be due to making incorrect cognitive inferences about bodily sensations ("catastrophic misinterpretation"), which require a cognitive schema for causation, attribution, and control of mental processes and awareness of the relationship between internal psychological and physiological events. Nelles and Barlow argue that young children have not developed the cognitive capacities for abstraction and psychological self-awareness considered necessary to make such inferences.

Most studies of anxiety disorders in childhood have found very little or no spontaneous panic attacks in preadolescent children, although retrospective reports by adults with panic disorder have suggested that the onset of spontaneous panic can occur during preadolescence. D. F. Klein, Mannuzza, Chapman, and Fyer (1992), responding to the debate, reanalyzed their clinical samples of adults and the families of adult patients, from data gathered by trained research clinicians using the Schedule for Affective Disorders and Schizophrenia—Lifetime Version (Fyer, Endicott, Mannuzza, & Klein, 1985), and concluded that convincing retrospective reports of preadolescent spontaneous panic were rare. Of 903 subjects, only 9 reported experiencing spontaneous panic attacks prior to age 13, and only 3 of those were judged to have preadolescent onset of the full syndrome, one of which occurred in the context of marked separation anxiety.

A recent study investigated the relationship of panic attacks to pubertal status (Hayward et al., 1992) in structured interviews with 6th- and 7th-grade girls from suburban northern California schools. Of the 754 completed evaluations, 40 (5.3%) reported ever having a panic attack (diagnoses were not reported); however, none of these was prepubertal (Tanner Stage I or II). There was a striking correlation of increasing rates of panic attacks with higher developmental stage, regardless of age. This finding supports the view that panic attacks are a specific psychophysiological abnormality that typically does not occur in prepubertal children.

There have been studies that looked exclusively at adolescents. Alessi, Robbins, and Dilsaver (1987) reported on 10 psychiatrically hospitalized adolescents with "definite panic disorder" and another 15 with "possible panic disorder." Concurrent affective disorders occurred in 90% of the "definite" cases and 40% of the "possible" cases. The authors raise the question of whether 4 of the "definite" cases with a previous diagnosis of separation anxiety disorder were previously unrecognized panic disorder.

In a report from the neurological literature, 4 adolescents referred for neurological evaluation were subsequently diagnosed with panic disorder as the source of the symptoms that led to the evaluation (Herskowitz, 1986). One girl reportedly had onset at age 9, but her symptoms were atypical ("episodes of 'spinning,' trembling, staring, and a feeling of fright, followed by headache and exhausted sleep"), and she had an abnormal electroencephalogram suggestive of temporal lobe epilepsy. At age 13, more typical panic attack symptoms occurred and responded partially to imipramine. From the description, it is unclear whether this child had both a seizure disorder and adolescent-onset panic or only a seizure disorder.

Devinsky, Sato, Theodore, and Porter (1989) reported an interesting case of a 13-year-old girl with a long history of panic-like fear episodes and seizure-like changes in consciousness without electroencephalographic changes, unresponsive to anticonvulsants, and suspected to be "functional" rather than a neurological disorder. Subsequent investigation with surgically implanted subdural electrodes documented seizure activity in association with the symptoms. Surgical resection of the anterior temporal lobe alleviated the seizures and symptoms. This is the converse of Herskowitz's findings: actual neurological disorder mimicking panic disorder. We include this report as a cautionary example that a medical disorder with predominantly behavioral manifestations and unresponsive to the usual treatments should not summarily be labeled "functional" or psychogenic. We have also encountered two preadolescents with spontaneous panic attacks who had neurological signs indicative of a seizure disorder, such as auras preceding, and somnolence immediately after, the attacks. It is conceivable that spontaneous panic attacks in preadolescent children may be signs of a neurological disorder.

In a meta-analysis of the reports of adolescent panic disorder, Kearney and Silverman

(1992) caution that our understanding of panic in adolescents is limited by the following methodological short-comings: (1) relatively small sample sizes; (2) varied assessment strategies, often with questionable reliability and validity in this population; (3) the predominance of inpatient samples; (4) the high association with depressive disorders; (5) the lack of distinction between spontaneous and provoked attacks in all studies; and (6) the lack of normative data regarding panic symptoms in this age group for comparison. These same criticisms apply to reports of panic in young children, as illustrated when all reports are considered (Table 1).

DIFFERENTIAL DIAGNOSIS

Several disorders can be accompanied by acute anxiety episodes that must be distinguished from panic attacks characteristic of panic disorder. These disorders include separation anxiety disorder, simple phobias, and social phobia. If the panic attacks are always related to a specific feared or anxiety-provoking situation (including separation from caretakers or home) or situations in which the individual is the center of attention, as in social phobia, then the panic attack cannot be considered spontaneous. Conversely, panic disorder remains the appropriate diagnosis for individuals who have experienced spontaneous panic attacks in specific situations and have developed anticipatory fear or avoidance (e.g., while shopping, traveling on a bus, or attending school), even when the person no longer reports a fear of further panic attacks as the reason for avoidance. It is important for the clinician to elicit the time course of symptom development that allows an accurate differential diagnosis. However, there can be concurrence of panic and other anxiety disorders in which both spontaneous and situational panics occur, such as the combination of social phobia and panic disorders.

Overanxious disorder or generalized anxiety disorder must be differentiated from panic disorder on the basis of the discrete, crescendo nature of panic attacks. Overanxious disorder/generalized anxiety disorder patients may have somatic symptoms similar to those of panic disorder, including such symptoms as palpitations, shortness of breath, dizziness, sweating, nausea, and headaches or stomachaches, but these symptoms are not of very brief duration and do not regularly come on suddenly and unexpectedly.

As suggested by the fact that the first report of panic attacks in childhood originated from a pediatric clinic (Van Winter & Stickler, 1984), panic sufferers may first present to a medical setting complaining of physical symptoms rather than anxiety, which can lead to misdiagnosis of a medical condition instead of panic disorder. Some medical disorders can cause symptoms similar to those of panic disorder, but are excluded from the diagnosis by DSM-III-R. These disorders include substance abuse, caffeinism, drug or alcohol withdrawal, asthma, cardiac disorders, seizure disorders, catecholamine-releasing tumors, hyperthyroidism, hypoglycemia, and other metabolic disorders.

COMORBIDITY

It is not unusual for children who present for evaluation and treatment in clinical settings to have multiple diagnoses, in both psychiatric and medical domains. Co-occurrence of conditions, whether etiologically related or coincidentally present in the individual case, can complicate diagnosis and may affect prognosis and the choice of treatment approach.

Co-occurring Psychiatric Disorders

As noted, studies of adults and case reports of children with panic disorder indicate high rates of comorbid anxiety disorders and depression. As apparent from the case reports (Table 1), the most common additional diagnoses in children with panic disorder appear to be separation anxiety disorder and depressive disorders (both major depression and dysthymia). Other comorbid diagnoses reported in children have included phobias, overanxious disorder, attention-deficit, conduct and oppositional defiant disorders, substance abuse, posttraumatic stress disorder, and borderline personality disorder. As with adults, it is likely that a family history of mood disorders increases the risk to children of developing comorbid depression. It is unknown whether depression precedes, or is consequent to, the onset of panic attacks in children.

Comorbidity of panic disorder with depression or personality disorders in adults has been correlated with increased risk of suicide and chronicity in adults; this correlation may also prove true for children. A retrospective study of adults found a correlation of a history of childhood anxiety with current comorbid personality disorder and other anxiety disorders (Pollack, Otto, Rosenbaum, & Sachs, 1992), which is hypothesized to represent an underlying "anxiety proneness" in childhood that leads both to personality dysfunction and to anxiety disorders in adults.

Co-occurring Medical Disorders

The most common concurrent medical diagnosis in panic disorder is mitral valve prolapse (MVP), which is not considered etiological and does not rule out the diagnosis. Reports about its prevalence both in the general population and in panic patients vary widely, due to methodological and criteria differences for diagnosing MVP (Dager, Saal, Comess, & Dunner, 1988). A study to examine the diagnostic reliability of echocardiography in the detection of MVP in panic patients found poor interrater and intrarater reliability using careful methodology (Dager, Comess, Saal, Sisk, Beach, & Dunner, 1989). There is continued debate about whether all MVP cases represent disease states. The cardiac literature makes a distinction between an uncommon, more serious anatomical form of the disorder and a common benign form (Marks, Choong, Sanfillipo, Ferr, & Weyman, 1986; Wynne, 1986). The first, with valve thickening or calcification, is often due to congenital or degenerative connective tissue disease and is more likely to have complications such as endocarditis or arrhythmias, to be symptomatic, and to require surgical correction. The second is found in 4–5% of the population, lacks these anatomical defects, is usually without complications, is often asymptomatic, and may represent a variant of normal function. It has been suggested that this second type is the one found in anxious patients. A drop in the occurrence of echocardiographic MVP after treatment for panic has been reported, suggesting that the MVP represents a functional change based on an underlying autonomic dysregulation peculiar to panic disorder (Gorman, 1992).

MVP has been reported in children with panic disorder (Ballenger et al., 1989; Vitiello et al., 1990), but the prevalence and significance of this finding are unclear, in light of the preceding discussion and the lack of comparison subjects.

Panic symptoms have been reported in association with asthma and other respiratory disorders and may be the same disorder as the "hyperventilation syndrome" described in the pediatric literature (Van Winter & Stickler, 1984). The diagnosis of panic disorder is precluded if the symptoms are directly due to medical disease (e.g., panic occurring during

asthma attacks). Zandbergen, Bright, Pols, Fernandez, de Loof, and Griez (1991) reviewed the charts of 30 consecutive adult cases each of panic disorder, obsessive–compulsive disorder, and eating disorders seen in the outpatient anxiety clinic of a psychiatric hospital and found significantly higher rates of previous but not current rates of respiratory disease (asthma, bronchitis, allergy, and pneumonia) in the panic group. Whether respiratory disease plays an etiological role in the development of the physiological dysregulation associated with panic disorder remains an open question.

CORRELATES OF PANIC DISORDER IN CHILDREN

Demographics and Epidemiology

There are no reports that directly address the issues of prevalence and demographic distribution of childhood panic disorder in the general population. The New Zealand study (Anderson, Williams, McGee, & Silva, 1987), a longitudinal population-based study of child development and psychopathology, did not find any panic disorder in preadolescents. This finding has been raised as an issue arguing against the existence of panic disorder in children (Nelles & Barlow, 1988). However, the failure to identify the disorder may be due to the use of a diagnostic instrument that did not inquire specifically about panic disorder.

In a survey of all high school students in a single semirural New Jersey county, Whitaker et al. (1990) estimated a lifetime prevalence of panic disorder of 0.6%, without a gender difference. Whether this estimate accurately reflects the adolescent population at large awaits broader-based replication of this finding, but it is consistent with lifetime population rates in adults that hover between 1% and 2%.

Of the 78 cases in childhood reported and discussed above, 35 were male, suggesting a roughly equal gender distribution in a clinical setting. This pattern is in contrast to the usual overrepresentation of males in child psychiatric populations in most diagnostic categories. This rate also differs from reports of adult clinical populations (Hoehn-Saric & McLeod, 1988), in which panic disorder is considered twice as common in females. Some clinical reports suggest that this 2:1 ratio is also found in adolescence (Alessi et al., 1987; Last & Strauss, 1989).

One community study, notable for its negative findings regarding panic disorder, sampled 300 patients of a health maintenance organization, ages 7–11, interviewing both children and parents (Benjamin, Costello, & Warren, 1990). The prevalence of any anxiety disorder over the past year was 15.4%, but no cases of panic disorder were found. This report supports the view that panic disorder is exceedingly rare in preadolescence.

In an attempt to elicit histories of depression and panic symptoms in adolescents, Hayward, Killen, and Taylor (1989) obtained questionnaires and interviews in 95 9th graders. Of these, 14 were identified as having experienced a panic attack. Panic attacks were associated with higher depression scores and parental separation or divorce. In this group, 8 girls (17.4% of girls) and 3 boys (6.1% of boys) (overall rate, 11.6%) had had a panic attack that fulfilled the four-symptom threshold for the diagnosis. Although the results suggest higher prevalence in females, conclusions are limited by the fact that DSM-III-R diagnoses were not made.

Macaulay and Kleinknecht (1989) surveyed 660 high school students and college freshmen ages 13–18 with a questionnaire about panic symptoms, stressors, and depression in the preceding year. Analysis of the 630 completed and usable questionnaires yielded

categories of no panic (36%), mild panic (47%), moderate panic (10%), and severe panic (5.4%). The moderate and severe groups were thought more likely to include spontaneous rather than situational panic attacks. They differed on several dimensions: they were more likely to be female and to report uncued attacks, more frequent attacks, more stressors, and more severe symptoms. The median age of onset of panic was 13, with no difference across groups. In this sample, 10% of the severe group and 2.9% of the total sample were in treatment for panic, which seems high, considering rates reported in epidemiological studies. While this study supports the notion of adolescent- and even childhood-onset panic disorder, the strikingly high rates of panic symptoms reported underscore the need not to rely on questionnaires, but to obtain diagnostic evaluations by experienced clinicians to confirm the presence of panic disorder.

In another questionnaire study of 534 Australian 13- to 18-year-old high school students, King, Gullone, Tonge, and Ollendick (1993) found that 42.9% reported ever having a panic attack, most of which appear to have been limited-symptom attacks. Only 6.8% of panickers considered their panic symptoms to have created "quite a bit of" or "very much" life interference. Panickers reported significantly more overall anxiety than nonpanickers and girls reported more anxiety than boys on dimensions labeled physiological anxiety and worry/oversensitivity. The survey did not find an association between panic prevalence and gender or age. The questionnaire made no distinction between uncued vs. situational anxiety. No data on attack frequency were reported. It is unclear how many of these "attacks" would have met clinical criteria for either panic attacks or disorder, again underscoring the methodological problems with questionnaire studies and the limited conclusions that can be drawn from them about the presence of clinical disorders.

Bradley, Wachsmuth, Swinson, and Hnatko (1990) surveyed Canadian child psychiatrists about the prevalence of panic attacks in their patients. Panic attacks were reported in all age groups and all diagnostic categories, with a higher prevalence in females, older adolescents, and among anxiety, affective, personality, and psychotic disorders compared to other disorders. A 9.6% rate of panic disorder was reported among the patients; unfortunately, the distribution is not indicated.

Genetics and Family History

From the earliest descriptions of what is now called panic disorder, such as "irritable heart" or "neurocirculatory asthenia," through the "anxiety neurosis" of DSM-II (APA, 1968), a high prevalence of similar anxiety symptoms has been reported in the families of patients who suffer spontaneous anxiety attacks. Family studies have reported rates varying from 6% to 49% of panic disorder in first-degree relatives and 9.5% in second-degree relatives, much higher than the expected population rate of about 1% (Crowe, 1988). Of the case reports of children discussed above, many gave little or no information about family history, but at least 24 cases had a family history of panic disorder, 16 of them in first-degree relatives, 12 in mothers of the patients. Van Winter and Stickler (1984) reported a family with vertical transmission of panic disorder through four generations.

A comparison of twins with panic anxiety found higher concordance within monozygotic twin pairs than in dizygotic twins, supporting the notion that anxiety has a genetic basis. Torgersen (1988) reported panic attacks occurring in 4 of 13 monozygotic co-twins of cases with panic disorder or agoraphobia with panic attacks (31%) vs. no concordance in 16 dizygotic twin pairs. "Environmental" factors, such as the degree to which the monozygotic twins were together as children, identified strongly with one another, or were treated as a unit by parents, did not affect concordance.

The exact mode of transmission, whether a single-gene (Mendelian) model or a multiple-gene (multifactorial) model, has not been determined. An early meta-analysis of family studies in adults supports the Mendelian hypothesis, but cannot rule out the multifactorial model (Crowe, 1988). Neither model explains why panic disorder is twice as common in females, unless one assumes that males somehow have a higher threshold for development of the disorder (influenced by genetic or environmental factors). The studies do not fit a sex-linked mode of inheritance. It is currently believed that hereditary factors, whatever their mechanism at the molecular genetic level, predispose to the development of panic attacks.

No study has examined the prevalence of panic disorder in the relatives of children with panic disorder. The 7 cases of panic disorder in the Moreau et al. (1989) report cited earlier were all offspring from the group of mothers with depression. From the same study, Weissman, Leckman, Merikangas, Gammon, and Prusoff (1984) compared the children of depressed mothers with or without anxiety disorders to matched normal control families and found that maternal comorbidity with panic disorder or agoraphobia predicted more separation anxiety in the children than depression alone, on the basis of parent reports. However, a later direct interview study of the offspring did not substantiate the earlier findings (Mufson, Weissman, & Warner, 1992).

Biederman, Rosenbaum, Bolduc, Faraone, and Hirshfeld (1991) examined the offspring of panic disorder patients, depressed patients, and patients with both diagnoses. Panic with or without comorbid depression in the parent predicted higher rates of anxiety and depressive disorders in the children. Depression without panic in the parent predicted higher rates of depression, but not anxiety disorders, in offspring. As also reported by Weissman et al. (1984), this finding suggests that a trait for panic, whether comorbid with depression or not, is the familial factor rather than a diathesis for depression.

The only controlled study that examined the families of clinically referred children with anxiety disorders (Last, Hersen, Kazdin, Orvaschel, & Perrin, 1991) did not have a large enough subsample of probands with panic disorder to examine familial aggregation of this specific diagnosis, although there was a trend for panic disorder to be more prevalent among relatives of children with panic disorder than among relatives of children with nonpanicking anxiety. Higher rates of any anxiety disorders were found in the families of anxious children compared to children with attention-deficit hyperactivity disorder and children with no psychiatric history.

TREATMENT

Pharmacological Interventions

The efficacy of pharmacological treatments for panic disorder in adults is well established (NIH, 1991). Effective agents include tricyclic antidepressants, monoamine oxidase inhibitors, selected high-potency benzodiazepines, certain antiadrenergic drugs, and the recently developed selective serotonin reuptake inhibitors. Anecdotal reports suggest that children also respond to the pharmacological interventions found to be effective in adults. However, efficacy cannot be inferred, since controlled treatment studies with children and adolescents are limited. This literature has been reviewed recently by Coffey (1990) and Kutcher, Reiter, Gardner, and Klein (1992).

Imipramine is the best-studied tricyclic antidepressant, and a number of cases of successful treatment of children and adolescents with panic have been reported (Ballenger

et al., 1989; Black and Robbins, 1990; Garland & Smith, 1990; Herskowitz, 1986; Van Winter & Stickler, 1984). Other tricyclics have been found to be safe and effective in adults, but fewer reports of use in children exist. Effective doses in adults are in the range of 150–300 mg imipramine daily, but have not been established for children. The usual range of side effects seen in adults, e.g., adrenergic and anticholinergic effects such as hypotension or hypertension, dry mouth, constipation, blurry vision, or urinary difficulty, appear less commonly in childhood. Sedation is occasionally experienced and is usually manageable with dosage reduction or a switch to a less sedating agent. Withdrawal from tricyclic antidepressants should be gradual, accomplished over 3–4 weeks, due to the possibility of an acute withdrawal syndrome of flu-like symptoms, gastrointestinal disturbances, insomnia, restlessness, irritability, excessive sweating, and other symptoms suggestive of cholinergic overdrive (Dilsaver, Kronfol, Sackellares, & Greden, 1983). One placebo-controlled trial of imipramine has had positive results for school refusal associated with separation anxiety disorder (Gittelman-Klein & Klein, 1971), but was not replicated (R. G. Klein, Koplewicz, & Kanner, 1992). A third study with low doses of clomipramine did not obtain superiority for the medication (Berney, Kolvin, Bhate, Garside, Jeans, Kay, & Scarth, 1981).

Although the monoamine oxidase inhibitors phenelzine (Nardil) and tranylcypromine (Parnate) are effective antipanic agents in adults, their side-effect profile and dietary restriction requirements make them a second choice to other available drugs. Their use for anxiety disorders has not been reported in children, except one case of successful treatment for elective mutism with marked social anxiety (Golwyn & Wienstock, 1990).

Of the benzodiazepines, the high-potency agents clonazepam and alprazolam have been shown to alleviate panic attacks in adults. Other lower-potency benzodiazepines can be useful adjunctively to treat anticipatory anxiety in the early stages of treatment, but have not proven to be effective when used alone for panic. Case reports of the use of clonazepam suggest it to be effective and safe for use in children (Biederman, 1987; Garland & Smith, 1990). Biederman reported three prepubertal children with panic who responded to clonazepam (1–3 mg/day) after only partial response to tricyclics or alprazolam. The typical side effects seen with clonazepam in clinical trials for anticonvulsant treatment have included drowsiness, lethargy, irritability, and excitability, but these effects may be avoidable or minimized with slower titration and the lower doses used for panic treatment (Graae, 1990). The only controlled study of clonazepam (up to 2 mg/day) for childhood anxiety disorders (Graae, Milner, Rizzotto, & Klein, 1994) used a double-blind 4-week placebo–control crossover design with 15 children aged 7–13. All but one child had separation anxiety disorder, and none had panic disorder. No placebo–drug differences were obtained. Two children dropped out because of behavioral disinhibition. The authors attribute this side effect as possibly due to too-rapid dosage increases (0.25-mg increments every 2–3 days).

There are case reports but no controlled studies of alprazolam in childhood panic disorder. Studies in other childhood anxiety disorders have suggested that it is well tolerated and efficacious in separation anxiety disorder, avoidant disorder, and possibly overanxious disorder (Kutcher et al., 1992). There have been many reports of significant withdrawal effects in adults treated with high doses of alprazolam due to its short half-life and high potency. Whether it is also a problem with children or adolescents that might complicate drug discontinuation is not known. In a systematic clinical open trial with 18 children with separation anxiety disorder, no single occurrence of withdrawal symptoms occurred (R. G. Klein, 1990).

Of the adrenergic-modulating agents studied in adults, early suggestions that propranolol (a β-adrenergic antagonist) helped panic disorder have not been supported by careful research (Noyes, 1988). This is important because of the common presentation of panic disorder in medical settings in the guise of cardiac dysfunction, which may lead to treatment with beta-blockers. While propranolol has some anxiolytic effects, and has been used to treat performance anxiety and other behavioral problems (notably episodic rage and aggression in children), it is not an effective anti-panic agent. Similarly, clonidine (an α_2-adrenergic agonist) has not proven useful as an antipanic agent, despite its ability to ameliorate induced panic in laboratory models (Uhde, et al., 1989).

The most recent addition to the pharmacologic arsenal which may prove effective in panic and other anxiety disorders is fluoxetine, a selective serotonin reuptake inhibitor (Schneier et al., 1990). In ongoing clinical studies with fluoxetine, our group has had success treating both panic disorder and major depression with panic attacks in adolescents (as well as separation anxiety disorder in younger children). A low starting dose (2.5 mg) with weekly increases to an end point of 20–60 mg has reduced panic attacks, phobic avoidance, and anticipatory anxiety with minimal side effects. Larger-scale controlled studies are needed to confirm this impression.

Psychological and Behavioral Interventions

There have been no reports of successful behavioral intervention for panic disorder in children or adolescents. While a literature exists on the successful use of cognitive–behavioral techniques in adults (Michelson & Marchione, 1991; Shear et al., 1991; Welkowitz et al., 1991; Beck et al., 1992), the extrapolation of such reports to children can only be speculative (Mansdorf & Lukens, 1987). These treatment programs are highly symptom-directed and have included combinations of education about physiology and anxiety, breathing-control training, relaxation training, cognitive restructuring techniques, and exposure to somatic and environmental cues. The different developmental cognitive levels of young children might preclude the use of cognitive or behavioral therapy techniques useful in adults, although the same would not be the case with adolescents.

CASE SUMMARY

Anastasia, a bright 11-year-old white pubertal girl, lived with her parents and attended a regular 6th grade class in a suburban public school. She was brought to the outpatient department for evaluation because of problems with school avoidance, separation anxiety, and panic symptoms. Anastasia had refused to go to school for the previous 3 weeks, stating that she felt "panicky" just thinking about being in school. Every day, she expressed the intent to go to school, but in the morning, she became increasingly nervous, restless, pacing back and forth, until her parents had pity on her and would allow her to stay home. She reported that she was afraid to go to school because of fear that she might throw up in the classroom. Anastasia recalled that about 4 weeks prior to the onset of this fear, a schoolmate had vomited in class and the event had made her extremely anxious. She began avoiding that classroom and eventually avoided all classes. She became extremely nervous in any classroom and worried about illnesses or tragedies befalling her parents, such as her father being attacked and robbed. She developed physiological symptoms, including a lump in her

throat and feeling sick to her stomach. These symptoms caused her tremendous difficulty in concentrating on schoolwork.

In addition to the fear of school and worry about her parents while at school, Anastasia explained that she had a very hard time staying alone at home. Within a few minutes of being left alone in the house, she became panicky. She was unable to stay in her own room and needed to sleep in her parents' room most nights. She worried in the middle of the night that her mother might die and would frequently check on her mother and wake her to make sure that she was safe. When her parents went out, she demanded to know exactly where they were going and would require them to call home to reassure her. If they did not call at the time promised, she would feel very anxious. Anastasia did not leave the house by herself unless she was only going a block or two from home. Beyond that perimeter, she felt extremely nervous and frightened of being kidnapped. Anastasia reported nightmares about separation, occurring approximately twice a month. While at home during the day, she preferred to be with her parents, but did not have to be in the same room at all times. She denied the presence of current somatic complaints such as stomachaches or headaches before school in the morning. According to Anastasia and her parents, these separation anxiety symptoms had been present since she entered 1st grade, but had become acute.

Anastasia was "constantly worried about everything" according to her and her parents: "I am somebody who lives with the 'what if' syndrome, meaning I am constantly thinking, 'What if this would happen, what if that would happen?' " In the winter, she was afraid of going to school for fear of catching the flu. She constantly worried about what her teacher and her parents were going to say about her. Although she did not feel that she had to be the best at everything, she constantly worried that she would not get good grades, despite good school performance. She did not feel comfortable talking to people she did not know and, although she did not avoid going to parties, she was shy in social situations and would not approach people. Along with these worries and fears, Anastasia reported that at times she felt a lump in her throat and butterflies in her stomach, and at times paced or swayed back and forth in her chair in order to release anxiety. This was associated with problems falling asleep, with initial insomnia of 1–2 hours. She often awoke in the middle of the night and remained awake for as long as an hour. None of these anxiety symptoms had the characteristic features of panic attacks, such as suddenness and crescendo episodes. However, Anastasia also reported episodes in which she would suddenly experience hyperventilation, pressure in her chest, difficulty breathing, feeling the need to run away, tingling in her fingers, racing of her heart, and sweaty palms. These panic attacks occurred in the context of both worry about separating from her family and going to school, as well as spontaneously while she was at home and in school, without identifiable cues or precipitating stressors.

Additional problems with anxiety included extreme fear of fire, with avoidance of fires and fireplaces, extreme fear of flying, and fear that planes flying over her house would fall on her. Anastasia was also terrified of traveling over bridges and through tunnels, would ask her parents to avoid using them, and avoided using subways and monorails. She avoided standing near bookcases because of an irrational fear that they would fall on her and injure her. She was terrified of needles and blood, and would avoid going to the tops of high buildings.

Although Anastasia described feeling sad at times and demoralized because of her increasingly distressful anxiety, she had no persistent symptoms of a major affective illness. She had no evidence of problems with conduct disorder, attention-deficit, obsessive–compulsive disorder, or psychotic symptoms.

Diagnoses: separation anxiety disorder, overanxious disorder, panic disorder, simple phobias.

Developmental and background history: Anastasia was a 7-pound 1-ounce product of a normal pregnancy. Parents recalled that she never slept well as an infant and had always had difficulty sleeping alone. Developmental milestones were achieved at expected ages. Her medical history was benign. The child's family history was significant for untreated panic disorder in the father, although he was not currently experiencing panic attacks. There was no history of affective illness, substance abuse, or psychosis in the family.

Psychological evaluation: On the Wide Range Achievement Test, Anastasia's scores were reading, 118 (88th percentile); spelling, 128 (97th percentile); and arithmetic, 97 (42nd percentile). On the Wechsler Intelligence Scale for Children, she received a Verbal IQ score of 135, Performance IQ score of 128, and a Full Scale IQ score of 138.

Treatment: Over the course of 6 weeks, Anastasia was seen for weekly sessions of behavioral treatment. The treatment involved contracts and a stepwise plan to return to school beginning with short periods and increasing the length of stay each day in school. Additionally, she was expected to take more responsibility for separating from her parents and sleeping outside her parents' room, with the contracts targeting these symptoms of separation anxiety. After 8 sessions, it was determined that these treatment efforts were unsuccessful, since she remained unable to attend school consistently, continued to have panic attacks frequently while at school and would be unable to remain in class, and remained excessively worried about separation and unable to sleep alone at home.

Due to lack of success in behavioral treatment, Anastasia was entered into a double-blind placebo-controlled trial of imipramine for separation anxiety disorder. She remained extremely anxious about attending school, staying home alone, and sleeping by herself. She complained of headaches and stomachaches and blamed them on her returning to school. However, she reported no panic attacks at that time. This level of anxiety symptomatology persisted to the end of the 8-week study, at which time she was identified as having been on placebo. Thereafter, open treatment with imipramine was begun, and she was titrated to 150 mg per day by the 2nd week. A dramatic change in her attitude toward school and in her level of anxiety was noted by parents and treatment staff. By the 4th week of imipramine treatment, Anastasia was attending school full-time with no difficulty and was able to spend time away from her parents without excessive worry, but still had trouble sleeping by herself. By the 9th week of treatment, she appeared to be completely recovered, with no difficulty at school, staying home alone, or going to sleep at friends' houses. She was maintained on medication for an additional 3 weeks and tapered off. Follow-up 2 months later revealed that Anastasia was completely recovered and asymptomatic.

SUMMARY

Although much has been learned about panic disorder in recent years as scientific investigation has expanded in adult psychiatry, information about the disorder in children and adolescents remains scarce and often contradictory. The literature at present contains only case studies and retrospective reports of variable methodology. Specifically, there is ongoing debate about the occurrence of spontaneous panic attacks in prepubertal children and the relationship of other anxiety disorders in childhood to panic disorder. Spontaneity of the panic attack is the clinical feature that contributes to the controversy surrounding panic attacks in young children. Although young children can display panic reactions to feared

objects or situations, the presence of spontaneous, unprovoked, and unpredictable panic attacks, which are the sine qua non of adult panic disorder, have only recently been reported in preadolescence. Because of methodological concerns in these reports and the presence of preexisting separation anxiety disorder in most cases, the issue of panic disorder diagnosis in prepubertal children remains in need of further clarification. D. F. Klein and H. M. Klein (1989a,b) have succinctly delineated the debate and many sources of confusion regarding panic disorder in the adult literature. They make a clear distinction between spontaneous (uncued) panic, situationally predisposed panic, situationally bound or stimulus-bound (cued) panic, and nonpanic anxiety states. DSM-IV incorporates these distinctions in the definitional section for panic attacks (APA, 1993). Rigorous definition and categorization of types of panic attacks would be a major advance in clinical research with children.

In adult patients, spontaneous and situationally predisposed panic are distinguished from stimulus-bound panic and generalized anxiety in the specificity of response to lactate infusion and treatment with antipanic agents. Whether the same is true of panic in children awaits comparable controlled studies of the psychobiology and treatment of childhood anxiety. Obtaining a clear history from young children of spontaneous panic attacks, with an unexpected and sudden onset and crescendo symptom cluster, may be difficult. Autonomic arousal and fear in response to fear-inducing stimuli, such as phobic objects or situations, or separation contexts in a separation-anxious child, is qualitatively different from spontaneous panic, and it is often difficult to differentiate the two in young patients. While phobias and separation anxiety are common in childhood and may present with panic-like behavior, clearly, spontaneous panic appears to be rare in prepubertal children. The possibility of a developmental relationship between separation anxiety and panic further confounds the issue, since it appears that spontaneous panic attacks in prepubertal children occur almost exclusively among those with separation anxiety.

REFERENCES

Abelson, J. L., & Alessi, N. E. (1992). Discussion of "Child panic revisited." *Journal of the American Academy of Child and Adolescent Psychiatry, 31(1)*, 114–116.

Adler, C. M., Craske, M. G., & Barlow, D. H. (1987). Relaxation-induced panic (RIP): When resting isn't peaceful. *Integrative Psychiatry, 5*, 94–100.

Alessi, N. E., & Magen, J. (1988). Panic disorder in psychiatrically hospitalized children. *American Journal of Psychiatry, 145(11)*, 1450–1452.

Alessi, N. E., Robbins, D. R., & Dilsaver, S. C. (1987). Panic and depressive disorders among psychiatrically hospitalized adolescents. *Psychiatry Research, 20*, 275–283.

American Psychiatric Association (1968). *Diagnostic and statistical manual of mental disorders*, 2nd ed. Washington, DC: Author.

American Psychiatric Association (1980). *Diagnostic and statistical manual of mental disorders*, 3rd ed. Washington, DC: Author.

American Psychiatric Association (1987). *Diagnostic and statistical manual of mental disorders*, 3rd ed., revised. Washington, DC: Author.

American Psychiatric Association (1993). *DSM-IV options book: Work in progress*. Washington, DC: Author.

Anderson, J. C., Williams, S., McGee, R., & Silva, P. A. (1987). DSM-III disorders in preadolescent children: Prevalence in a large sample from the general population. *Archives of General Psychiatry, 44*, 69–76.

Ballenger, J. (1990). *Neurobiology of panic disorder*. New York: Wiley & Liss.

Ballenger, J. C., Carek, D. J., Steele, J. J., & Cornish-McTighe, D. (1989). Three cases of panic disorder with agoraphobia in children. *American Journal of Psychiatry, 146*, 922–924.

Beck, A. T., Sokol, L., Clark, D. A., Berchik, R., & Wright, F. (1992). A crossover study of focused cognitive therapy for panic disorder. *American Journal of Psychiatry, 149*, 778–783.

Benjamin, R. S., Costello, E. J., & Warren, M. (1990). Anxiety disorders in a pediatric sample. *Journal of Anxiety Disorders, 4*, 293–316.

Berney, T., Kolvin, I., Bhate, S. R., Garside, R. F., Jeans, J., Kay, B., & Scarth, L. (1981). School phobia: A therapeutic trial with clomipramine and short-term outcome. *British Journal of Psychiatry, 138*, 110–118.

Biederman, J. (1987). Clonazepam in the treatment of prepubertal children with panic-like symptoms. *Journal of Clinical Psychiatry, 48[10 Suppl.)]*, 38–41.

Biederman, J., Rosenbaum, J. F., Bolduc, E. A., Faraone, S. V., & Hirshfeld, D. R. (1991). A high risk study of young children of parents with panic disorder and agoraphobia with and without comorbid major depression. *Psychiatry Research, 37*, 333–348.

Biederman, J., Rosenbaum, J. F., Bolduc-Murphy, E. A., Faraone, S. V., Chaloff, B. A., Hirshfeld, D. R., & Kagan, J. (1993). A 3-year follow-up of children with and without behavioral inhibition. *Journal of the American Academy of Child and Adolescent Psychiatry, 32(4)*, 814–821.

Black, B., & Robbins, D. R. (1990). Case study: Panic disorder in children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 29(1)*, 36–44.

Black, B., Uhde, T. W., & Robbins, D. R. (1990). Reply to letter of Klein & Klein. *Journal of the American Academy of Child and Adolescent Psychiatry, 29(5)*, 834–835.

Bradley, S., Wachsmuth, R., Swinson, R., & Hnatko, G. (1990). A pilot study of PA in a child and adolescent psychiatric population. *Canadian Journal of Psychiatry, 35*, 526–528.

Clark, D. A., & Beck, A. T. (1989). Cognitive therapy and therapy of anxiety and depression. In P. C. Kendall & D. Watson (Eds.), *Anxiety and depression: Distinctive and overlapping features* (pp. 379–411). New York: Academic Press.

Coffey, B. J. (1990). Anxiolytics for children and adolescents: Traditional and new drugs. *Journal of Child and Adolescent Psychopharmacology, 1*, 57–83.

Costello, C. G. (1992). Problems in recent tests of two cognitive theories of panic. *Behaviour Research and Therapy, 30*, 1–5.

Crowe, R. R. (1988). Family and twin studies of panic disorder and agoraphobia. In M. Roth, R. Noyes, & G. D. Burrows (Eds.), *Handbook of Anxiety, Vol. 1: Biological, clinical, and cultural perspectives* (pp. 101–114). New York: Elsevier.

Dager, S. R., Comess, K. A., Saal, A. K., Sisk, E. J., Beach, K. W., & Dunner, D. L. (1989). Diagnostic reliability of M-mode echocardiography for detecting mitral valve prolapse in 50 consecutive panic patients. *Comprehensive Psychiatry, 30*, 369–375.

Dager, S. R., Saal, A. K., Comess, K. A., & Dunner, D. L. (1988). Mitral valve prolapse and the anxiety disorders. *Hospital and Community Psychiatry, 39(5)*, 517–527.

Devinsky, O., Sato, S., Theodore, W. H., & Porter, R. J. (1989). Case report: Fear episodes due to limbic seizures with normal ictal scalp EEG: A subdural electrographic study. *Journal of Clinical Psychiatry, 50*, 28–30.

Dilsaver, S. C., Kronfol, Z., Sackellares, J. C., & Greden, J. F. (1983). Antidepressant withdrawal syndromes: Evidence supporting the cholinergic overdrive hypothesis. *Journal of Clinical Psychopharmacology, 3*, 157–164.

Fyer, A. J., Endicott, J., Mannuzza, S., & Klein, D. F. (1985). Schedule for affective disorders and schizophrenia—lifetime version (modified for the study of anxiety disorders). New York: Anxiety Disorders Clinic, New York State Psychiatric Institute.

Garland, E. J., & Smith, D. H. (1990). Panic disorder on a child psychiatric consultation service. *Journal of the American Academy of Child and Adolescent Psychiatry, 29(5)*, 785–788.

Gittelman, R., & Klein, D. F. (1984). Relationship between separation anxiety and panic and agoraphobic disorders. *Psychopathology, 17[Suppl. 1]*, 56–65.

Gittelman-Klein, R., & Klein, D. F. (1971). Controlled imipramine treatment of school phobia. *Archives of General Psychiatry, 25*, 204–207.

Golwyn, D. H., & Weinstock, R. C. (1990). Phenelzine treatment of elective mutism. *Journal of Clinical Psychiatry, 51(9)*, 384–385.

Gorman, J. (1992). Columbia University Department of Psychiatry Grand Rounds, New York State Psychiatric Institute, New York, April 17, 1992 (unpublished data).

Graae, F. (1990). High anxiety in children. *Journal of Clinical Psychiatry, 51(5 Suppl.)*, 18–19.

Graae, F., Milner, J., Rizzotto, L., & Klein, R. G. (1994). Clonazepam in childhood anxiety disorders: Pilot study. *JAACAP, 33*(3), 372–376.

Hayward, C., Killen, J. D., Hammer, L. D., Litt, I. F., Wilson, D. M., Simmonds, B., & Taylor, C. B. (1992). Pubertal stage and panic attack history in sixth- and seventh-grade girls. *American Journal of Psychiatry, 149*, 1239–1243.

Hayward, C., Killen, J. D., & Taylor, C. B. (1989). Panic attacks in young adolescents. *American Journal of Psychiatry, 146*, 1061–1062.

Herskowitz, J. (1986). Neurologic presentations of panic disorder in childhood and adolescence. *Developmental Medicine and Child Neurology, 28*, 617–623.

Hirshfeld, D. R., Rosenbaum, J. F., Biederman, J., Bolduc, E. A., Faraone, S. V., Snidman, N., Reznick, J. S., & Kagan, J. (1992). Stable behavioral inhibition and its association with anxiety disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 103–111.

Hoehn-Saric, R., & McLeod, D. R. (1988). Panic and generalized anxiety disorders. In C. G. Last & M. Hersen (Eds.), *Handbook of anxiety disorders* (pp. 109–126). New York: Pergamon Press.

Horwath, E., Lish, J. D., Johnson, J., Hornig, C. D., & Weissman, M. W. (1993). Agoraphobia without panic: Clinical reappraisal of an epidemiologic finding. *American Journal of Psychiatry, 150*, 1496–1501.

Kagan, J., Reznick, J. S., Snidman, N., Johnson, M. O., Gibbons, J., Gersten, M., Biederman, J., & Rosenbaum, J. F. (1990). Origins of panic disorder. In J. Ballenger (Ed.), *Neurobiology of panic disorder* (pp. 71–87). New York: Wiley & Liss.

Kaplan, H. I., and Sadock, B. J. (Eds.) (1985). *Comprehensive textbook of psychiatry*, 4th ed. (p. 883). Baltimore: Williams & Wilkins.

Kearney, C. A. (1991). The panic disorder controversy continues. *Journal of the American Academy of Child and Adolescent Psychiatry, 30(5)*, 852–853.

Kearney, C. A., & Silverman, W. K. (1992). Let's not push the "panic" button: A critical analysis of panic and panic disorder in adolescents. *Clinical Psychology Review, 12*, 293–305.

King, N. J., Gullone, E., Tonge, B. J., & Ollendick, T. H. (1993). Self reports of panic attacks and manifest anxiety in adolescents. *Behaviour Research and Therapy, 1*, 111–116.

Klein, D. F. (1964). The delineation of two drug-responsive anxiety syndromes. *Psychopharmacologia, 5*, 397–408.

Klein, D. F. (1993). False suffocation alarms, spontaneous panics, and related conditions: An integrative hypothesis. *Archives of General Psychiatry, 50*, 306–317.

Klein, D. F., and Klein, H. M. (1989a). The definition and psychopharmacology of spontaneous panic and phobia. In P. Tyrer (Ed.), *Psychopharmacology of anxiety* (pp. 135–162). Oxford: Oxford University Press.

Klein, D. F., and Klein, H. M. (1989b). The nosology, genetics and theory of spontaneous panic and phobia. In P. Tyrer (Ed.), *Psychopharmacology of anxiety* (pp. 163–195). Oxford: Oxford University Press.

Klein, D. F., & Klein, R. G. (1990). Does panic disorder exist in childhood? (letter). *Journal of the American Academy of Child and Adolescent Psychiatry, 29(5)*, 834.

Klein, D. F., Mannuzza, S., Chapman, T., & Fyer, A. J. (1992). Child panic revisited. *Journal of the American Academy of Child and Adolescent Psychiatry, 31(1)*, 112–116.

Klein, R. G. (1990). Alprazolam open clinical trial in children with separation anxiety. Unpublished data.

Klein, R. G., Koplewicz, H. S., & Kanner, A. (1992). Imipramine treatment of children with separation anxiety disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 21–28.

Kushner, M. G., & Beitman, B. D. (1990). Panic attacks without fear: An overview. *Behaviour Research and Therapy, 28(6)*, 469–479.

Kutcher, S. P., Reiter, S., Gardner, D. M., & Klein, R. G. (1992). The pharmacotherapy of anxiety disorders in children and adolescents. In *Psychiatric Clinics of North America*, Vol. 15:1, *Pediatric Psychopharmacology* (pp. 41–67).

Last, C. G., & Strauss, C. C. (1989). Panic disorder in children and adolescents. *Journal of Anxiety Disorders, 3*, 87–95.

Last, C. G., Hersen, M., Kazdin, A., Orvaschel, H., & Perrin, S. (1991). Anxiety disorders in children and their families. *Archives of General Psychiatry, 48*, 928–934.

Levin, A. P., & Liebowitz, M. R. (1988). Biological factors in the description and separation of the anxiety syndromes. In M. Roth, R. Noyes, & G. D. Burrows (Eds.), *Handbook of anxiety*, Vol. 1 (pp. 157–192). New York: Elsevier.

Ley, R. (1988). Panic attacks during relaxation and relaxation-induced anxiety: A hyperventilation interpretation. *Journal of Behavior Therapy and Experimental Psychiatry, 19(4)*, 253–259.

Macauley, J. L., & Kleinknecht, R. A. (1989). Panic and panic attacks in adolescents. *Journal of Anxiety Disorders, 3*, 221–241.

Mansdorf, I. W., & Lukens, E. (1987). Cognitive–behavioral therapy for separation anxious children exhibiting school phobia. *Journal of the American Academy of Child and Adolescent Psychiatry, 26(2)*, 222–225.

Marks, A. R., Choong, C. Y., Sanfillipo, A. J., Ferr, M., & Weyman, A. E. (1986). Identification of high-risk and

low-risk subgroups of patients with mitral-valve prolapse. *New England Journal of Medicine, 320(16)*, 1031–1036.

Michelson, L. K., & Marchione, K. (1991). Behavioral, cognitive, and pharmacological treatments of panic disorder with agoraphobia: Critique and synthesis. *Journal of Consulting and Clinical Psychology, 59(1)*, 100–114.

Moreau, D., Weissman, M., & Warner, V. (1989). Panic disorder in children at high risk for depression. *American Journal of Psychiatry, 146*, 1059–1060.

Mufson, L., Weissman, M. M., & Warner, V. (1992). Depression and anxiety in parents and children: A direct interview study. *Journal of Anxiety Disorders, 6*, 1–13.

Nelles, W. B., & Barlow, D. H. (1988). Do children panic? *Clinical Psychology Review, 8*, 359–372.

NIH (1991). Treatment of panic disorder. NIH Consensus Development Conference Consensus Statement, September 25–27, 1991.

Noyes, R., Jr. (1988). Beta-adrenergic blockers. In C. G. Last & M. Hersen (Eds.), *Handbook of anxiety disorders* (p. 451). New York: Pergamon Press.

Pollack, M. H., Otto, M. W., Rosenbaum, J. F., & Sachs, G. S. (1992). Personality disorders in patients with panic disorder: Association with childhood anxiety disorders, early trauma, comorbidity, and chronicity. *Comprehensive Psychiatry, 33(2)*, 78–83.

Robins, L. N., Helzer, J. E., Weissman, M. M., Orvaschel, H., Greunberg, E., Burke, J. D., & Regier, D. A. (1984). Lifetime prevalence of specific psychiatric disorders in three sites. *Archives of General Psychiatry, 41*, 949–958.

Rosenbaum, J. F., Biederman, J., Bolduc, E. A., Hirshfeld, D. R., Faraone, S. V., & Kagan, J. (1992). Comorbidity of parental anxiety disorders as risk for childhood-onset anxiety in inhibited children. *American Journal of Psychiatry, 149*, 475–481.

Rosenbaum, J. F., Biederman, J., Gersten, M., Hirshfeld, D. R., Menninger, S. R., Herman, J. B., Kagan, J., Reznick, S., & Snidman, N. (1988). Behavioral inhibition in children of parents with panic disorder and agoraphobia. *Archives of General Psychiatry, 45*, 463–470.

Schneier, F. R., Liebowitz, M. R., Davies, S. O., Fairbanks, J., Hollander, E., Campeas, R., & Klein, D. F. (1990). Fluoxetine in panic disorder. *Journal of Clinical Psychopharmacology, 10*, 119–121.

Shear, M. K., Ball, G., Fitzpatrick, M., Josephson, S., Klosko, J., & Frances, A. (1991). Cognitive–behavioral therapy for panic: An open study. *Journal of Nervous and Mental Disease, 179*, 468–472.

Suomi, S. J. (1985). Response styles in monkeys: Experiential effects. In E. Klar & L. Seiver (Eds.), *Biologic response styles* (pp. 2–17). Washington, DC: American Psychiatric Press.

Suomi, S. J. (1986). Anxiety-like disorders in young primates. In R. Gittelman (Ed.), *Anxiety disorders in childhood* (pp. 1–23). New York: Guilford Press.

Thyer, B. A., Parrish, R. T., Curtis, G. C., Nesse, R. M., & Cameron, O. G. (1985). Age of onset of DSM-III anxiety disorders. *Comprehensive Psychiatry, 26*, 113–122.

Torgersen, S. (1988). Genetics. In C. G. Last & M. Hersen (Eds.), *Handbook of anxiety disorders* (pp. 159–170). New York: Pergamon Press.

Uhde, T. W., & Tancer, M. E. (1989). Chemical models of panic: A review and critique. In P. Tyrer (Ed.), *Psychopharmacology of anxiety* (pp. 109–131). New York: Oxford University Press.

Uhde, T. W., Stein, M. B., Vittone, B. J., Siever, L. J., Boulenger, J., Klein, E., & Mellman, T. A. (1989). Behavioral and physiologic effects of short-term and long-term administration of clonidine in panic disorder. *Archives of General Psychiatry, 46*, 170–177.

Van Winter, J. T., & Stickler, G. B. (1984). Panic attack syndrome. *Journal of Pediatrics, 105*, 661–665.

Vitiello, B., Behar, D., Wolfson, S., & Delaney, M. A. (1987). Panic disorder in prepubertal children (letter). *American Journal of Psychiatry, 144*, 525–526.

Vitiello, B., Behar, D., Wolfson, S., & McLeer, S. V. (1990). Diagnosis of panic disorder in prepubertal children. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 782–784.

Von Korff, M. R., Eaton, W. W., & Keyl, P. M. (1985). The epidemiology of panic attacks and panic disorder: Results of three community surveys. *American Journal of Epidemiology, 122(6)*, 970–981.

Weiss, S. R. B., & Uhde, T. W. (1990). Animal models of anxiety. In J. Ballenger (Ed.), *Neurobiology of panic disorder* (pp. 3–27). New York: Wiley & Liss.

Weissman, M. M. (1988). Anxiety disorders: An epidemiologic perspective. In M. Roth, R. Noyes, & G. D. Burrows (Eds.), *Handbook of anxiety*, Vol. 1 (pp. 83–100). New York: Elsevier.

Weissman, M. M. (1991). Panic disorder impact on quality of life. *Journal of Clinical Psychiatry, February (52 Suppl.)*, 6–8.

Weissman, M. M., Leckman, J. F., Merikangas, K. R., Gammon, G. D., & Prusoff, B. A. (1984). Depression and anxiety disorders in parents and children: Results from the Yale Family Study. *Archives of General Psychiatry*, *41*, 845–852.

Welkowitz, L. A., Papp, L. A., Cloitre, M., Liebowitz, M. R., Martin, L. Y., & Gorman, J. M. (1991). Cognitive–behavioral therapy for panic disorder delivered by psychopharmacologically oriented clinicians. *Journal of Nervous and Mental Disease*, *179*, 473–477.

Whitaker, A., Johnson, J., Shaffer, D., Rapoport, J. L., Kalikow, K., Walsh, B. T., Davies, M., Braiman, S. & Dolinsky, A. (1990). Uncommon troubles in young people: Prevalence estimates of selected psychiatric disorders in a nonreferred adolescent population. *Archives of General Psychiatry*, *47*, 487–496.

World Health Organization (1992). *International classification of mental and behavioral disorders, clinical descriptions and diagnostic guidelines*, 10th ed. (ICD-10). Geneva: Author.

Wynne, J. (1986). Mitral valve prolapse. *New England Journal of Medicine*, *314(9)*, 577–578.

Zandbergen, J., Bright, M., Pols, H., Fernandez, I., de Loof, C., & Griez, E. J. L. (1991). Higher lifetime prevalence of respiratory diseases in panic disorder? *American Journal of Psychiatry*, *148*, 1583–1585.

14

Anxiety in Medical Settings

Pier J. M. Prins

INTRODUCTION

Each day, many children undergo medical and dental procedures varying from routine checkups to highly aversive treatments. Visits to the general practitioner, regular visits to the dentist, or being hospitalized for diagnostic or treatment procedures are common events during early and middle childhood. All children who undergo these medical procedures will experience some fear (Siegel, 1988a). Generally, this fear can be managed, either by the child himself or herself or with the help of persons in the environment. However, anxiety in medical (including dental) settings becomes a problem when it impedes effective medical and dental care, endangers health, and significantly interferes with the child's daily life.

Although usually not dealt with in basic texts on major childhood anxiety disorders (cf. Francis, 1990), children's fear reactions to medical and dental procedures have been extensively researched. This research has been guided primarily by the practical problem of how to diminish children's anxiety effectively. In addition, from a theoretical point of view, it has often been emphasized that the medical setting provides an excellent opportunity to investigate anxiety in the child's natural environment. It is considered a potentially rich laboratory for doing research on relevant clinical developmental issues, such as separation anxiety and attachment (Garmezy, 1983), mother–child interactions during stressful events (Blount, Davis, Powers, & Roberts, 1991a; Bush, Melamed, Sheras, & Greenbaum, 1986), the development of fear and coping (Melamed & Siegel, 1985; S. M. Miller, Sherman, Combs, & Kruus, 1992; Peterson, 1989), and pain and anxiety in children (Lander, Hodgins, & Fowler-Kerry, 1992). To date, research has concentrated on gaining reliable and

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valid descriptions of children's anxiety in medical settings and on a variety of variables that are correlated with it. These correlates shed some light on the nature and origin of anxiety in medical settings.

The purpose of this chapter is to discuss several key issues related to child factors, environmental factors, and interpersonal variables that are assumed to contribute to children's anxiety in medical settings. An exhaustive overview of the literature is beyond the scope of this chapter. Extensive reviews of children's reactions to medical procedures, life-threatening conditions, and chronic illness are available (Gross & Drabman, 1990; Ioannou, 1991; Jay, 1988; Melamed, 1979; Routh, 1988; Siegel, 1988a,b; Winer, 1982).

NATURE OF ANXIETY IN MEDICAL SETTINGS

Anxiety in medical settings is here behaviorally defined as fear-related responses that originate in or are expressed in medical or dental settings. Because no clear and accepted diagnostic criteria are available for "normal" anxiety in medial settings at any given developmental stage, it is a problem how to distinguish excessive from normal levels. This definitional problem is typical for the study of childhood anxiety in general. Fear in medical settings appears to be a common phenomenon among children. It has been estimated that one third of all hospitalized children have long-term behavioral adjustment problems related to brief hospital experiences (Melamed & Siegel, 1985). However, anxiety in medical settings is not among the top 10 most-reported fears by children and adolescents (Ollendick, King, & Frary, 1989). The number of children and adolescents who do not receive dental or medical care because of high anxiety or disruptive behaviors is unknown. In some children, fear in the medical setting develops into a medical or dental phobia (cf. Kolko & Milan, 1980; Rainwater, Sweet, Elliott, Bowers, McNeil, & Stump, 1988; O. Shaw, 1975; Yule & Fernando, 1980). Diabetic children requiring daily insulin shots or children who must undergo frequent blood tests may develop an excessive fear of needles. However, if one uses current criteria for phobias, only a few children manifest medical or dental phobia. It has been suggested that 0.5–2% of children manifest specific clinical fears (Melamed & Siegel, 1985). This percentage may also apply to anxiety in medical settings, but reliable prevalence figures are lacking due to different definitions of clinical, subclinical, or normal anxiety, and to varying samples and measuring devices. Most research in this area deals with subclinical levels of anxiety, that is, with children who undergo medical procedures with varying degrees of fear and disruptive behavior.

The stress of undergoing a medical procedure or of being hospitalized involves many factors. Fear of pain is a primary factor. Maternal separation, unfamiliar surroundings, loss of control, the sight of blood and being wounded, and discomfort originating from illness, injury, or the medical procedure are consistently reported (Hovanitz, Gerwell, & Russo, 1984; Melamed, 1979; Melamed & Siegel, 1985; Prins, 1985; Siegel, 1988b).

Age and sex are related to medical anxiety, as they are to anxiety in general. With increasing age, a consistent decrease of fear-related behaviors in medical settings has been found (van Aken, van Lieshout, Katz, & Heezen, 1989; Winer, 1982). Jay, Ozolins, Elliott, and Caldwell (1983) found distress levels in children under the age of 7 to be 5–10 times higher than distress levels in older children during highly aversive procedures. Surprisingly, Ollendick et al. (1989) found no age effect on the Medical Fears factor of the Fear Survey Schedule for Children—Revised (FSSC-R). Whether the decline across age in expressed fear represents a decline in experienced fear as much as a decline in the expression of fear is

unclear. Older children may be no less basically fearful than younger ones, but may have learned to control the way they exhibit their fear. The general decline in children's fear across age may be due to a number of interrelated factors. Growing older means a decline in separation anxiety, becoming cognitively more mature, being more familiar with noxious experience, and showing greater tolerance of pain (Lander et al., 1992). Although generally there has been clear demonstration of a decline in reported and observed medical anxiety with age, and although many adults who are highly anxious in medical settings retrospectively report fearful medical experiences during childhood, there is a paucity of longitudinal research that explores the course and outcome of childhood medical anxiety over time.

Inconclusive results have been reported with regard to the relation between sex and self-reported medical anxiety. Katz, Kellerman, and Siegel (1980) found more distress reactions in girls than in boys. Similarly, Jay et al. (1983) found in interviewing children that girls were more anxious than boys about hospitals, although they found no difference in terms of their actual behavior. Blount et al. (1991a) did find behavioral differences as well: Girls tended to show a greater degree of total distress and higher levels of verbal resistance than boys. In the dental setting, Kleinknecht, Klepac, and Alexander (1973) found that girls reported more dental fears than boys. These results are consistent with the general finding that girls report more fears than boys (cf. Ollendick et al., 1989). Other studies, however, did not find sex differences between the ages of 6 and 17 years (LeBaron & Zeltzer, 1984). With regard to fear in the pediatric oncology setting, it has been concluded that differential fear reactions related to sex seem to occur inconsistently and may be related to factors such as culture, evoking situation, type of fear response, and cohort (van Aken et al., 1989).

Research on medical anxiety as a construct has been scarce. The FSSC-R (Ollendick et al., 1989) contains a Medical Fears factor that includes four items directly related to the medical setting ("having to go to the hospital," "getting a shot from the doctor," "going to the dentist," and "going to the doctor"). Two other items that are related to the medical setting ("getting a cut or injury" and "the sight of blood") belong to the factor Minor Injury and Small Animals, and one item ("germs or getting a serious illness") belongs to the factor Danger and Death. Factor-analytical studies with the FSSC-R have not yet succeeded in determining a strong Medical Fears factor (Ollendick et al., 1989; Oosterlaan, Prins, & Sergeant, 1992). In a validation study, health-impaired children with various chronic medical conditions reported a greater number of fears, but did not score significantly higher on the Medical Fears factor (King, Gullone, & Ollendick, 1990). Benjamin, Costello, and Warren (1990) found that physical illness and high levels of pediatric service utilization were not associated with increased levels of anxiety. Hovanitz et al. (1984), however, reported that chronically elevated levels of stress and anxiety are implicated in many physiological disease processes. Moreover, support has been found for the relation between disease severity and increase in anxiety (Barbarin, 1990; Spinetta, 1974).

Whether medical anxiety is a situation-specific response to a threatening stimulus or whether it reflects a more general and basic type of childhood anxiety, such as separation anxiety, stranger anxiety, or fear of bodily harm, is an issue that warrants further research attention. If anxiety in the dental setting, for example, is correlated to several other types of anxieties, one might suspect that it represents a more general class of behavior rather than an isolated fear learned in response to specific dental situations. Support for this notion (Winer, 1982) comes from data that suggest that anxiety in the dental setting does not increase as a simple function of dental experiences and from research that indicates that type and quality of parenting play a role in affecting childhood fears. Moreover, factors that mediate the decline in the more general fears (e.g., socialization experiences that familiarize the child

with strangers and separations and that decrease the surprise and sense of noncontrol of the child) might affect the fears shown in dental settings (Winer, 1982). What is needed is a diagnostic system for medical and dental fears in children that describes various diagnostic types that could then be related to various manifestations and origins of medical and dental fear. An adult version of such a system has been suggested by Moore, Brodsgaard, and Birn (1991).

ETIOLOGICAL ISSUES

Various factors have been examined with regard to the development of children's medical anxiety, including separation from attachment figures, previous negative experiences, negative modeling experiences, lack of control over the course of medical events, and a functional dependence with other phobias or general anxiety complexes (Melamed, 1979; Moore et al., 1991; Peterson, Mori, & Carter, 1985). Traditionally, two theoretical approaches have been applied to the study of the origin and development of children's anxiety in medical settings: learning theory and attachment theory. More recently, there have been applied to anxiety disorders of children cognitive theories (Kendall & Chansky, 1991; Vasey, 1993) that have clear implications for the study and treatment of children's anxiety in medical settings.

The etiological significance of conditioning events in the development of children's fears has often been emphasized (cf. Ollendick & King, 1991). Because of traumatic experience, some children may develop anxiety reactions to medical events. In particular, chronically or terminally ill children who have to endure painful medical procedures are at risk for such a conditioning process (Jay, 1988). Unlike most clinical phobias, dental fear may be acquired through straightforward classic conditioning, in the sense of traumatic conditioning (Melamed, 1979). Adult dental anxiety has often been attributed to highly aversive dental experiences in childhood (Kleinknecht et al., 1973; Milgrom, Fiset, Melnick, & Weinstein, 1988). However, although most high-anxious children report painful or traumatic experiences, such experiences cannot be identified in all cases of high dental anxiety (Prins, 1985; Sermet, 1974; O. Shaw, 1975; Williams, Murray, Lund, Harkiss, & de-Franco, 1985). Furthermore, the use of premedication, nitrous oxide, or other analgesics to allay patients' fear makes it difficult to assume that classic conditioning due to pain plays a dominant role. Classic conditioning alone, therefore, cannot account for children's fearful behavior in the medical setting. Anxiety in medical settings may be further developed or supported by reinforcing environmental consequences and modeling through fearful behavior by parents, siblings, or peers (Melamed & Siegel, 1985).

Admission to the hospital is one of the most common reasons for a young child to be separated from its parents. Bowlby's hypothesis that separation and unresolved mourning in infancy and the preschool years may be a precursor to the development of psychopathology has led to a great deal of research on the effects of hospitalization on young children (Garmezy, 1983). The fear-related behaviors of young hospitalized children, up to 4 years of age, are often more directly related to separation from the attachment figures than to the medical procedure itself (Blount et al., 1991a; Peterson et al., 1985). The disturbances are more intense when the child has a poor relationship with his parents prior to admission or if there is conflict and discord within the family. Furthermore, the stress of the separation seems to lie particularly in the disruption of the attachment bond without the opportunity to reconnect to a new person (Garmezy, 1983; Rutter, 1983). Interestingly, children who

voluntarily separate from their mothers to explore among interesting toys have been found to demonstrate little or no distress. In contrast, forced separation can evoke considerable distress, even when the child can still see his or her mother. These findings suggest that perceptions of control over the separation experience can reduce distress and facilitate adaptation (S. M. Miller, 1980).

A number of interventions consistent with attachment theory have been implemented to diminish children's fear in the hospital. Many hospitals allow parents to room in, provide primary nursing care, do not restrict visiting hours for parents, and allow children to visit on adult wards. This increase in the level of parental participation in the hospital experience has been linked to children's reduced anxiety (Peterson et al., 1985). If parental presence is not possible, the presence of a nurse who is assigned to care for the child regularly also reduces emotional disturbances during the stay (Rutter, 1983; Garmezy, 1983). Today, an increasing number of studies investigate mother–child interactions in the medical setting (cf. Blount, Corbin, Sturges, Wolfe, Prater, & James, 1989; Blount, Landolf-Fritsche, Powers, & Sturges, 1991b; Gonzalez, Routh, Saab, Armstrong, Shifman, Guerra, & Fawcett, 1989).

Cognitive approaches to anxiety in medical settings are of a more recent date and suggest that the development and maintenance of anxiety are associated with negative cognitions. Exaggerated perceptions of danger, threat, and fear and an underestimation of one's ability to cope with these threats are two central dimensions in the cognitive approach to anxiety (Kendall & Chansky, 1991; Kent, 1987). Recent studies have interviewed dentally anxious children about their cognitions (Brown, O'Keeffe, Sanders, & Baker, 1986; S. M. Miller et al., 1992; Prins, 1985, 1987). Prins (1985) found a significant relation between negative cognitions, such as "I keep thinking about the pain and drilling" or "I'd wish the dentist was ill," and high dental fear. High-anxious as compared with low-anxious children reported more negative cognitions, indicating a strong preoccupation with the external aversive stimuli, with the threat of pain, and with escape fantasies. Low-anxious children reported a lower frequency of negative thoughts, but could not be characterized by positive or negative cognitions. Consistent with other research in this area, it was suggested that it is the lower frequency of negative thoughts as opposed to the presence of positive ones that is most salient in differentiating nonanxious from anxious children (see also Prins, Groot, & Hanewald, 1994).

Although high-anxious children report many negative thoughts and although these thoughts appear to facilitate anxiety, they cannot fully explain high anxiety, as low-anxious children also report negative cognitions. Kent (1987) notes that the difference between high- and low-fearful dental patients may be found in the thinking process (e.g., being able to dismiss anxious thoughts), rather than in the content of thinking. Research on medical anxiety in adults has suggested other anxiety-sustaining cognitive processes, such as attentional bias and selective memory (Arntz, van Eck, & Heijmans, 1990; Kent, 1984; de Jongh & Ter Horst, 1992). This research has clear implications for the study and treatment of children's anxiety in medical settings. Anxious dental patients compared with nonaxious patients tend systematically to overestimate the aversiveness of the treatment and to expect more pain than they actually experience, despite disconfirming experiences. These expectations, of course, are examples of negative cognitions. The interrelations between these negative expectations and the actually experienced anxiety and pain are described by Rachman and Bichard (1988) in their match–mismatch model. This model is especially relevant to medical settings that provide regular confrontations with aversive stimulation. As Rachman and Bichard (1988, p. 303) note: "Predictions of fear tend to increase after

underpredictions, to decrease after overpredictions, and to remain constant after a correct match. They tend to become more accurate with practice." The tendency to overpredict how much pain one will experience is pronounced among patients who report high levels of fear (Kent, 1984). High-anxious subjects need quite a number of disconfirmative experiences, however, and if this number is not large enough, and experiences do not follow each other closely, the old ideas will appear to become restored in time (Arntz et al., 1990; Prins, 1988).

It is assumed that the value of accurate predictions lies in the experience of control. A predicted fear response will be easier to control than an unpredicted fear response. Children have been reported to appreciate being given information beforehand. Bailey, Talhot, and Taylor (1973) conclude that there should be no element of surprise in a visit to the dentist. In the case of highly anxious children, parents should be taught how to prepare their child for the visit to the dentist. Williams et al. (1985) examined the possibility that unpredictability of dental treatment may play a causal role in the refusal of dental treatment. It could not be established that the "refusers" had undergone unexpected treatments in the past. In other words, though a history of less predictable and more traumatic treatments may be sufficient to cause treatment refusal, they are clearly not necessary (Williams et al., 1985).

Lander et al. (1992) explored the interrelationships among expected, experienced, and recalled pain and anxiety in children (5–17 years old) who were attending an outpatient laboratory for venipuncture. Children's expectations may help or hinder their ability to cope with a potentially painful experience (Melamed & Siegel, 1985). It has been suggested by Lander et al. (1992) that underpredictions of pain may precede or precipitate the development of catastrophizing and avoidance behaviors. A longitudinal study is required to deal with this hypothesis.

ASSESSMENT OF ANXIETY IN MEDICAL SETTINGS

The assessment of children's anxiety in medical settings generally includes behavioral measures, self-report, and physiological measures (Ioannou, 1991; Jay, 1988; Siegel, 1988a; 1988b). Projective tests are also used, but generally lack reliability (Winer, 1982).

A problematic issue that plagues the field concerns the confounding between anxiety and pain. Pain elicits anxiety and anxiety confounds pain perceptions. Since behavioral expressions of anxiety and pain are difficult to distinguish in acute clinical situations, especially with younger children, a number of investigators (Jay & Elliott, 1984; Jay, Elliott, Olson, & Pruitt, 1985; Katz, Kellerman, & Siegel, 1981) have come to speak of "distress" as a general term, encompassing behaviors of negative affect, including anxiety, fear, and pain. This confounding seems less the case with older children, who through self-report methods seem better able to discriminate between pain and anxiety (LeBaron & Zeltzer, 1984), and in the case of taking measures before or after treatment. Behaviors measured immediately prior to and following the actual noxious stimulation may be anxiety, whereas the same behaviors occurring during the noxious stimulation may be a combination of anxiety and pain (Shacham & Daut, 1981).

In the assessment of medical and dental anxiety, researchers often employ a broad variety of instruments because of the low intercorrelations between measures of anxiety or because of the idea that anxiety is a multidimensional construct, manifest in different ways in different individuals (Melamed & Siegel, 1985). This view implies that many studies

concurrently assess the three response systems of anxiety through behavioral measures, self-report measures, and physiological measures.

Behavioral Measures

Behavioral observation scales and rating scales are the two most frequently used behavioral assessment techniques with children in medical settings. Common coded child behaviors indicative of anxiety are crying, screaming, muscle tension, anxious verbalizations, information-seeking, clinging, refusing requests for body position, and requesting termination of the procedure. Observers record the occurrence of these behaviors and often also rate their intensity.

Most of the scales that are reported in the literature were developed to assess the effects of treatment. For the pediatric oncology population, various scales have been developed. The Procedure Behavior Rating Scale (PBRS) was designed to measure distress during bone marrow aspirations (BMAs) and lumbar punctures (LPs) and consists of 13 behavioral categories (Katz et al., 1980). The instrument has proven to be a valid and reliable measure of child distress. The PBRS has been revised into the Observational Scale of Behavioral Distress (OSBD) (Jay & Elliott, 1984; Elliott, Jay, & Woody, 1987), which includes two methodological refinements: continuous recording in 15-second intervals and a scale for measuring severity of anxiety. These refinements, however, did not increase the validity of the instrument. It may be that in a brief, time-limited situation such as a BMA, in which the child's distress behaviors are so acute and intense, gross behavioral recordings of the presence or absence of behaviors are sufficient (Jay & Elliott, 1984). Also, children who exhibit a behavior once during a phase may tend to exhibit that behavior throughout the phase, which makes continuous behavioral recording unnecessary. A more global rating of anxiety or cooperation or both may be sufficient. It remains possible that the methodological refinements made in the OSBD will demonstrate some value in the investigation of more subtle individual differences, such as children's cognitive coping styles, parental variables, and aspects of the medical procedures themselves. These sources of variance in children's distress are more subtle and may require maximally sensitive observational methods. The required sensitivity of a behavioral measure clearly depends on the research question (Elliott et al., 1987). Although these scales have been developed for the pediatric oncology population, they would also be useful for assessing procedure-related anxiety during venipunctures, injections (Jacobsen, Manne, Gorfinkle, Schorr, Rapkin, & Redd, 1990), and treatment of burn injuries (Elliott et al., 1987). Similar scales have been developed for children undergoing dental treatment (Melamed, Hawes, Heiby, & Glick, 1975; Stark, Allen, Hurst, Nash, Rigney, & Stokes, 1989) and surgery (Melamed & Siegel, 1975). Finally, it should be noted that most scales in the area focus specifically on child distress, whereas few scales also include child coping behaviors and other routine behaviors that the child engages in during medical procedures (cf. Blount et al., 1989; Hubert, Jay, Saltoun, & Hayes, 1988).

A relatively new approach is the direct behavioral assessment of the interactions between children and adults in the anxiety-provoking medical setting. The Dyadic Prestressor Interaction Scale (DPIS) (Bush et al., 1986; Greenbaum, Cook, Melamed, Abeles, & Bush, 1988) was designed to assess the frequency of occurrence of four child behaviors (both fear-related and coping) and six maternal behaviors (e.g., distraction, informing, reassuring) during 5 minutes of uninterrupted mother–child interaction in the hospital

waiting room. It provides information on the ways in which parent behaviors can influence the child prior to an impending medical procedure. The Child Adult Medical Procedure Interaction Scale (CAMPIS) developed by Blount et al. (1989) to observe the vocal behaviors of the doctor, nurses, parents, and children consists of 19 adult vocal codes and 16 child vocal codes. The child codes include codes indicative of distress, coping (e.g., nonprocedureal talk and humor—both of which indicate distraction from the medical procedure—audible deep breathing, and making coping statements), and normal talk that occurs in the treatment room. The CAMPIS allows categorization of the subject, speaker, phases of the medical procedure, and adult or child vocal content. Both the DPIS and the CAMPIS represent the most systematic attempts to date to assess the influence of social interactions on children's emission of coping as well as distress behaviors.

Fewer studies have examined child–dentist interactions. Weinstein, Getz, Ratener, and Domoto (1982) developed an instrument to score the behavioral interactions between dentists and child patients. The dentist's behavior was described in terms of "guidance," "empathy," "physical contact," and "verbalization." The children's behavior was described in terms of "movement and physical positioning," "verbalization," and "discomfort" and was further qualified as "fear-related" and "non-fear-related." Prins, Veerkamp, Ter Horst, de Jong, and Tan (1987) used a slightly modified version of this instrument to study the behaviors of dentists who varied in their experience with treating dentally fearful children.

Several limitations of behavioral measures should be noted. They are less useful for adolescents, who are likely to display fewer overt anxiety responses. Moreover, observers' characteristics such as experience and attitude may affect observation scores (Ioannou, 1991; Manne, Redd, Jacobsen, Garfinkle, Schorr, & Rapkin, 1990). Finally, behaviors indicative of anxiety may be at the same time adaptive coping responses (Zeltzer & LeBaron, 1982). Disadvantages of relying solely on a behavioral checklist have been discussed by LeBaron & Zeltzer (1984).

Self-Report Measures

Behavioral measures reflect overt manifestations of anxiety. An absence of behavioral signs of noncooperation or anxiety does not necessarily signify that the child is not experiencing anxiety. Self-reports provide information about a child's perception of his or her own anxiety. Their advantage is that of obtaining information from the child who is experiencing the negative emotion. Various types of self-reports are used. Most instruments require the child to rate or indicate his anxiety. The Hospital Fears Rating Scale (Melamed & Siegel, 1975) is a self-report inventory in which children rate their fear—on a 5-point scale of faces depicting a continuum ranging from not afraid at all to very, very afraid—of 16 medically related situations and of 9 filler items.

Numerical (visual analogue) scales are the most frequently reported scales in the pediatric literature (Zeltzer & LeBaron, 1982). They consist of numbers reflecting increasing severity of anxiety. There are a number of permutations of these scales, including pain thermometers, "faces" scales, and tangible objects such as poker chips. Generally, studies have shown self-report to be valid for children over the age of 6 years, but problematical and less reliable for younger children (Ioannou, 1991; Jay, 1988). The difficulty is in translating personal experience into visual representations such as those used on a numerical scale or into verbal representation (no anxiety, moderate anxiety, severe anxiety) useful in assessing adult pain. According to some researchers, children as young as 5 years can understand and

use a rating scale with clear instruction and practice and are able to think conceptually about the differences between pain and anxiety (LeBaron & Zeltzer, 1984; Zeltzer, LeBaron, Richie, & Reed, 1988). Other researchers are more hesitant to use self-reports with young children, because it has not yet been established that children below the age of 7 or 8 years are able to indicate reliably their degree of distress or pain or both (Elliott & Olson, 1983; Jay, 1988).

A consequence of the increasing interest in cognitive approaches to anxiety in children is the need for methods to assess children's cognitions before, during, and after invasive procedures Interviewing children and asking them to report their thoughts, images, feelings, and fantasies while imagining a stressful procedure or during the aversive procedure itself has been helpful in identifying dysfunctional thoughts, misconceptions, and coping strategies, which may then be used to plan a psychological intervention (Brown et al., 1986; S. M. Miller et al., 1992; Prins, 1985). The approaches of interviewing and direct observation should be seen as complementary, each supplying testable hypotheses and adding to the understanding of pediatric anxiety and pain.

Physiological Measures

Clinical and experimental observations highlight the need for physiological as well as self-report measures for older children and adolescents, who may be highly anxious but do not exhibit their distress overtly. The area of physiological measurement, however, is particularly weak in pediatrics (Jay, 1988). The most frequently measured indices are heart rate and electrodermal responses (Ioannou, 1991). Blood pressure (systolic and diastolic) was used by Stark et al. (1989). Studies with older children have focused on pulse rate as an index of anxiety during invasive procedures; however, the results are inconclusive. The Palmar Sweat Index (PSI) has been found to be a useful measure of anxiety related to surgery (Faust, Olson, & Rodriguez, 1991) and dental procedures (Melamed, Yurcheson, Fleece, Hutcherson, & Hawes, 1978). A number of methodological and practical problems related to the use of physiological measures make interpretation difficult (Beidel, 1989). The PSI can be sensitive to nonrelevant sources of sweat production, such as room temperature, and highlights the problem of extraneous variables in natural clinical environments (Ioannou, 1991). A major problem is the child's activity level during measurement. In this case, use of neurochemical parameters might be considered (Beidel, 1989).

ENVIRONMENTAL AND INTERPERSONAL FACTORS

Environmental factors include setting variables, such as the physical characteristics of the setting (color of the attire, design of the wards) and type of procedure (duration, invasiveness), and interpersonal variables, such as parental behavior and the behaviors of the medical professional or nursing staff. The question is which environmental factors in medical settings are more anxiety-provoking than others.

Setting

At least some portion of children's behavior in medical settings can be attributed to the aversive properties of the medical environment itself (Siegel, 1988a). Medical procedures vary according to painfulness, duration, need for hospitalization, and frequency. Certain

medical care is inherently more traumatic: The emergency room, the intensive care units, and isolated or protected environments are considered more fear-provoking than settings such as the venipuncture laboratory or examination rooms. However, empirical data on this subject are lacking.

Medical procedures may consist of more or less fear-provoking phases. Bone marrow aspiration (BMA) consists of a preparatory phase, the actual needle introduction, and a recovery period. Phase differences in children's fear-related behaviors were found by van Aken et al. (1989); distress was highest during needle introduction and significantly lower during the preparatory and recovery phases of BMA. Prins (1988) studied the effects of a verbal coping skills training program on children's fear during dental treatment. Results did not indicate that this intervention was differentially effective in reducing fear during the drilling and nondrilling phases of treatment (see also Manne et al., 1990).

Parents

The impact of the immediate social environment on the child's anxiety in medical settings has been one of the more intensively researched issues in this area. In particular, the effects of parental presence, parental anxiety, and parental behaviors on children's anxiety, coping behavior, and recovery have been studied recently (Blount et al., 1989, 1991a,b; Bush et al., 1986; Jacobsen et al., 1990; Jay, 1988; Lumley, Abeles, Melamed, Pistone, & Johnson, 1990).

A large number of experimental studies have varied the presence and the absence of the mother in the operating room while the child is undergoing some stressful event such as surgery, injection, BMA, or dental treatment. The results are equivocal. Parental presence appears to be a multifunctional stimulus. Some studies have provided evidence that parental presence can exacerbate, disinhibit, or reinforce children's distress during less painful procedures such as blood tests and injections (E. G. Shaw & Routh, 1982; Gross, Stern, Levin, Dale, & Wojnilower, 1983). Two rival hypotheses apply to this area: the operant and the attachment explanation. Attachment theory implies that the mother's presence helps the child to cope more comfortably with novel or frightening experiences, presumably including painful medical procedures. Behavior theory, in contrast, views the infant's crying on mother's departure simply as a learned behavior, reinforced by the mother's intermittent response of returning when the child cries. Behavior theory might predict that the child's crying in response to pain would be more likely to be rewarded by effective comforting and would thus be more likely to occur if the mother were present than if she were absent. The research literature on this topic contains few studies and does not permit firm conclusions to be stated (E. G. Shaw & Routh, 1982). Gross et al. (1983) offered a stimulus control and extinction explanation for their finding that children displayed higher levels of distress if the mother was present. Most children have a history in which displaying distress results in effective comforting by the mother and, often, her elimination of an aversive stimulus. Therefore, mother may become a discriminative stimulus for exhibiting distress during aversive situations. Conversely, parental presence may be a discriminative stimulus for coping behaviors and may help children to cope effectively with painful medical experiences (cf. Lumley et al., 1990). It appears premature to make general statements on the effects of parental presence per se, as it depends on age of the child, type of medical procedure, phase of procedure, number of sequential visits, moment of leaving the child, and parental anxiety (Blount et al., 1991a).

A most important correlate of child distress during painful medical procedures is

maternal anxiety (Melamed & Siegel, 1985). This correlation appears to diminish with increasing age and across visits. With experience, the child becomes responsive to cues and information that stem from sources other than the mother (Winer, 1982). Several researchers have reported that the children of more anxious mothers are more distressed during painful procedures (Jay et al., 1983). It is assumed that mothers convey their anxiety, through modeling or some form of communication (e.g., muscle tension), to their children. Exposure to a more anxious parent will exacerbate child distress by disrupting positive coping and inhibiting relaxation (Bush, 1987). In a study by Jacobsen et al. (1990), parent state anxiety, but not parent trait anxiety, was correlated with overall distress of the child.

These correlational studies do not identify the mechanisms that underlie this association. One possibility is that parents become more anxious by virtue of having more distressed children. A second possibility is that anxious parents engage in specific behaviors that exacerbate child distress. What appears to matter is not the presence or absence of the parent per se, but the quality of the relation and what the parent does in the operating room before or during the stressor or at both times (Bush et al., 1986; Jacobsen et al., 1990; Lumley et al., 1990; Melamed & Ridley-Johnson, 1988; Winer, 1982). Mothers who supported their children's coping skills rather than emphasizing emotional expression had children who coped better (Bush et al., 1986). Similarly, Jay (1988) suggested that children who cope more effectively have parents who do not reinforce pain behaviors or display their own anxiety, but who are supportive and expect them to cope well. Research by Blount et al. (1989) indicates that certain adult behaviors are closely associated with either coping or distress behaviors by the child undergoing painful BMA and LP procedures. Adults' reassuring comments, apologies to the child, giving control to the child, and criticism of the child typically preceded child distress. Child coping typically was preceded and followed by adult commands to the child to engage in coping procedures, by nonprocedural talk to the child, and by humor directed to the child. It has been suggested that some parents may inadvertently cue and reinforce their children's distress, whereas other parents may promote coping.

Jacobsen et al. (1990) examined the behaviors of pediatric oncology patients and their parents during outpatient venipuncture. Providing explanations regarding the procedure was the behavior of parents most clearly associated with child distress. These explanations may have either a soothing or an anxiety-evoking effect, depending on the child's level of distress and depending on the timing of the explanation. The soothing effect of explanations is consistent with research showing that preparatory information facilitates child adjustment to medical and dental procedures (Peterson & Mori, 1988). Results indicated that explanations are beneficial only if they are provided at the outset to an already distressed child. This finding parallels earlier work by Melamed (1982) showing that children who were physiologically aroused retained greater amounts of preparatory information regarding surgery and reported less anxiety postoperatively.

The fear-provoking value of parent explanation was unexpected because prior research has generally found preparatory information to be helpful. Two hypotheses were offered by Jacobsen et al. (1990) to account for this finding. First, some children may respond negatively to procedure-related explanations whenever they are provided. The timing of parent behavior is another important variable. Poorly timed delivery of explanations resulted in more anxiety-related behaviors. An explanation offered to a nondistressed child at the beginning of the procedure may have disrupted the child's successful coping efforts (e.g., self-distraction), thereby resulting in heightened distress during needle insertion.

In an interesting study by Lumley et al. (1990), children's reactions to anesthesia

induction were found to be related to the interaction between the child's temperament and the mother's behavior displayed before the induction. Two temperament dimensions were considered especially relevant to coping with medical stressors: the child's tendency to approach or withdraw from novel stimuli (approach–withdrawal) and the child's ability to adapt to environmental changes (adaptability). It was predicted that children showing the "difficult" temperament characteristics of withdrawal responses to novel situations and a slowness to adapt to change would display more distress in response to the stressor of anesthesia induction. Additionally, certain maternal interactive behaviors assessed prior to surgery (during the waiting period) were examined for their relationship to the child's behavioral and physiological reactions, both independent of and in interaction with the two temperament characteristics. Neither the mother's behavior nor the child's temperament had significant main effects; rather, their interactions predicted coping outcome. There was an interaction between the child's temperament characteristic of adaptability to change and the degree of maternal emotional involvement with the child the day before surgery. Among children who were rated by their mothers as adapting poorly to change, maternal ignoring, maternal agitation, and noninvolvement were related to increased behavioral distress during anesthesia induction. Yet low-adaptable children whose mothers were active with them and avoided displaying agitation coped fairly well with induction, showing less behavioral distress. These relationships did not occur with children rated as highly adaptable.

A second interaction was found between the child temperament characteristic of approaching or withdrawing from novel stimuli and the particular type of active maternal behavior—providing information about vs. distracting away from medical stimuli—displayed during interaction with the child. A predominance of maternal distraction with children who tended to withdraw from novel stimuli was related to less behavioral distress, whereas maternal use of distraction with children characterized as approaching was related to increased behavioral distress. Contrariwise, a predominance of maternal information provision was related to adaptive coping outcomes in children who tended to approach new situations, whereas among withdrawing children, information provision was related to increased distress. Results suggest that the mother's presence/absence, her behavior, the child's temperament, and the type of stressor must be considered before a full understanding of children's distress and coping in the medical setting can be achieved (Lumley et al., 1990).

Medical Professionals

Although the behavior of the doctor, the dentist, or the nursing staff may influence the child patient's fear, research on this relationship is scarce (Blount et al., 1989, 1991b; Melamed et al., 1983; Ter Horst, Prins, Veerkamp, & Verhey, 1987; Weinstein et al., 1982). Such research requires detailed sequential analyses of the interactions between doctor/dentist and child patient. Weinstein et al. (1982) used a lag sequential analysis to determine the extent to which dentists' behaviors contribute to the occurrence of fear- and non-fear-related behaviors in their preschool child patients. Their results suggest that the dentists' use of specific direction and positive reinforcement was consistently followed by a reduction in fear-related behavior. Physical contact, i.e., patting and stroking, and questioning for feelings were also likely to result in less fearful behavior, while ignoring or denying these feelings tended to be followed by a substantial increase in fear-related behaviors.

Ter Horst et al. (1987) replicated this study and investigated whether these findings were in part the result of analyzing behavioral sequences without taking autocorrelations

into account. Taking autocorrelations into account implies that the child's behavior at time *T* may be influenced not only by the behavior of the dentist at time *T*-1 (or *T*-2, *T*-3, etc.), but also by the child's own behavior at time *T*-1 (or *T*-2, *T*-3, etc.) (Verhey, Ter Horst, Prins, & Veerkamp, 1989). A group of 12 high-anxious and a matched group of 12 low-anxious children (6–12 years old) were treated by dentists with more or with less experience in treating fearful children. Data analysis that did not control for autocorrelations (Verhey et al., 1989) revealed 22 (of 28) significant effects. Data analysis that did control for autocorrelations showed only two significant effects: "working contact," which decreased fear-related behavior, and "no physical contact," which increased fear-related behavior. Clearly, the behavior of the children depended more on their own immediately preceding behavior than on the dentists' preceding behavior. It should be noted, however, that the time lags that were used in this study (*T*, *T*-1, *T*-2) were only 5 and 10 seconds. Because a behavior often lasts longer than 5 or 10 seconds, it is not surprising that a relation between the behaviors at these intervals was found.

CHILD FACTORS

Children's behavior in medical settings is the result of the combined effects of environmental factors and child characteristics. Child factors that are assumed to contribute to medical anxiety in children are cognitive maturity, previous experience, coping, and perceived control.

Cognitive Maturity

The level of cognitive maturity will determine how the child interprets medical information and how he or she will react to the stress of medical procedures or hospitalization. Because of their limited cognitive abilities, young children may have distorted conceptions and misattributions about pain, illness, and the medical procedure. Some may think it possible to bleed to death from blood tests; others may perceive pain and illness as punishment for bad thought and behavior and transgressions of the rules. Diabetic children sometimes erroneously believe that their disease came from eating too much sugar, and some heart patients think that playing too hard damaged their heart (Burbach & Peterson, 1986; Redpath & Rogers, 1984). Effective coping depends on adequate appraisal of the stressor. Memory of past medical events may be particularly likely to be absent or distorted in young children. If a child is unable to place the coming event in any kind of prior experienced context, appraisal will be exceedingly difficult. Similarly, young children are limited in their capacity to define the parameters of the event such as its intensity or duration. Children's poor understanding and interpretation of time in particular strongly limit their ability to orient the stressor in time. They will have difficulty understanding that the procedure will take a very short time or that it will happen in, say, 10 minutes vs. in 10 days (Peterson, 1989).

Previous Experience

Previous experiences may shape the child's expectations of medical events. Older children have had more opportunities to experience aversive stimulation, are generally less fearful, and are better able to tolerate pain. But do children who have more experience with

aversive medical procedures show less anxiety? A number of investigators have observed clinically that children appear to become less tolerant of aversive procedures over time and show no evidence of habituation or reduced stress with repeated burn-injury treatments (Elliott & Olson, 1983; M. D. Miller, Elliott, Funk, & Pruitt, 1988), repeated dental treatments (Stark et al., 1989), and cancer treatments (van Aken et al., 1989; Katz et al., 1980). In a study by Katz et al. (1980), the degree of observed stress during BMA was not related to number of prior procedures. An interesting discrepancy was reported between the findings obtained with the behavior observation scale and those derived from nurse's ratings. Even though the two measures were significantly correlated, behavioral observation data indicated that children do not habituate to repeated BMAs, whereas nurses' ratings did show such an effect. These results suggest that children may become increasingly sensitized to repeated medical procedures. On the other hand, Jay et al. (1983) found less distress in children who had received a greater number of prior BMAs and noted that these relationships existed independent of the effects of the child's age, a factor associated with both the amount of prior experience and the intensity of the child's distress. Jacobsen et al. (1990) also provided limited support for the notion that children's distress reactions are subject to habituation.

Clearly, research has yielded contradictory findings about whether or not children habituate to repeated aversive treatment procedures. More systematic assessment of the effect of prior exposure to anxiety and pain might be warranted (cf. Jay, 1988).

Coping

Children's anxiety in the medical setting depends to some extent on their capacity to employ coping strategies. Whether a child's adjustment to the medical setting is in fact the result of coping should be established by independent assessment of the actual coping strategies employed by the child (Lumley et al., 1990; Prins, 1985; 1988, Stark et al., 1989). With regard to the coping process, a distinction is usually made between the elicitors of coping (e.g., the medical instruments), the coping response (e.g., deep breathing, imagining something positive),and the outcome of coping (e.g., crying, level of cooperation). The coping response can thus be distinguished from the stressor and the short- or long-term adjustment and can be viewed as a mediation between the stressor and the outcome (Peterson, 1989).

Various methods for assessing the cognitive and behavioral coping strategies of children who have to undergo medical or dental treatment have been developed recently. Structured or semistructured interviews and questionnaires are increasingly used and provide information on self-generated coping strategies that children use in response to stressful medical procedures (Brown et al., 1986; Curry & Russ, 1985; S. M. Miller et al., 1992; Peterson, Harbeck, Chaney, Farmer, & Thomas, 1990; Prins, 1985, 1987). Direct observations of children's coping behaviors during various phases of treatment is less frequently reported in the literature (cf. Blount et al., 1991b; Hubert et al., 1988), as are combinations of self-report and observational measures (Curry & Russ, 1985; Peterson & Toler, 1986).

The study of children's coping in medical settings includes the search for global coping styles, the analysis of individual coping strategies in specific stressful situations, and the interrelations between these two and subsequent adaptation (S. M. Miller et al., 1992). The exploration of the use of consistent and characteristic styles of coping has recently been extended to children. Various studies have identified one similar dimension of

coping that ranges from passive or avoiding to information-seeking or active approaching of the medical procedure and suggest that the active end of the scale is associated with better adjustment. In other words, children who actively seek information (e.g., asking questions, handling materials) are better able to cope with a stressful medical situation (Hubert et al., 1988; S. M. Miller et al., 1992; Peterson, 1989; Peterson & Toler, 1986). Why the approach of information-seeking appears superior to the approach of avoiding information is an intriguing issue that needs further theoretical and empirical study.

It has been noted by S. M. Miller et al. (1992) that the search for global coping styles has limitations. It may collapse together coping modes that may be conceptually and empirically distinct (e.g., efforts to predict vs. efforts to control). The use of such global categories may blur these distinctions, and important subtleties of the coping process may be lost, such as the way in which different strategies are combined and the situational and individual factors that influence the use and effectiveness of these strategies.

There is both stability and change in coping. Although a child may characteristically respond to related situations in a similar fashion, consistency across many dissimilar situations is not likely to be found, even within the same child. For example, the child may use different strategies for coping with the news that he has to go to the hospital for surgery and for coping with actually entering the operating room and undergoing anesthesia induction (Peterson, 1989). The particular coping strategy that the child will use is influenced by contextual factors, such as the degree to which the situation is controllable or not. Particularly in stressful medical situations, the possibility for direct-action coping modes is limited and cognitive coping strategies are of more importance (Band & Weisz, 1988; Prins, 1985).

The use of specific coping strategies is not only constrained by contextual factors, but also influenced by the child's cognitive maturity. A relationship has been found between coping style and age. Brown et al. (1986) investigated the way in which children (8–18 years of age) employ coping strategies in imaginary stressful situations such as medical settings and how these strategies were related to age, level of anxiety, and gender. The most frequently reported coping strategy in the dental situation was positive self-talk. Use of this strategy increased with age, but in all age groups it was the most commonly reported coping strategy employed. The same was true for attention diversion (thinking about something else). Thought-stopping was reported infrequently at all age levels. As children got older, they used more than one type of strategy. The total number of strategies used also increased with age. In other words, coping increased with age; twice as many 16- to 18-year-olds reported predominantly coping cognitions as did 8- to 9-year-olds. Further, with increasing age, more cognitive and fewer behavioral coping strategies have been reported by the children, particularly in medical situations (Curry & Russ, 1985; Peterson & Toler, 1986).

An issue with important theoretical and practical implications concerns the matching of children's self-generated coping behaviors with the coping strategies taught in treatment programs. Focusing on one's physical sensations during treatment, for example, is seldom spontaneously reported by children, but is a component of many preparation treatments. The matching between coping style and training in coping procedures has not been considered in most child treatment studies. The implication of much of the literature is that children should be presented information or receive training in coping strategies in a manner consistent with their predisposition to seek or avoid information. Training children in a coping strategy consistent with their coping style could be seen as requiring the least adjustment or cognitive change by the child and as enhancing the effectiveness of a style with which they are already familiar.

This principle is illustrated in the study of Lumley et al. (1990), who investigated the role of child–environment variables in children's coping with stressful medical procedures. Based on the interaction that was found between children's approach–withdrawal temperament characteristics and active maternal behavior, it was concluded that mothers can aid their children's coping efforts by displaying coping behaviors that are congruent with the child's basic temperamental style (see also Field, Alpert, Vega-Lahr, Goldstring, & Perry, 1988). However, as Blount et al. (1991a) discuss, children may profit by having their coping repertoire broadened through being provided with a strategy inconsistent with their preferred style. Furthermore, research with adults suggests that individuals who employ coping strategies that incorporate elements of both avoidant and approach styles may be the most effective copers. These individuals may be able to adjust their strategy to the different demands of the different aspects of the stressful situation.

Perceived Control

Throughout the literature, perceived control is considered a major etiological factor of medical anxiety. Lack of control over the course of medical treatment enhances anxiety (Melamed & Ridley-Johnson, 1988; Thompson, 1981). Enhanced perceptions of control may result in better adjustment. The degree to which a medical experience is perceived as controllable by the child may be a function of the child's coping repertoire (Melamed & Siegel, 1985).

A study by Corah (1973) indicates the potential utility of the perceived-control paradigm for the dental situation. In that experiment, half the children were given the opportunity to push a button that signaled the dentist that treatment bothered them and that they wanted the dentist to stop. The other half were not given this control over the aversive event. Children who could use this stop signal expressed significantly less dental anxiety than those who could not. It should be noted that this difference appeared only on the more stressful procedures. Interestingly, the majority of the children who could use the button did not do so. In other words, they did not exercise the control option. Controllability/perceived control was apparently sufficient to calm the patient. The question whether this was more so for children with an internal locus of control was not dealt with in this study.

It is not yet possible to draw firm conclusions about the role of children's coping and perceived control in medical settings (cf. Jay et al., 1983; Prins, 1988). Future research should be designed to tease apart individual, temporal, and situational influences on children's coping with stressful medical situations.

TREATMENT OF ANXIETY IN MEDICAL SETTINGS

The study of children's anxiety in medical settings is based primarily on child-management problems encountered in medical and dental practice. Given this state of affairs, it is not surprising that treatment studies outnumber assessment and theoretical papers. Numerous behavioral techniques have been used successfully in treating anxious child patients in medical settings. Most treatments aim at one or more of the following goals: reducing the child's anxiety or disruptive behavior, relieving pain, increasing coping skills, and improving adjustment, compliance, or cooperation. The interventions most frequently used include information approaches, modeling procedures, coping skills training, reinforcement of appropriate behavior, and combinations of these methods in so-

called "treatment packages." Less frequently, children's anxiety in medical settings has been treated with systematic desensitization (Melamed, 1979; Rainwater et al., 1988), with hypnosis or guided imagery (Kuttner, Bowman, & Teasdale, 1988), or by training the parents to interact more effectively with their children during aversive medical procedures (Blount et al., 1991b). Generally, three categories of child patients can be distinguished: (1) children who face hospitalization, surgery, or some other aversive medical procedure for the first time; (2) anxious children with medical experience; and (3) phobic children who do not appear for medical treatment (Melamed, 1979). The analysis of treatment studies should be based on a clear description of the child-patient population in terms of previous experience, level of anxiety, and coping style. Recent reviews of treatment studies can be found in Jay (1988), Siegel (1988a,b), and Peterson and Mori (1988). The following discussion covers some of the major techniques and related issues.

Informing the child prior to treatment is a common procedure and is based on the assumption that aversive medical treatments such as surgery and hospitalization are stressful and painful experiences that may lead to transient or long-term psychological disturbance, especially if the child is not sufficiently prepared (Melamed & Siegel, 1980). Information approaches usually provide the child with information about the medical or dental procedure, with sensory information, and with information about specific coping strategies (cf. Johnson, Kirchoff, & Endress, 1975; Siegel & Peterson, 1980). The information helps the child to understand the purpose and meaning of the procedure, to correct possible misconceptions, and to master the experience. It thus may strengthen a sense of control (Peterson & Mori, 1988).

Modeling procedures have a long-standing tradition in the treatment of children's anxiety in medical settings. Research has demonstrated the efficacy of modeling procedures in reducing children's anxiety and disruptive behaviors in a variety of health care settings (Melamed, 1979). Most modeling interventions involve observing a live or filmed model coping with a medical procedure. The efficacy of modeling depends on such factors as the use of coping vs. mastery models and the child's age and previous experience with the medical treatment (Melamed, 1979). Adding coping strategies and opportunities to practice these skills to the modeling procedure appears to facilitate the anxiety-reducing effect of modeling (Faust et al., 1991; Melamed, Klingman, & Siegel, 1984). Some studies, however, have not found modeling helpful for children with previous dental treatment or for dentally anxious children who viewed a mastery model (who displays no anxiety and copes effectively) vs. a coping model (who displays anxiety but goes on to cope successfully with it) (Ginther & Roberts, 1982; Zachary et al., 1984) or who were exposed to covert modeling (Chertock & Bornstein, 1979).

Coping skills training has been successful in helping children cope with aversive medical procedures (Jay et al., 1985; Melamed et al., 1984) and hospitalization (Peterson & Shigetomi, 1981). Nocella and Kaplan (1982) taught coping skills to young children aged 5–13 years with prior dental experience scheduled to have dental restorations or extractions. Coping strategies included identification of anxiety-provoking events, deep breathing exercises, muscle relaxation, *in vitro* desensitization (imagining using coping strategies at the next dental visit), and positive self-statements ("I'm doing good, I can handle this"). The coping skills group had significantly fewer anxiety-related and disruptive behaviors during dental procedures compared to attention-control and no treatment groups. Prins (1988) was less successful in demonstrating an anxiety-reducing effect of a training program in positive self-statements. Dentally fearful children between the ages of 8 and 12 were trained to use positive self-verbalizations. The findings suggested that with higher

levels of dental fear, training in positive self-verbalizations and self-instructions should be combined with or preceded by direct anxiety-reducing techniques, such as gradual exposure *in vivo*. High levels of fear may hinder the effective use of (verbal) self-regulatory responses and therefore must first be reduced to a self-manageable level. This notion is consistent with results from previous research on children's spontaneous use of verbal self-regulation in anxiety-provoking situations, which showed that verbal self-regulation strategies were mostly reported by moderately anxious children (Prins, 1986).

The training of coping skills is often part of a cognitive–behavioral treatment program that combines various cognitive and behavioral techniques in so-called "treatment packages" (Siegel & Peterson, 1980). Elliott and Olson (1983) demonstrated the efficacy of a package of stress-management techniques in reducing children's anxiety and pain-related behaviors during highly aversive burn-injury treatments (see also M. D. Miller et al., 1988). This package included attention-distraction, relaxation, emotive imagery, and reinforcements of attempts to cope. Similarly, Jay and colleagues (Jay et al., 1983, 1985; Jay, Elliott, Katz, & Siegel, 1987) developed a cognitive behavioral package for pediatric cancer patients. The package consists of five components: filmed modeling, breathing exercises, positive reinforcement, emotive imagery, and behavioral rehearsal. The intervention was found to be effective in reducing the behavioral distress of children undergoing BMAs and lumbar punctures.

Coaching the child to apply the learned skills may be of crucial importance (Blount, Bachanas, Powers, Cotter, Franklin, Chaplin, Mayfield, Henderson, & Blount, 1992; Elliott & Olson, 1983; Prins, 1988). In the Jay et al. (1985) study, after the intervention session, the psychologist accompanied the parent and the child into the treatment room. The psychologist and the parent cued the child to do the breathing exercises during the procedures and reminded him or her of the reinforcers and imagery techniques.

It is generally unclear in outcome studies of treatment packages whether all strategies, either alone or in various combinations, are equally effective or necessary. Identification of individual components that are effective is an issue for future research efforts.

Children who face medical treatment, especially minor surgery such as tonsillectomy, are often exposed to preparation programs. Part of the rationale underlying preparation is that unexpected stress is more anxiety-provoking and more difficult to cope with than anticipated or predictable stress. Preparing children should enhance cooperative behavior and reduce the risk of medical anxiety (Jay, 1988; Peterson & Mori, 1988). Preparations involve some or all of the following: providing information about the procedure by verbal explanation or modeling, letting the child handle equipment, having the child practice on a doll, introducing the child to medical personnel, and discussion of fears (Jay, 1988). In most cases, preparation does not directly teach the child a coping skill.

The efficacy of preparation as measured by the amount of information retained and the child's level of anxiety depends on age, time of preparation, level of arousal, and previous experience (Faust et al., 1991). Children admitted to the hospital immediately prior to surgery may show different levels of anxiety and may show a need for a different form of preparation than children admitted the night before surgery. A coping modeling film immediately before surgery was less effective in reducing the fear of pediatric surgery patients than the same film the night before surgery (Faust & Melamed, 1984). Same-day surgery patients may have been sensitized by the film. However, children have been successfully prepared immediately before other invasive medical procedures (Elliott & Olson, 1983). Previous work suggests that older children benefit from a longer time interval between preparation and surgery, while younger children benefit from preparation closer

to the procedure (Faust & Melamed, 1984). There is some evidence that suggests that preparing young "experienced" children by exposing them to a modeling procedure may sensitize them instead of help them (Faust & Melamed, 1984).

Most psychological interventions are based on the assumption that preparation is helpful for all children. However, some children appear to become more distressed during preparation, because the information reinvokes conditioned anxiety responses (Melamed & Siegel, 1985) or conflicts with the child's avoidant coping strategy. Studies of adults undergoing elective surgery have shown that "deniers' provided with preparatory information respond by reporting more physical complaints and requesting more pain medication. Children also possess information-seeking dispositions that influence how distressed they become in medical situations (Peterson & Toler, 1986). Interactions between coping styles and provision of preparatory information, however, have yet to be systematically evaluated in pediatric patients (Jacobsen et al., 1990; Peterson, 1989).

Future treatment-outcome research should concentrate on predictors of differential treatment effects. Specifically, controlled outcome studies with various child-patient populations are required to determine which treatments are most effective for which children. Furthermore, assessing the limits to generality and stability of the findings, assessing the relative efficacy of various treatment approaches, and teasing apart the relative contributions of the multiple components of the training programs are important topics that need to be addressed in future studies.

SUMMARY

The various issues that have been discussed in this review of the literature illustrate the complexity and multifaceted nature of children's anxiety in the medical and dental setting. Empirical research of the past decade has increased our understanding of assessment and treatment of children's anxiety in medical and dental settings. Many assessment instruments and successful intervention strategies have been developed.

A diversity of models and minitheories guides recent empirical research in this area: The social interactive model, coping theories, and the cognitive approach are especially prominent. Each addresses relevant aspects of child anxiety in the medical setting. The emerging need, however, is for theoretical papers and empirical studies in which these various research literatures are integrated. More studies, for example, on the etiology and developmental outcome of medical anxiety are needed, as well as studies of the complex interactions between child characteristics (e.g., preferred coping style, level of anxiety, previous experience) and environmental factors (e.g., parental and staff behaviors, phase of treatment).

Large numbers of children face short-term medical and dental procedures. This circumstance provides an excellent opportunity to investigate children's anxiety and coping efforts in the natural environment. However, the testing of hypotheses in a clinical setting remains a difficult task and requires continued close cooperation among the pediatrician, nursing staff, and behavioral researcher. A useful alternative method, which deserves more serious attention from researchers because of its potential for controlling relevant variables, has been suggested by Melamed (1979): videotaped dental or medical simulation.

Future research could be conducted quite profitably on several issues: collecting prevalence data on clinical and subclinical levels of children's anxiety in medical settings, identifying base rates of spontaneously generated coping strategies of special populations of

child patients, failures in coping, the patterning of relationships between fear response systems in both assessment and treatment studies, and theoretical analyses of child medical anxiety and coping with medical stressors.

Indeed, much has been achieved, but more theoretical and empirical work in this important and exciting domain of clinical child psychology remains to be done.

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REFERENCES

Arntz, A., van Eck, M., & Heijmans, M. (1990). Predictions of dental pain: The fear of any expected evil is worse than the evil itself. *Behaviour Research and Therapy, 28*, 29–41.

Bailey, P. M., Talhot, A., & Taylor, P. P. (1973). A comparison of maternal anxiety levels with anxiety levels manifested in child dental patients. *Journal of Dentistry for Children, 40*, 277–284.

Band, E. B., & Weisz, J. R. (1988). How to feel better when it feels bad: Children's perspectives on coping with everyday stress. *Developmental Psychology, 24*, 247–253.

Barbarin, O. A. (1990). Adjustment to serious childhood illness. In B. B. Lahey & A. E. Kazdin (Eds.), *Advances in Clinical Child Psychology*, Vol. 13 (pp. 377–403). New York: Plenum Press.

Beidel, D. C. (1989). Assessing anxious emotion: A review of psychophysiological assessment in children. *Clinical Psychology Review, 9*, 717–736.

Benjamin, R. S., Costello, E. J., & Warren, M. (1990). Anxiety disorder in a pediatric sample. *Journal of Anxiety Disorders, 4*, 293–316.

Blount, R. L., Bachanas, P. J., Powers, S. W., Cotter, M., Franklin, A., Chaplin, W., Mayfield, J., Henderson, M., & Blount, S. D. (1992). Training children to cope and parents to coach them during routine immunizations: Effects on child, parent, and staff behaviors. *Behavior Therapy, 23*, 689–705.

Blount, R. L., Corbin, S. M., Sturges, J. W., Wolfe, V. V., Prater, J. M., & James, L. D. (1989). The relationship between adults' behavior and child coping and distress during BMA/LP procedures: A sequential analysis. *Behavior Therapy, 20*, 585–601.

Blount, R. L., Davis, N., Powers, S. W., & Roberts, M. C. (1991a). The influence of environmental factors and coping style on children's coping and distress. *Clinical Psychology Review, 11*, 93–116.

Blount, R. L., Landolf-Fritsche, B., Powers, S. W., & Sturges, J. W. (1991b). Differences between high and low coping children and between parent and staff behaviors during painful medical procedures. *Journal of Pediatric Psychology, 16*, 795–809.

Brown, J. M., O'Keeffe, J., Sanders, S. H., & Baker, B. (1986). Developmental changes in children's cognition to stressful and painful situations. *Journal of Pediatric Psychology, 11*, 343–357.

Burbach, D., & Peterson, L. (1986). Children's concepts of physical illness: A review and critique of the cognitive developmental literature. *Health Psychology, 15*, 307–325.

Bush, J. P. (1987). Pain in children: A review of the literature from a developmental perspective. *Psychology and Health, 1*, 215–236.

Bush, J. P., Melamed, B. G., Sheras, P. L., & Greenbaum, P. E. (1986). Mother–child patterns of coping with anticipatory medical stress. *Health Psychology, 5*, 137–157.

Corah, N. L. (1973). Effect of perceived control on stress reduction in pedodontic patients. *Journal of Dental Research, 52*, 1261–1264.

Chertock, S. L., & Bornstein, P. H. (1979). Covert modeling treatment of children's dental fear. *Child Behavior Therapy, 1*, 249–255.

Curry, S. L., & Russ, S. W. (1985). Identifying coping strategies in children. *Journal of Clinical Child Psychology, 14*, 61–69.

de Jong, A., & Ter Horst, G. (1992). Angst voor de tandheelkundige behandeling en cognitieve processen (Dental anxiety and cognitive processes). *Gedrag en Gezondheid, 20*, 73–81.

Elliott, C. H., & Olson, R. A. (1983). The management of children's distress in response to painful medical treatment for burn injuries. *Behaviour Research and Therapy, 21*, 675–683.

Elliot, C. H., Jay, S. M., & Woody, P. (1987). An observation scale for measuring children's distress during medical procedures. *Journal of Pediatric Psychology, 12*, 543–551.

Faust, J., & Melamed, B. G. (1984). Influence of arousal, previous experience, and age on surgery preparation of same day of surgery and in-hospital pediatric patients. *Journal of Consulting and Clinical Psychology, 52*, 359–365.

Faust, J., Olson, R., & Rodriguez, H. (1991). Same-day surgery preparation: Reduction of pediatric patients' arousal and distress through participant modeling. *Journal of Consulting and Clinical Psychology, 59*, 475–478.

Field, T., Alpert, B., Vega-Lahr, N., Goldstring, S., & Perry, S. (1988). Hospitalization stress in children: Sensitizer and suppressor coping styles. *Health Psychology, 7*, 433–445.

Francis, G. (1990). Anxiety Disorders. In A. S. Bellack, M. Hersen, & A. E. Kazdin (Eds.), *International handbook of behavior modification and therapy*, 2nd ed. (pp. 633–649). New York: Plenum Press.

Garmezy, N. (1983). Stressors of childhood. In N. Garmezy & M. Rutter (Eds.), *Stress, coping and development in children* (pp. 43–48). New York: McGraw-Hill.

Ginther, L. J., & Roberts, M. C. (1982). A test of mastery versus coping modeling in the reduction of children's dental fears. *Child & Family Behavior Therapy, 4*, 41–52.

Gonzalez, J. C., Routh, D. K., Saab, P. G., Armstrong, D., Shifman, L., Guerra, E., & Fawcett, N. (1989). Effects of parents' presence on children's reactions to injections: Behavioral, physiological, and subjective aspects. *Journal of Pediatric Psychology, 14*, 449–462.

Greenbaum, P. E., Cook, E. W., Melamed, B. G., Abeles, L. A., & Bush, J. P. (1988). Sequential patterns of medical stress: Maternal agitation and child distress. *Child and Family Behavior Therapy, 10*, 9–19.

Gross, A. M., & Drabman, R. S. (1990). *Handbook of clinical behavioral pediatrics*. New York: Plenum Press.

Gross, A. M., Stern, R. M., Levin, R. B., Dale, J., & Wojnilower, D. A. (1983). The effect of mother–child separation on the behavior of children experiencing a diagnostic medical procedure. *Journal of Consulting and Clinical Psychology, 51*, 783–785.

Hovanitz, C. A., Gerwell, E. L., & Russo, D. C. (1984). Behavioral methods in pediatric chronic illness. In B. B. Lahey & A. E. Kazdin (Eds.), *Advances in clinical child psychology*, Vol. 7 (pp. 253–293). New York: Plenum Press.

Hubert, N. C., Jay, S. M., Saltown, M., & Hayes, M. (1988). Approach-avoidance and distress in children undergoing preparation for painful medical procedures. *Journal of Clinical Child Psychology, 17*, 194–202.

Ioannou, C. (1991). Acute pain in childhood. In M. Herbert (Ed.), *Clinical child psychology* (pp. 331–349). New York: John Wiley.

Jacobsen, P. B., Manne, S. L., Gorfinkle, K., Schorr, O., Rapkin, B., & Redd, W. H. (1990). Analysis of child and parent behavior during painful medical procedures. *Health Psychology, 9*, 559–576.

Jay, S. M. (1988). Invasive medical procedures: Psychological intervention and assessment. In D. K. Routh (Ed.), *Handbook of Pediatric Psychology* (pp. 401–425). New York: Guilford Press.

Jay, S. M., & Elliott, C. H. (1984). Behavioral observation scales for measuring children's distress: The effects of increased methodological rigor. *Journal of Consulting and Clinical Psychology, 52*, 1106–1107.

Jay, S. M., Elliott, C. H., Katz, E., & Siegel, S. E. (1987). Cognitive behavioral and pharmacologic interventions for children's distress during painful medical procedures. *Journal of Consulting and Clinical Psychology, 55*, 860–865.

Jay, S. M., Elliott, C. H., Olson, R., & Pruitt, S. (1985). Behavioral management of children's distress during painful medical procedures. *Behaviour Research and Therapy, 23*, 513–520.

Jay, S. M., Ozolins, M., Elliott, C. H., & Caldwell, S. (1983). Assessment of children's distress during painful medical procedures. *Health Psychology, 2*, 133–147.

Johnson, J. E., Kirchoff, T. K., & Endress, M. P. (1975). Altering children's distress behavior during orthopedic cast removal. *Nursing Research, 24*, 404–410.

Katz, E. R., Kellerman, J., & Siegel, S. E. (1980). Behavioral distress in children with cancer undergoing medical procedures: Developmental considerations. *Journal of Consulting and Clinical Psychology, 48*, 356–365.

Katz, J., Kellerman, J., & Siegel, S. E. (1981). Anxiety as an affective focus in the clinical study of acute behavioral distress: A reply to Shacham & Daut. *Journal of Consulting and Clinical Psychology, 49*, 470–471.

Kendall, P. C., & Chansky, M. S. (1991). Considering cognition in anxiety disordered children. *Journal of Anxiety Disorders, 5*, 167–185.

Kent, G. (1984). Anxiety, pain and type of dental procedure. *Behaviour Research and Therapy, 22*, 465–469.

Kent, G. (1987). Self-efficacious control over reported physiological, cognitive and behavioral symptoms of dental anxiety. *Behaviour Research and Therapy, 25*, 341–347.

King, N. J., Gullone, E., & Ollendick, T. H. (1990). Fears in children and adolescents with chronic medical conditions. *Journal of Clinical Child Psychology, 19*, 173–177.

Kleinknecht, R., Klepac, R. K., & Alexander, L. D. (1973). Origins and characteristics of fear of dentistry. *Journal of the American Dental Association, 86*, 842–848.

Kolko, D., & Milan, M. (1980). Misconception correction through reading in the treatment of a self-injection phobia. *Journal of Behavior Therapy and Experimental Psychiatry, 11*, 273–276.

Kuttner, L., Bowman, M., & Teasdale, M. (1988). Psychological treatment of distress, pain and anxiety for young children with cancer. *Developmental and Behavioral Pediatrics, 9*, 374–381.

Lander, J., Hodgins, M., & Fowler-Kerry, S. (1992). Children's pain predictions and memories. *Behaviour Research and Therapy, 30*, 117–124.

LeBaron, S., & Zeltzer, L. (1984). Assessment of acute pain and anxiety in children and adolescents by self-reports, observer reports, and a behavior checklist. *Journal of Consulting and Clinical Psychology, 52*, 729–738.

Lumley, M. A., Abeles, L. A., Melamed, B. G., Pistone, I. M., & Johnson, J. H. (1990). Coping outcomes in children undergoing stressful medical procedures: The role of child–environment variables. *Behavioral Assessment, 12*, 223–238.

Manne, S. L., Redd, W. H., Jacobsen, P. B., Gorfinkle, K., Schorr, O., & Rapkin, B. (1990). Behavioral intervention to reduce child and parent distress during venipuncture. *Journal of Consulting and Clinical Psychology, 58*, 565–572.

Melamed, B. G. (1979). Behavioral approaches to fear in dental settings. In M. Hersen, R. M. Eisler, & P. M. Miller (Eds.), *Progress in behavior modification*, Vol. 7 (pp. 171–203). New York: Academic Press.

Melamed, B. G. (1982). Reduction in medical fears: An information processing analysis. In J. Boulougouris (Ed.), *Learning theory approaches to psychiatry* (pp. 205–218). New York: John Wiley.

Melamed, B. G., & Ridley-Johnson, R. (1988). Preparation of families for hospitalization. *Journal of Developmental and Behavioral Pediatrics, 9*, 96–102.

Melamed, B. G., & Siegel, L. J. (1975). Reduction of anxiety in children facing hospitalization and surgery by use of filmed modeling. *Journal of Consulting and Clinical Psychology, 43*, 511–521.

Melamed, B. G., & Siegel, L. J. (1980). *Behavioral medicine: Practical applications in health care*. New York: Springer.

Melamed, B. G., & Siegel, L. J. (1985). Children's reactions to medical stressors: An ecological approach to the study of anxiety. In A. H. Tuma & J. Maser (Eds.), *Anxiety and the anxiety disorders*. Hillsdale, NJ: Erlbaum.

Melamed, B. G., Bennett, C. G., Jerrell, G., Ross, S.L., Bush, J. P., Hill, C., Courts, F., & Ronk, F. (1983). Dentists' behavior management as it affects compliance and fear in pediatric patients. *Journal of the American Dental Association, 106*, 324–330.

Melamed, B. G., Hawes, R. R., Heiby, E., & Glick, J. (1975). Use of filmed modeling to reduce uncooperative behavior of children during dental treatment. *Journal of Dental Research, 54*, 797–801.

Melamed, B. G., Klingman, A., & Siegel, L. J. (1984). Childhood stress and anxiety: Individualizing cognitive–behavioral strategies in the reduction of medical and dental stress. In A. W. Meyers & W. E. Craighead (Eds.), *Cognitive behavior therapy with children* (pp. 289–315). New York: Plenum Press.

Melamed, B. G., Yurcheson, R., Fleece, E. L., Hutcherson, S., & Hawes, R. (1978). Effects of film modeling on the reduction of anxiety-related behaviors in individuals varying in level of previous experience in the stress situation. *Journal of Consulting and Clinical Psychology, 46*, 1357–1367.

Milgrom, P., Fiset, L., Melnick, S., & Weinstein, P. (1988). The prevalence and practice management consequences of dental fear in a major U.S. city. *Journal of the American Dental Association, 106*, 641–647.

Miller, M. D., Elliott, C. H., Funk, M., & Pruitt, S. D. (1988). Implications of children's burn injuries. In D. K. Routh (Ed.), *Handbook of pediatric psychology* (pp. 426–448). New York: Guilford Press.

Miller, S. M. (1980). Why having control reduces stress: If I can stop the roller coaster I don't want to get off. In J. Garber & M. Seligman (Eds.), *Human helplessness: Theory and applications* (pp. 71–95). New York: Academic Press.

Miller, S. M., Sherman, S., Combs, C., & Kruus, L. (1992). Patterns of children's coping with short term medical and dental stressors: Nature, implications, and future directions. In A. La Greca, L. Siegel, & G. Walker (Eds.), *Advances in pediatric psychology: Stress and coping with pediatric conditions*, Vol. 1 (pp. 157–191). New York: Guilford Press.

Moore, R., Brodsgaard, I., & Birn, H. (1991). Manifestations, acquisition and diagnostic categories of dental fear in a self-referred population. *Behaviour Research and Therapy, 29*, 51–60.

Nocella, J., & Kaplan, R. M. (1982). Training children to cope with dental treatment. *Journal of Pediatric Psychology, 7*, 175–178.

Ollendick, T. H., & King, N. J. (1991). Origins of childhood fears: An evaluation of Rachman's theory of fear acquisition. *Behaviour Research and Therapy, 29*, 117–123.

Ollendick, T. H., King, N. J., & Frary, R. B. (1989). Fears in children and adolescents: Reliability and generalizability across gender, age and nationality. *Behaviour Research and Therapy, 27*, 19–26.

Oosterlaan, J., Prins, P. J. M., & Sergeant, J. A. (1992). Fear Survey Schedule for Children—Revised (Dutch translation). Poster Presented at the 4th Annual Meeting of the Society for Research in Child and Adolescent Psychopathology, Sarasota, February 1992.

Peterson, L. (1989). Coping by children undergoing stressful medical procedures: Some conceptual, methodological, and therapeutic issues. *Journal of Consulting and Clinical Psychology, 57*, 380–387.

Peterson, L., & Mori, L. (1988). Preparation for hospitalization. In D. K. Routh (Ed.), *Handbook of pediatric psychology* (pp. 460–491). New York: Guilford Press.

Peterson, L., & Shigetomi, C. (1981). The use of coping techniques in minimizing anxiety in hospitalized children. *Behavior Therapy, 12*, 1–14.

Peterson, L., & Toler, S. M., (1986). An information seeking disposition in child surgery patients. *Health Psychology, 5*, 343–358.

Peterson, L., Harbeck, C., Chaney, J., Farmer, J., & Thomas, A. M. (1990). Children's coping with medical procedures: A conceptual overview and integration. *Behavioral Assessment, 12*, 197–212.

Peterson, L., Mori, L., & Carter, P. (1985). The role of the family in children's responses to stressful medical procedures. *Journal of Clinical Child Psychology, 14*, 98–104.

Prins, P. J. M. (1985). Self-speech and self-regulation of high- and low-anxious children in the dental situation: An interview study. *Behaviour Research and Therapy, 23*, 641–650.

Prins, P. J. M. (1986). Children's self-speech and self-regulation during a fear provoking behavioral test. *Behaviour Research and Therapy, 24*, 181–191.

Prins, P. J. M. (1987). Stability and change in the nature and function of children's self-speech and self-regulation during two dental visits. Poster presented at the 21th Annual AABT Convention, Boston, November, 1987.

Prins, P. J. M. (1988). Efficacy of self-instructional training for reducing children's dental fear. *Child and Family Behavior Therapy, 10*, 49–67.

Prins, P. J. M., Groot, M. J. M., & Hanewald, G. J. F. P. (1994). Cognition in test-anxious children: The role of on-task and coping cognition reconsidered. *Journal of Consulting and Clinical Psychology, 62*, 404–409.

Prins, P. J. M., Veerkamp, J., Ter Horst, G., de Jong, A., & Tan, L. (1987). Behavior of dentists and child patients during treatment. *Community Dentistry and Oral Epidemiology, 15*, 253–257.

Rachman, S. J., & Bichard, S. (1988). The overprediction of fear. *Clinical Psychology Review, 8*, 303–313.

Rainwater, N., Sweet, A. D., Elliott, L., Bowers, M., McNeil, J., & Stump, N. (1988). Systematic desensitization in the treatment of needle phobias for children with diabetes. *Child and Family Behavior Therapy, 10*, 19–31.

Redpath, C. C., & Rogers, C. S. (1984). Healthy young children's concepts of hospitals, medical personnel, operations, and illness. *Journal of Pediatric Psychology, 9*, 29–40.

Routh, D. K. (Ed.) (1988). *Handbook of pediatric psychology*. New York: Guilford Press.

Rutter, M. (1983). Stress, coping and development: Some issues and questions. In N. Garmezy & M. Rutter (Eds.), *Stress, coping and development in children* (pp. 1–42). New York: McGraw-Hill.

Sermet, O. (1974). Emotional and medical factors in child dental anxiety. *Journal of Child Psychology and Psychiatry, 15*, 313–321.

Shacham, S., & Daut, R. (1981). Anxiety or pain: What does the scale measure? *Journal of Consulting and Clinical Psychology, 49*, 468–469.

Shaw, E. G., & Routh, D. K. (1982). Effects of mother presence on children's reactions to aversive procedures. *Journal of Pediatric Psychology, 7*, 33–42.

Shaw, O. (1975). Dental anxiety in children. *British Dental Journal, 139*, 134–139.

Siegel, L. J. (1988a). Measuring children's adjustment to hospitalization and to medical procedures. In P. Karoly (Ed.), *Handbook of child health assessment: Biopsychological perspectives* (pp. 265–302). New York: John Wiley.

Siegel, L. J. (1988b). Dental treatment. In D. K. Routh (Ed.), *Handbook of pediatric psychology* (pp. 448–459). New York: Guilford Press.

Siegel, L. J., & Peterson, L. (1980). Stress reduction in young dental patients through coping skills and sensory information. *Journal of Consulting and Clinical Psychology, 48*, 785–787.

Spinetta, J. J. (1974). The dying child's awareness of death: A review. *Psychological Bulletin, 81*, 256–260.

Stark, L. J., Allen, K. D., Hurst, M., Nash, D. A., Rigney, B., & Stokes, T. F. (1989). Distraction: Its utilization and efficacy with children undergoing dental treatment. *Journal of Applied Behavior Analysis, 22*, 297–307.

Ter Horst, G., Prins, P. J. M., Veerkamp, J., & Verhey, H. (1987). Interactions between dentist and anxious child patients: A behavioral analysis. *Community Dentistry and Oral Epidemiology, 15*, 249–252.

Thompson, S. C. (1981). Will it hurt less if I can control it? A complex answer to a simple question. *Psychological Bulletin, 90*, 89–101.

van Aken, M. A. G., van Lieshout, C. F. M., Katz, E. R., & Heezen, T. J. M. (1989). Development of behavioral distress in reaction to acute pain in two cultures. *Journal of Pediatric Psychology, 14*, 421–432.

Vasey, M. W. (1993). Development and cognition in childhood anxiety: The example of worry. In T. H. Ollendick & R. J. Prinz (Eds.), *Advances in clinical child psychology*, Vol. 15 (pp. 1–39). New York: Plenum Press.

Verhey, H., Ter Horst, G., Prins, P. J. M., & Veerkamp, J. (1989). General method for analysing dentist–patient interaction. *Community Dentistry and Oral Epidemiology, 17*, 173–176.

Weinstein, P., Getz, T., Ratener, P., & Domoto, P. (1982). The effect of dentists' behavior on fear related behaviors in children. *Journal of the American Dental Association, 104*, 32–38.

Williams, J. M., Murray, J. J., Lund, C. A., Harkiss, B., & de-Franco, A. (1985). Anxiety in the child dental clinic. *Journal of Child Psychology and Psychiatry, 26*, 305–310.

Winer, G. A. (1982). A review and analysis of children's fearful behavior in dental settings. *Child Development, 53*, 1111–1133.

Yule, W., & Fernando, P. (1980). Blood phobia—beware. *Behaviour Research and Therapy, 18*, 587–590.

Zachary, A., Friedlander, S., Nahme Huang, L., Silverstein, S., & Leggot, P. (1984). Effects of stress-relevant and -irrelevant filmed modeling on children's responses to dental treatment. *Journal of Pediatric Psychology, 10*, 383–401.

Zeltzer, L., & Le Baron, S. (1982). Hypnosis and non-hypnotic techniques for reduction of pain and anxiety during painful procedures in children and adolescents with cancer. *Journal of Pediatrics, 101*, 1032–1035.

Zeltzer, L. K., LeBaron, S., Richie, D. M., & Reed, D. (1988). Can children understand and use a rating scale to quantify somatic symptoms? Assessment of nausea and vomiting as a model. *Journal of Consulting and Clinical Psychology, 56*, 567–572.

III

SPECIFIC ASSESSMENT PROCEDURES

15

Structured Diagnostic Interviews

Wendy K. Silverman

INTRODUCTION

The clinical interview is essential to the process of assessing the child. Regardless of theoretical orientation, all mental health professionals rely on this data-gathering procedure. The prominence of the interview is well deserved; it provides for the most comprehensive assessment of the child's emotional and behavioral functioning relative to any other clinical method. Whether assessing children with conduct problems, attentional difficulties, or—the focus of this volume, children with phobic and anxiety disorders—the interview is invaluable for eliciting information about various facets of the child's problem behaviors.

The purpose of this chapter is to discuss the utility of *structured* data-gathering procedures i.e., the structured interview, for diagnosing phobic and anxiety disorders in children and adolescents (hereinafter referred to as "children"). In this chapter, utility and diagnosis have two very specific meanings. The term utility implies that the interview is successful, accurate, and efficient in generating appropriate diagnoses—utility being conceptualized in terms of reliability and validity (Young, O'Brien, Gutterman, & Cohen, 1987). The term "diagnosis" means the formal assignment of problem behaviors to specific categories drawn from a formal classification system (Achenbach, 1985). Although "diagnosis" also has a second and broader meaning, namely, an information-gathering procedure in which efforts are directed at understanding the nature of the problem and its possible causes, treatment options, and outcomes (Mash & Terdal, 1988), most of the research that has been conducted on structured interviewing procedures has focused on their utility in the more narrow sense, rather than the broader. Hence, it is the former that is the focus of this chapter as well.

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Preceding the discussion of the utility of the interviews is a brief description of the most widely used child interview schedules, focusing particularly on their similarities and differences with respect to structure and content. The chapter also includes a discussion of the sensitivity of the interviews to the notion of development and the issue of parent–child concordance. General guidelines to help decide which interview to use are provided as well. The chapter concludes with recommendations for future research.

Before proceeding to the specific interview instruments, the chapter begins with a brief discussion of the different types and styles of interviews. Also included is a brief historical and theoretical overview of the use of structured interviews.

DIFFERENT TYPES AND STYLES OF INTERVIEWS

Although all interviews are methods of collecting information, they vary widely in terms of their specific purpose, form, and context. The specific tasks and characteristics of the interviewers also vary considerably. In general, interviews are typically characterized as either structured (or standardized) or unstructured (or nonstandardized) (Richardson, Dohrenwend, & Klein, 1965). The former are used for purposes that involve the quantification of data. These purposes may include the quantification of individuals' preferences, political views, or—relevant to this chapter—the presence or absence of certain psychiatric symptoms. As Richardson et al. (1965, pp. 34–35) point out:

> Because the standardized interview is designed to collect the same information from each respondent, the answers of all respondents must be comparable and classifiable—that is, they must deal with precisely the same subject matter—and differences or similarities between the responses must reflect actual differences or similarities between respondents and not differences due to questions they were asked or to the meanings that they attributed to the questions.

In contrast, the nonstandardized or unstructured interview makes no attempt to obtain the same information from respondents, and the unit of analysis is not necessarily individual (Richardson et al., 1965). Rather, the nonstandardized interview is used to identify the components of a general question or problem that interests the researcher, to describe carefully the phenomena being investigated, and to delineate the specific information that may later need to be obtained via a structured interview (Richardson et al., 1965).

Because the focus of this chapter is on structured interviews, some additional comments are in order with respect to the two major forms of structured interviews, namely: (1) the nonscheduled structured interview and (2) the scheduled structured interview.

In the nonscheduled structured interview, the interviewer works with a list of the information required from each respondent and is carefully trained in the meaning of all the information required. For each respondent, the interviewer formulates questions designed to get at the same meaning. In other words, in the nonscheduled structured interview, the interviewer formulates the classes of information he or she is seeking and attempts to formulate questions that will have the same meaning for each respondent (Richardson et al., 1965). Not surprisingly, such interviews require a high degree of interviewer experience, skill, and training. Training costs, therefore, also tend to be high.

In the scheduled structured interview, the interviewer asks the same questions of each respondent and hopes that they will have the same meaning to all respondents. Specifically, the same questions are asked in the same prescribed order, and the respondents' answers are

recorded on the schedule—either verbatim or in precoded spaces. Scheduled structured interviews vary widely in their rigidity, however. For example, some interviews allow the respondent to qualify or to elaborate on his or her responses; other interviews provide alternative questions that can be asked on the basis of respondents' prior responses (Richardson et al., 1965). The more rigid or "structured" the interview, the more clinical judgment in obtaining information from the respondent (e.g., the parent and child) is minimized. Also minimized is the role of clinical inference and interpretation in the assessment and diagnostic process (Edelbrock & Costello, 1984). The upshot is that interrater variability is reduced, thereby resulting in an increase in diagnostic reliability.

A great deal more research has been conducted on developing and testing scheduled structured interviews with children and adolescents than on nonscheduled structured interviews. Thus, it is the former that are highlighted in this chapter. Although the greater amount of research attention directed toward scheduled structured interviews reflects, in part, the lower cost and effort involved in their development, this circumstance in no way implies that the cost and effort involved are minimal. Certainly they are not. Rather, there is *relatively* greater work involved in developing and testing nonscheduled structured interviews than is involved with scheduled ones.

HISTORICAL AND THEORETICAL BACKGROUND

As indicated above, structured interviews were developed to help reduce interrater variability in diagnosis. This variability was due primarily to "criterion variance," defined as the formal inclusion and exclusion criteria used to summarize patient data into psychiatric diagnoses (Spitzer, Endicott, & Robins, 1975; Ward, Beck, Mendelson, Mock, & Erbaugh, 1962). To rectify this problem, taxonomy systems were developed with precise criteria for each diagnostic category, such as the Feighner criteria (Feighner, Robins, Guze, Woodruff, Winokur, & Munoz, 1972), the Research Diagnostic Criteria (Spitzer et al., 1975), the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (DSM-IV) [American Psychiatric Association (APA), 1994], and the *International Classification of Disorders* (ICD-10) [World Health Organization (WHO), 1992]. As research on these systems proceeded, it became evident that the reliability of diagnosis could be improved even further if the information were gathered in a systematic manner—thus, the development of structured interview schedules (Spiker & Ehler, 1984). The first schedules to appear were for use with adults (e.g., the Schedule for Affective Disorders and Schizophrenia) (Endicott & Spitzer, 1978) and the Diagnostic Interview Schedule (Robins, Helzer, Croughan, & Ratcliff, 1981), with similar schedules later developed for use with youth.

Another factor that contributed to both the development and the investigation of children's structured data-gathering procedures was the results that emerged from the pioneering Isle of Wight studies (e.g., Rutter & Graham, 1968; Rutter, Tizard, & Whitmore, 1970; Rutter, Tizard, Yule, Graham, & Whitmore, 1976). In a series of four studies, the reliability and validity of the interview with the child, as a measure of childhood psychiatric disorder, were carefully examined (Rutter et al., 1970, 1976). The overall judgment of psychiatric disorders proved to be highly reliable, and validity, which was tested by comparing the ratings based on the interviews with ratings based on independent information from parents and teachers, was also found to be good. These well-conceived and well-conducted studies were the first demonstrations that reliable and valid judgments about the presence or absence of child psychiatric disorders can be provided by a short

psychiatric interview of the youngster (although, in general, individual ratings on specific aspects of behavior were not as reliable as the overall psychiatric diagnosis). Publication of the Isle of Wight data had a major influence on the field and stimulated a great deal of interest in the interview of the child.

The child interviews reviewed in this chapter are all capable of generating diagnoses based on DSM-III or its revision (DSM-III-R) (APA, 1987) or ICD-9 or its revision (ICD-10) (WHO, 1992) or both. Work is underway on most of these interview schedules to render them compatible with DSM-IV (APA, 1994). Because the DSM and ICD approach to classification is categorical, several tenets that form the theoretical background of this approach are pertinent to these interview schedules. These tenets, discussed in greater detail by Spiker & Ehler (1984), include the following:

1. Certain "mental disorders" exist; that is, there are mental conditions that cause substantial discomfort or disability, are not merely an appropriate response to a specific event, and are a manifestation of a mental dysfunction (Wakefield, 1992).
2. It is important to classify disorders into groups, thereby facilitating investigations on epidemiology, presentation, etiology, prognosis, and effectiveness of treatment.
3. The categories that comprise the classification system are distinctive. Also referred to as discriminant validity, this tenet assumes that the entities with which one is dealing are qualitative and discrete with distinct boundaries between them (Moras & Barlow, 1992).
4. There is a hierarchy in the diagnostic classes (i.e., "a category in a class high in the hierarchy may have features found in classes that are lower, but the reverse is not true") [Spitzer & Williams, 1980 (as cited in Spiker & Ehler, 1984, p. 296)].
5. The specific criteria that are used to define diagnostic categories should be reliably assessable.

Developers and users of structured interviews may not necessarily concur with all these tenets, nor is it necessarily the case that there is justification, empirically, for each of them. The point to be made, however, is that inherent in the taxonomy scheme (i.e., DSM and ICD) are certain theoretical principles. One should be cognizant of these principles, as they are inherent in the various interview schedules as well.

STRUCTURED INTERVIEWS FOR CHILDREN

There are several interview schedules available that are appropriate for use with children with phobic and anxiety disorders. These schedules include (listed in the chronological order of their development): the Schedule for Affective Disorders and Schizophrenia in School-Age Children (K-SADS) (Puig-Antich & Chambers, 1978), the Diagnostic Interview for Children and Adolescents (DICA) (Herjanic & Reich, 1982), the Interview Schedule for Children (ISC) (Kovacs, 1982), the Child Assessment Schedule (CAS) (Hodges, Kline, Fitch, McKnew, & Cytryn, 1981; Hodges, McKnew, Cytryn, Stern, & Kline, 1982b), the Diagnostic Interview Schedule for Children (DISC) (A. J. Costello, Edelbrock, Dulcan, Kalas, & Klaric, 1984), the Anxiety Disorders Interview Schedule for Children (ADIS-C) (Silverman & Nelles, 1988), and the Child and Adolescent Psychiatric Assessment (CAPA) (Angold, Prendergast, Cox, Harrington, Simonoff, & Rutter, in press).

All of these interviews have accompanying parent versions, and most have undergone

revision (e.g., the DISC) or modification (e.g., the K-SADS), primarily as a way to improve their diagnostic reliability or to render them compatible with revisions of the diagnostic schemes. The interviews are all appropriate for use with children across a wide age range (as young as 6–8 years and as old as 16–18 years), albeit with varying results. In addition, the interviews generally require minimal verbal responses from the child and thus do not require the child to possess extensive verbal expressive skills. Moreover, the interview questions tend to be geared toward the language capabilities of youngsters (La Greca & Stone, 1992).

A brief description of these interview schedules follows, focusing particularly on how they compare with respect to structure and content in terms of the phobic and anxiety disorders. The first two interviews discussed are the ones that are the most highly structured—the DISC and the DICA.

Diagnostic Interview Schedule for Children (DISC)

As noted at the beginning of this chapter, interview schedules vary markedly in their degree of structure. Of the child schedules, the DISC (A. J. Costello et al., 1984) is highest in structure and lowest in flexibility. The development and testing of the DISC was commissioned by the National Institute of Mental Health (NIMH). The goal of the NIMH was to develop an extremely structured, "respondent-based" instrument, with verbatim prompts and precoded responses, that could be used by trained lay interviewers for epidemiological research. The questions on the DISC, organized diagnostically, focus exclusively on obtaining information necessary for deriving diagnoses generated by computer algorithms.

David Shaffer and colleagues at the New York State Psychiatric Institute have been coordinating the development and testing of the most recent version of the DISC, the DISC-2. One way the DISC-2 differs from the DISC, which is relevant to a discussion of structure, is that the DISC-2 incorporates a modular format that provides greater flexibility for researchers with specific diagnostic interests, while still allowing for the use of the diagnostic algorithms. One of the modules includes the "Anxiety Disorders," which covers most of the diagnostic sub-categories of the anxiety and phobic disorders. Documentation of the interrater reliability, test–retest reliability, and concurrent validity of the DISC-2 has recently appeared (Shaffer, Schwab-Stone, Fisher, Cohen, Piacentini, Davies, Conners, & Regier, 1993; Schwab-Stone, Fisher, Piacentini, Shaffer, Davies, & Briggs, 1993; Piacentini, Shaffer, Fisher, Schwab-Stone, Davies, & Gioia, 1993; Fisher, Shaffer, Piacentini, Lapkin, Kafantaris, Leonard, & Herzog, 1993).

Diagnostic Interview for Children and Adolescents (DICA)

The original DICA (Herjanic & Reich, 1982; Reich, Herjanic, Welner, & Gandhy, 1982) was based on the diagnostic criteria of ICD and the Feighner criteria. It was then revised in 1981 along DSM criteria, modeled after the NIMH Diagnostic Interview Schedule. A revised version, compatible with DSM-III-R, has since been developed (DICA-R) (Welner, Reich, Herjanic, Jung, & Amado, 1987).

In the revision, structured probes were added to incorporate increased flexibility, thereby reducing some of the structure of the original interview. The wording was also modified to render it more conversational. In addition, two separate versions were developed—one for younger children (ages 6–12) and their parents and one for older

children (ages 13–17) and their parents. Organized diagnostically, the DICA-R includes coverage of the childhood anxiety disorder subcategories and most of the adult subcategories. While the DISC and DICA are the most structured of all the interview schedules, the ISC and the CAS are the least. These are described next.

Interview Schedule for Children (ISC)

Developed by Marcia Kovacs (1982), the ICS had as its primary aim the assessment of current affective symptoms and associated symptomatology in youth (Kovacs, 1985). Two versions of the ISC exist: one for intake and another for reevaluation. Although the ISC was initially designed to yield symptom ratings, Kovacs devised addenda, clustered by specific DSM-III diagnoses, to facilitate the application of DSM criteria in the research evaluation of subjects. The addenda include additional coverage of the anxiety disorders, including sections on overanxious disorder, separation anxiety disorder, generalized anxiety disorder, avoidant disorder, and panic disorder.

After interviewing the parent and child, respectively, the interviewer records his or her overall summary ratings for each symptom, based on the data that were provided by both respondents. Clinical judgment is used to combine the parent and child data. The ISC is highly flexible in that the interviewer is given a great deal of leeway in the order in which he or she may administer the questions.

Child Assessment Schedule (CAS)

The CAS, which incorporates a conversational question format to enhance rapport, is another interview that is relatively low in structure and high in flexibility (Hodges et al., 1982b; Hodges, Kline, Stern, Cytryn, & McKnew, 1982a). The CAS is organized thematically: First, there are questions about 11 content areas, including fears, worries, and anxiety. DSM diagnostically related items are embedded within these content areas. All the anxiety diagnoses, with the exception of panic disorder and generalized anxiety disorder for which there are screening questions, may be generated. In the second section of the CAS are questions about onset and duration for positive symptoms. In the final section, the interviewer records observations about the child for 53 targeted behaviors (e.g., grooming, activity level, quality of emotional expressions). Like the ISC, flexibility is permitted in both the administration and interpretation of the CAS.

Intermediate in structure and flexibility are the K-SADS, the ADIS-C/P, and the CAPA. These schedules are described next.

Schedule for Affective Disorders and Schizophrenia in School-Age Children (K-SADS)

Despite its name, the K-SADS assesses a wide range of psychopathology, including most of the anxiety disorders. The questions on the K-SADS are listed in part thematically and in part diagnostically. A companion interview, the K-SADS-E (Epidemiological version), is designed to assess both past and present episodes of psychiatric disorder, with the focus being on lifetime symptomatology (Orvaschel, Puig-Antich, Chambers, Tabrizi, & Johnson, 1982).

The K-SADS uses an "interviewer-based" format in which the interviewer questions around a topic to determine whether a subject meets criteria for the presence of a symptom.

The interviewer may use the information obtained during the parent interview (which is administered first) to help guide the child interview (which is administered second). Information obtained from all available sources (e.g., the teacher, is also included to derive a "summary" clinical judgment, and it is this summary on which diagnosis is based).

Due, in part, to the poor reliability found for the anxiety disorder syndromes (e.g., Chambers, Puig-Antich, Hirsch, Paez, Ambrosini, Tabrizi, & Davies, 1985), the K-SADS has undergone various modifications by investigators. These include Last's modified version of the K-SADS (Last, 1986), which is more detailed in its coverage of each of the DSM-III-R anxiety disorders, thus rendering it more appropriate for use with youngsters with these disorders. Ambrosini, Metz, Prabucki, and Lee (1989) also developed a modified version of the K-SADS, the K-SADS-III-R, which is compatible with DSM-III-R as well. In addition to improving some of the structural difficulties of its predecessors, the K-SADS-III-R has a diagnostic criteria checksheet, which reduces the probability that raters will differentially interpret inclusion and exclusion criteria.

Anxiety Disorder Interview Schedule for Children (ADIS-C)

The ADIS-C (Silverman & Nelles, 1988; Silverman & Eisen, 1992), a downward extension of the Anxiety Disorder Interview Schedule (ADIS) (DiNardo, O'Brien, Barlow, Waddell, & Blanchard, 1983), was developed in light of earlier research that revealed that the existing structured interviews for children resulted in low reliability coefficients for diagnoses of anxiety disorders in children (e.g., Chambers et al., 1985; A. J. Costello et al., 1984). These other interviews were also viewed as relatively "light" in their coverage of the anxiety disorders for the purposes of investigators with specialized interests in childhood anxiety and its disorders (Silverman & Nelles, 1988).

Organized diagnostically, the ADIS-C was developed to provide for the differential diagnosis of the DSM-III anxiety disorders (both the child and the adult subcategories), permits the clinician to rule out alternative diagnoses, and provides quantifiable data concerning anxiety symptomatology, etiology, course, and a functional analysis of the disorder. Like the other interviews discussed thus far, the ADIS-C has undergone revisions to render it compatible with DSM-III-R and DSM-IV and also to improve its utility with young children. For example, visual prompts such as "thermometers" were added to help obtain child ratings of fear, worry, interferences, and physical symptomatology. "Calendars" were also added as visual prompts, to be used by the child to help him or her indicate the frequency of particular symptoms during a specified time period.

Child and Adolescent Psychiatric Assessment (CAPA)

An interview that is still in its infancy is the CAPA, developed by Adrian Angold and Michael Rutter (Angold et al., in press). The DSM-III, DSM-III-R, ICD-9 and draft ICD-10 glossaries provided the core group of diagnoses and items, but an array of symptoms not mentioned there that are of psychopathological interest were also included. The CAPA incorporates elements of both "respondent-based" approaches (similar to the DISC-2) and "interviewer-based" approaches (similar to the K-SADS). In terms of the former, the CAPA contains a series of questions that are to be asked exactly as written, thereby providing uniformity of questioning. In terms of the latter, the CAPA also questions around a topic to determine whether a subject meets clinical criteria for the presence of specific symptomatology (Angold et al., in press). Lay interviewers are taught to make clinical ratings

with the CAPA by referring to a glossary of item definitions, which details the criteria for judging "clinical significance."

With this description of the most widely used child interviews having been presented, a brief summary of their utility (i.e., reliability and validity, is presented next). In considering the reliability and validity of these instruments, it is inevitable that the classificatory system used also comes under scrutiny (E. J. Costello, Edelbrock, & Costello, 1985). Thus, the ensuing discussion touches on this point as well.

RELIABILITY

Reliability implies that clinicians are able to agree (i.e., that they obtain the same information from the same interview stimuli) on the diagnoses that they assign to patients' problem behaviors. In general, investigators have focused most of their energies on trying to improve the reliability of the diagnostic criteria of the classification schemes. Spitzer et al. (1975, p. 1187) provided the rationale for this emphasis on reliability: "The validity, i.e., the usefulness of a classification system is limited by its reliability. Therefore, to the extent that a classification system of psychiatric disorders is unreliable, a limit is placed on its validity for any clinical research or administrative use." Although investigators and theorists have questioned the wisdom of emphasizing reliability at the expense of validity (e.g., Eysenck, 1986; Kreitman, 1961; Spitzer & Fleiss, 1974; Vaillant, 1984; Wakefield, 1992), there is no denying that reliability is necessary (but not sufficient) for any classification system.

As Edelbrock and Costello (1984) point out, most structured interviews for children yield global indices that are reliable enough for detecting the presence or absence of disorder, but not necessarily for specific behaviors or syndromes. In addition, reliability has generally been higher for more overt behaviors than for more covert behaviors, such as fears, worries, or anxieties (Edelbrock, Costello, Dulcan, Kalas, & Conover, 1985; Silverman & Eisen, 1992). Further, reliability has tended to be low for items that require precise specification of frequency or complex judgments by either the interviewer or the respondent (Edelbrock & Costello, 1984).

Although less research has been conducted on ICD than on DSM, the work that has been done has shown that the reliability of ICD is variable, and it is poor when it comes to the emotional and neurotic disorders. Reliability improves when these subcategories of disorders are combined (see Chapter 2).

Table 1 presents a summary of those studies in which the reliability of DSM phobic and anxiety disorder diagnoses had been studied, using child structured interviewing procedures. The focus of the studies was either interrater reliability (i.e., agreement between raters using the same interview schedule) or test–retest reliability (i.e., whether a repeat identical interview within a few days or weeks elicits the same information from the source).

The major conclusion to be drawn from Table 1 is that although encouraging work has appeared with respect to reliability of anxiety and phobic diagnoses derived via child structured interviews, for the most part, the findings have been uneven. Moreover, it is difficult to make any summary statement about the "reliability" of these diagnoses in youngsters, given the many methodological differences that exist across studies. This point is elaborated on below.

In a discussion of study design contributions to disagreement in diagnoses between two diagnostic instruments (Cohen, O'Connor, Lewis, Velez, & Malachowski, 1987), the authors summarized some of the major factors that are likely to influence the level of

Table 1. Summary of Reliability Studies Using Structured Interviews for Children

Study	Interview	Subjects	Reliability paradigm	Reliability reported[a]
Chambers et al. (1985)	K-SADS	52 Psychiatric outpatients	Test–retest (72-hr retest interval)	Overall κ's of 0.24; κ ranged from 0.10 for panic attacks to 0.78 for depersonalization/derealization experiences.
Ambrosini et al. (1989)	Modified K-SADS	25 Outpatients attending a child depression clinic	Videotape interrater	Overall κ's of 0.85 for OAD, 0.85 for SAD, and 0.64 for simple phobia; κ's ranged from 0.53 for simple phobia to 1.00 for OAD.
Last (1986)	Modified K-SADS	81 Outpatients attending a child anxiety clinic	Audiotape interrater	κ's ranged rom 0.71 for simple phobia to 1.00 for PTSD.
Welner et al. (1987)	DICA-R	27 Psychiatric inpatients	Test–retest (1–7 day retest interval)	Overall κ of 0.76 for SAD, phobic disorder, and OAD.
Kovacs (1985)	ISC	35 Depressed cohort or nondepressed psychiatric controls	Interrater interviewer–observer	Overall ICCs ranged from 0.64 to 1.00.
Last (1987)	ISC	65 Outpatients attending a child anxiety clinic	Test–retest (morning–afternoon)	Overall κ of 0.84; κ's ranged from 0.64 for AVD to 1.0 for phobic disorder.
Hodges et al. (1989)	CAS	32 Psychiatric inpatients	Test–retest (1–10-day retest interval)	Overall κ of 0.72 for presence of any anxiety disorder; κ of 0.56 for SAD and 0.38 for OAD.
A. J. Costello et al. (1984)	DISC	242 Inpatients and outpatients	Videotape interrater and test–retest (10-day to 3-week retest interval)	κ's ranged from 0.96 to 0.99 for videotape interrater; κ's ranged from 0.22 for simple phobia to 0.55 for OAD for test–retest.
Schwab-Stone et al. (1993)	DISC-R	41 Psychiatric outpatients	Test–retest (1–3 week retest interval)	κ of 0.72 for SAD; ICC of 0.66 for SAD.
Silverman & Nelles (1988)	ADIS-C	51 Outpatients attending a child anxiety clinic or the offspring of parents with anxiety disorders	Interrater interviewer–observer	Overall κ of 0.78; κ's of 0.54 for OAD and 1.0 for simple phobia.
Silverman & Eisen (1992)	ADIS-C	50 Outpatients attending a child anxiety clinic	Test–retest (10-day to 3-week retest interval)	Overall κ's of 0.75; κ's ranged from 0.64 for OAD to 0.84 for simple phobia.
Silverman & Rabian (in press)	ADIS-C	66 Outpatients attending a child anxiety clinic	Test–retest (10–14 days later)	κ's ranged from −.09 to 0.76 for specific symptoms of SAD; κ's ranged from 0.31 to 0.57 for specific symptoms of OAD; κ's ranged from 0.12 to 0.17 for specific symptoms of AVD
Angold & Costello (in press)	CAPA	77 Inpatients or outpatients	Test–retest (1–11-day retest interval)	Overall κ of 0.64 for presence of any anxiety disorder; κ of 0.74 for OAD and 0.79 for GAD; overall ICCs ranged from 0.63 to 0.80.

[a](AVD) avoidant disorder; (OAD) overanxious disorder; (PTSD) posttraumatic stress disorder; (SAD) separation anxiety disorder; (GAD) Generalized Anxiety Disorder; (ICC) intraclass correlation coefficient.

reliability. These factors, presented in Table 2, are pertinent to our discussion here as well.

As Table 2 indicates, reliability is influenced by the particular subject population with which one is working (item 1). Reliability tends to be inflated when working with inpatients because of the relatively high frequency of symptomatology found among such patients. This makes it easier to differentiate cases from noncases. On the other hand, because symptomatology in epidemiological samples tends to be of relatively low frequency, it is more difficult to distinguish cases from noncases (Robins, 1985).

In investigations of test–retest reliability, the testing interval (item 2) also influences the level of reliability obtained. The longer the testing interval, the more likely the information provided will be discrepant. The reasons for this relationship include these: (1) the shorter the interval, the greater the likelihood that subjects will recall their previous responses and try to be consistent; (2) the longer the interval, the greater the likelihood that real change will have occurred; and (3) the longer the interval, the greater the likelihood that subjects will perceive their symptoms or problems differently (Cohen et al., 1987).

With respect to the order or sequence of the testing (item 3), test–retest reliability studies have shown that there are declines in respondents' reports of symptoms, including anxiety symptoms, during the first and second administration of interview schedules (e.g., Edelbrock et al., 1985; Piacentini, Jensen, Schaffer, Bird, Canino, Dulcan, Richters, Roper, Fisher, Davies, Chen, Goodman, Rubio, & Bourdon, 1992; Silverman & Eisen, 1992; Welner et al.,1987). Edelbrock et al. (1985) suggested that because the children in the study learned that "Yes" to a question would lead to additional probing, saying "No" more frequently in the second interview was a way for children to shorten the interview. Welner et al. (1987), working on an inpatient unit, suggested that perhaps by the time of the second interview, the children had adjusted to the unit, and thus their general level of anxiety and distress (and their self-reports) had decreased. Others have suggested that this decrease is an example of "regression to the mean" caused by looking only at the disturbed end of the distribution of symptoms in the population (Robins, 1985). Whatever the reason(s), because attenuation of child diagnostic information will itself lead to substantial diagnostic discrepancy, some portion of the disagreement in designs incorporating initial interviews can be attributed to this cause (Cohen et al., 1987).

Not surprisingly, reliability will be higher when the interview schedules used in the two testing sessions are identical rather than different (item 4), as the questions being asked of the subjects are exactly the same. Indeed, discrepancies in the content of the instruments

Table 2. Study Design Factors That Influence the Level of Diagnostic Agreement[a]

	Expected level of agreement		
Factor	High	Medium	Low
1. Population	Inpatient	Outpatient	Epidemiological
2. Interview interval	1–2 days	1–3 weeks	Longer
3. Sequence of assessment	Neither first	One first	Balanced
4. Instrument type	Same	Same type	Different
5. Interviewers	Clinicians working together	Lay trained together	Clinician vs. lay
6. Diagnostic method	Clinicians trained together	Comparable algorithms	Other
7. Source of information	Same	Overlapping	Different

[a]From Cohen et al. (1987). Reprinted with the permission of Williams & Wilkins.

probably account, in part, for the poor reliability coefficients that have been obtained for anxiety diagnoses in studies in which two different interview schedules have been compared (Cohen et al., 1987; Hodges, McKnew, Burbach, & Roebuck, 1987). Reliability is also higher the more similar the interviewers (item 5), using the same diagnostic method (item 6): Interviewers trained in the same diagnostic method by the same supervisor are more likely to agree, as the supervisor is likely to emphasize agreement with his or her own standard (Ambrosini et al., 1989).

Finally, diagnostic agreement will be highest when the source of the information (item 7) from each testing session is the same (i.e., child–child, rather than different, i.e., child–parent). (In none of the studies described in Table 1 was it the case that the child version was administered in the first session and the parent version in the second, or vice versa.)

Also important to consider, though not included in Table 2, is the approach used to ascertain reliability. As indicated in Table 1, some studies focused on interrater reliability using videotapes [K-SADS-III-R (Ambrosini et al., 1989), DISC (A. J. Costello et al., 1984), CAS (Hodges et al., 1982b), CAPA (Angold et al., 1990)], audiotapes [modified K-SADS (Last, 1986)], or an interviewer–observer paradigm [ISC (Kovacs, 1985; Silverman & Nelles, 1988)]. Other studies focused on test–retest reliability and, as noted, with varying test–retest intervals (e.g., Angold & Costello, in press; Chambers et al., 1985; Hodges, Cools, & McKnew, 1989; Last, 1987; Silverman & Eisen, 1992; Welner et al., 1987). The video- and audiotape reliability format and the interviewer–observer format produce higher reliability scores than a live test–retest reliability study (in which each rater conducts a separate live interview). The reason is that the former methods allow both raters access to the same information, whereas the latter does not.

The points discussed above are just some of the design factors that will influence the level of reliability found in research on child interview schedules. In addition to these factors, however, there are yet others, such as the number of individuals who serve as interviewers, the age range of the children assessed, the focus of the study (i.e., overall anxiety diagnoses vs. subtypes), the base rate of disorders, the sample size, and so on (Silverman, 1991). Given the myriad of factors, investigators are advised to use caution before claiming that diagnoses obtained using a particular interview schedule are "reliable." Rather, as Silverman (1991, p. 121) suggested, researchers should specify reliability in terms of "these subtypes of anxiety disorders for this subject population of this particular age range as determined by this number of interviewers using this type of reliability paradigm based upon this source's interview data." Doing so will help to provide a more accurate and clearer picture of the research findings in this area.

VALIDITY

This section begins with a brief comment about the validity of the classificatory scheme, followed by a discussion of the validity of the interview schedules (i.e., whether the interviews generate the type of information they are intended to obtain) (Young et al., 1987). The focus is on DSM, as research on ICD has been much more limited.

Silverman (1992, 1993) reviewed the existing research literature to determine whether there was sufficient evidence to support the descriptive (or discriminant) validity of the DSM-III and DSM-III-R taxonomy schemes, with respect to the phobic and anxiety disorders in children. Specifically, differences in demographic and psychometric variables, patterns of comorbidity, and family history data found among the childhood anxiety/phobic

disorders, or between the anxiety/phobic disorders and other disorders, were summarized. It is beyond the scope of this chapter to summarize this work, but it is worth noting the major conclusion drawn: Although some investigations, such as those conducted by Werry and colleagues (e.g., Reeves, Werry, Elkind, & Zametkin, 1987; Werry, Reeves, & Elkind, 1987), have not found differentiating characteristics of children with various disorders (e.g., attention-deficit, conduct, oppositional, and anxiety disorders), in general, studies (e.g., Cantwell & Baker, 1989; Hodges, 1990; Last, Francis, Hersen, Kazdin, & Strauss, 1987; Last, Hersen, Kazdin, Orvaschel, & Perrin, 1994) have supported the validity of the general category of anxiety disorders in children, but according to Cantwell and Baker (1989, p. 697), "sub-division between types of emotional disorders are premature."

In terms of research concerned with validation of interviews, in general, work in this area is relatively thin. This sparsity may be partly due to uncertainty about the "gold standard" or final criterion of validity that will stand as the basis for all comparison (Young et al., 1987). In some studies, for example, the criterion is the ability to discriminate between vastly different groups, such as psychiatrically referred and nonreferred samples. In other studies, a particular measure is taken as the best yardstick for testing the validity of the interview's diagnoses. Because no single "best estimate diagnosis" procedure for children has been agreed on, the yardstick is likely to involve one or several of the following: clinician interview; parent, child, peer, or teacher ratings; and physical/neurological evaluations (Young et al., 1987). Examples of studies that have employed such criteria are presented below, with an eye on research relevant to the validity of child phobic and anxiety diagnoses. What follows is not a comprehensive review; rather, it is an illustration of the general approach used to ascertain the validity of interviews.

E. J. Costello et al. (1985) examined the criterion validity of the DISC interviews of both parent and child, using referral for mental health services (in comparison to pediatric referrals) as the criterion for child psychopathology. Viewed as support of validity was the finding that the psychiatric referrals had more psychiatric diagnoses and higher symptom scores than the pediatric referrals. Interestingly, this relation did not hold true when it came to fears and phobias and obsessions/compulsions: Children in *both* referral groups reported a similarly high rate of symptoms in these areas and a much higher rate than that reported by their parents.

In discussing these findings, the authors indicated that other investigations have also found that problems of fears and phobias and obsessions/compulsions are common in "normal" children of this age (e.g., Barrios, Hartmann, & Shigetomi, 1981; Lapouse & Monk, 1959; Miller, Barrett, & Hampe, 1974). Although this finding may simply be a reflection of the commonality of fears, phobias, and obsessions in youth, there is another possibility: Perhaps both groups of children in this study—the psychiatric and pediatric groups—erroneously endorsed symptoms in these areas because they misunderstood or misinterpreted the interview questions.

This possibility is supported by the report by Breslau (1987) about high rates of false-positives in DISC assessments of obsessions and compulsions (as well as psychotic symptoms). For example, Breslau (1987) provided four ways that a response to the DISC question "Do thoughts or pictures you don't like ever come into your head?" (obsessions) may erroneously be counted as a positive reply: (1) inability to give an example (e.g., "I can't think of any now"), (2) vague statements (e.g., "people I don't like"), (3) statements about unpleasant dreams or scary movies or books (e.g., "After watching a scary movie, I kept picturing it happening"), and (4) statements about brooding and worrying (e.g., "past family problems"). That editing of interviews (i.e., recoding positive responses as negative

when the examples indicated that the child responded in one of these four ways) reduced the rate of obsessive and compulsive symptoms by approximately one third suggests that the DISC may elicit imperfect data in these areas (Breslau, 1987).

As indicated earlier, another way to validate an interview's diagnosis is to use a particular measure as the gold standard. One measure that has been used as the gold standard is clinicians' DSM-III diagnoses (e.g., Weinstein, Stone, Noam, Grimes, Schwab-Stone, 1989; Welner et al., 1987). Both the Weinstein et al. (1989) and the Welner et al. (1987) study involved psychiatric adolescent inpatients ($N = 163$ in the former using the DISC; $N = 27$ in the latter using the DISC). Similar results were obtained in the two studies: Agreement between clinical- and interview-generated diagnoses was poor across all the diagnostic categories and was exceptionally poor for the anxiety disorders. Specifically, in Weinstein et al. (1989), κ's ranged from 0.03 to 0.17, with 0.03 being the κ obtained for the anxiety disorders. Welner et al. (1987) also found a κ of 0.03 for diagnoses of anxiety disorders. In addition, both studies found that the structured interviews led to much higher rates of anxiety disorder diagnoses than did the clinician's interviews.

There are several reasons that the level of agreement found in these two studies between diagnoses derived from structured interviews and diagnoses derived by clinicians might have been low. These reasons include: questionable reliability of respondents' reports, questionable accuracy and reliability of clinicians' diagnoses, and questionable utility of such highly structured interviews with severely disturbed youth (Weinstein et al., 1989). Regardless of the reason(s), when clinicians' diagnoses have been used as the yardstick for testing the validity of an interview's diagnoses, the results have not been encouraging.

Somewhat more encouraging has been the use of the Child Behavior Checklist (CBCL) (Achenbach & Edelbrock, 1983) as a yardstick. For example, in the E. J. Costello et al. (1985) study mentioned above, comparisons were also made between CBCL scores and total symptom scores on both the DISC-C and the DISC-P. The relationship was highly significant for the interview with the parent, but not significant at all for the child interview. However, this significant correlation may also reflect the fact that the same informant (i.e., the parent) completed both the DISC-P and the CBCL.

On the basis of diagnoses of overanxious disorder (OAD) derived from the K-SADS-E in 8- to 12-year-old boys, Mattison and Bagnato (1987) provided support for the convergent and discriminant validity of the diagnosis, using the CBCL. Specifically, Mattison and Bagnato (1987) found that boys with OAD demonstrated the greatest number of correlations with the Schizoid or Anxious subscales of the CBCL (for convergent validity), whereas none of these boys had a hyperactive or delinquent type profile on the Checklist (for discriminant validity).

Silverman and Eisen (1994) examined the CBCL data of 90 children with DSM-III-R anxiety diagnoses, derived via the ADIS-C and ADIS-P. Although each age/gender subgroup in this sample displayed higher scores than the normative sample of Achenbach and Edelbrock (1983) on *all* the CBCL subscales, the scales that were significantly higher were predominantly internalizing in nature: depressed, somatic complaints, and schizoid–obsessive for the 6- to 11-year-old girls; somatic complaints for the 12- to 16-year-old girls; schizoid–anxious, depressed, and obsessive–compulsive for the 6- to 11-year-old boys; and somatic complaints, schizoid, and immature for the 12- to 16-year-old boys.

Interview diagnoses have also been validated against child self-report inventories. For example, Mattison, Bagnato, and Brubaker (1988) found that boys with OAD, diagnosed with the K-SADS-E, scored significantly higher than boys with dysthymia or attention-

deficit disorder on the Worry/oversensitivity and Physiological factor scales of the Revised Children's Manifest Anxiety Scale (RCMAS) (Reynolds & Richmond, 1978). Hodges et al. (1982b) found that scores on the overanxious symptom complex on the CAS correlated significantly with the Speilberger (1973) State–Trait Anxiety Inventory for Children (STAIC). Similarly, Silverman (1987a) found that OAD symptom scores on the ADIS-C correlated significantly with both STAIC scores and RCMAS scores.

Overall, perhaps it is best to summarize this discussion of validity with the tired but true observation: A great deal more research is required. This is true in terms of validity for interview-generated diagnoses of childhood disorders, in general, as well as phobic and anxiety disorders, in particular. Specifically, even contrast group validity, i.e., whether the interviews can discriminate children with anxiety and phobic disorders from children with no psychiatric disorders, or from children with other disorders (in terms of overall diagnoses as well as specific subtypes), is unresolved. In addition, due to the elusive "gold standard," studies that have selected a particular final criterion of validity have produced mixed results. Clinicians' diagnoses do not appear to be related to interview diagnoses. And although the findings with respect to the CBCL and child self-report inventories are somewhat better, these studies are generally small in number, small in sample size, and small in scope (e.g., focusing on a particular subtype of anxiety, such as OAD, or using just one criterion, such as the RCMAS). Investigations employing large, heterogeneous samples of anxiety- and phobic-disordered children that compare assessments based on structured interviews with data obtained via multimethod–multisource assessment procedures have not been conducted. Further, there has been little validation of interview-based anxiety/phobic diagnoses with respect to the etiology, course, prognosis, or treatment responsiveness of these disorders (Edelbrock & Costello, 1984).

Although the picture that has just been painted does not seem very bright, it is important to keep in mind that these child interviews have not been around that long. They are all young, with a mean age of approximately 10 years. Given their youth, it is not surprising that the validation work conducted to date is low in quantity and less than ideal in quality. Nor is it surprising given the great deal of work that must be done *prior to* an investigation of validity. Years of work are involved in writing and rewriting and then testing and retesting each question on both the child and parent versions of an interview to ensure simple face validity. (All this work then has to be repeated with each change in the nosological system!) The testing of reliability then takes priority and, as indicated in the preceding section, also involves a great deal of time and effort to ensure that a stringent test is being conducted. Viewing the picture from this perspective therefore reveals some brightness. Indeed, just as tremendous strides have been made in the past 10 years in terms of instrument development, it is likely that similar strides will be made in the decade to come in terms of validation research.

DEVELOPMENTAL CONSIDERATIONS

As mentioned earlier in this chapter, qualities inherent in the taxonomy schemes are reflected as well by the child and adolescent interview schedules, given that these schedules are based on these schemes. When it comes to the sensitivity of the various interviews to the notion of development, therefore, one must first consider the sensitivity of the schemes. As noted by Silverman (1992, 1993), it is probably in this area that the DSM is weakest and has been most severely criticized (e.g., Achenbach, 1980; Rutter & Shaffer, 1980).

A taxonomy that is sensitive to development emphasizes structural changes of the organism (resulting from development), which may facilitate or hinder functioning (Greenspan, Lourie, & Nover, 1979). The DSM, in contrast, emphasizes specific and static behaviors. That is, the same diagnostic criteria are used to diagnose disorders without consideration of how age/gender may influence the phenomenology or manifestation, or both, of disorders and therefore necessitate a modification in the criteria. Empirical investigations (e.g., Achenbach & Edelbrock, 1983; Quay, 1986) have clearly demonstrated, however, that behavior problems are exhibited differently by boys and girls of varying ages.

A taxonomy that is sensitive to development also recognizes that problems of adaptation are stage-specific and are frequently self-corrective (Phillips, Draguns, & Bartlett, 1975). Although there is a slight indication of this point in DSM-IV (APA, 1994), a nosology that incorporates a developmental framework would give it far greater emphasis.

In addition, a taxonomy that is sensitive to development emphasizes individuals' patterns of processing, organizing, and integrating information, as well as their adaptive pathological capacities (Greenspan et al., 1979). Beyond symptoms, the taxonomy of child phobic and anxiety disorders (as well as childhood disorders in general) would include individuals' adaptation and competence within the context of crucial developmental tasks (Silverman, 1987b).

In general, similar criticisms can be made about ICD as well. For example, in ICD-10, the subcategories—separation anxiety, phobic, and social phobic disorders—differed from the adult disorders only in that the child versions were viewed as being mere exaggerations of "normal" developmental fears (e.g., separation, animals, strangers) (see Chapter 2). Unlike DSM, however, the axes of ICD are confined particularly to the childhood disorders (i.e., I—clinical psychiatric syndrome, II—developmental delays, III—intellectual level, IV—physical disorders, V—abnormal psychosocial situations) (Chapter 2).

In summary, similar to DSM and ICD, the existing child structured interview schedules are deficient in the ways just indicated. Specifically, none of the interviews assesses behaviors indicative of structural changes in the organism (resulting from development). Nor do any of the interviews provide adequate and complete guidelines about the extent to which a given behavior problem may actually be stage-specific and self-corrective. Finally, none of the existing definitions of the symptoms covered by the interviews is broad enough to reflect developmental differences in the completion of certain tasks, as well as phenomenology. Rather, they all measure specific and static symptoms.

The way in which information is obtained via these interviews also reflects a relative lack of sensitivity to development. It is true, as noted earlier, that the interviews tend to require little verbal expressive skills on the part of the child; also, some provide visual prompts and temporal landmarks for questions involving chronology or duration. In these ways, therefore, some sensitivity is being shown, but there is still much more that could be done. Bierman (1983, 1988) and Kovacs (1986) provide several excellent examples of how development affects the child's perceptions and expectations of the interview situation. These effects include those on the child's conceptions of "problem" and "helper," the child's conceptions of social relationships, the child's "person perception" process, and the child's understanding and knowledge of emotion. Despite the difficulty in doing so, attempts should be made to assess these developmental phenomena within the structure/process of the structured interviewing procedure. However, once again, the fact that the schedules are all relatively young probably explains, in part, why they do not yet do so. Over time, this situation is likely to improve as well.

PARENT–CHILD CONCORDANCE AND COMBINING PARENT–CHILD DATA

Parent versions of all the child interview schedules have been developed, as parental reports are viewed as integral to a satisfactory assessment of the child. Reports on concordance between parent and child have examined the degree of agreement on specific symptoms, as well as on diagnoses (see the review by Klein, 1991). In terms of specific symptoms, overall, research has shown poor correspondence between respondents on anxiety (e.g., Apter, Orvaschel, Laseg, Moses, & Tyano, 1989; Breslau, Davis, & Prabucki, 1988; Edelbrock, Costello, Dulcan, Conover, & Kalas, 1986). For example, using the DISC with a large sample of inpatients and outpatients, Edelbrock et al. (1986) found very poor parent–child agreement for the affective/anxiety cluster of symptoms ($r = 0.19$). Overall, agreement also tends to be poor when it comes to anxiety and phobic diagnoses (e.g., Kashani, Orvaschel, Burk, & Reid, 1985; Sylvester, Hyde, & Reichler, 1987), although the results have been somewhat variable (e.g., Orvaschel et al., 1982). For example, while Orvaschel et al. (1982) found good parent–child concordance for separation anxiety ($\kappa = 0.76$) and generalized anxiety ($\kappa = 0.72$), concordance was poor for phobia and obsession–compulsion (κ's = 0.41 and 0.24, respectively). Given this study's small sample size ($N = 17$), however, these findings need to be interpreted cautiously.

On the basis of her review of the literature, Klein (1991, p. 195) concluded that "good agreement between parent and child is almost never the rule." Given this state of affairs, the question is: What is the best procedure for evaluating and weighing multisource diagnostic information? The child interview schedules discussed in this chapter tend to employ different procedures. For example, with the K-SADS, any diagnosis derived by either the child or the parent interview is taken as a final composite diagnosis; with the ADIS-C and ADIS-P, diagnoses yielded by both interviews are clearly taken as composite diagnoses (i.e., a combination of the parent and child data), but discrepancies between the parent and child are resolved by considering both severity ratings and interference with functioning. Weissman et al. (1987) suggest that when more than one informant is used, the optimal procedure is to generate a best clinical estimate of psychopathology. This stratagem would incorporate all pertinent information into the diagnostic decision, including past or current treatment records. However, this approach is complicated, costly, and lacking in clear generalizable rules (Klein, 1991). Moreover, recent theoretical and empirical work suggests that simple integration schemes may be better than complex ones (Piacentini, Cohen, & Cohen, 1992).

Although there is no consensus among researchers and clinicians regarding the optimal integration procedure, there is at least consensus as to which informants are more important than others in providing symptom information for certain types of diagnoses (Loeber, Green, & Lahey, 1990). That is, there is general agreement that it is more important to elicit information from adults about observable, or objective, child behavior, and that it is more important to elicit information from children about subjective child behavior. This belief is based on findings that children report fewer conduct problems but more anxiety and affective symptoms than do parents during diagnostic interviewing procedures (e.g., Herjanic, Herjanic, Brown, & Wheatt, 1975). Yet, as Klein (1991) indicates, positive reporting of symptoms need not imply accuracy; thus, incremental validity studies of child anxiety/phobia diagnoses should be conducted. Such studies would help provide empirical guidelines as to which informant provides more valid information in terms of course, treatment outcome, or other clinical features.

DETERMINING WHICH INTERVIEW TO USE

The areas that were focused on in this chapter—reliability, validity, sensitivity to development, and parent–child concordance—all require further investigation. In none of these areas can it be stated unequivocally that any particular interview schedule is "best" for assessing or diagnosing childhood anxiety and phobia. Thus, the interview selected for use by a scientist–practitioner is likely to depend on the setting in which one works, the population with whom one works, the personnel available to conduct the evaluation, and the ultimate purpose of the evaluation.

In the author's experience in childhood anxiety specialty clinics, where very detailed information about the child's anxiety and phobia problem is necessary to help make treatment decisions, she has found a specially designed interview for the assessment of anxiety disorders, the ADIS-C and ADIS-P, to be useful. In addition, because the interviews are intermediate in structure, it allows for a flexible and affable assessment, which is advantageous in a clinical setting. Further, graduate students in psychology are able to learn how to administer the ADIS-C and ADIS-P in a reliable manner without too much difficulty (Silverman & Nelles, 1988; Silverman & Eisen, 1992; Silverman & Rabian, in press). For these reasons, the ADIS-C and ADIS-P are being used by a growing number of investigators who are interested in childhood anxiety and its related disorders (e.g., Beidel, 1991; Dadds, Heard, & Rapee, 1992; Kane & Kendall, 1989).

On the other hand, if a clinician–researcher works in a setting in which a wide range of childhood psychopathology is likely to be observed, then an interview that provides more comprehensive coverage of problems (e.g., the K-SADS, the CAPA), might be more appropriate. In addition, if one has only lay interviewers available to conduct the interviews, then one might consider using a highly structured interview, such as the DISC or DICA, which keeps clinical judgment to a minimum. Alternatively, if one is less concerned with minimizing clinical judgment than with developing rapport and affinity with the child (and parent), then perhaps the CAS or the ISC, which are less structured and more flexible, might be useful. Finally, if one is interested in ICD diagnoses and other psychopathological symptoms in addition to DSM diagnoses, then the CAPA might be the instrument of choice.

FUTURE RESEARCH DIRECTIONS

Throughout this chapter, future avenues of research in the areas of reliability, validity, development, and parent–child concordance have been delineated. In the author's view, these are the areas that deserve top priority among investigators, as well as funding agencies. There are additional issues that also require attention, however. Some of these issues are indicated below.

The advantages and disadvantages of structured interviewing procedures in eliciting information about phobic and anxious childhood symptoms must be scrutinized and compared to alternative procedures, such as self-report inventories, symptom checklists, behavioral assessments, and so on. Given that structured interviews are relatively time-consuming, it is important to examine whether the resulting loss in cost-effectiveness is "worth it," vis-à-vis other methods. A comparison of diagnoses generated by the K-SADS-E with diagnoses generated by a parent-completed DSM-III-R-based checklist (Grayson & Carlson, 1991) suggests that it may be. For example, the checklist was found to have poor performance with overanxious disorder because it overdiagnosed the condition.

Also, relative to other disorders, the checklist's sensitivity in detecting separation anxiety disorder was only fair (0.71), relative to its sensitivity in detecting other childhood disorders (0.93, 0.93, and 0.90 for conduct disorder, oppositional defiant disorder, and depression, respectively). However, as the authors indicate (Grayson & Carlson, 1991, p. 673): "The checklist was not designed to be substituted for an interview but rather to enhance the comprehensiveness and diagnostic focus of an interview."

The "consumer satisfaction" of the various interviews should also be evaluated and compared. Indeed, research has demonstrated that children and their parents do not perceive the experience of a structured interviewing procedure as a negative or harmful one (Herjanic, Hudson, & Kotloff, 1976; Lewis, Gorsky, Cohen, & Hartmark, 1985). Similarly, Zahner (1991) recently reported that community reaction to the DISC-R was positive. Specifically, at least 90% of parents gave a favorable evaluation of the interview, as did four out of five children. Interestingly, however, questions about inner thoughts and emotions, including worries and fears, received high negative ratings from children (but not from parents). The author suggests that these negative ratings may merely reflect youngsters' developmental limitations in comprehending inquiries in these areas, and not specific social attitudes. Perhaps this is true. But for researchers with interests in childhood anxiety and phobia, it is important to clarify. Such clarification would help to determine if, and how, children's attitudes about questioning in these areas should be modified.

Further, given the differences among the various interviews, it is important to compare respondents' reactions to them. For example, it has been noted that the design of most structured interviews fails to facilitate rapport with children (e.g., La Greca & Stone, 1992). The question is: Does this affect children's and parents' reporting of symptoms or their evaluation of the interview process, and if so, how? Thus, it might be of interest to compare children's (and parents') responses from and evaluations of an interview such as the CAS, which was developed specifically to address concerns regarding the difficulties of establishing rapport with children (Hodges et al., 1981), with their responses from and evaluations of a more highly structured interview, such as the DISC.

Similarly, it would be of interest to compare the interviews in terms of their overall reliability, validity, and accuracy. Although a few comparative studies have been conducted (Carlson, Kashani, Thomas, Vaidya, & Daniel, 1987; Cohen et al., 1987; Hodges et al., 1987) and have generally found poor concordance for childhood anxiety diagnoses, no study has yet focused specifically on a large sample of children who present with anxiety/phobic problems. Hence, it is still not clear whether children diagnosed with a particular subtype of anxiety disorder via a particular interview would be similarly diagnosed via another interview.

Finally, research examining the application of computer-assisted interviews is warranted. There are several apparent advantages of such application. For instance, printed reports that summarize the results of individual interviews can be produced for clinicians' immediately on the completion of each interview, while data collected during the interview can be stored for later data analysis (Sawyer, Sarris, & Baghurst, 1991). In addition, computer-assisted interviews may, through graphics and printed reports, provide immediate feedback for patients (Skinner & Pakula, 1986). Further, pilot testing of a computerized version of the DICA-R indicated that many youngsters felt they could "tell" the computer things about themselves that they would not report to a human interviewer (Wendy Reich, personal communication, July 31, 1992).

Despite these advantages, questions have been raised as to whether computer-assisted interviews yield the same information and scores as interviews administered in the standard

way. A recent study addressing this issue (Sawyer et al., 1991) found that the scores obtained using a computer-assisted interview to administer the CBCL did *not* differ from the scores obtained using the standard written checklist, and the computer-assisted method was preferred over the standard method.

SUMMARY

Although the child interview schedules reduce information variance in the clinical assessment of the phobic/anxious child, their relative strengths and weaknesses need to be carefully evaluated. Indeed, whether the interviews are clearly capable of providing reliable and valid diagnoses of anxiety and phobic disorders requires further scrutiny. Also needed is work that will improve the interviews' sensitivity to development and test various strategies of integrating discrepant parent–child data. And as indicated in the preceding section, there are yet additional issues that are deserving of research attention. These issues include: comparing diagnoses generated by structured interviews with diagnoses generated by other procedures; comparing the various interviews in terms of their overall reliability, validity, and accuracy; evaluating consumer satisfaction; and examining the application of computer-assisted interviews.

Clearly, investigators with dual interests in structured interviewing procedures and in childhood anxiety/phobic disorders have their work cut out for them. However, given the growing recognition that anxiety and phobias are serious as well as prevalent problems of childhood, coupled with the recognition that structured interviews are invaluable to the assessment process, rapid progress is expected in both of these areas in the years to come.

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REFERENCES

Achenbach, T. M. (1980). DSM-III in light of empirical research on the classification of child psychopathology. *Journal of the American Academy of Child Psychiatry, 19*, 395–412.

Achenbach, T. M. (1985). *Assessment and taxonomy of child and adolescent psychopathology*. Beverly Hills: Sage Publications.

Achenbach, T. M., & Edelbrock, C. (1983). *Manual for the Child Behavior Checklist and Revised Child Behavior Profile*. Burlington: Department of Psychiatry, University of Vermont.

Ambrosini, P. J., Metz, C., Prabucki, K., & Lee, J. C. (1989). Videotape reliability of the third revised edition of the K-SADS. *Journal of the American Academy of Child and Adolescent Psychiatry, 28*, 723–728.

American Psychiatric Association (1987). *Diagnostic and statistical manual of mental disorders*, 3rd ed., revised. Washington, DC: Author.

American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders*, 4th ed. Washington, DC: Author.

Angold, A., & Costello, E. J. (in press). A test-retest reliability study of child-reported psychiatric symptoms and diagnoses using the Child and Adolescent Psychiatric Assessment (CAPA-C). *Psychological Medicine*.

Angold, A., Prendergast, M., Cox, A., Harrington, R., Simonoff, E., & Rutter, M. (in press). The Child and Adolescent Psychiatric Assess (CAPA). *Psychological Medicine*.

Apter, A., Orvaschel, H., Laseg, M., Moses, T., & Tyano, S. (1989). Psychometric properties of the K-SADS-P in an Israeli adolescent inpatient population. *Journal of the American Academy of Child and Adolescent Psychiatry, 28*, 61–65.

Barrios, B. A., Hartmann, D. P., & Shigetomi, C. (1981). Fears and anxieties in children. In E. J. Mash & L. G. Terdal (Eds.), *Behavioral assessment of childhood disorders* (pp. 259–304). New York: Guilford Press.

Beidel, D. C. (1991). Social phobia and overanxious disorder in school-age children. *Journal of the American Academy of Child and Adolescent Psychiatry*, *3*, 545–552.

Bierman, K. L. (1983). Cognitive development and clinical interviews with children. In B. B. Lahey & A. E. Kazdin (Eds.), *Advances in clinical child psychology*, Vol. 6 (pp. 217–250). New York: Plenum Press.

Bierman, K. L. (1988). The clinical implications of children's conceptions of social relationships. In S. R. Shirk (Ed.), *Cognitive development and child psychotherapy* (pp. 247–272). New York: Plenum Press.

Breslau, N. (1987). Inquiring about the bizarre: False positives in the Diagnostic Interview Schedule for Children's (DISC) ascertainment of obsessions, compulsions, and psychotic symptoms. *Journal of the American Academy of Child and Adolescent Psychiatry*, *26*, 639–644.

Breslau, N., Davis, G. C., & Prabucki, K. (1988). Depressed mothers as informants in family history research—Are they accurate? *Psychiatry Research*, *24*, 345–359.

Cantwell, D. P., & Baker, L. (1989). Stability and natural history of DSM-III childhood diagnoses. *Journal of the American Academy of Child and Adolescent Psychiatry*, *29*, 691–700.

Carlson, G. A., Kashani, J. H., Thomas, M. F., Vaidya, A., & Daniel, A. E. (1987). Comparison of two structured interviews on a psychiatric hospitalized population of children. *Journal of the American Academy of Child and Adolescent Psychiatry*, *26*, 645–648.

Chambers, W. J., Puig-Antich, J., Hirsch, M., Paez, P., Ambrosini, P. J., Tabrizi, M. S., & Davies, M. (1985). The assessment of affective disorders in children and adolescents by semistructured interview. *Archives of General Psychiatry*, *42*, 696–702.

Cohen, P., O'Connor, P., Lewis, S., Velez, N., & Malachowski, B. (1987). Comparison of DISC and K-SADS-P interviews of an epidemiological sample of children. *Journal of the American Academy of Child and Adolescent Psychiatry*, *26*, 662–667.

Costello, A. J., Edelbrock, C. S., Dulcan, M. K., Kalas, R., & Klaric, S. H. (1984). *Report to NIMH on the NIMH Diagnostic Interview Schedule for Children (DISC)*. Washington, DC: National Institute of Mental Health.

Costello, E. J., Edelbrock, C. S., & Costello, A. J. (1985). Validity of the NIMH diagnostic interview schedule for children: A comparison between psychiatric and pediatric referrals. *Journal of Abnormal Child Psychology*, *13*, 579–595.

Dadds, M. R., Heard, P. M., & Rapee, R. M. (1992). The role of family intervention in the treatment of child anxiety disorders: Some preliminary findings. *Behaviour Change*, *9*, 171–177.

DiNardo, P. A., O'Brien, G. T., Barlow, D. H., Waddell, M. T., & Blanchard, E. B. (1983). Reliability of DSM-III anxiety disorder categories using a new structured interview. *Archives of General Psychiatry*, *40*, 1070–1079.

Edelbrock, C., & Costello, A. (1984). Structured psychiatric interview for children and adolescents. In G. Goldstein & M. Hersen (Eds.), *Handbook of psychological assessment* (pp. 276–290). New York: Pergamon Press.

Edelbrock, C., Costello, A. J., Dulcan, M. K., Conover, N. C., & Kalas, R. (1986). Parent–child agreement on child psychiatric symptoms assessed via structured interview. *Journal of Child Psychology and Psychiatry*, *27*, 181–190.

Edelbrock, C., Costello, A. J., Dulcan, M. K., Kalas, R., & Conover, N. C. (1985). Age differences in the reliability of the psychiatric interview of the child. *Child Development*, *56*, 265–275.

Endicott, J., & Spitzer, R. L. (1978). A diagnostic interview: The Schedule for Affective Disorders and Schizophrenia. *Archives of General Psychiatry*, *35*, 837–844.

Eysenck, H. J. (1986). A critique of contemporary classification and diagnosis. In T. Millon & G. L. Klerman (Eds.), *Contemporary directions in psychopathology: Toward the DSM-IV* (pp. 73–98). New York: Guilford Press.

Feighner, J. P., Robins, E., Guze, S. B., Woodruff, R. A., Winokur, G., & Munoz, R. (1972). Diagnostic criteria for use in psychiatric research. *Archives of General Psychiatry*, *26*, 57–63.

Fisher, P., Shaffer, D., Piacentini, J. C., Lapkin, J., Kafantaris, Leonard, H., & Herzog, D. B. (1993). Sensitivity of the Diagnostic Interview Schedule for Children, 2nd edition (DISC-2.1), for specific diagnoses of children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, *32*, 666–673.

Grayson, P., & Carlson, G. A. (1991). The utility of a DSM-III-R based checklist in screening child psychiatric patients. *Journal of the American Academy of Child and Adolescent Psychiatry*, *30*, 669–673.

Greenspan, S. I., Lourie, R. S., & Nover, R. A. (1979). A developmental approach to the classification of psychopathology in infancy and early childhood. In J. Noshpitz (Ed.), *Handbook of child psychiatry* (pp. 157–164). New York: Basic Books.

Herjanic, B., & Reich, W. (1982). Development of a structured psychiatric interview for children: Agreement between child and parent on individual symptoms. *Journal of Abnormal Child Psychiatry*, *10*, 307–324.

Herjanic, B., Herjanic, M., Brown, F., & Wheatt, T. (1975). Are children reliable reporters? *Journal of Abnormal Child Psychology, 3*, 41–48.

Herjanic, B., Hudson, R., & Kotloff, K. (1976). Does interviewing harm children? *Research Communications in Psychology, Psychiatry, and Behavior, 1*, 523–531.

Hodges, K. (1990). Depression and anxiety in children: A comparison of self-report questionnaires to clinical interview. *Psychological Assessment, 2*, 376–381.

Hodges, K., Cools, J., & McKnew, D. (1989). Test-retest reliability of a clinical research interview for children: The Child Assessment Schedule. *Psychological Assessment, 1*, 317–322.

Hodges, K., Kline, J., Fitch, P., McKnew, D., & Cytryn, L. (1981). The Child Assessment Schedule: A diagnostic interview for research and clinical use. *Catalogue of Selected Documents in Psychology, 11*, 56.

Hodges, K., Kline, J., Stern, L., Cytryn, L., & McKnew, D. (1982a). The development of a child assessment interview for research and clinical use. *Journal of Abnormal Child Psychology, 10*, 173–189.

Hodges, K., McKnew, D., Burbach, D. J., & Roebuck, L. (1987). Diagnostic concordance between the Child Assessment Schedule (CAS) and the Schedule for Affective Disorders and Schizophrenia for School-age Children (K-SADS) in an outpatient sample using lay interviewers. *Journal of the American Academy of Child and Adolescent Psychiatry, 26*, 654–661.

Hodges, K., McKnew, D., Cytryn, L., Stern, L., & Kline, J. (1982b). The Child Assessment Schedule (CAS) diagnostic interview: A report on reliability and validity. *Journal of the American Academy of Child Psychiatry, 21*, 468–473.

Kane, M. T., & Kendall, P. C. (1989). Anxiety disorders in children: A multiple baseline evaluation of a cognitive behavioral treatment. *Behavior Therapy, 20*, 499–508.

Kashani, J. H., Orvaschel, H., Burk, J. P., & Reid, J. C. (1985). Informant variance: The issue of parent–child disagreement. *Journal of the American Academy of Child Psychiatry, 24*, 437–441.

Klein, R. G. (1991). Parent–child agreement in clinical assessment of anxiety and other psychopathology: A review. *Journal of Anxiety Disorders, 15*, 187–198.

Kovacs, M. (1982). The longitudinal study of child and adolescent psychopathology. I. The semistructured psychiatric interview schedule for children (ISC). Unpublished manuscript.

Kovacs, M. (1985). The interview schedule for children (ISC). *Psychopharmacology Bulletin, 21*, 991–994.

Kovacs, M. (1986). A developmental perspective on methods and measures in the assessment of depressive disorders: The clinical interview. In M. Rutter, C. E. Izard, & P. B. Read (Eds.), *Depression in young people: Developmental and clinical perspectives* (pp. 435–468). New York: Guilford Press.

Kreitman, N. (1961). The reliability of psychiatric diagnosis. *Journal of Mental Sciences, 107*, 876–886.

La Greca, A. M., & Stone, W. L. (1992). Assessing children through interviews and behavioral observations. In C. E. Walker & M. C. Roberts (Eds.), *Handbook of clinical child psychology* (pp. 63–83). New York: John Wiley.

Lapouse, R., & Monk, M. A. (1959). Fears and worries in a representative sample of children. *American Journal of Orthopsychiatry, 29*, 803–815.

Last, C. G. (1986). Modification of the K-SADS-P for use with anxiety disordered children and adolescents. Unpublished manuscript.

Last, C. G. (1987). Developmental considerations. In C. G. Last & M. Hersen (Eds.), *Issues in diagnostic research* (pp. 201–216). New York: Plenum Press.

Last, C. G., Francis, G., Hersen, M., Kazdin, A. E., & Strauss, C. C. (1987). Separation anxiety and school phobia: A comparison using DSM-III criteria. *American Journal of Psychiatry, 144*, 635–657.

Last, C. G., Hersen, M., Kazdin, A. E., Orvaschel, H., & Perrin, S. (1994). Prospective study of anxiety-disordered children. (submitted).

Lewis, S. A., Gorsky, A., Cohen, P., & Hartmark, C. (1985). The reaction of youth to diagnostic interview. *Journal of the American Academy of Child Psychiatry, 24*, 750–755.

Loeber, R., Green, S. M., & Lahey, B. B. (1990). Mental health professionals' perception of the utility of children, mothers, and teachers as informant on child psychopathology. *Journal of Clinical Child Psychology, 19*, 136–143.

Mash, E. J., & Terdal, L. G. (Eds.) (1988). *Behavioral assessment of childhood disorders*, 2nd ed. New York: Guilford Press.

Mattison, R. E., & Bagnato, S. J. (1987). Empirical measurement of overanxious disorder in boys 8 to 12 years old. *Journal of the American Academy of Child and Adolescent Psychiatry, 26*, 536–540.

Mattison, R. E., Bagnato, S. J., & Brubaker, B. M. (1988). Diagnostic utility of the revised children's manifest anxiety scale in children with DSM-III anxiety disorders. *Journal of Anxiety Disorders, 2*, 147–155.

Miller, L. C., Barrett, C. L., & Hampe, E. (1974). Phobias of childhood in prescientific era. In A. Davis (Ed.), *Child personality and psychopathology: Current topics*, Vol. 1 (pp. 89–134). New York: Wiley.

Moras, K., & Barlow, D. H. (1992). Dimensional approaches to diagnosis and the problem of anxiety and depression. In: W. Feigenbaum, A. Ehlers, J. Margraf, & I. Florin (Eds.), *Perspectives and promises of clinical psychology* (pp. 23–37). New York: Plenum Press.

Orvaschel, H., Puig-Antich, J., Chambers, W., Tabrizi, M. A., & Johnson, R. (1982). Retrospective assessment of prepubertal major depression with the Kiddie-SADS-E. *Journal of the American Academy of Child Psychiatry, 21*, 392–397.

Phillips, L., Draguns, J. G., & Bartlett, D. P. (1975). Classification of behavior disorders. In N. Hobbs (Ed.), *Issues in the classification of children* (pp. 26–55). San Francisco: Jossey-Bass.

Piacentini, J. C., Cohen, P., & Cohen, J. (1992). Combining discrepant diagnostic information from multiple sources: Are complex algorithms better than simple ones? *Journal of Abnormal Child Psychology, 20*, 51–63.

Piacentini, J. C., Jensen, P., Shaffer, D., Bird, H., Canino, G., Dulcan, M., Richters, J., Roper, M., Fisher, P., Davies, M., Chen, J., Goodman, S., Rubio, M., & Bourdon, K. (1992). Attenuation of child psychiatric diagnostic information: Magnitude and relationship to severity. Paper presented at the Annual Meeting of the Society for Research in Child and Adolescent Psychopathology, Sarasota, Florida.

Piacentini, J., Shaffer, D., Fisher, P., Schwab-Stone, M., Davies, M., & Gioia, P. (1993). The Diagnostic Interview Schedule for Children—Revised version (DISC-R). III. Concurrent criterion validity. *Journal of the American Academy of Child and Adolescent Psychiatry, 32*, 658–665.

Puig-Antich, J., & Chambers, W. (1978). *The Schedule for Affective Disorders and Schizophrenia for School-aged Children*. New York: New York State Psychiatric Institute.

Quay, H. C. (1986). Classification. In H. C. Quay & J. S. Werry (Eds.), *Psychopathological disorders of childhood*, 3rd ed. (pp. 1–34). New York: John Wiley.

Reeves, J. C., Werry, J. S., Elkind, G. S., & Zametkin, A. (1987). Attention deficit, conduct, oppositional, and anxiety disorders in children. II. Clinical characteristics. *Journal of the American Academy of Child and Adolescent Psychiatry, 26*, 144–155.

Reich, W., Herjanic, B., Welner, Z., & Gandhy, P. R. (1982). Development of structured psychiatric interview for children: Agreement on diagnosis comparing child and parent interviews. *Archives of General Psychiatry, 42*, 325–336.

Reynolds, C. R., & Richmond, B. O. (1978). What I think and feel: A revised measure of children's manifest anxiety. *Journal of Abnormal Child Psychology, 6*, 271–280.

Richardson, S. A., Dohrenwend, B. S., & Klein, D. (1965). *Interviewing: Its forms and functions*. New York: Basic Books.

Robins, L. N. (1985). Epidemiology: Reflections on testing the validity of psychiatric interviews. *Archives of General Psychiatry, 42*, 918–924.

Robins, L. N., Helzer, J. E., Croughan, J., & Ratcliff, K. S. (1981). National Institute of Mental Health diagnostic interview schedule. *Archives of General Psychiatry, 38*, 381–389.

Rutter, M., & Graham, P. (1968). The reliability and validity of the psychiatric assessment of the child. 1. Interview with the child. *British Journal of Psychiatry, 114*, 563–579.

Rutter, M., & Shaffer, D. (1980). DSM-III: A step forward or back in terms of the classification of child psychiatric disorders? *Journal of the American Academy of Child Psychiatry, 19*, 371–394.

Rutter, M., Tizard, J., & Whitmore, K. (1970). *Education, health, and behavior*. New York: John Wiley.

Rutter, M., Tizard, J., Yule, W., Graham, P., & Whitmore, K. (1976). Research report: Isle of Wight studies, 1964–74. *Psychological Medicine, 6*, 313–332.

Sawyer, M. G., Sarris, A., & Baghurst, P. (1991). The use of a computer-assisted interview to administer the Child Behavior Checklist in a Child Psychiatry Service. *Journal of the American Academy of Child and Adolescent Psychiatry, 30*, 674–681.

Schwab-Stone, M., Fisher, P., Piacentini, J., Shaffer, D., Davies, M., & Briggs, M. (1993). The Diagnostic Interview Schedule for Children—Revised version (DISC-R). II. Test–retest reliability. *Journal of the American Academy of Child and Adolescent Psychiatry, 32*, 651–657.

Shaffer, D., Schwab-Stone, M., Fisher, P., Cohen, P., Piacentini, J., Davies, M., Conners, C. K., & Regier, D. (1993). The Diagnostic Interview Schedule for Children—Revised version (DISC-R). I. Preparation, field testing, interrater reliability, and acceptability. *Journal of the American Academy of Child and Adolescent Psychiatry, 32*, 643–650.

Silverman, W. K. (1987a). Childhood anxiety disorders: Diagnostic issues, empirical support and future research. *Journal of Child and Adolescent Psychotherapy, 4*, 121–126.

Silverman, W. K. (1987b). Validity of Anxiety Disorders Interview Schedule for Children. Paper presented at the NIMH workshop on Childhood Anxiety, Washington, DC.

Silverman, W. K. (1991). Diagnostic reliability of anxiety disorders in children using structured interviews. *Journal of Anxiety Disorders*, *5*, 105–124.

Silverman, W. K. (1992). Taxonomy of anxiety disorders in children. In G. D. Burrows, R. Noyes, & S. M. Roth (Eds.), *Handbook of anxiety*, Vol. 5 (pp. 281–308). Amsterdam: Elsevier.

Silverman, W. K. (1993). DSM and the classification of anxiety disorders in children and adults. In C. G. Last (Ed.), *Anxiety across the lifespan: A developmental perspective on anxiety and the anxiety disorders* (pp. 7–36). New York: Springer.

Silverman, W. K., & Eisen, A. R. (1992). Age differences in the reliability of parent and child reports of child anxious symptomatology using a structured interview. *Journal of the American Academy of Child and Adolescent Psychiatry*, *31*, 117–124.

Silverman, W. K., & Eisen, A. R. (1994). Behavior problems associated with DSM-III-R childhood anxiety disorders using a dimensional assessment approach (submitted).

Silverman, W. K., & Nelles, W. B. (1988). The Anxiety Disorders Interview Schedule for Children. *Journal of the American Academy of Child and Adolescent Psychiatry*, *27*, 772–778.

Silverman, W. K., & Rabian, B. (in press). Test-retest reliability of the DSM-III-R childhood anxiety disorders symptoms using the Anxiety Disorders Interview Schedule for Children. *Journal of Anxiety Disorders*.

Skinner, H. A., & Pakula, A. (1986). The challenge of computers in psychological assessment. *Professional Psychology: Research and Practice*, *17*, 44–50.

Spielberger, C. D. (1973). *State–Trait Anxiety Inventory for Children*. Palo Alto, CA: Consulting Psychologist Press.

Spiker, D. G., & Ehler, J. G. (1984). Structured psychiatric interviews for adults. In G. Goldstein & M. Hersen (Eds.), *Handbook of psychological assessment* (pp. 291–306). New York: Pergamon Press.

Spitzer, R. L., & Fleiss, J. L. (1974). A re-analysis of the reliability of psychiatric diagnosis. *British Journal of Psychiatry*, *125*, 341–347.

Spitzer, R. L., Endicott, J., & Robins, E. (1975). Clinical criteria for psychiatric diagnosis and DSM-III. *American Journal of Psychiatry*, *132*, 1187–1192.

Sylvester, C. E., Hyde, T. S., & Reichler, R. J. (1987). The Diagnostic Interview for Children and Personality Inventory for Children in studies of children at risk for anxiety disorders and depression. *Journal of the American Academy of Child and Adolescent Psychiatry*, *26*, 668–675.

Vaillant, G. E. (1984). The disadvantages of DSM-III outweigh its advantages. *American Journal of Psychiatry*, *141*, 542–545.

Wakefield, J. C. (1992). Disorder as harmful dysfunction: A conceptual critique of DSM-III-R's definition of mental disorder. *Psychological Review*, *99*, 232–247.

Ward, C. H., Beck, A. T., Mendelson, M., Mock, J. E., & Erbaugh, J. K. (1962). The psychiatric nomenclature. *Archives of General Psychiatry*, *7*, 198–205.

Weinstein, S. R., Stone, K., Noam, G. G., Grimes, K., & Schwab-Stone, M. (1989). Comparison of DISC with clinicians' DSM-III diagnoses in psychiatric inpatients. *Journal of the American Academy of Child and Adolescent Psychiatry*, *28*, 53–60.

Weissman, M. M., Wickramaratne, P., Warner, V., John, K., Prusoff, B. A., Merikangas, K. R., & Gammon, G. D. (1987). Assessing psychiatric disorders in children. *Archives of General Psychiatry*, *44*, 747–753.

Welner, Z., Reich, W., Herjanic, B., Jung, K. G., & Amado, H. (1987). Reliability, validity, and parent–child agreement studies of the Diagnostic Interview for Children and Adolescents (DICA). *Journal of the American Academy of Child and Adolescent Psychiatry*, *26*, 649–653.

Werry, J. S., Reeves, J. C., & Elkind, G. S. (1987). Attention deficit, conduct, oppositional, and anxiety disorders in children. I. A review of research on differentiating characteristics. *Journal of the American Academy of Child and Adolescent Psychiatry*, *26*, 133.

World Health Organization (1992). *International classification of mental and behavioral disorders, clinical descriptions and diagnostic guidelines*, 10th ed. (ICD-10). Geneva: Author.

Young, J. G., O'Brien, J. D., Gutterman, E. M., & Cohen, P. (1987). Research on the clinical interview. *Journal of the American Academy of Child and Adolescent Psychiatry*, *26*, 613–620.

Zahner, G. E. P. (1991). The feasibility of conducting structured diagnostic interviews with preadolescents: A community field trial of the DISC. *Journal of the American Academy of Child and Adolescent Psychiatry*, *30*, 659–668.

16

Self-Report Instruments

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INTRODUCTION

It is normal for children to experience fears and anxieties during childhood. When fear and anxiety interfere with the child's day-to-day existence and development, however, the situation has become abnormal and evaluation and intervention are required. The terms "anxiety," "fear," and "phobia" are often used interchangeably by the lay person, though they can have different meanings to the clinician. Anxiety is often thought of as a more generalized symptom with wider influence over a child's personality and daily functioning and can progress from symptom to disorder or even originate as such. Fear is associated with events that are more situation-specific. If any specific fear grows to become particularly intense and anxiety-producing, resulting in dysfunctional avoidant behavior and cognitive and physiological changes, it is termed a phobia. In this chapter, "phobia" is subsumed under the term "fear," though it goes beyond the level of normal fears that may be entirely appropriate or adaptive (e.g., a fear of snakes may be appropriate and even adaptive, but not if no snakes are present and a child refuses to leave his or her room for fear of encountering a snake).

Developmental level, age, and gender play an important role in the type, intensity, and number of fears and anxieties that children experience. Assessing fears and anxieties in children requires the use of instruments that take these factors into account. Self-report instruments, some of which have been developed with an eye to the factors of age, gender, and developmental level, are often used during such assessments. Self-report instruments

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can yield useful information, though an awareness of their limitations, as a group and individually, is necessary for an accurate interpretation of scores.

Two general types of self-report instruments are used in the assessment of fear and anxiety in children and adolescents. Omnibus personality scales (e.g., MMPI) yield information about a child's overall emotional health in addition to providing specific scale scores for anxiety. Instruments specifically developed to measure fear and anxiety in children are also used. These single-facet instruments (e.g., RCMAS, STAIC, FSSC-R) are limited to providing information about the level and type of fear and anxiety a child is experiencing. Additional information about the child's general emotional status is quite limited on trait-specific instruments and more pervasive problems may be missed, although such instruments provide a more in-depth look at a specific problem.

OMNIBUS PERSONALITY SCALES

There are self-report instruments in use that examine more aspects of a child's personality than simply fears and anxieties. When using omnibus personality scales, the psychologist achieves a well-rounded picture of a child's behaviors and beliefs. It may be possible to determine how a child's fears and anxieties are impinging on other areas of life, leading to the development of an effective intervention plan. Three omnibus personality instruments that measure anxiety as a part of personality will be discussed briefly—the Behavior Assessment System for Children (BASC), the Minnesota Multiphasic Personality Inventory (MMPI), and the Minnesota Multiphasic Personality Inventory—Adolescent version (MMPI-A).

Behavior Assessment System for Children (BASC)

The BASC (Reynolds & Kamphaus, 1992) is a many-faceted instrument that assesses behaviors and beliefs in children aged 4–18 years through the use of self- and other-reports. There are two forms of the Self-Report of Personality (SRP) section of the BASC, one for children (8–11 years) and one for adolescents (12–18 years). The SRP is made up of statements to which the child or adolescent answers "True" or "False." Scale and composite scores for behavioral and emotional symptoms are calculated from the answers given. Children whose anxiety and fear levels are impacting their lives negatively would be expected to earn high scores on the Anxiety scale, Clinical Maladjustment composite, and Emotional Symptoms Index, as well as low scores on the Self-Esteem and Sensation Seeking scales. High scores on the Atypicality, Depression, and Social Stress scales would not be unexpected.

The BASC provides several safeguards to help ensure the validity of the responses a child gives on the SRP. Items are worded positively and negatively to avoid response sets. Three special validity indices (*F*, *L*, and *V*) are provided to alert the psychologist to a questionably valid protocol.

The *F* index alerts the psychologist to several situations that call the validity of the child's responses into question, including the possibility that the child responded to questions in an attempt to appear more disturbed, wanting to "fake bad." Other reasons a child might receive a high *F* Index score include difficulty reading the questions due to inadequate reading ability or language difficulties; failure to read the questions, resulting in random responses; or a high level of acute distress.

In contrast to the *F* Index, a high score on the *L* Index may indicate that a child is "faking good"—giving socially acceptable rather than personally accurate answers. The *L* Index is included only on the Adolescent form of the SRP, because younger children have been shown to have more of a tendency to answer such questions to indicate the way they "should" feel and behave (Reynolds & Kamphaus, 1992, p. 56). High scores on the *L* Index may also indicate a lack of personal insight and an inclination toward self-idealization. As with the *F* Index, random responses or reading difficulties might also elevate an *L* Index score.

An elevated *V* Index calls the validity of responses into question and may occur due to a wide range of behaviors. The *V* Index is made up of highly improbable items that may be answered "True" in cases in which the child is careless, uncooperative, mentally disabled, confused, illiterate, or psychotic (Reynolds & Kamphaus, 1992, pp. 56–57). Omission of items, response patterns, and inconsistency with parent and teacher reports of behaviors are all indications that the SRP may not be valid.

Minnesota Multiphasic Personality Inventory (MMPI)

The MMPI (Hathaway & McKinley, 1967) is a widely used personality inventory consisting of 566 items. When taking the MMPI, the client is asked to respond "True," "False," or "Cannot say" to a variety of statements about himself or herself.

Though the original norms were developed for adult populations, special MMPI norms have been developed for use with adolescents aged 14–17 (Dahlstrom, Welsh, & Dahlstrom, 1972). Using the adolescent norms tends to make the tricky task of interpretation of adolescent performance on the MMPI less complex and less prone to error (Reilley, 1990). Computer programs are available that will adjust the MMPI scores for adolescents as young as 12 (Friedman, Webb, & Lewak, 1989). Given the reading level of the MMPI items and the sophisticated subject matter, however, it is probably not an appropriate measure of fear and anxiety in preadolescent populations or with adolescents who have reading difficulties.

Several MMPI scales are of interest when assessing an adolescent for signs of anxiety and fear disorders. The Psychasthenia (*Pt*) scale measures anxiety, with higher scores indicating a higher level of anxiety. Generally, adolescents score higher on this scale than adults. A high score on the Hypochondriasis (*Hs*) scale may indicate anxiety or fear related to bodily functions. A high score on the Social Introversion (*Si*) scale indicates anxiety about interacting with others (Reilley, 1990).

Four special scales are contained in the MMPI, two of which may be markers for anxiety and fear. Their appropriateness and utility with adolescent populations have not been established, however. The Conscious Anxiety (*A*) scale measures the amount of anxiety of which the client was aware at the time of testing. Individuals with high *A* scales tend to be anxious and unhappy and to exhibit low self-esteem (Friedman et al., 1989). The Conscious Repression (*R*) scale indicates tendencies to hold back information and to be cautious around others, usually due to the need to hide something (Reilley, 1990).

Four validity scales accompany the MMPI. As with the BASC, the *L* scale is an indicator of the degree to which the client is "faking good," while the *F* scale is an indicator of "faking bad." Several studies have indicated that the *F* scale is typically elevated by at least 10 points in normal adolescents (Archer, 1987; Marks, Seeman, & Haller, 1974) relative to adults. Omission of items or double-marking will raise the Cannot Say (*?*) scale. Reilley (1990) postulates that immature reading skills and lack of comprehension may be the primary reasons the *?* scale would be elevated among adolescents. The Correction (*K*) scale,

though not used extensively with adolescents, may indicate some degree of anxiety and defensiveness (high scores) or low self-esteem (low scores).

Though the MMPI is a widely used, much-researched, and respected instrument, there are several drawbacks to using it with adolescents. Scales specific to problems faced by adolescents are not included in the MMPI. Use of the MMPI with adolescent populations requires use of adolescent norms that are still not very accurate (Butcher, Williams, Graham, Archer, Tellegen, Ben-Porath, & Kaemmer, 1992). The MMPI is a long test, and sustaining attention for the duration of the test is a challenge for some adolescents. Additionally, as mentioned previously much of the subject matter may be too sophisticated for young, inexperienced, or emotionally immature adolescents. Items on the MMPI are written from an adult point of view and could easily be confusing to an adolescent. Adolescent responses on several scales (e.g., *F*, *Pd*, and *Sc*) tend to be very high even in normal populations, indicating that adolescent interpretations of items and standards of normality differ from those of adults (Butcher et al., 1992; Oster, Carro, Eagen, & Lillo, 1988).

Psychologists using the MMPI with adolescents must have a thorough understanding of adolescent response patterns and other difficulties of MMPI interpretation for adolescent clients. Publication of the MMPI-2 has done little to alleviate the problems of the original version with adolescents. Communication of results to adolescent clients should be undertaken with great care, as some of the names of many of the MMPI scales could lead to unnecessary misunderstanding, confusion, and anxiety. Psychologists unfamiliar with the intricacies of the MMPI would be well advised to read at least part of the extensive MMPI literature before interpreting and relaying the results.

Minnesota Multiphasic Personality Inventory-Adolescent Version (MMPI-A)

The MMPI-A (Butcher et al., 1992) is a separate form of the MMPI developed for use with adolescent clients. Norms are available for males and females of ages 14–18, though the authors believe that 12- to 13-year-olds who are bright and somewhat sophisticated may also be able to understand MMPI-A items well enough to respond validly.

The MMPI-A is made up of 478 items to which a true/false response is given. Some items were newly developed for the MMPI-A, some are MMPI items, and some are MMPI items that have been reworded to be more appropriate for adolescents.

Anxiety and fear in adolescents is measured directly on the MMPI-A by the Anxiety (*A-anx*) scale. Elevated scores on the Obsessiveness, Bizarre Mentation, Health Concerns, Social Discomfort, School Problems, and Family Problems scales may be indicators of more specific types of fear and anxiety and may give the psychologist an indication of how the adolescent's life is impacted by them.

Validity scales for the MMPI-A include the Cannot Say (*?*), Lie (*L*), Infrequency (*F*, *F1*, *F2*), Defensiveness (*K*), and Inconsistency (*VRIN*, *TRIN*) Scales. The *?* scale is a measure of item omission. Reasons for not answering an item are varied and may include lack of understanding or cooperation, carelessness, poor reading skills, and depression. An elevated *L* scale may be a reflection of an attempt to "fake good," while elevated Infrequency scales may indicate that the adolescent is "faking bad." Attempts at deception and defensiveness are measured by the *K* scale. The Inconsistency scales [Variable Response Inconsistency (*VRIN*) and True Response Inconsistency (*TRIN*)] are validity scales that measure the tendency toward contradictory and inconsistent responses.

Internal consistencies of the MMPI-A Content Scales (items exclusive of the Validity scales items) are adequate, consisting of 0.74 (normative boys), 0.76 (clinical boys, normative girls), and 0.80 (clinical girls) (Williams, Butcher, Ben-Porath, & Graham, 1992). Test–retest reliability (1 week) across the Content Scales averages 0.73, with a range from 0.55 to 0.89. The authors note that in comparison to adult populations, reliability consistently tends to be lower for adolescent populations. Instability of adolescent personality is the most likely reason for this trend and leads to the conclusion that wider confidence intervals are needed to accurately interpret adolescent scores. As with the MMPI, accurate interpretation of MMPI-A scores requires that the psychologist have a fairly extensive understanding of the structure and finer points of this intricate test.

NARROW-BAND INSTRUMENTS

There are many self-report instruments that deal expressly with anxiety and fear in children. There are also self-report instruments that have been developed to measure constructs such as self-concept in which anxiety and fear may play a part. The specific instruments covered in this chapter are listed in Table 1.

The three self-report instruments most frequently used to assess anxiety and fear in children and adolescents are the State–Trait Anxiety Inventory for Children (STAIC), the Revised Children's Manifest Anxiety Scale (RCMAS), and the Fear Survey Schedule for Children—Revised (FSSC-R) (Ollendick, 1983; Ollendick, King, & Frary, 1989). All three are adaptations or revisions of other scales.

State–Trait Anxiety Inventory for Children (STAIC)

The STAIC (Spielberger, 1973) assesses both chronic and acute anxiety in children ages 9–12. [Its predecessor, the State–Trait Anxiety Inventory (STAI) (Spielberger, Gorsuch, & Lushene, 1970), is similar to the STAIC and is used with adolescents and adults.] It is a 40-item test comprised of two 20-item scales. The A-Trait scale measures chronic, pervasive anxiety—the general tendency of the child to be anxious. Items on the A-Trait scale are answered "Hardly ever," "Sometimes," or "Often." The A-State scale measures

Table 1. Some Self-Report Instruments That Specifically Measure Anxiety and Fear in Children and Adolescent

Test	Appropriate for ages
Children's Fear Survey Schedule (CFSS)	4–12
Fear Survey Schedule for Children (FSSC)	9–12
Fear Survey Schedule for Children-Revised (FSSC-R)	7–18
Generalized Anxiety Scale for Children (GASC)	(grades 1–9)
Louisville Fear Schedule for Children (LFSC)	6–16
Revised Children's Manifest Anxiety Scale (RCMAS)	5–19
State–Trait Anxiety Inventory for Children (STAIC)	9–12
State–Trait Anxiety Inventory (STAI)	13+
Test Anxiety Scale for Children (TASC; TASC-R)	(grades 1–9)
Piers–Harris Self-Concept Scale (PHSCS)	(grades 4–12)

acute, transitory anxiety—the likelihood that the child will experience anxiety in specific situations. Items on the A-State scale are answered "Very calm," "Calm," or "Not calm."

Internal consistency estimates range from 0.78 to 0.87 (Spielberger, 1973), and split-half reliabilities of 0.89 (A-State) and 0.88 (A-Trait) have been reported (Finch, Montgomery, & Deardorff, 1974). Reports of test–retest reliability coefficients vary considerably (e.g., 0.65–0.72 for A-State, 0.44–0.94 for A-Trait) (Kendall & Ronan, 1990). Length of time between tests and study design seem to be variables that impact findings. That the test–retest coefficients are lower than the other reliability coefficients is not unexpected, given the nature of the subject of the test. Indeed, if a test measuring acute anxiety produced high test–retest reliability coefficients when readministered after any length of time, it would not be reliable for its stated purpose, but would instead be measuring a more generalized form of anxiety.

Concurrent validity with other measures of anxiety (RCMAS, GASC, STAI) has been established, though discriminant validity seems to be in some question (Kendall & Ronan, 1990; Silverman, 1993). Outside factors (e.g., lack of standardized instructions) appear to have confounded the results of some of these discriminant and concurrent validity studies. Factor analysis of items from both scales has yielded data supportive of the State–Trait difference. Gender differences have often been found and seem to indicate a need for separate norms.

The STAIC has been found to be negatively correlated with academic achievement, verbal IQ, and general intelligence. It is positively correlated with school grades and scores on the Children's Manifest Anxiety Scale (Castaneda, McCandless, & Palermo, 1956), the RCMAS (0.75) (Reynolds & Richmond, 1978), the Generalized Anxiety Scale for Children (GASC) (0.63) (Sarason, Davidson, Lighthall, Waite, & Ruebush, 1960), and the Children's Anxiety Evaluation Form (Hoehn-Saric, Maisami, & Weingand, 1987) (for more detail, see Barrios, Hartmann, & Shigetomi, 1982).

Revised Children's Manifest Anxiety Scale (RCMAS)

The RCMAS (Reynolds & Richmond, 1985), also known as "What I Think and Feel," is a revision of the Children's Manifest Anxiety Scale (CMAS). The CMAS was developed from an adult measure of anxiety [the Manifest Anxiety Scale (Taylor, 1951)] and was criticized for being too lengthy (53 items: 42 anxiety items and 11 Lie scale items) and too difficult to read and for containing poor test items (Kendall & Ronan, 1990). The RCMAS was developed in an attempt to ameliorate these problems.

The RCMAS measures generalized, nonspecific, nonsituational anxiety. It is relatively short to administer (37 true/false items: 28 anxiety items and 9 Lie scale items) and yields scores on the subscales of Worry and Oversensitivity, Physiological Anxiety, and Concentration Anxiety. Total Anxiety and Lie scale scores are also included.

The RCMAS provides norms for children 5–19 years of age. Separate norms are available for Mexican-American, Nigerian, and high-IQ children. Coefficients of congruence across ethnic and gender groups range from 0.96 to 0.99 (Witt, Heffer, & Pfeiffer, 1990), showing consistency of the structure of the RCMAS across these nominal variables (also see Reynolds & Richmond, 1985).

Considerable effort has gone into the research necessary to establish the reliability and validity of the RCMAS. Reported internal consistency coefficients range from 0.78 to 0.85 across age, and test–retest coefficients range from 0.68 (9 months) to 0.98 (3 weeks) (Reynolds & Richmond, 1985; Witt et al., 1990). Concurrent and construct validity have

been established through correlations of 0.85 between the RCMAS and the A-Trait scale on the STAIC. Nonsignificant correlations between the RCMAS and the A-State scale have been used to indicate the discriminant validity of the RCMAS, though such a claim has been challenged (Silverman, 1993). Last, Francis, Hersen, Kazdin, and Strauss (1987) found that the RCMAS, the STAIC, and the FSSC-R (Ollendick, 1983) failed to discriminate children with separation anxiety disorder and school phobia, a finding that demonstrates the general nature of these scales in assessment of anxiety.

Fear Survey Schedule for Children-Revised (FSSC-R)

The FSSC (Scherer & Nakamura, 1968; Ollendick, 1983), the precursor to the FSSC-R, is an adaptation of an adult anxiety measure, the Wolpe–Lang Fear Survey Schedule (Wolpe & Lang, 1964). It contains 80 items to which children indicate their level of fear, using a 5-point scale ranging from "None" to "Very much." The FSSC and the FSSC-R measure specific fears in the categories of school, home, social, physical, animal, travel, classic phobia, and miscellaneous. Due to concerns that young children became confused when faced with the 5-point response scale, Ollendick (1983) revised the FSSC, changing the response scale from 5 to 3 points ("None," "Some," "A lot"). The FSSC is appropriately used with children of ages 9–12; the FSSC-R may be used with children and adolescents of ages 7–18. It has been used with Australian (Ollendick et al., 1989), British (Ollendick, Yule, & Ollier, 1990), and Chinese children and adolescents (Dong, Yang, & Ollendick, 1994).

Though psychometric data are not widely reported for the FSSC-R, some information is available. Internal consistency coefficients for the FSSC-R range from 0.92 to 0.95. Test–retest reliability was measured at 0.82 (1 week) and 0.55 (3 months). Concurrent validity correlations between the FSSC-R and the A-Trait scale of the STAIC of near 0.50 have been found.

The FSSC-R was found to discriminate between normal and school-phobic children (Ollendick, 1983) and between students rated as high or low for fearfulness by their teachers (McCathie & Spence, 1991). Last, Francis, and Strauss (1989) demonstrated that if response patterns rather than summary scores are analyzed, the FSSC-R is useful in helping to discriminate among children with school phobia, separation anxiety disorder, and overanxious disorder.

There is some question as to the utility of the FSSC-R in determining real fears in children. Children have been found to report greatest fear for "low-probability events" such as death, illness, severe injury, and highly dangerous situations. Since children are unlikely to encounter these situations frequently, there is some doubt that they actually dwell on these events with any regularity. Perhaps more mundane, everyday sorts of fears are overshadowed and underrated on the FSSC-R due to the presentation of more exotic and life-threatening fears, causing children unintentionally to misrepresent fears they experience on a regular basis (McCathie & Spence, 1991).

OTHER SPECIFIC INSTRUMENTS

Five lesser-known but nevertheless useful instruments that assess fear and anxiety in children are the Generalized Anxiety Scale for Children (GASC), the Test Anxiety Scale for Children (TASC) (Sarason et al., 1960), the Test Anxiety Scale for Children—Revised

(TASC-R) (Feld & Lewis, 1969), the Louisville Fear Schedule for Children (LFSC) (Miller, Barrett, Hampe, & Noble, 1972), and the Children's Fear Survey Schedule (CFSS) (Ryall & Dietiker, 1979). The Piers–Harris Self-Concept Scale (PHSCS) (Piers & Harris, 1969) is a well-known, widely used instrument that also may be helpful in assessing fear and anxiety in children.

Generalized Anxiety Scale for Children (GASC)

The GASC is a 45-item, yes/no instrument appropriately used with children in grades 1–9. It measures chronic, generalized anxiety and contains a Lie scale. It has shown test–retest reliabilities of 0.64–0.79 after 4 months, with results being affected by the type of test administrator. Conflicting reports of the reliability and validity of the GASC indicate that more research needs to be completed before the scale can be considered psychometrically sound for diagnostic purposes (Witt et al., 1990).

Test Anxiety Scale for Children (TASC) and Test Anxiety Scale for Children-Revised (TASC-R)

The TASC (Sarason et al., 1960) was developed as a specific version of the GASC used to assess fears generated in school settings. It is a 30-item (Lie scale included), yes/no scale for use with children in grades 1–9. An answer of "No" indicates a low level of anxiety.

Anxiety has been found to impact school performance negatively over time, and negative correlations have been reported between the TASC and IQ (-0.31 to -0.46) and between the TASC and achievement (-0.36 to -0.51). Test–retest reliabilities (2 years) ranged from 0.33 to 0.58 depending on the student's age (Hill and Sarason, 1966).

A revision of the TASC, the TASC-R (Feld & Lewis, 1969), is made up of 30 yes/no items. It was developed to help control response bias by wording items positively so that a "Yes" answer indicates a low level of anxiety. In addition to assessing test anxiety, the TASC-R measures self-esteem, somatization, and more general signs of anxiety in children. Relationships between scores of the TASC-R and achievement have been demonstrated (Clinkenbeard & Murphy, 1990).

Louisville Fear Schedule for Children (LFSC)

The LFSC (Miller et al., 1972) is an 81-item measure designed to assess the fear children experience in the presence of specific stimuli. Responses are on a 3-point scale. The LFSC is appropriately used with children of ages 6–16. Five primary fear areas are assessed (animals, physical danger, darkness, public places, and school phobia) through three primary scales (Natural Events, Physical Injury, and Social Stress) (Miller, 1983). Internal consistency is reported to be high, while data regarding test–retest reliability and validity are not reported (Barrios et al., 1982).

Children's Fear Survey Schedule (CFSS)

The CFSS (Ryall & Dieteker, 1979) is a 48-item instrument appropriate for use with children of ages 4–12. Responses are made on a 3-point scale ("Not afraid"–"Very afraid"). Item development began by asking children to report the things that frightened them most often.

Test–retest reliability (1 week) has been reported to be 0.79–0.91. Discrimination between outpatient and nonreferred children has been demonstrated. Concerns have been voiced regarding the lack of reliability and validity data for the CFFS and the restricted sample on which it was normed (Witt et al., 1990).

Piers–Harris Self-Concept Scale (PHSCS)

Though not an instrument designed solely to assess fears and anxieties in children, the PHSCS (Piers & Harris, 1969) does contain an Anxiety subscale as well as other pertinent information to indicate how anxiety and fear may be impacting a child's self-concept and outlook on life in general. The PHSCS (or "The Way I Feel About Myself") is an 80-item, yes/no test for children in grades 4–12. It is written at approximately a 3rd-grade level. A total score and cluster scores are available. Clusters include Behavior, School and Intellectual Status, Physical Appearance and Attributes, Anxiety, Popularity, Satisfaction, and Happiness. A Response Bias Index and Inconsistency Index are available to help the psychologist assess the validity of the results. A computerized form of the PHSCS is available from Western Psychological Services.

Internal consistency for the PHSCS ranges from 0.88 to 0.90 for total score and from 0.73 to 0.81 for cluster scores. Test–retest reliability coefficients range from 0.42 to 0.96, possibly due to the instability of self-concept so often seen in adolescents.

When interpreting the Anxiety cluster, the psychologist should be aware that factor analyses of the clusters on the PHSCS have yielded inconsistent results. The PHSCS may be useful as a screening instrument in assessment of anxiety and fear in children and may be of some use in attempting to determine whether such anxieties and fears are impacting a child's self-concept and daily living.

STRENGTHS AND WEAKNESSES OF SELF-REPORT INSTRUMENTS

Strengths

Children can be a reliable source of information about themselves (Moreau & Weissman, 1993). Self-reports can provide the psychologist with information about a child's feelings and perceptions, provided the child is ready to self-disclose and is not malingering.

Self-reports can be used effectively as initial screening instruments. If scores seem to indicate that a problem exists, more in-depth testing can then be undertaken. Cognitive testing to determine whether and how fear and anxiety may have affected thinking processes may be warranted in cases in which children have reported heightened fear and anxiety levels. Further behavioral assessment may be undertaken in an attempt to measure how a child's fear and anxiety are being played out in his or her everyday living. If, during the course of an assessment, the psychologist suspects that a child is experiencing a high level of fear and anxiety, specific self-report instruments may also be used to confirm such suspicions and to gather more specific information regarding the child's fears and anxieties.

Self-report measures for children and adolescents are convenient and economical to administer in terms of time and cost. Self-report measures do not require any special equipment or supplies other than the protocol and a pencil. (Use of a computerized version of a self-report instrument will necessarily require a computer, keyboard, monitor, and the requisite software.) When using specific rather than omnibus instruments, test adminis-

tration is not time-consuming or complicated, and scoring is usually relatively straightforward.

Weaknesses

As useful as self-report instruments may be in gathering information helpful to the understanding of a child's fears and anxieties, there are several serious limitations to their use in such cases. Often, such instruments are not situation-specific, but measure anxiety and fear in more general terms. Other instruments that are situation-specific may not be specific *enough* for what are often highly unique and personalized fears (Kendall & Ronan, 1990). Many self-report instruments do not discriminate between related affective disorders (e.g., seasonal affective disorder, overanxious disorder) very well.

Children experience different levels and types of fear and anxiety depending on their age and gender. Although some self-report instruments provide psychometric data, it is often the case that standardization data are quite limited with respect to age and gender and that when standardization was done, it was done with an inappropriately small sample, although the RCMAS boasts a standardization sample of nearly 6000. This occurs more frequently with instruments developed specifically to measure one facet of a child's personality. Omnibus instruments such as the BASC and the MMPI-A are well standardized on large populations and provide several norm tables for children based on age, gender, and, in the case of the BASC, on whether the child is to be compared to a clinical or a general population.

Developmental considerations, such as maturity level and reading ability, need to be kept in mind when deciding to administer a self-report and when interpreting results. The psychologist must also be cognizant of the child's willingness to self-disclose. Children often feel the need to "say the right thing" rather than to relate accurately how they feel. If it has been socially unacceptable for them to be anxious, or if they have been told that their fears are "silly" or otherwise unfounded, they may be quite unwilling to admit to them. Scales that measure lying, faking good, faking bad, and defensiveness assist the psychologist in assessing the accuracy of the child's self-disclosure. Comparing the child's responses to parent and teacher ratings of the child's fearfulness and anxiety may also be useful in determining the validity of the self-report.

RESEARCH DIRECTIONS

Self-report instruments may be useful in helping to assess a child's level of fear and anxiety. All children experience some fear and anxiety. The determination of what constitutes a dysfunctional level of fear and anxiety in a particular child must take into account the child's age and gender and the norming sample to which the child's performance is compared. Also, children may become dysfunctional at different levels of fear or anxiety. Since self-report instruments are widely used to make such a determination, better standardization practices and more complete norms are needed to accurately carry out such assessments. More research correlating specific instruments with other specific (e.g., RCMAS) and omnibus instruments that are routinely standardized at a higher level is also desirable.

Research is also needed to establish anxiety and fear more clearly as separate constructs from other personality factors, such as depression, obsessiveness, and general

negative affect (Kendall & Ronan, 1990). The discriminant validity of self-report instruments should improve if factors loading into other constructs can be eliminated or controlled.

CASE STUDY

To illustrate how self-report instruments can be used to assist in the diagnosis and treatment of children with anxiety and phobic disorders, consider this hypothetical case. P.B. was a 12-year-old boy who was referred for psychological assessment by his parents. He exhibited a set of behaviors that his parents and school personnel had labeled "panic attacks," during which he exhibited accelerated heart rate, hyperventilation, inability to sit still or relax, pale complexion, and stomach pains. In the past, P.B. had insisted on going to the school nurse for stomach medication, which had little effect. These incidents did not result in P.B.'s becoming physically ill, but he often insisted on going home. At times, he recovered spontaneously, and neither the school nurse nor his teachers were able to discover what caused his recovery or what caused the initial attacks. Since medical findings were negative, psychological causes were considered further.

Interviews with P.B. and his parents revealed that the "panic attacks" had started several months prior to referral. At that time, P.B. had become physically ill in class and had been subjected to some ridicule by his peers. He developed an intense fear of becoming ill again and panicked whenever his stomach felt "different."

Although P.B. was a bright boy who enjoyed school, he missed enough school due to these attacks that he fell behind in his schoolwork and was in danger of failing. He was well behaved in and out of school and was well liked by his peers, who believed him to be very smart.

A complete psychological evaluation was performed, including measures of intelligence, achievement, and social–emotional functioning. Scores revealed that P.B. was above average in intelligence (IQ of 113), with somewhat lower than expected achievement scores, though no evidence for a learning disability was found. On the Behavior Assessment System for Children Self-Report of Personality, P.B. reported behaviors and beliefs that reflected significantly elevated levels of anxiety (*T*-score of 69, 99th percentile), somatization (*T*-score of 80, 99th percentile), and a slightly elevated level of depression (*T*-score of 61, 86th percentile). These findings were consistent with other reports by P.B. and his parents and teachers. To obtain a more focused understanding of P.B.'s anxiety, further testing using the RCMAS was completed. Results confirmed an elevated level of overall anxiety (Total Anxiety *T*-score of 60, 83rd percentile), on the Physiological Anxiety subscale (Scaled Score of 14, 95th percentile), and the Worry/Oversensitivity subscale (Scaled Score of 13, 86th percentile). This combination of elevated scales denotes clearly his worry about developing somatic problems and his fears of illness. Such scores reflect accurately the anxiety P.B. felt about himself and how his peers might view him were he to become ill again.

His past experience at becoming physically ill in class had been a painful one for P.B. He dreaded the idea of becoming ill again and became nervous and tense whenever his stomach "bothered" him. He was certain his peers would make fun and lose the respect that they had for him. This caused his anxiety and worry to escalate further.

Individual therapy sessions involving guided imagery, relaxation techniques, and biofeedback were employed to help P.B. build internal control over his anxious reactions.

SUMMARY

Self-report instruments are useful in the determination of fears and anxieties in children and adolescents. Omnibus personality scales (e.g., BASC, MMPI, MMPI-A) provide a more generalized view of emotional functioning in which anxiety and fear may play a part. They are useful when attempting to determine the impact of fear and anxiety on other aspects of emotional functioning. Instruments specifically developed to measure anxieties, fears, and phobias (e.g., STAIC, RCMAS, FSSC-R) are better suited to explore the type and extent of such states.

Children have been shown to be reliable sources of information about themselves, but caution must be used when interpreting self-reports on which validity is questionable. Self-reports are useful as screening instruments and are cost- and time-effective to administer.

It is often the case that self-report instruments are not situation-specific, but address more global states of fear and anxiety. It is incumbent on the psychologist to recognize this limitation and to gather more detailed information from the child, adolescent, parent, and teacher concerning the generalized fear and anxiety, all the while remembering to take into account such additional factors as age, gender, life experiences, and developmental level. Information gathered from reliable self-report instruments and interviews with the child and concerned adults will aid the clinician in forming appropriate, efficient, and helpful treatment plans for children and adolescents who are experiencing dysfunctional levels of anxiety, fear, and phobia.

REFERENCES

Archer, R. P. (1987). *Using the MMPI with adolescents*. Hillsdale, NJ: Erlbaum.

Barrios, B. A., Hartmann, D. P., & Shigetomi, C. (1982). Fears and anxieties in children. In E. J. Mash & L. G. Terdal (Eds.), *Behavioral assessment of childhood disorders* (pp. 259–304). New York: Guilford Press.

Butcher, J. N., Williams, C. L., Graham, J. R., Archer, R. P., Tellegen, A., Ben-Porath, Y. S., & Kaemmer, B. (1992). *Minnesota Multiphasic Personality Inventory—Adolescent: Manual*. Minneapolis: University of Minnesota Press.

Castaneda, A., McCandless, B., & Palermo, D. (1956). The children's form of the Manifest Anxiety Scale. *Child Development, 27*, 317–326.

Clinkenbeard, P. R., & Murphy, S. C. (1990). Measuring student motivation. In C. R. Reynolds & R. W. Kamphaus (Eds.), *Handbook of psychological and educational assessment of children* (pp. 589–605). New York: Guilford Press.

Dahlstrom, W. G., Welsh, G. S., & Dahlstrom, L. E. (1972). *An MMPI handbook, Vol. 1, Clinical interpretation*. Minneapolis: University of Minnesota Press.

Dong, Q., Yang, B., & Ollendick, T. H. (1994). Fears in Chinese children and adolescents and their relations to anxiety and depression. *Journal of Child Psychology and Psychiatry* (in press).

Feld, S. C., & Lewis, J. (1969). The assessment of achievement anxieties in children. In C. P. Smith (Ed.), *Achievement-related motives in children* (pp. 151–199). New York: Russell Sage Foundation.

Finch, A. J., Jr., Montgomery, L., & Deardorff, P. (1974). Reliability of state-trait anxiety with emotionally disturbed children. *Journal of Abnormal Child Psychology, 2*, 67–69.

Friedman, A. F., Webb, J. T., & Lewak, R. (1989). *Psychological assessment with the MMPI*. Hillsdale, NJ: Erlbaum.

Hathaway, S. R., & McKinley, J. C. (1967). *MMPI manual*, revised ed. New York: Psychological Corporation.

Hill, K. T., & Sarason, S. B. (1966). The relation of test anxiety and defensiveness to test and school performance over the elementary-school years: A further longitudinal study. *Monographs of the Society for Research in Child Development, 31(2)*, Serial No. 104.

Hoehn-Saric, E., Maisami, M., & Weingand, D. (1987). Measurement of anxiety in children and adolescents using semi-structured interviews. *Journal of the American Academy of Child and Adolescent Psychiatry, 26*, 511–545.

Kendall, P. C., & Ronan, K. R. (1990). Assessment of children's anxieties, fears, and phobias: Cognitive–

behavioral models and methods. In C. R. Reynolds & R. W. Kamphaus (Eds.), *Handbook of psychological and educational assessment of children* (pp. 223–244). New York: Guilford Press.

Last, C. G., Francis, G., Hersen, M., Kazdin, A. E., & Strauss, C. C. (1987). Separation anxiety and school phobia: A comparison using DSM-III criteria. *American Journal of Psychiatry, 144*, 653–657.

Last, C. G., Francis, G., & Strauss, C. C. (1989). Assessing fears in anxiety disordered children with the Revised Fear Survey Schedule for Children (FSSC-R). *Journal of Clinical Child Psychology, 18*, 137–141.

Marks, P. A., Seeman, W., & Haller, D. L. (1974). *The actuarial use of the MMPI with adolescents and adults*. Baltimore: Williams & Williams.

McCathie, H., & Spence, S. H. (1991). What is the Revised Fear Survey Schedule for Children measuring? *Behaviour Research and Therapy, 29*, 495–502.

Miller, L. C. (1983). Fears and anxieties in children. In C. E. Walker & M. C. Roberts (Eds.), *Handbook of clinical child psychology* (pp. 337–380). New York: John Wiley.

Miller, L. C., Barrett, C. L., Hampe, E., & Noble, H. (1972). Factor structure of childhood fears. *Journal of Consulting and Clinical Psychology, 39*, 264–268.

Moreau, D. L., & Weissman, M. M. (1993). Anxiety symptoms in nonpsychiatrically referred children and adolescents. In C. G. Last (Ed.), *Anxiety across the lifespan: A developmental perspective* (pp. 37–62). New York: Springer.

Ollendick, T. H. (1978). *The Fear Survey Schedule for Children—Revised*. Indiana State University: Unpublished manuscript.

Ollendick, T. H. (1983). Reliability and validity of the Revised Fear Survey Schedule for Children (FSSC-R). *Behaviour Research and Therapy, 21*, 685–692.

Ollendick, T. H., King, N. J., & Frary, R. B. (1989). Fears in children and adolescents: Reliability and generalizability across gender, age, and nationality. *Behaviour Research and Therapy, 27*, 19–26.

Ollendick, T. H., Yule, W., & Ollier, K. (1990). Fears in British children and their relationship to manifest anxiety and depression. *Journal of Child Psychology and Psychiatry, 32*, 321–331.

Oster, G. D., Carro, J. E., Eagen, D. R., & Lillo, M. A. (1988). *Assessing adolescents*. New York: Pergamon Press.

Piers, E. V., & Harris, D. B. (1969). *A manual for the Piers–Harris Self-Concept Scale*. Nashville: Counselor Recordings and Tests.

Reilley, R. R. (1990). Using the Minnesota Multiphasic Personality Inventory (MMPI) with adolescents. In C. R. Reynolds & R. W. Kamphaus (Eds.), *Handbook of psychological and educational assessment of children* (pp. 324–342). New York: Guilford Press.

Reynolds, C. R., & Kamphaus, R. W. (1992). *Behavior Assessment System for Children: Manual*. Circle Pines, MN: American Guidance.

Reynolds, C. R., & Richmond, B. O. (1978). "What I Think and Feel": A revised measure of children's manifest anxiety. *Journal of Abnormal Child Psychology, 6*, 271–280.

Reynolds, C. R., & Richmond, B. O. (1985). *Revised Children's Manifest Anxiety Scale*. Los Angeles: Western Psychological Service.

Ryall, M. R., & Dietiker, K. E. (1979). Reliability and clinical validity of the Children's Fear Survey Schedule. *Journal of Behavior Therapy and Experimental Psychiatry, 10*, 303–309.

Sarason, S. B., Davidson, K. S., Lighthall, F. F., Waite, R. R., & Ruebush, B. (1960). *Anxiety in elementary school children*. New York: John Wiley.

Scherer, M. W., & Nakamura, C. Y. (1968). A Fear Survey Schedule for Children (FSS-FC): A factor analytical comparison with manifest anxiety (CMAS). *Behaviour Research and Therapy, 6*, 173–182.

Silverman, W. (1993). DSM and classification of anxiety disorders in children and adults. In C. G. Last (Ed.), *Anxiety across the lifespan: A developmental perspective* (pp. 7–36). New York: Springer.

Spielberger, C. D. (1973). *Manual for the State–Trait Anxiety Inventory for Children*. Palo Alto, CA: Consulting Psychologists Press.

Speilberger, C. D., Gorsuch, R. L., & Lushene, R. E. (1970). *Manual for the State–Trait Anxiety Inventory*. Palo Alto, CA: Consulting Psychologists Press.

Taylor, J. A. (1951). The relationship of anxiety to the conditioned eyelid response. *Journal of Experimental Psychology, 42*, 183–188.

Williams, C. L., Butcher, J. N., Ben-Porath, Y. S., & Graham, J. R. (1992). *MMPI-A Content Scales: Assessing psychopathology in adolescents*. Minneapolis: University of Minnesota Press.

Witt, J. C., Heffer, R. W., & Pfeiffer, J. (1990). Structured rating scales: A review of self-report and informant rating procedures, and issues. In C. R. Reynolds & R. W. Kamphaus (Eds.), *Handbook of psychological and educational assessment of children* (pp. 364–394). New York: Guilford Press.

Wolpe, J., & Lang, P. J. (1964). A fear survey schedule for use in behavior therapy. *Behaviour Research and Therapy, 2*, 27–30.

17

Behavior Checklists and Rating Forms

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INTRODUCTION

A number of checklists exist for the assessment of phobic and anxiety disorders in children. Generally, the instruments are designed to be completed by lay persons (e.g., parent, teacher, or peer), and include a range of items tapping several constructs, of which phobic and anxiety disorders are a few. The purpose of this chapter is to review the research and clinical utility of selected behavior checklists in the assessment of phobic and anxiety disorders in children. General psychometric issues are addressed first; selected instruments are then briefly reviewed.

Most behavior checklists are grounded in the dimensional approach to psychopathology: the approach by which the difference between "normal" and "abnormal" is regarded as one of degree. By employing multivariate statistical methods, instrument developers can reduce a large number of categorical responses provided by informants to a small number of continuous factors. Hewitt and Jenkins (1946) set this approach in motion with a study, classic though methodologically unsophisticated, of the case records of child guidance

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center patients. These pioneers found that 45 behavior problems tended to cluster into three fundamental syndromes that could be represented as dimensions. Though the methodology has advanced significantly over the past half century, assessment with checklists can be problematic if psychometric concerns are ignored by the assessor.

Checklists can be developed through rational, internal–statistical, or empirical means. The rational approach involves compiling a list of descriptors or characteristics for a given construct, using theory or experts as sources. Content validation is achieved by demonstrating that the items are consistent with theory or with the judgments of experts. Groups of items purported to represent a construct may then be evaluated to determine their internal consistency (the extent to which the items covary and contribute to the reliable measurement of the construct). Items that are not consistent with the overall construct may be dropped (internal consistency is enhanced when these items are removed) in the interest of increasing the reliability of the instrument. Instruments that tap into a broad range of psychopathology may further be subjected to factor analysis in order to identify multiple internally consistent factors within the instrument. Finally, some measures seek and present empirical evidence of their ability to discriminate between known groups and to predict responses to other tests.

Combining all three approaches to scale development may be beneficial [e.g., Revised Behavior Problem Checklist (Quay & Peterson, 1983)]. Some, however, have argued against the strict factorial approach that relies on factor analysis to essentially define the construct. Such researchers may instead develop a rationally derived set of rating-scale items to measure constructs of clinical interest followed by empirical challenges. Factor analysis, though useful, *is not the royal vehicle on the royal road* to valid measurement of clinically important syndromes. The emergence of a given construct from a checklist depends on (1) inclusion of individuals in the subject sample who evidence features of the construct and (2) inclusion of the constituent features of the construct in the checklist. Factor analysis is relatively insensitive to low-frequency symptoms and rare syndromes. For example, Peterson (1961) developed a checklist of 58 problem behaviors and studied more than 800 elementary school children who were rated by their teachers. Factor analysis revealed 2 underlying factors (conduct problem, personality problem). Noteworthy is the absence of a psychotic behavior factor; such a factor did not emerge because (1) the sample did not include children with psychotic features (which have a very low base rate) and (2) psychotic features were not included among the 58 items (Quay, 1986). Moreover, anxiety constellations were subsumed under "personality problem"—a broad-band construct. Thus, more narrowly defined constructs emerge dependent on the presence of subjects in the sample who represent the specific construct and items in the checklist that reflect constituents of the construct. A careful study of the contents and development sample is in order whenever a clinical or research application of a checklist is proposed. Ultimately, research must establish the validity of rating-scale factors by establishing clinically relevant relationships to etiological, prognostic, and treatment variables.

Results from checklists take on meaning only in the context of expected scores, or norms. The scale in development is administered with respect to a large group of children for whom the scale is designed. Norms may vary with respect to the child's age and gender (see Achenbach, 1991a). Ethnic, cultural, and economic variables may also play a role in expected scores and need to be considered when applying norms to a particular child (e.g., Lambert, Weisz, & Knight, 1989; Rio, Quay, Santisteban, & Szapocznik, 1989). The informant providing the information may also account for a significant amount of variance in ratings, and this phenomenon deserves special attention.

INFORMANT VARIANCE

When reporting the symptoms of their child, parents may provide information that differs from the information provided by teachers, which differs still from the information provided by the child's self-report. Informant variance (that part of rating-scale data that is a function of *whom you ask*) needs to be particularly recognized in the assessment of children for whom a wide range of informants are employed (Kashani, Orvaschel, Burk, & Reid, 1985). Matson and Nieminen (1987) found that even when the same scale was employed for teacher- and self-report (thus controlling for instrument variance), cross-informant consistency in the measure of anxiety was low. Similar findings exist with respect to the correspondence of the parent report to the self- and teacher report (e.g., Stavrakaki, Vargo, Roberts, & Boodoosingh, 1987). It appears that the anxiety domain of psychopathology, with many covert symptoms, may engender the greatest informant variance (Mullins, Pfefferbaum, Shultz, & Overall, 1986).

Some research suggests that concordance between raters may increase as questions become more specific (Herjanic & Reich, 1982). Interrater agreement tends to be higher for externalizing (more readily specified and observed) behavior problems than for internalizing behavior problems. Achenbach, McConaughy, and Howell (1987) found, through a meta-analysis, that cross-informant consistency appeared significantly lower for internalizing disorders (e.g., anxiety, fear, depression) than for externalizing disorders (e.g., conduct disorder, hyperactivity). In rating symptoms of obsessive–compulsive disorder, for example, high interrater reliability may be obtained for overt behavioral symptoms, while covert symptoms (e.g., inner resistance or subjective distress) tend to not be reliably measured through informant ratings. To obtain high concordance with internalizing (covert) problems, it may be necessary to aggregate ratings into a broad-band measure. Wolfe, Finch, Saylor, Blount, Pallmeyer, and Carek (1987), for example, found a moderate relationship between teacher report of broad-band internalizing symptoms and child self-report, but failed to find a one-to-one correspondence with narrower-band constellations (e.g., anxiety or depression) between teacher and self-report.

Maximizing concordance is not necessarily the goal of measurement. Disagreement among informants may stem from reporter response biases (see below) or, of genuine clinical interest, from situational aspects of the child's presentation. For example, opportunities to observe phobic behavior in a child vary as a function of the setting. In this case, disagreement among informants may be anticipated and may provide a valid measure of the situational topography of the disorder. Different informants may have access to and subsequently emphasize different aspects of the target child's dysfunction. In this sense, the unique variance may be as important as the shared variance among informants (Kazdin, French, Unis, & Esveldt-Dawson, 1983; Verhulst & Van der Ende, 1991). In assessing a pervasive (apparent across-situations) disorder, on the other hand, it seems sensible to seek to maximize concordance. Low interrater agreement with pervasive disorders may be due, in part, to informant characteristics. In some cases, parent attitude (Lobitz & Johnson, 1975) or parent pathology (Moretti, Fine, Haley, & Marriage, 1985) may be significantly related to parent referral of a child and to parent report on checklists.

RELATIONSHIP WITH CATEGORICAL CLASSIFICATION SYSTEMS

As noted above, behavior checklists and rating forms assume that psychopathology exists on a continuum with normalcy. This dimensional approach is fundamentally different

from the categorical scheme exemplified by the *Diagnostic and Statistical Manuals* (e.g., DSM-III-R) [American Psychiatric Association (APA), 1987] and the *International Classification of Disorders*, 10th ed. (ICD-10) (World Health Organization, 1990). The concordance between dimensional and categorical approaches is significant, but one is not a substitute for the other—that is, dimensional scales tend to be related to more than one category (diagnosis) and individual categories are often related to more than one dimension (Edelbrock & Costello, 1988; Kazdin & Heidish, 1984). Thus, converting dimensions into categorical diagnoses by setting an arbitrary cutoff may not yield valid DSM or ICD diagnoses (Shekim, Cantwell, Kashani, Beck, Martin, & Rosenberg, 1986).

CLINICAL AND RESEARCH APPLICATION

Checklists and rating scales can be a cost-effective way of obtaining information about a child's functioning across a range of settings. However, gaining the cooperation of multiple informants during the assessment process can be difficult. Witt, Heffer, and Pfeiffer (1990) note that referring teachers and significant others may feel that checklists and scales are too structured and limited in their ability to provide a complete picture of the child. It may be important to give informants a rationale for the use of checklists, an opportunity to provide open-ended information, and feedback regarding the results of their efforts (Witt et al., 1990). The Child Behavior Checklist (Achenbach, 1991a), for example, includes space for reporters to list and rate problems that do not appear elsewhere and also encourages reporters to describe their observations, in open-ended format, for several items.

Even given cooperation from the key informants, three forms of response bias may inject noise into the ratings (Saal, Downey, & Lahey, 1980): halo effects, leniency or severity, and central tendency. Halo effects refer to a tendency, by the informant, to overgeneralize across behaviors within the subject—that is, to see all or most of a "good" child's behavior in a positive light and to see all or most of a "bad" child's behavior in a negative light. Leniency or severity occurs when an informant tends (across all subjects) to use just one or the other extreme of the response options. Finally, the central tendency bias occurs when an informant is reluctant to stray from the center of the response options; too little variance (across behaviors and across subjects) is provided, obscuring behavioral patterns and individual differences. Martin, Hooper, and Snow (1986) suggest that these response biases can be overcome through the aggregation principle. Obtaining reports from more than one informant in each setting of interest and aggregating the responses can focus the assessment on the variance due to the child's actual symptoms (vs. the variance due to informant response bias).

Aggregating ratings from multiple respondents within settings (e.g., both parents, more than one teacher) but not aggregating across settings may control for some informant variance while maintaining the unique variance due to situationism. Fergusson and Horwood (1987a,b) weighted the ratings of two informants equally into an aggregated conduct-disorder measure and found that the aggregated score was more temporally stable than the individual informant scores. While maternal depression was related to maternal informant report, maternal depression was not significantly related to the aggregated score. Similar aggregation techniques applied to anxiety and phobic disorders in childhood may prove similarly effective.

Child Behavior Checklist (CBCL)

The CBCL (Achenbach, 1991a–c; Achenbach & Edelbrock, 1983) follows a normative–developmental approach by recording empirically derived behavioral problems and competencies for specific sex/age (4–18) groups. According to Achenbach (1991a, p. iv), the 1991 editions are "designed to advance both the conceptual structure and the practical applications of empirically based assessment by focusing more precisely on the syndromes that are common to both sexes and different age ranges, according to parent-, self-, and teacher-report." Small changes in wording, new national norms through age 18, provisions for coordinating data from multiple informants, and changes in the scoring profile include some of the specific changes from pre-1991 editions of the CBCL. The Teacher Report Form (TRF) is designed to obtain teachers' reports of students' adaptive functioning and problems. School personnel who have similar knowledge of the pupils' functioning can also serve as informants. A separate checklist (CBCL/4–18) is used to obtain ratings from parents. The informant is asked to rate a child on 113 behaviors using a 3-point scale for each item. Social or adaptive competence is evaluated through a series of items that assess the extent and quality of the child's involvement in activities (e.g., sports, hobbies, jobs, chores), social interactions (e.g., through organizations and peers), and school history. The extensive information regarding the reliability and validity of these measures has been reviewed elsewhere (Achenbach, 1991a–c; Achenbach & Edelbrock, 1983; Barkley, 1990; Beck, 1987; Witt et al., 1990). These checklists are widely respected and have set the standard for comparison (Beck, 1987; McMahon, 1984; Witt et al., 1990).

Principal-component analyses have yielded two "broad-band" behavioral dimensions—externalizing and internalizing. Such analyses have also produced several "narrow-band" statistically derived syndromes that vary somewhat by age and gender. The scale allows for identification of children who display anxiety, social withdrawal, depression, obsessions–compulsions, noncommunicative behavior, hyperactivity, aggression, and somatic complaints. In addition, based on narrow factor patterns, a computer program enables a behavior profile type to be determined for individual children (Edelbrock & Achenbach, 1980). Specific to the assessment of anxiety and related behavioral dimensions, the Anxious/Depressed syndrome identified in the analysis for the 1991 profile is described by Achenbach (1991a, p. 154) as the "counterpart of the pre-1991 CBCL, and TRF Depressed syndrome for most sex/age groups, the CBCL Anxious–Obsessive syndrome for girls 12–16, and the TRF Anxious syndrome." Achenbach points out that although some children who score high on the syndrome scale may qualify for a DSM anxiety disorder diagnosis, the close association between problems of anxiety and depression makes this syndrome scale less specific to anxiety. Evidence for the syndrome scale's validity has been provided by Achenbach (1991a). Construct validity was suggested by Pearson correlations of 0.67 and 0.78 with the Anxiety scale on the Conners Parent Questionnaire (Conners, 1973) and the Anxiety–Withdrawal scale on the Revised Behavior Problem Checklist (Quay & Peterson, 1983), respectively. The Anxious/Depressed syndrome scale also discriminated between demographically matched referred and nonreferred children. The 1-week test–retest reliability was reported to be 0.85 and 0.87 for girls and boys, respectively. Interparent agreement ranged from 0.56 (4- to 11-year-old girls) to 0.70 (12- to 18-year-old boys), with a mean agreement of 0.66 (see also Sawyer, 1990). Achenbach, Phares, Howell, Rauh, & Nurcombe (1990) reported moderate 1- and 2-year stability correlations, ranging

from 0.67 to 0.73, respectively. Results regarding the pre-1991 CBCL Anxious–Obsessive and Schizoid scale, which contain items relevant to anxiety, are provided by Achenbach & Edelbrock (1983).

The TRF (Achenbach, 1991b) has shown comparable short-term and long-term stability, with 15-day interval correlations of 0.83 and 0.89 for girls and boys, respectively. The 2- and 4-month stability correlations for 19 boys aged 7–11 were 0.86 and 0.71, respectively. Interteacher agreement ranged from 0.24 (12- to 18-year-old boys) to 0.79 (5- to 11-year-old girls), with a combined agreement correlation of 0.40. Less variability was noted in the teacher–teacher aide agreement for special education students across sex/age groups, with a combined correlation of 0.46. Regression analyses with the effects of demographic variables partialed out showed that most scales, including the Anxious/Depressed scale, discriminated between referred and nonreferred pupils.

Although the checklists developed by Achenbach and his colleagues have received considerable attention in the empirical literature, fewer studies are available on the clinical diagnostic utility of the subscales purported to measure the symptomatology of anxiety. More often, the broad-band Internalizing factor is the focus. Noteworthy exceptions to this approach are described below (for a detailed review of the literature regarding social deficits of children with internalizing disorders, see Strauss, 1988).

In a sample of children referred for outpatient services, Edelbrock (1985) examined behavioral correlates of anxiety. The TRF was used to identify a group of children whose scores on the anxious factor were two standard deviations above the mean and a group of same-aged children who did not receive an elevated score on this subscale. Significant group differences were found regarding peer relations, with approximately two thirds of anxious children being rated on the TRF as showing any or any combination of being teased by others, preferring younger children, being disliked by classmates, and having generally poor peer relations. Since teachers provided ratings of both anxiety and peer relations, the question of bias could be raised (is correlation due to shared symptom variance or simply due to shared informant variance?). Caution should be used in generalizing these results to children with anxiety disorder diagnoses.

Using the TRF in combination with self-report measures of anxiety and depression, Wolfe et al. (1987) cast doubt on the notion that anxiety and depression are distinct clinical entities, at least via self-report techniques. In this multimethod study, teacher report on the depression/social withdrawal scale correlated significantly with the teacher's report of anxiety ($r = 0.38$). Teacher- and self-report measures of either anxiety or depression, however, were not significantly related. Both teacher- and self-report measures of anxiety and depression were significantly related to and predictive of the Internalizing factor on the TRF. The authors suggested that this pattern of results could best be explained in terms of support for a broad-band construct of negative affectivity, rather than for narrow-band dimensions of anxiety and depression.

Mattison and Bagnato (1987) reported on the validity of the DSM-III (APA, 1980) diagnosis of overanxious disorder in boys 8–12 years old by comparing parent-completed CBCLs and self-rating on the Revised Children's Manifest Anxiety Scale (RCMAS) (Reynolds and Richmond, 1978) with three groups of children who had received a DSM-III diagnosis of overanxious disorder, dysthymia, or attention-deficit hyperactivity disorder (ADHD). All diagnoses were determined by a multidisciplinary team using psychoeducational information and interviews of the child and parents based on the Schedule for Affective Disorders and Schizophrenia for School-Age Children—Epidemiological version (K-SADS-E) (Puig-Antich, Orvaschel, Tabrizi, & Chambers, 1980). Children with the

overanxious disorder diagnosis had the highest percentage (relative to the other diagnostic groups) of pathological factor elevations on the Obsessive–Compulsive and Depressed narrow factors on the CBCL. Children with a diagnosis of dysthymia were the most elevated group on the Uncommunicative, Schizoid/Anxious, and Internalizing factors. Overall, the internalizing factors distinguished the overanxious children. In contrast, dysthymic boys had a mixture of internalizing and externalizing factor elevations, and ADHD boys were clearly highest on externalizing factors. Demonstrating convergent and discriminant validity of this component of DSM-III, children with an overanxious disorder diagnosis showed high correlation with the Child Behavior Profile (CBP) type (Edelbrock & Achenbach, 1980) of Schizoid or Anxious and no correlation with the Hyperactive and Delinquent types. Mattison and Bagnato (1987) also reported that the best balance for correctly distinguishing boys with and without overanxious disorder was achieved by the presence of the highest correlation with the CBP Schizoid or Anxious type in combination with an elevated score ($T > 60$) on the RCMAS Worry/Oversensitivity factor. The authors also pointed out that use of the CBCL method separately was somewhat more accurate than use of the RCMAS alone.

Achenbach–Conners–Quay (ACQ) Behavior Checklist

The ACQ Behavior Checklist was developed by Achenbach, Conners, and Quay (1983) to serve as a "second generation" instrument to those that started with a "potpourri of items that were then analyzed to see which ones co-occurred to form syndromes" (Achenbach, Conners, Quay, Verhulst, & Howell, 1989, p. 303). The ACQ contains 215 behavioral/emotional problem items, 115 of which have counterparts on the CBCL, that tap into 12 syndrome constructs that were hypothesized from previous empirical work. Achenbach, Howell, Quay, and Conners (1991) provide a recent detailed review of the psychometric properties associated with this instrument (see also Achenbach et al., 1989).

Most relevant to this discussion of anxiety, a group of items representing an Anxious/Depressed scale emerged from a principal-components analysis. Test–retest reliability with a mean interval of 8 days and interparent agreement was 0.80 and 0.64, respectively. This scale distinguished between referred and nonreferred children. Additional information beyond that which is available from the development phase will be required to evaluate the incremental clinical utility of this instrument. As with previous empirical findings, although anxious and dysthymic disorders may become more distinct at older ages, these entities are not distinguishable in parents' rating of 4- to 16-year-olds. Nonetheless, Achenbach et al. (1989) indicate a conceptual parallel between the Anxious/Depressed ACQ factor and the DSM-III-R overanxious disorder and dysthymia (APA, 1987). Techniques such as those implemented by Mattison and Bagnato (1987) would be helpful to establish this relationship in a more empirical manner.

Revised Behavior Problem Checklist (RBPC)

The RBPC (Quay & Peterson, 1987) consists of 89 problem behaviors that are rated on a 3-point scale by a teacher or parent. Factor analytical procedures resulted in four major scales: Conduct Disorder, Socialized Aggression, Attention-Problems–Immaturity, and Anxiety–Withdrawal. Two minor scales are also included—Psychotic Behavior and Motor Tension—Excess. The RBPC manual (Quay & Peterson, 1987) provides normative data for parent and teacher ratings on a variety of samples of normal and clinical samples between

grades K and 12. However, the norms provided are not based on a representative national sample. Normative data have also been provided by Hinshaw, Morrison, Carte, and Cornsweet (1987). Therefore, the authors emphasize the importance of developing local norms. A review of the instrument's psychometric properties and related literature is provided in the manual. In a more recent review, Simpson (1989–1990, p. 171) commented that the procedures used to develop the RBPC "are impressive and indicate a thoroughness that inspires confidence in the validity of the instrument." Despite problems that are inherent in other behavior-rating scales (e.g., low interrater reliability and lack of a representative national sample), the RBPC is a respected and popular instrument and is widely used for a variety of clinical and research purposes.

Of interest to the area of anxiety in children and adolescents, the Anxiety–Withdrawal (AW) subscale includes items that relate to DSM-III categories such as separation anxiety, avoidant disorder, overanxious disorder, and dysthymic disorder. Similar to most large-scale multivariate studies, a factor specific to anxiety did not emerge during the analysis of the experimental version of the RBPC. Nonetheless, the AW scale appears to reflect emotional distress represented by the internalizing dimensions of anxiety, depression, fear of failure, social inferiority, and self-concern (Beck, 1987). The issues about whether separate categories of anxiety, depression, and withdrawal should be differentiated in childhood, or whether the symptoms constitute a single broad-band internalizing dimension, continues to generate considerable debate (Quay & La Greca, 1986; Strauss, 1988).

Quay and Peterson (1987) reported that α reliability coefficients for the AW scale in six samples ranged from 0.74 to 0.89. A number of studies (see Quay and Peterson, 1987; Simpson, 1989–1990) have reported interrater reliability coefficients ranging from 0.61 to 0.70. These coefficients are generally consistent with results from a meta-analysis conducted by Achenbach et al. (1987) and are reflective of characteristics of behavior-rating scales and checklists in general (Simpson, 1989–1990). A variety of test–retest reliability information is reviewed in the RBPC manual. Generally, consistent findings were found by Hogan, Quay, Vaughn, and Shapiro (1989) using teacher ratings of kindergarten and 1st graders obtained 5–17 months apart. A mean correlation coefficient of 0.72 was found for ratings by the same rater with 5 months between ratings. A considerably lower, but not entirely unexpected, mean coefficient of 0.32 was obtained using different groups of teachers rating children 7, 12, and 17 months apart.

Evidence for the AW scale's discriminant validity has been suggested by a significant difference in ratings between clinical and normal children. The RBPC manual also reviews independent investigations that provide information on the AW scale's construct validity in terms of its behavioral correlates. These variables include peer-nominated withdrawal; observed lack of initiation of aggression; CBP Schizoid or Anxious, Depressed, Uncommunicative, Social Withdrawal, and Internalizing Scales from the CBCL; and ratings on the Children's Depression Inventory (CDI) (Kovacs & Beck, 1977; Strauss, Forehand, Frame, & Smith, 1984). In another study, Strauss, Forehand, Smith, and Frame (1986) obtained higher teacher ratings of anxiety–withdrawal in a group of teacher-nominated socially withdrawn children compared to an "outgoing" group. The validity of the teacher nominations was confirmed by behavioral observation procedures. Strauss, Frame, and Forehand (1987) reported that children who received extremely high teacher ratings on the AW factor, compared to those who received low AW teacher ratings, received significantly more negative peer nominations and lower ratings of likability. Anxious children were not perceived by peers as more socially aggressive and did not describe themselves as more submissive in peer interactions than did nonanxious children.

Addressing the external validity of four major DSM-III diagnostic categories, Reeves, Werry, Elkind, and Zametkin (1987) found that parent-derived AW ratings were not significantly different among three diagnostic groups [anxiety disorder, ADHD, and a comorbid ADHD and conduct disorder (CD)] as determined by the parent version of the Diagnostic Interview Schedule for Children (DISC) (Costello, Edelbrock, & Costello, 1985). However, consistent with previous findings, the AW scale differentiated between children with anxiety disorders and a symptom-free control group matched for age, sex, socioeconomic status, and receptive vocabulary. No other scale except for the Attention Problems subscale differentiated these two groups, thus providing additional evidence for the AW scale's validity. This difference, however, was not unique to the comparison between anxious and control subjects. Comparisons between the ADHD group, the comorbid ADHD + CD group, and control subjects yielded significantly different scores on most of the other RBPC scales, raising questions of the validity of DSM-III diagnoses in terms of their unique clinical characteristics derived from parent ratings.

Conners Rating Scales (CRS)

The Conners Teacher Rating Scale (CTRS) and the Conners Parent Rating Scale (CPRS) are widely used informant rating scales, collectively referred to in the literature as Conners Rating Scales (CRS). Numerous validity and reliability studies have been conducted on the scales, and they have been used extensively in the diagnosis of hyperactivity in children and in treatment efficacy studies. The scales were adopted by the National Institute of Mental Health as part of its standardized assessment battery for research in childhood psychopharmacology. A major shortcoming of both the CTRS and the CPRS is the presence of "home-grown" modifications, which make it difficult to establish continuity in statements regarding the scales' psychometric properties. The recent publication of a manual (Conners, 1990) covering four recommended and copyrighted versions that differ in many respects including number of items and factor structure (CTRS-28, CTRS-39, CPRS-48, CPRS-93), with accompanying guidelines for interpreting scores relative to normative studies, will undoubtedly facilitate further research on the clinical and psychometric properties of these instruments. However, the user should exercise caution in the selection of versions of the instrument that predate the establishment of the standardized format and scoring procedures based on certain normative studies and factor structures. Barkley (1988) and Witt et al. (1990) provide insightful reviews of the CRS. In addition, Conners's manual provides an extensive, albeit selective, review of the literature. Conners (1990) appears less concerned about the situation involving alternate versions, stating (p. 37) that "the basic results from Conners' Rating Scales are so robust that minor variations in methodology from one study to another have not affected the overall conclusions of the research" (see also Martin et al., 1986). Nonetheless, Conners also states his hope that the development of the manual will serve to standardize future research.

Three of the four scales (CTRS-39, CPRS-48, and CPRS-93) recommended for use by Conners (1990) include subscales that purport to measure some aspect of anxiety and are labeled Anxious–Passive, Anxiety, and Anxious–Shy, respectively. Although there is an extensive amount of information regarding the psychometric properties and applications of the subscales pertaining to externalizing dimensions on the CRS, such is not the case for the anxiety-related subscales.

In the original versions of the CTRS-39 (Conners, 1969, 1973), the Tension–Anxiety factor showed a 1-month test–retest (pre–post placebo treatment scores) coefficient of 0.81.

Subsequent factor-analytical studies have produced both similar and different factor solutions. Werry, Sprague, and Cohen (1975) were not able to replicate the anxiety factor previously isolated by Conners. In a large normative sample of Canadian, English-speaking elementary-school children, Trites, Blouin, and Laprade (1982) isolated a factor denoted as Anxious–Passive. Coefficients of congruence for this factor with the Tension–Anxiety factor of Conners (1969) and Werry et al. (1975) were 0.75 and 0.47, respectively. Trites et al. (1982) also reported an α reliability coefficient of 0.76 for the Anxious–Passive factor, which included 6 items and accounted for 4.5% of the variance.

Goyette, Conners, and Ulrich (1978) isolated a factor denoted as Anxiety in a group of parent ratings using the CPRS-48. A coefficient of congruence of 0.90 was found between the CPRS-48 Anxiety factor and that which was obtained by Conners (1973). It appears that Conners (1990) advocates the use of the factor structure generated via ratings by mothers, even though Goyette et al. (1978) provide a summary factor structure. The effect of using the results from mothers' rating for the Anxiety factor is inclusion of two items that on inspection of the item loadings for these items, likely reduce the internal consistency of the factor. Minimal information is available on the psychometric properties of the CPRS-93. Further investigation of the CPRS versions appears warranted before they are used to make important diagnostic and treatment decisions related to the symptomatology of anxiety.

Questions have also been raised about the lack of interrater consistency associated with the Tension–Anxiety factor of the CTRS-39 compared to the scale's other factors (Trites, Dugas, Ferguson, & Lynch, 1979). For the CRS as a whole, patterns of interrater agreement (parent–parent, parent–teacher) appear typical of other major behavior-rating scales. Parent–teacher correlations tend to be slightly lower than mother–father and teacher–teacher correlations, and mothers' ratings generally tend to correlate with teachers' ratings, whereas fathers' ratings do not (Schaughency & Lahey, 1985). Thus, clinicians should interpret teacher and parent data in terms of the context in which the behavior is perceived as a problem (Conners, 1990). In addition, Barkley (1988) recommends administering the instrument twice before using the results in any research assessing treatment effects, due to evidence for practice effects.

The validity of the CRS has been established through a number of studies evaluating their sensitivity to drug effects for hyperactivity and attention deficits, their ability to discriminate between various diagnostic groups, and their strong correspondence with other measures of child behavior and psychopathology (Barkley 1988; Conners, 1990; Edelbrock, 1988). Most of the information supports the validity of the scales measuring aggressive, inattentive, and overactive behavior. However, evidence for the validity of the anxiety subscales has been less extensive.

Reeves et al. (1987) demonstrated significant diagnostic group differences in CTRS-39 Tension–Anxiety factor scores between a group of children diagnosed as having an anxiety disorder and control subjects. CTRS anxiety ratings of a matched group of control subjects were not significantly different from those of a group of children diagnosed with ADHD or ADHD + CD. A direct comparison of the three diagnostic groups (correcting for age, sex, and estimates of receptive vocabulary scores) showed higher Tension–Anxiety ratings for children with anxiety disorders than for the other two clinical groups. Lower Inattentive–Passive, Hyperactivity, and Conduct Problem scores were obtained by the anxiety-disordered children compared to one or both of the clinical groups.

Clearly, additional research on the utility of the CRS anxiety scales is required. Commenting on the state of the instrument in general, Witt et al. (1990) points out that the CRS remain a popular choice, despite the availability of other instruments of superior

content, format, psychometric adequacy, and ease of use, although this comment preceded the release of a manual for the CRS that takes a large step in addressing persistent concerns about alternate versions. Nonetheless, according to Witt et al. (1990, p. 372), "The discrepancy is very large between what is and what could be for this instrument."

Personality Inventory for Children (PIC)

The PIC (Wirt, Lachar, Klinedinst, & Seat, 1984) is an objectively scored, multidimensional measure of child and adolescent behavior, affect, and cognitive ability. This true/false questionnaire is typically completed by parents. The PIC includes 3 validity scales to identify informant response sets and tendencies, 1 screening scale that serves as a measure of the child's overall psychological adjustment, and 12 "narrow-band" clinical scales. Four broad-based scales have also been isolated through factor analysis (Lachar, Gdowski, & Snyder, 1982). All PIC scales are normed separately by sex for ages 3–5 years and 6–16 years. In its current version, the 600-item inventory is divided into four sections of 131, 280, 420, and 600 items. Completion of the first 420 items provides the standard-length profile scales and a critical item list. The 131-item version appears useful as an empirically developed child-behavior rating scale, although the longer versions may be favored by clinicians for an evaluation of child personality characteristics (Barkley, 1988). At least a 6th-grade reading level is indicated for completing the PIC (Harrington & Follett, 1984).

Reliability and validity information is provided by Wirt et al. (1984) as well as others. Test–retest reliability coefficients for a 15-day interval ranged from 0.46 to 0.94 (mean 0.86) across the scales. Depending on the study, interparent agreement ranged from 0.21 to 0.79. Coefficients of internal consistency ranged from −0.03 to 0.86 for the rational-content scales and from 0.81 to 0.92 for the four factor-analytically derived scales (Lachar et al., 1982). Information on the validity of the PIC is presented in the manual as well as in several subsequent studies. Construct validity appears satisfactory for the scales derived through factor analysis. Empirical validity of the profile scales has been established through identification of external behavioral correlates (Lachar & Gdowski, 1979a,b; Lachar et al., 1982; Lachar, Gdowski, & Snyder, 1984), applications to the study of hyperactivity (Breen & Barkley, 1983; Voelker, Lachar, & Gdowski, 1983), depression (Leon, Kendall, & Garber, 1980; Lobovitz & Handel, 1985), effects of divorce (Kurdek, Blisk, & Siesky, 1981; Schrieber, 1982), and evaluation of cognitive impairment (DeKrey & Ehly, 1981, 1985; Goh, Cody, & Dollinger, 1984; Kline, Lachar, & Sprague, 1985; Lachar, Kline, & Boersma, 1986; Porter & Rourke, 1985). A series of studies by Kline and his associates have developed a profile classification system for use with referred children and adolescents (3–16 years old) (Gdowski, Lachar, & Kline, 1985; Kline, Lachar, & Gdowski, 1987; Kline, Lachar, & Boersma, 1987; Kline, Lachar, & Gdowski, 1988; LaCombe, Kline, Lachar, Butkus, & Hillman, 1991).

The anxiety (ANX) scale on the PIC is a rationally derived scale comprised of 30 items that has been found to have a test–retest reliability of 0.76–0.91 and an internal consistency coefficient of 0.76. Item factor groupings suggest that this scale reflects various characteristics related to negative affect. There is a significant degree of overlap between the depression and anxiety subscales, which correlate 0.46 with each other (Wirt et al., 1984). In fact, the pattern of correlates has been found to be very similar to that obtained by the PIC depression (D) scale—sleep disturbance, suicidal ideation and behavior, social withdrawal, and limited social skills (Lachar & Gdowski, 1979b) and depressive/somatic symptoms (Lachar et al., 1984). Therefore, the ANX scale and the profile type that includes an elevated

ANX rating as one of the criteria appear to have nonspecific properties related to anxiety. Kline et al. (1988) found that 43% of children diagnosed with overanxious disorder obtained elevated ANX ratings, whereas 50% showed elevations on the D scale. Of the children who were diagnosed with depression, 36% showed elevations on the ANX scale, compared to 53% on the D scale. Findings by LaCombe et al. (1991) also suggest a modest-at-best relationship between the ANX scale, its corresponding profile type, and DSM-III diagnoses reflective of an affective or anxiety disorder. These findings reflect the lack of diagnostic specificity and high rates of comorbidity as much as they reflect the characteristics of the PIC anxiety scale. Additional validity research may clarify the utility of this scale and the ways in which it might be integrated with other diagnostic tools (e.g., Sylvester, Hyde, & Reicher, 1987).

CASE ILLUSTRATION

Herb is a 12-year-old boy with acute lymphocytic leukemia (ALL) in remission. Having received a full course of chemotherapy (along with a modest amount of cranial radiotherapy), he is now being treated exclusively as an outpatient by his oncologist. He had been receiving homebound education for the past 8 months until he returned to school 3 weeks ago.

At the end of his treatment, Herb's intellectual functioning had been assessed and found to be in the average range. It was not clear what neuropsychological effects, if any, resulted from the cranial radiotherapy and intrathecal chemotherapy. Currently placed in a regular 6th-grade classroom, he has begun to receive resource ("pull-out") help with reading. He appears somewhat small for his age (20–30th percentile for height and weight) and has just begun to regain hair on his head.

Herb's parents have reported to his oncologist a sharp increase in "sickness complaints," "disobedience," and "whining" during the past month. After ruling out physical causes, Herb's oncologist made a referral to a pediatric psychologist to "get to the bottom of this."

There may be no clearer indication for initial use of checklists than when problem behaviors have been vaguely defined (e.g., disobedience) and referral questions provide few clues. Given that the problem behaviors may be more or less salient (and may even differ qualitatively) depending on the social context, obtaining checklist data from multiple settings is important. The CBCL, with rating forms for parents, teachers, and the child himself, was chosen because of its ability to cull data from multiple sources.

In order to impose some control over informant variance, multiple informants were enlisted within each setting. For example, both parents completed the parent report form. To control for informant variables that may impact ratings (see the "Informant Variance" section above), both parents also completed the Beck Depression Inventory (BDI) and the Symptom Checklist (SCL-90). Also, both his classroom teacher and his resource (reading) teacher completed teacher report forms. Given their limited contact with Herb (going on 4 weeks at that point) and his unique condition, the teachers' reports may have been particularly susceptible to halo or leniency effects. Because the two teachers observed Herb in significantly different settings (with normally achieving peers vs. with special education peers), however, simple aggregation of the two teacher reports was not planned. Herb completed the Youth Self-Report (YSR) version of the CBCL; given his reading difficulty, the YSR was administered orally following the procedure outlined in the manual.

The CBCL checklists for males age 12–18 years includes the following behavior-problem scales: Withdrawn, Somatic Complaints, Anxious/Depressed, Social Problems, Thought Problems, Attention Problems, Delinquent Behavior, and Aggressive Behavior (with the first three falling under the Internalizing and the last two falling under the Externalizing rubric). Both across settings and across informants, Herb's Internalizing *T*-score (average 63) exceeded his Externalizing *T*-score (average 54). The highest narrow-band scale score obtained from both teacher reports (which were quite similar) was Withdrawn, with Anxious/Depressed and Social Problems close behind. Herb's parents' reports (note that results from the BDI and SCL-90 were unremarkable) focused somewhat more on Somatic Complaints (father's highest) and Aggressive (mother's highest) scale items, with both reports resulting in floating profiles in the upper part of the subclinical range. The highest scales that emerged from the YSR were Anxious/Depressed, followed by Somatic Complaints and Social Problems. From the social-competence portion of the checklists, Herb's Activities and Social scales were both below a *T*-score of 30 (consistent with his limited access, until recently, to peers and activities).

Overall, checklist data suggested that Herb may have been suffering from mild anxiety related to his reentry into the school environment. A smallish boy with an idiosyncratic appearance (hair loss) and emerging special learning needs, Herb had difficulty adjusting to the school milieu and to the loss of the safety of home. While he himself was acutely aware of his emotional suffering, others saw a mix of manifestations of the anxiety—including somatic complaints and acting out at home and withdrawal at school.

As expected, the cross-informant concordance was greater for the broad-band scales (e.g., Internalizing) than for the narrow-band scales (e.g., Withdrawn). Given that reports consistently fell in the subclinical range and reputedly were new concerns, Herb was diagnosed provisionally with DSM-III-R Adjustment Disorder with Mixed Emotional Features. Feedback/debriefing sessions were held with teachers as well as with Herb and his parents. Both sessions helped to clarify the nature of Herb's present difficulty with adjustment and served as an opportunity to develop a plan for both home and school designed to provide opportunities for positive social interaction and supportive emotional expression. Follow-up assessment 2 months later with the same informants (whose reports could be compared to their initial reports) suggested that he had become moderately involved in activities, had developed one close friendship, and was no longer reportedly evidencing significant anxiety.

SUMMARY

This chapter reviewed the psychometric and clinical support for selected checklists with regard to childhood anxiety disorders. The checklists reviewed represent some of the more popular among a number of available instruments. Anxiety-related factors that emerge from checklists tend to be relatively broad-band. That is, the emerging factors may discriminate presence vs. absence of some sort of anxiety disorder, but tend to not discriminate among specific anxiety disorders. The apparent lack of specific discriminative power, of course, appears not to be unique to informant-based checklists; rather, other assessment methods may similarly have this difficulty (see Wolfe et al., 1987).

Checklists avail to the researcher or clinician a wealth of data. Multiple situational contexts for and perspectives on a given subject's presentation can be sampled at relatively little expense. When appropriate attention is assigned to controlling for informant variance

due to response biases and to focusing on variance due to situationism and true symptom variance, checklists can be powerful tools in the assessment of anxiety.

REFERENCES

Achenbach, T. M. (1991a). *Manual for the Child Behavior Checklist/4–18 and 1991 Profile*. Burlington: Department of Psychiatry, University of Vermont.

Achenbach, T. M. (1991b). *Manual for the Teacher's Report Form and 1991 Profile*. Burlington: Department of Psychiatry, University of Vermont.

Achenbach, T. M. (1991c). *Integrative Guide for the 1991 CBCL/4–18, YSR, and TRF Profiles*. Burlington: Department of Psychiatry, University of Vermont.

Achenbach, T. M., & Edelbrock, C. (1983). *Manual for the Child Behavior Checklist and Revised Child Behavior Profile*. Burlington: Department of Psychiatry, University of Vermont.

Achenbach, T. M., Conners, C. K., & Quay, H. C. (1983). *The ACQ Behavior Checklist*. Burlington: Department of Psychiatry, University of Vermont.

Achenbach, T. M., Conners, C. K., Quay, H. C., Verhulst, F. C., & Howell, C.T . (1989). Replication of empirically derived syndromes as a basis for taxonomy of child/adolescent psychopathology. *Journal of Abnormal Child Psychology, 17*, 299–323.

Achenbach, T. M., Howell, C. T., Quay, H. C., & Conners, C. K. (1991). National survey of problems and competencies among four- to sixteen-year-olds. *Monographs of the Society for Research in Child Development, 56(3)*, Serial No. 225.

Achenbach, T. M., McConaughy, S. H., & Howell, C. T. (1987). Child/adolescent behavioral and emotional problems: Implications of cross-informant correlations for situation specificity. *Psychological Bulletin, 101*, 213–232.

Achenbach, T. M., Phares, V., Howell, C. T., Rauh, V. A., & Nurcombe, B. (1990). Seven-year outcome of the Vermont intervention program for low-birth weight infants. *Child Development, 61*, 1672–1681.

American Psychiatric Association (1980). *Diagnostic and statistical manual of mental disorders*, 3rd ed. Washington, DC: Author.

American Psychiatric Association (1987). *Diagnostic and statistical manual of mental disorders*, 3rd ed., revised. Washington, DC: Author.

Barkley, R. A. (1988). Child behavior rating scales and checklists. In M. Rutter, A. H. Tuma, & I. S. Lann (Eds.), *Assessment and diagnosis in child psychopathology*. New York: Guilford Press.

Barkley, R. A. (1990). *Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment*. New York: Guilford Press.

Beck, S. (1987). Questionnaires and checklists. In C. L. Frame & J. L. Matson (Eds.), *Handbook of assessment in childhood psychopathology: Applied issues in differential diagnosis and intervention evaluation* (pp. 79–106). New York: Plenum Press.

Breen, M., & Barkley, R. A. (1983). The Personality Inventory for Children: Its clinical utility with hyperactive children. *Journal of Pediatric Psychology, 8*, 359–366.

Conners, C. K. (1969). A teacher rating scale for use in drug studies with children. *American Journal of Psychiatry, 126*, 884–888.

Conners, C. K. (1973). Rating scales for use in drug studies with children. *Psychopharmacology Bulletin*, Special Issue. Bethesda, MD: NIMH.

Conners, C. K. (1990). *Conners' Rating Scales manual*. North Tonawanda, NY: Multi-Health Systems.

Costello, E. J., Edelbrock, C. S., & Costello, A. J. (1985). Validity of the NIMH Diagnostic Interview Schedule for Children: A comparison between psychiatric and pediatric patients. *Journal of Abnormal Child Psychology, 13*, 579–596.

DeKrey, S. J., & Ehly, S. W. (1981). Factor/cluster classification of profiles from the Personality Inventory for Children in a school setting. *Psychological Reports, 48*, 843–846.

DeKrey, S. J., & Ehly, S. W. (1985). The Personality Inventory for Children: Differential diagnosis in school settings. *Journal of Psychoeducational Assessment, 3*, 45–54.

Edelbrock, C. (1985). Teachers' perceptions of childhood anxiety and school adjustment. Paper presented at a conference on Anxiety Disorders in Children: Implications for School Adjustment, Cape Cod, MA, June 1985.

Edelbrock, C. (1988). Informant reports. In E. S. Shapiro & T. R. Kratochwill (Eds.), *Behavioral assessment in schools: Conceptual foundations and practical applications* (pp. 351–383). New York: Guilford Press.

Edelbrock, C., & Achenbach, T. M. (1980). A typology of Child Behavior Profile patterns: Distribution and correlates in disturbed children aged 6 to 16. *Journal of Abnormal Child Psychology, 8*, 441–470.

Edelbrock, C., & Costello, A. J. (1988). Convergence between statistically derived behavior problem syndromes and child psychiatric diagnoses. *Journal of Abnormal Child Psychology, 16*, 219–232.

Fergusson, D. M., & Horwood, L. J. (1987a). The trait and method components of ratings of conduct disorder: I. Maternal and teacher evaluations of conduct disorder in young children. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 28*, 249–260.

Fergusson, D. M., & Horwood, L. J. (1987b). The trait and method components of ratings of conduct disorder: II. Factors related to the trait components of conduct disorder scores. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 28*, 261–272.

Gdowski, C. L., Lachar, D., & Kline, R. B. (1985). A PIC profile typology of children and adolescents. I. Empirically derived alternative to traditional diagnosis. *Journal of Abnormal Psychology, 94*, 346–361.

Goh, D. S., Cody, J. J., & Dollinger, S. J. (1984). PIC profiles for learning-disabled and behavior-disordered children. *Journal of Clinical Psychology, 40*, 837–841.

Goyette, C. H., Conners, C. K., & Ulrich, R. F. (1978). Normative data on revised Conner Parent and Teaching Rating Scales. *Journal of Abnormal Child Psychology, 6*, 221–236.

Harrington, R. G., & Follett, G. M. (1984). The readability of child personality assessment instruments. *Journal of Psychoeducational Assessment, 4*, 37–48.

Herjanic, B., & Reich, W. (1982). Development of a structured psychiatric interview for children: Agreement between child and parent on individual symptoms. *Journal of Abnormal Child Psychology, 10*, 307–324.

Hewitt, L. E., & Jenkins, R. L. (1946). *Fundamental patterns of maladjustment: The dynamics of their origin*. Springfield, IL: State of Illinois.

Hinshaw, S. P., Morrison, D. C., Carte, E. T., & Cornsweet, C. (1987). Factorial dimensions of the Revised Behavior Problem Checklist: Replication and validation within a kindergarten sample. *Journal of Abnormal Child Psychology, 15*, 309–327.

Hogan, A. E., Quay, H. C., Vaughn, S., & Shapiro, S. K. (1989). The Revised Behavior Problem Checklist: Stability, prevalence, and incidence of behavior problems in kindergarten and first-grade children. *Psychological Assessment: A Journal of Consulting and Clinical Psychology, 1*, 103–111.

Kashani, J. H., Orvaschel, H., Burk, J. P., & Reid, J. C. (1985). Informant variance: The issue of parent–child disagreement. *Journal of the American Academy of Child Psychiatry, 24*, 437–441.

Kazdin, A. E., & Heidish, I. E. (1984). Convergence of clinically derived diagnoses and parent checklists among inpatient children. *Journal of Abnormal Child Psychology, 12*, 421–436.

Kazdin, A. E., French, N. H., Unis, A. S., & Esveldt-Dawson, K. (1983). Assessment of childhood depression: Correspondence between child and parent ratings. *Journal of the American Academy of Child and Adolescent Psychiatry, 22*, 157–164.

Kline, R. B., Lachar, D., & Boersma, D. C. (1987). A Personality Inventory for Children (PIC) profile typology. III. Relationship to cognitive functioning and classroom placement. *Journal of Psychoeducational Assessment, 4*, 327–339.

Kline, R. B., Lachar, D., & Gdowski, C. L. (1987). A Personality Inventory for Children profile typology of children and adolescents. II. Classification rules and specific behavior correlates. *Journal of Clinical Child Psychology, 16*, 225–234.

Kline, R. B., Lachar, D., & Gdowski, C. L. (1988). Convergence and concurrent validity of DSM-III diagnoses and the Personality Inventory for Children (PIC). *Canadian Journal of Behavioural Sciences, 20*, 251–264.

Kline, R. B., Lachar, D., & Sprague, D. (1985). The Personality Inventory for Children (PIC): An unbiased predictor of cognitive and academic status. *Journal of Pediatric Psychology, 10*, 461–477.

Kovacs, M., & Beck, A. T. (1977). An empirical–clinical approach toward a definition of childhood depression. In J. G. Schulterbrandt & A. Raskin (Eds.), *Depression in childhood: Diagnosis, treatment, and conceptual models*. New York: Raven Press.

Kurdek, L. A., Blisk, D., & Siesky, A. E. (1981). Correlates of children's long-term adjustment to their parents' divorce. *Developmental Psychology, 17*, 565–579.

Lachar, D., & Gdowski, C. L. (1979a). *Actuarial assessment of child and adolescent personality: An interpretative guide for the Personality Inventory for Children profile*. Los Angeles: Western Psychological Services.

Lachar, D., & Gdowski, C. L. (1979b). Problem-behavior factor correlates of Personality Inventory for Children profile scales. *Journal of Consulting and Clinical Psychology, 47*, 39–48.

Lachar, D., Gdowski, C. L., & Snyder, D. K. (1982). Broad-band dimensions of psychopathology: Factor scales for the Personality Inventory for Children. *Journal of Consulting and Clinical Psychology, 50*, 634–642.

Lachar, D., Gdowski, C. L., & Snyder, D. K. (1984). External validation of the Personality Inventory for Children

(PIC) profile and factor scales: Parent, teacher, and clinician ratings. *Journal of Consulting and Clinical Psychology, 52*, 155–164.

Lachar, D., Kline, R. B., & Boersma, D. (1986). The Personality Inventory for Children (PIC): Approaches to actuarial interpretation in clinic and school settings. In H. M. Knoff (Ed.), *The psychological assessment of child and adolescent personality* (pp. 273–308). New York: Guilford Press.

LaCombe, J. A., Kline, R. B., Lachar, D., Butkus, M., & Hillman, S. B. (1991). Case history correlates of a Personality Inventory for Children (PIC) profile typology. *Journal of Consulting and Clinical Psychology, 3*, 678–687.

Lambert, M. C., Weisz, J. R., & Knight, F. (1989). Over- and undercontrolled clinic referral problems of Jamaican and American children and adolescents: The culture general and the culture specific. *Journal of Consulting and Clinical Psychology, 57*, 467–452.

Leon, G. R., Kendall, P. C., & Garber, J. (1980). Depression in children: Parent, teacher, and child perspectives. *Journal of Abnormal Child Psychology, 8*, 221–235.

Lobitz, G. K., & Johnson, S. M. (1975). Normal versus deviant children: A multimethod comparison. *Journal of Abnormal Child Psychology, 3*, 353–374.

Lobovitz, D. A., & Handel, P. J. (1985). Childhood depression: Prevalence using DSM-III criteria and validity of parent and child depression scales. *Journal of Pediatric Psychology, 10*, 45–54.

Martin, R. P., Hooper, S., & Snow, J. (1986). Behavior rating scale approaches to personality assessment in children and adolescents. In H. Knoff (Ed.), *The assessment of child and adolescent personality*. New York: Guilford Press.

Matson, J. L., & Nieminen, G. S. (1987). Validity of conduct disorder, depression, and anxiety. *Journal of Clinical Child Psychology, 16*, 151–157.

Mattison, R. E., & Bagnato, S. J. (1987). Empirical measurement of overanxious disorder in boys 8 to 12 years old. *Journal of the American Academy of Child and Adolescent Psychiatry, 26*, 536–540.

McMahon, R. J. (1984). Behavior checklists and rating scales. In T. H. Ollendick & M. Hersen (Eds.), *Child behavior assessment: Principles and procedures* (pp. 80–105). New York: Pergamon Press.

Moretti, M. M., Fine, S., Haley, G., & Marriage, K. (1985). Childhood and adolescent depression: Child-report versus parent-report information. *Journal of the American Academy of Child Psychiatry, 24*, 298–302.

Mullins, D., Pfefferbaum, B., Schultz, H., & Overall, J. E. (1986). Brief psychiatric rating scale for children: Quantitative scoring of medical records. *Psychiatry Research, 19*, 43–49.

Peterson, D. R. (1961). Behavior problems of middle childhood. *Journal of Consulting Psychology, 20*, 205–209.

Porter, B., & Rourke, B. P. (1985). Socioemotional functioning of learning-disabled children: A subtypal analysis of personality patterns. In B. P. Rourke (Ed.), *Neuropsychology of learning disabilities: Essentials of subtype analysis* (pp. 257–280). New York: Guilford Press.

Puig-Antich, J., Orvaschel, H., Tabrizi, M. A., & Chambers, W. (1980). *The Schedule for Affective Disorders and Schizophrenia for School-age Children—Epidemiologic Version (Kiddie-SADS-E)*, 3rd ed. New York: New York State Psychiatric Institute; New Haven, CT: Yale University School of Medicine.

Quay, H. C. (1986). Classification. In H. C. Quay & J. S. Werry (Eds.), *Psychopathological disorders of childhood*, 3rd ed. (pp. 1–34). New York: John Wiley.

Quay, H. C., & La Greca, A. M. (1986). Disorders of anxiety, withdrawal, and dysphoria. In H. C. Quay & J. S. Werry (Eds.), *Psychopathological disorders of childhood*, 3rd ed. (pp. 73–110). New York: John Wiley.

Quay, H. C., & Peterson, D. R. (1983). *Interim manual for the Revised Behavior Problem Checklist*. University of Miami: Unpublished manuscript.

Quay, H. C., & Peterson, D. R. (1987). *Manual for the Revised Behavior Problem Checklist*. Coral Gables: Authors.

Reeves, J. C., Werry, J. S., Elkind, G. S., & Zametkin, A. (1987). Attention deficit, conduct, oppositional, and anxiety disorders in children. II. Clinical characteristics. *Journal of the American Academy of Child and Adolescent Psychiatry, 26*, 144–155.

Reynolds, C. R., & Richmond, B. O. (1978). "What I Think and Feel": A revised measure of children's manifest anxiety. *Journal of Abnormal Child Psychology, 6*, 271–280.

Rio, A. T., Quay, H. C., Santisteban, D. A., & Szapocznik, J. (1989). Factor-analytic study of a Spanish translation of the Revised Behavior Problem Checklist. *Journal of Clinical Child Psychology, 18*, 343–350.

Saal, F. E., Downey, R. G., & Lahey, M. A. (1980). Rating the ratings: Assessing the psychometric quality of rating data. *Psychological Bulletin, 88*, 413–428.

Sawyer, M. G. (1990). Childhood behavior problems: Discrepancies between reports from children, parents, and teachers. University of Adelaide, Australia: Unpublished Ph.D. dissertation.

Schaughency, E. A., & Lahey, B. B. (1985). Mothers' and fathers' perceptions of child deviance: Roles of child

behavior, parental depression, and marital satisfaction. *Journal of Consulting and Clinical Psychology*, *53*, 718–723.

Schrieber, M. D. (1982). The relationship between extrafamilial support networks and coping in children of divorced and non-divorced families. Doctoral dissertation, Ohio State University, 1982. *Dissertation Abstracts International*, *43*, 3742B.

Shekim, W. O., Cantwell, D. P., Kashani, J. H., Beck, N., Martin, J., & Rosenberg, J. (1986). Dimensional and categorical approaches to the diagnosis of attention deficit disorder in children. *Journal of the American Academy of Child Psychiatry*, *25*, 653–658.

Simpson, R. G. (1989–1990). Revised Behavior Problem Checklist (RBPC). *Diagnostique*, *15*, 161–173.

Stavrakaki, C., Vargo, B., Roberts, N., & Boodoosingh, C. (1987). Concordance among sources of information for ratings of anxiety and depression in children. *Journal of the American Academy of Child and Adolescent Psychiatry*, *26*, 733–737.

Strauss, C. C. (1988). Social deficits of children with internalizing disorders. In B. Lahey & A. Kazdin (Eds.), *Advances in clinical child psychology*, Vol. 11 (pp. 159–191). New York: Plenum Press.

Strauss, C. C., Forehand, R., Frame, C., & Smith, K. (1984). Characteristics of children with extreme scores on the Children's Depression Inventory. *Journal of Clinical Child Psychology*, *13*, 227–231.

Strauss, C. C., Forehand, R., Smith, K., & Frame, C. (1986). The association between social withdrawal and internalizing problems of children. *Journal of Abnormal Child Psychology*, *14*, 525–535.

Strauss, C. C., Frame, C., & Forehand, R. (1987). Psychosocial impairment associated with anxiety in children. *Journal of Clinical Child Psychology*, *16*, 235–239.

Sylvester, C. E., Hyde, T. S., & Reicher, R. J. (1987). The Diagnostic Interview for Children and Personality Inventory for Children in studies of children at risk for anxiety disorders or depression. *Journal of the American Academy of Child and Adolescent Psychiatry*, *26*, 668–675.

Trites, R. L., Blouin, A. G., & Laprade, K. (1982). Factor analysis of the Conners Teacher Rating Scale based on a large normative sample. *Journal of Consulting and Clinical Psychology*, *50*, 615–623.

Trites, R. L., Dugas, E., Lynch, G., & Ferguson, H. B. (1979). Prevalence of hyperactivity. *Journal of Pediatric Psychology*, *4*, 179–188.

Verhulst, F. C., & Van der Ende, J. (1991). Assessment of child psychopathology: Relationships between different methods, different informants, and clinical judgement of severity. *Acta Psychiatrica Scandanavica*, *84*, 155–159.

Voelker, S., Lachar, D., & Gdowski, C. (1983). The Personality Inventory for Children and response to methylphenidate: Preliminary evidence for predictive validity. *Journal of Pediatric Psychology*, *8*, 161–169.

Werry, J. S., Sprague, R. L., & Cohen, N. M. (1975). Conners' Teacher Rating Scale for use in drug studies with children—an empirical study. *Journal of Abnormal Child Psychology*, *3*, 217–229.

Wirt, R. D., Lachar, D., Klinedinst, J. K., & Seat, P. D. (1984). *Multidimensional description of child personality: A manual for the Personality Inventory for Children*. Los Angeles: Western Psychological Services.

Witt, J. C., Heffer, R. W., & Pfeiffer, J. (1990). Structured rating scales: A review of self-report and informant rating processes, procedures, and issues. In C. R. Reynolds & R. W. Kamphaus (Eds.), *Handbook of psychological and educational assessment of children: Personality, behavior, and context* (pp. 364–394). New York: Guilford Press.

Wolfe, V. V., Finch, A. J., Saylor, C. F., Blount, R. L., Pallmeyer, T. P., & Carek, D. J. (1987). Negative affectivity in children: A multitrait–multimethod investigation. *Journal of Consulting and Clinical Psychology*, *55*, 245–250.

World Health Organization (1992). *International classification of mental and behavioral disorders, clinical descriptions and diagnostic guidelines*, 10th ed. (ICD-10). Geneva: Author.

18

Behavioral Observation

Mark R. Dadds, Ronald M. Rapee, and Paula M. Barrett

INTRODUCTION

A number of important findings in developmental psychopathology have been made by operationalizing problems in terms of the social context in which they occur and relying heavily on the use of observational assessment to examine them. For example, the coercion theory of Patterson (1982) could not have been developed via the sole use of self-report measures. It came from a conceptualization and methodology that saw the behavior of the child with a conduct problem as being firmly seated in an interactional context, that is, in a family system that reciprocates aggression in self-perpetuating coercive cycles. Support for these ideas was gathered largely through the use of observations of the child interacting with his or her family in natural settings.

A second example comes from the area of depression. For years, depression has been "psychologized," that is, seen as residing totally within the psyche or physiology of the depressed person. However, the use of behavioral observations of depressed persons in their natural contexts has indicated that depression is very much context-dependent, part of an interactional system, both for adults (Coyne, 1976; Hops, Biglan, Sherman, Arthur, Friedman, & Osteen, 1987) and for children (Cole & Rehm, 1986; Dadds, Sanders, Morrison, & Rebgetz, 1992; Sanders, Dadds, Johnston, & Cash, 1992). Again, it is difficult to see how such ideas about depression could have been conceived and confirmed without observational measures playing a central role in the researchers' approach. Clearly, the use of observational measures has an important role to play in theories of psychopathol-

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ogy and can highlight potentially important variables that could remain hidden if other forms of assessment were relied on as the sole course of information.

Unfortunately, research into the nature and understanding of child anxiety has not used observational measures as extensively as it might have. Many of the major studies investigating childhood anxiety disorders have relied solely on the use of self-report and interview data. While these sources of information have indicated some important features of childhood anxiety disorders, it is possible that certain central variables may be overlooked without the inclusion of observational methodology.

Observational measures may be especially important in studies of childhood anxiety for a number of reasons. First, it is possible that children may be limited in their reliability in self-report. Second, it is not clear that children's language necessarily refers to the same things as adult language. Third, it is likely that contextual factors (especially the family unit) have a far more influential role in the manifestation of childhood disorders than in their adult counterparts. Children have not had as long to internalize their interpretations of the world and their ability to cope, and thus it is likely that they rely far more on significant others for such cues.

In this chapter, we will review literature on the use of observational measures of fear and anxiety. Our aim is not to present a comprehensive review of the history of observational systems, as this has been done a number of times recently (e.g., Barrios & Hartmann, 1988; King, Hamilton, & Ollendick, 1988). Rather, our aim is to explore the development of some new and potent directions for the use of observational strategies with anxious children. We will argue that the role of observational procedures needs to be expanded beyond that of a measure used to check treatment outcome or validate self-report measures. In particular, observational strategies need to be employed so that social–contextual aspects of anxiety can be integrated with current information-processing approaches in the understanding of anxiety disorders. Some examples of creative attempts to use observational measures in this way will be presented.

ANXIETY DEFINED AND MEASURED

"Anxiety" is a label we apply to a loosely interrelated set of experiences, thoughts, physiological responses, and behaviors that generally occur in the presence of stimuli subjectively perceived as threatening. Which of these various response components are experienced and labeled as anxiety differ from person to person and are modifiable by social forces, as are the range of stimuli that trigger these responses (Borkovec, Weerts, & Bernstein, 1977). Thus, a comprehensive approach to both theory and practice with anxiety disorders will necessarily involve the study of these individual response channels, their interrelationships, and the environmental conditions under which they occur and are modified.

We all know about anxiety from experiencing it ourselves, but this knowledge is of little use to the empirical scientist. To gain objective knowledge of the nature of anxiety, we need to agree on a system for detecting and measuring its components and the conditions under which they occur. There are a limited number of ways that we can currently detect anxiety. First, we can ask the person to report on his or her experiences using a shared and standardized language. This is the most common measure of anxiety in use in most psychological research and clinical practice. Second, we can measure psychophysiological processes that we hypothesize to be associated with the experience of anxiety. Third, we can measure certain nonverbal characteristics that are hypothesized to be either directly or

indirectly related to the experience of anxiety, for example, facial expression, perspiration, cowering posture, running away, covering one's eyes, tapping one's foot, clasping hands.

Rarely do changes in these different response channels coincide (Lang, Levin, Miller, & Kozak, 1983). People say they are anxious when they look calm. People report that they are calm when psychophysiological measures indicate that they are highly aroused. A comprehensive understanding of the nature of anxiety will be able to measure and integrate the way all these response channels interact to produce the complex phenomena we label anxiety. In this chapter, we will be concerned with the behavioral aspects of anxiety, that is, the outward signs and actions we interpret under certain conditions to mean that a person is experiencing fear and anxiety. Behavioral assessment of anxiety can be very broadly grouped into two categories. The first category is behavioral avoidance tests, which involve observation of anxious behaviors under more controlled and artificial conditions. The second broad category is direct observation, which involves observation of fearful behaviors under more naturalistic conditions. Both categories have their advantages and disadvantages, and each will be discussed in turn below.

BEHAVIORAL AVOIDANCE AND APPROACH TESTS

It is possible to measure fear/anxiety indirectly by measuring the behaviors that people typically engage in (usually avoidance or escape) when faced with specific threat-related stimuli. For example, measuring the amount of time a child spends at school will provide an indirect estimate of his or her fear of school. The amount of time spent at home will provide an estimate of fear in agoraphobia, and measures of eye contact and social initiatives in social situations might provide an estimate of the strength of social fears. Obviously, using these types of indirect measures has advantages and disadvantages. On the positive side, indirect measures are usually easy to observe, being highly salient to others, and high levels of interrater reliability can usually be achieved (Borkovec et al., 1977). However, the external validity of these measures is usually more difficult to support. That is, do these measures really measure what we want them to? These issues will be discussed using the example of behavioral avoidance and approach tests.

One of the more substantial bodies of literature on the behavioral observation of anxiety has come from the behavior modification literature. Distrust of people's verbal reports peaked with the rise of the behavior modification movement in the 1960s, and more objective indices of "psychological" phenomena were sought. The use of the Behavioral Avoidance Task (BAT) became de rigeur for the wealth of studies evaluating treatments for phobic disorders.

The aim of the BAT is to expose the fearful person to the feared stimuli under relatively controlled and replicable conditions (independent variable) in order to collect objective information about how the person thus reacts (dependent variable). For example, a person who has a crippling fear of dogs may be asked to try to approach and stroke a dog under controlled conditions (the dog is restrained) in the treatment clinic. A range of dependent measures can be taken, including proximity to the dog and any other objective characteristic of the event that is hypothesized to reflect anxiety level.

BATs can be standardized or individualized. Standardized BATs are most commonly used for research purposes and involve a standard series of tasks to which all subjects are exposed. For example, a BAT for dog-phobic children may involve a dog at one end of a room and five marks on the floor, each 50 cm closer to the dog. Each child would be asked to move as close to the dog as comfortable, and the closest distance to the dog that the child

reaches would be used as the dependent measure. All children in the study would be put through precisely the same test. Naturally, the main advantage here is that the results of all children can be compared and the BAT is also easy to arrange. On the other hand, the main disadvantage of a standardized BAT is that not all children may respond to the specific stimulus chosen. In an individualized BAT, the stimuli to which each child must be exposed are selected on the basis of the child's own specific fears. Thus, all children in a study may be exposed to a unique stimulus. Naturally, the individualized BAT would be far more useful in a clinical situation, but it is also valuable in research, since it maximizes the fear ratings achieved. There are many variations on the possible uses of BATs, and we present here a sample to give some indication of the adaptability of these tests in their use with children.

An early influential use of the BAT in a therapy outcome study came from Lang and Lazovik (1963). They asked subjects to approach a harmless caged snake in a laboratory and scored the subject's behavior on a 3-point scale corresponding to looking, touching, and holding behavior. This is an active BAT in that the subject is asked to approach the feared object. In other studies, the subject is asked to remain still and the feared stimulus is brought closer in graded steps by an experimenter (or similarly controlled mechanism) (Murphy & Bootzin, 1973). For example, a child may be asked to try to remain as calm as possible while a dog is brought closer and closer. In these tests, the dependent measure is usually the distance from the child before the child conveys that he or she does not want the feared stimulus to come any closer. Although the child is always given the power to terminate these tests, active BATs are usually preferred due to the unpleasantness and artificiality of asking a fearful child to remain passive while another person controls the feared stimulus and to the advantages of practicing approach behavior that comes with the use of active BATs.

While most BATs have been used with animal phobias (see Barrios & Hartmann, 1988), other creative uses have been reported, including fear of blood (Van Hasselt, Hersen, Bellack, Rosenblum, & Lamparski, 1979), the dark (e.g., Giebenhain & O'Dell, 1984; Kelley, 1976), heights (Van Hasselt et al., 1979), medical procedures (Freeman, Roy, & Hemmick, 1976), water (Lewis, 1974), strangers (Matson, 1981), and, with adults, a range of phobic conditions (see Borkovec et al., 1977). However, the use of BATs is generally limited to the extent that the phobic stimulus can be defined and operationalized. Even with phobias of concrete stimuli such as flying, the practical difficulties of repeatedly exposing the person to stimuli of airports, airplanes, and flying motion are considerable.

Of course, the objects of children's fears are often not so tangible. In social fears and generalized anxiety conditions, it is often difficult to specify the phobic stimuli in such a way as to allow their manipulation under controlled conditions. For example, a child may avoid school due to fear of having to interact with large groups of unsupervised children as would be found in a school playground. Children with overanxious disorder are terrified by a range of new events in their lives, such as taking tests, going on camps, changing classes, having to perform, and so on, all difficult to operationalize for use with BATs. This limitation is important and should be the focus of some creative thinking and research. Over the last two decades, anxiety research with both adults and children has increasingly focused on the more generalized forms of anxiety disorder (generalized anxiety, overanxious disorder, panic, social fear), rather than on the simple phobias. Due to the difficulty of operationalizing the objects of these fears, the salience of BATs in the research literature has decreased, and progress in the development and refinement of these measurement strategies has slowed to a crawl.

Although the BAT was designed as a clinical research tool that produces an objective measure of a person's anxiety and fear, a wealth of research has been conducted on the characteristics of the test itself. These data indicate that there are pros and cons associated with the use of BATs. First the advantages. BATS are highly structured and straightforward procedures that generally have excellent interrater and temporal reliability (e.g., Hamilton & King, 1991). That is, using a BAT usually produces in the child anxious behavior that is easily and reliably observed by independent raters and is stable over time. BATs are easy to design and adapt for a range of fears, thus providing an inexpensive and simple objective measure for both research and clinical practice. The BAT allows for the concurrent measurement of multiple dimensions of anxiety, including motor responses, physiological responses, and subjective reactions to the same feared stimulus.

The main disadvantages of BATs relate to the lack of attention that is generally paid to variables that may affect the validity of the test. Borkovec et al. (1977) have provided an excellent review of these issues, and we wish to build on these issues here. First, the clinical utility and underlying philosophy of idiographic assessment that were associated with the development of BATs has led to problems with the standardization of these tests. That is, clinicians and researchers rarely use existing procedures, often designing their own BATs. Thus, comparison across studies is difficult. Second, a BAT is a social situation in which many variables can influence the child's behavior. The most salient of these variables concerns the expectations of the child regarding his or her performance. Contributing to these expectations will be the nature of the instructions given to the child (and parents) regarding the task. Again, the functional attributes of these instructions could be broken down further to include the experimenter's expectations of how well the child will and should perform, the clarity and strength with which these expectations are communicated to the child and parents, the extent to which parents are included in the task, the amount of information about the task that is given, and the type of rewards that are explicitly (or implicitly) offered to the child or parents for performance of the task.

With adults, the effects of instructions and other contextual variables on the performance during BATs have been shown to be considerable (Borkovec et al., 1977). By contrast, very little research has been conducted on the role of contextual variables in the performance of children during BATs (cf. Kelly, 1976; Sheslow, Bondy, & Nelson, 1982). However, it is likely that children's performance would be equally if not more susceptible to social influence. The implications of this circumstance are that, first, we must be alert to the external validity of data we collect from BATs. Performance in a controlled laboratory setting may not reflect what occurs in more natural settings. Second, more attention needs to be given to understanding the role of contextual factors in children's performance in fearful settings. Further, this attention should not be paid just so we can further control these unwanted influences and make the BAT even more reliable; rather, we should try to understand the role of contextual factors as a means of further understanding the developmental origins of fear itself. The BAT, rather than simply being used as a standardized procedure for producing fear responses that are uncontaminated by social influences, could be used for assessing the role of social influences on children's anxiety.

DIRECT OBSERVATION OF ANXIETY

BATs, as described above, presumably measure anxiety in response to stimuli under fairly contrived and controlled conditions. Observations can also be used to assess the

behavioral aspects of anxiety in more natural situations. Such aspects might include sweating, shaking and trembling, clasping and wringing one's hands, and contorting the facial muscles in a fear expression. With children, it often also includes crying, screaming, and other protesting behavior.

Direct measures of the child's anxiety have typically been designed to record discrete child behaviors in settings that elicit anxiety, such as in dental surgeries, during medical procedures, and during public speaking and school exams. Below is a brief review of some well-developed and well-known observational systems. More detailed reviews of these systems can be obtained from the original articles or from reviews by Barrios and Hartmann (1988) and King et al. (1988).

Melamed and colleagues have developed sophisticated systems for observing children during stressful medical and dental procedures. For example, the Observer Rating Scale of Anxiety (Melamed & Siegel, 1975) was designed for observing children undergoing surgery and consists of 28 discrete child behaviors that the observer scores for frequency of occurrence. These behaviors include specifically anxious behaviors, such as "trembling hands" and "clings to mother," as well as more general distress behaviors, such as "crying" and "kicks."

Similarly, the Behavior Profile Rating Scale (BPRS) (Melamed, Yurcheson, Fleece, Hutcherson, & Hawes, 1978) contains 27 behaviors for use in dental settings and thus includes relevant behaviors, such as refusing to open one's mouth. For both systems, the frequency of discrete behaviors can be combined into an overall anxiety score, although it should be noted that the overall score reflects distress and noncompliant behavior as well as anxious behavior. Further, the BPRS contains items that are scored according to the dentist's behavior, for example, "Dentist uses loud voice." Thus, it would be erroneous to consider that these forms purely reflect fear level in the child. Reliability and discriminative validity data have been collected and are supportive of the systems.

Another observational system that has been applied to stressful medical procedures and undergone extensive development and evaluation is the Procedure Behavioral Rating Scale and its derivatives (Katz, Kellerman, & Siegel, 1980; Le Baron & Zeltzer, 1984; Jay & Elliott, 1984; Jay, Ozolins, Elliott, & Caldwell, 1983). These systems involve an observer rating the frequency of a number of child fear and distress behaviors during bone marrow procedures.

Glennon and Weisz (1978) developed a system for observing anxiety in preschool children. Their main rationale was to develop a measurement system for use with young children that avoided the problems of self-report and global adult ratings. The Preschool Observation Sale of Anxiety (POSA) contains 30 behaviors that were selected to reflect fearful behavior in young children. These include both direct signs of fear ("child complains of being afraid," "trembling," "fearful facial expression"), indirect signs of fear ("cry," "gratuitous movement," "nail-biting"), and other behaviors selected to reflect fears in this population ("masturbation," "silence," "rigid body posture").

Glennon and Weisz (1978) evaluated the POSA in the course of observing behavior of preschool children during a forced separation from their mothers at their regular preschool. However, the system could be used in any setting. Interrater reliabilities ranged from quite low to very high, as did the frequency of the observed behaviors themselves, and further work may be required to refine the sample of 30 behaviors. However, the POSA did converge with self- and teacher ratings of child anxiety, although these latter measures were not significantly correlated with each other. Further, the POSA detected significantly more anxiety in the children under the forced-separation condition compared to the condition of

no separation from mothers. Interestingly, both the children's and the teachers ratings failed to differentiate between separation and nonseparation conditions. Thus, either the POSA is detecting motor behavior that is not detected or reported by children and teachers, or observers using the POSA were responding to the separation with inflated but reliable reports of child anxious behavior.

The POSA represents one of the few attempts to operationalize child anxiety into an observation system that can be used in a range of natural settings. It is a pity that more work has not been done examining the properties of this system and developing and refining its structure.

Other systems have focused on the fearful behavior of young children during separation from their parent. Milos and Reiss (1982) used an observation system that scores the frequency of a single global behavior as a reflection of anxiety during separation. Neisworth, Madle, and Goeke (1975) designed a system that measures the duration of crying and screaming in preschoolers during their daily preschool routine. By far the most research and theorizing that has occurred with regard to separation anxiety has occurred within the social-attachment literature. The original impetus for this area came from the intensive observations of Harry and Margaret Harlow using infant rhesus monkeys (Harlow & Harlow, 1962), Bowlby's observations of orphaned children (Bowlby, 1969), and Ainsworth's observations of separated infants (Ainsworth, Blehar, Waters, & Wall, 1978).

Perhaps the most significant aspect of this work in terms of the observation of anxiety concerns the specific methodology and its relation to the development of anxiety disorders in children. Typically, the child is observed during separation from the mother, exposure to an unfamiliar adult, and reuniting with the mother (Ainsworth et al., 1978). Research by Kagan and colleagues has shown that the infant's behavior during such challenges is predictive of the later development of anxiety and social-withdrawal problems. Specifically, infants who show "behavioral inhibition" (long latency to interact with and retreat from unfamiliar adults, cessation of play and clinging to the mother) are more likely to develop social anxiety and withdrawal later in childhood (Kagan, Reznick, & Snidman, 1988).

A number of systems have also been designed to observe children's responses to test performance and public speaking. For example, Wine (1979) developed an observational system that comprises 22 discrete behaviors that are recorded over a 15-minute interval immediately preceding a classroom examination. The behaviors are grouped into attending, task-related, activity, communication, and interactional behaviors. Few of these behaviors are directly reflective of the expression of anxiety, but rather focus on the indirect effects of anxiety on the child's ongoing activities. The Timed Behavior Checklist of Paul (1966) was designed to measure the presence of overt anxiety in adolescents in public speaking situations. It has been adapted for use with younger children's reactions to public speaking (Fox & Houston, 1981) and darkness (Giebenhain & O'Dell, 1984). The original contains 20 items that are recorded for occurrence or nonoccurrence over a series of observational intervals and can be reduced to an overall anxiety score for the observation session.

GLOBAL RATING SCALES

Another method for measuring anxiety is to have observers use global rating scales. As examples, an observer may be asked to observe a child for a 5-minute period and then

rate the child's level of anxiety on a 5-point scale; a parent of a child with fear of school may be asked to provide a similar rating every minute for the 30-minute period at home immediately prior to leaving for school. These systems are generally very easy to design and use, but have specific advantages and disadvantages.

First, a wealth of research has indicated that people are generally very consistent in their observations and descriptions of affect in other people. Even across different cultures, people tend to agree on the facial expression that signals fear (Ekman, 1980). Thus, interrater reliability is generally quite high when such global ratings are used. A number of studies of anxious children have used such global ratings, and the reader is referred to the reviews by Barrios and Hartmann (1988) and King et al. (1988).

The problem with global ratings is that it is not clear exactly what is being measured, and thus they generally have little to contribute to our understanding of anxiety. This ambiguity restricts their use to situations in which an inexpensive and simple measure of anxiety is needed to evaluate the effect of some independent variable on anxiety levels. Furthermore, as with all single measures, they should be used as part of a more comprehensive assessment package (King et al., 1988).

OVERVIEW OF OBSERVATIONAL SYSTEMS

The preceding review has led us to the following conclusions: First, it is clear that the development of observational strategies for measuring child anxiety took place mostly in the 1960s and 1970s. Since that initial burst of activity, little has occurred in terms of the development and refinement of these methodologies.

Second, existing observational strategies focus entirely on the child himself or herself. Creative attempts to operationalize the social context of the child's anxiety and to examine its functional relationship to the development of anxiety are sorely needed.

Third, questions remain unanswered about the validity of these systems in terms of the content of the behavioral categories used. With children, most of the observational systems contain a mix of direct expressions of anxiety as an affect, as well as protest behaviors that are thought to result from anxiety. For example, one child might scream and cry, and another child might show fear, when he or she is asked to go to school. Using observation systems that lump all affect and protesting behaviors together to produce one overall "anxiety" score will not differentiate between these two children, even though their behavior is very different. Further, this mixing of various response categories may lead us to question whether they are actually measuring what we want them to measure. More work is needed to examine whether it is psychometrically and conceptually sound to treat these various components as unitary reflections of anxiety; quite possibly, they are functionally very different when one considers how they affect and are affected by their social context.

Fourth, the discriminative validity of these observational systems remains unclear. There is very little evidence to indicate that these systems can differentiate anxious from nonanxious children. Further, there is no evidence to show that children with different types of anxiety problems can be differentiated.

Fifth, the targets of these systems are mainly restricted to simple fears that are expressed in highly structured settings. Little work has been done attempting to operationalize and observe the behavior of children with more complex fears such as overanxious and avoidant disorders.

BEHAVIORAL OBSERVATION: GENERAL CONSIDERATIONS

This chapter is not the place to provide a detailed review of the general principles of designing observational systems. A number of such reviews already exist, and we refer the reader particularly to Foster, Bell-Dolan, and Burge (1988). However, it may be useful for us to make some comments that focus specifically on the observation of anxiety in children.

Stimulus Selection

As discussed earlier, BATs can be either standardized (the same fear stimuli for all participants) or individualized (individually selected fear stimuli for each participant). The main advantage of the former method is the ease of intersubject comparison, while the main advantage of the latter is maximization of anxiety. The choice of method will obviously depend on the nature and purpose of the assessment.

One of the most important issues in stimulus selection is that the stimuli and parameters to be used in a BAT be described in explicit and extensive detail. If the results of the BAT are to be used to compare pre- with posttreatment (and possibly other time points), then it is vital that enough detail be specified to allow the conditions that existed at pretreatment to be replicated exactly. Similarly, if different children are to be compared, it is important that the parameters (e.g., duration of exposure, distance from fear stimulus) be very clearly defined.

A major challenge to be overcome in the next few decades is the operationalization of more complex threat stimuli. Threats cues for simple phobic states are relatively easy to manipulate compared to the often complex social and cognitive cues that threaten people with overanxious, avoidant, socially phobic, and panic disorders. The last few decades have taught us that models of anxiety cannot be based on a consideration of simple phobias alone; we must consider these more complex anxiety states, and this consideration will be greatly aided by the development of observational systems that operationalize complex threat cues.

Settings

The setting in which observations are to be conducted should be selected according to the purpose of the assessment. Natural settings such as observing the child in the home or the classroom have the potential to produce the most ecologically valid data. That is, we would expect that observations in these settings will give us the most accurate sample of the child's daily behavior. Further, these observations allow the observer to sample aspects of the setting, such as parent or teacher behavior, that may be functionally related to the child's anxiety. However, observations in natural settings are often expensive and, of course, not conducive to the collection of highly reliable data unless considerable skill is applied to the design of the observational system and the training of observers.

Settings can also be designed to fit the needs of the assessment. A number of analogue situations have been developed to assess children in clinic settings. For example, most clinics have play areas in which a child can be observed playing with his or her family and a number of situations relevant to anxiety, such as separation and the introduction of strangers, can be observed. Social skills assessments often involve the use of semistructured social scenes that can be staged in any setting. For example, assessment of shy children can involve direct observation of the child in a structured situation in which he or

she is asked to meet and talk to a stranger (a confederate of the experimenter). The previous review of BATs showed the extensive use of analogue observations that these tests have inspired.

Recording Methods

Recording can be done in a variety of ways, depending on finances, equipment, and setting. The most important considerations are convenience and accuracy. Most naturalistic observation methods will simply involve paper-and-pencil recording in which recording sheets are prepared with columns for behaviors sought and rows representing a given parameter (e.g., time periods). The observer then simply needs to check the appropriate box, and a number of sampling methods can be used to do this. For example, in event records, the observer records each occurrence of the target behavior. This method is appropriate for behaviors that have discrete beginnings and endings, such as hitting. For behaviors that are less discrete, event records cannot readily be employed. For example, it would be impossible to have observers record each time trembling occurred. However, a range of time-sampling methods can be used with such behaviors. One of the most useful is the partial interval time-sampling in which the observer records any instance of a behavior within a set of repeating time intervals. Thus, the dependent measure would be the number of intervals in which the behavior occurred, rather than the number of behaviors. Further information on the use of behavioral sampling methods can be found in Ollendick and Hersen (1984).

Providing they are not overly complex, direct observations of this type can be made while observing children live. However, doing so restricts the potential to check for alternate behaviors should hypotheses change. A method of overcoming this problem is to videotape the assessment so that the data can always be reanalyzed if ideas change. Of course, an obvious potential problem with this method of recording is the intrusive nature of videotaping, which could possibly alter the assessment. However, in our research, we have had few problems, and most people seem to adapt to the presence of a videocamera fairly quickly.

Interrater Accuracy and Reliability

Given that observation of behavior involves subjective decisions, it is important to have two (or more) observers in order to randomize the error associated with any measurement. It is vital that observers be highly trained and practiced in order to reduce variance and that interrater reliability be assessed under all observational conditions and throughout the duration of the observational period. Sources of error coming from observers are well documented and include observer expectancy and observer drift. The phenomenon of observer expectancy and bias refers to the tendency for observers to produce data that are consistent with their expectations of what they should see. Thus, it is important that observers remain unaware of experimental hypotheses, not be given feedback about the substantive findings coming from their data, and not be put under any pressure, however subtle, to observe what experimenters want them to see. Similarly, observer drift can affect the accuracy of the information obtained. It is well known that observers tend to alter the way they observe behavior over time. Thus, all observation systems that extend over a substantial period of time should build in observer-retraining sessions in which the observers are intermittently "recalibrated" to the observation system.

Interrater reliability data are collected by having two or more observers conduct parallel observations of the same situation, usually on at least 20% or more of all observations conducted. Summary statistics on interobserver reliability are then calculated for each behavior category under each experimental condition. For discrete behaviors and interval time sampling, this calculation should be done using percentage agreement for both occurrences and nonoccurrences of the behavior adjusted for chance with an appropriate statistic such as Cohen's κ. For global ratings, interobserver agreement is usually presented in terms of simple correlations between the two observers' ratings. Further information on the theory and practice of interobserver agreement can be found in Ollendick and Hersen (1984).

External Validity

Psychological and behavioral phenomena are very difficult to measure, and each system of measurement has inherent sources of error that are unique to that system and others that are shared with other measurement systems. To reduce error that is unique to any one system, multiple measurement systems can be employed. As we have seen, little evidence is available to support the external validity of current systems for observing anxiety in children. That is, we are not exactly sure what they are measuring. Thus, it is wise to always include multiple forms of measurement, examine the degree of convergence between measures, and draw conclusions that are not limited to one method of assessment.

BEHAVIORAL OBSERVATIONS: FUTURE DIRECTIONS

We believe that there is enormous unrealized potential in the use of direct observations of anxiety in young children. Specifically, a major priority is to expand the role of these observations beyond their current role as dependent measures used to validate self-report measures and evaluate treatment success. Two main areas for development suggest themselves. First, there is the need to understand the child's anxiety in terms of its social context. Thus, observation systems that score both the child's anxiety and other antecedent and consequent stimuli need to be developed. Second, behavioral observations need to be designed and used in a way that allows for conceptual integration with other aspects of anxiety, such as cognition-processing style, family interaction, and physiological reactivity.

For example, much progress is currently being made in understanding the way anxious people process information about threat in their environment (e.g., Butler & Mathews, 1983). Although much of this work has been done with anxious adults, it is reasonable to expect that anxious children will show the same characteristics. That is, anxious children might show an exaggerated tendency to perceive, attend to, and respond to threat in their environments. If this is so, we may ask whether this processing style is learned through interaction with significant others, namely, anxious parents. A methodology that uses integration of information-processing with direct observation of the child in interaction with others may yield important insights into this process. Below, we give two examples of research that is moving to integrate social–contextual with information-processing factors via the use of observational strategies.

Krohne and colleagues have specified a two-process model of child anxiety whereby child competencies, expectancies, and self-evaluations (characterizing anxiety) are determined in part by two parental processes, specifically, "support" vs. "restriction" and

"positive" vs. "negative" feedback (Krohne, 1992; Krohne & Hock, 1991). They hypothesize that anxiety in children is associated with restrictive parental behavior that fosters deficits in child competence and negative self-expectancies and -evaluations. In their recent study, Krohne and Hock (1991) gathered support for this model using an observational strategy in which each mother and child dyad were asked to attempt to complete a wooden block puzzle. Videotaped recordings were made, and independent raters scored the duration of individual vs. cooperative working and transitions from one state to each other. It was found that the degree of self-reported trait anxiety in the child was associated with the extent to which the mother cooperated vs. restricted the child's engagement in the task.

A recent study at our laboratory has attempted to clarify aspects of this hypothesized process by integrating cognitive and family interaction measures. We hypothesized that anxiety could be modeled or promulgated within a family unit through a specific series of interpersonal behaviors and interactions. To tap the cognitive aspects, we presented children with a set of ambiguous social situations. For example, we asked the children, and their parents separately, to interpret the following situation and then tell us how they would react to it:

> You see some children playing in the playground at school and you decide to join in. As you approach, you notice the children are laughing. What do you think is happening? What will you do?

After each person has responded to these items individually, we ask the parent(s) and child to discuss the ambiguous situation as a group. After 5 minutes of discussion, we ask the child to again answer the two questions: "What do you think is happening?" and "What will you do?" Our results indicate that anxious children make more threat interpretations of such ambiguous situations than do nonanxious children, and many of the anxious children switch from a proactive plan (e.g., "I will go play with them") to an avoidant plan (e.g., "I will stay away from them") after discussing the problem with their parents. None of the nonanxious children were influenced by their families in this way (Barrett, Rapee, & Dadds, 1992; Dadds, Barrett, & Rapee, 1993). Thus, these results suggest that the child may learn to process information about threat through interaction with his or her parents.

To learn more about how this happens, we are observing the moment-to-moment process whereby the parents influence the child to change from a proactive, nonthreatened stance to an avoidant, threatened stance. To do this, we have developed a coding system, the Family Anxiety Coding Schedule (FACS), that scores the anxious behavior of the child and the parent(s) and the antecedents and consequences each person provides to the anxiety of the other(s). Table 1 shows the response categories specified by this system. The categories can be scored by time-sampling methods, that is, recording the occurrence or nonoccurrence of each category on an interval-by-interval basis. However, this method does not allow researchers to examine the sequencing of each person's behavior in group interactions. To test theoretical proposals about the interdependency of two or more people's behavior, such as those put forward by Krohne and Hock (1991) and ourselves, discrete behaviors need to be coded on an "utterance-by-utterance" basis, producing information about the duration and sequencing of each person's behavior (see Bakeman, 1978; Dumas, 1989). Thus, we are coding each family member's utterances in real time sequence so that conditional probabilities can be computed between different family members' behaviors.

Interrater reliability data for the first 10 families of anxious children we have worked with are very promising; the percentage agreement was 99.9% for "speaker," 94.9% for

Table 1. Brief Category Definitions for the Family Anxiety Coding Schedule[a]

	Content categories
Referent:	Comments on the behavior or state of self or others. Scored "positive" vs. "negative" depending on the content and voice tone used and "self" or "other" according to the referent.
Reassurance:	Behaviors that aim to comfort or reduce threat perception to another person. Scored "ask for" vs. "give" and "physical" vs. "verbal."
Respond:	Behaviors that express "agreement" vs. "disagreement" with the previous speaker or with the self ("sure" vs. "unsure").
Describe:	Comments that describe the problem at hand.
Solution:	Comments that suggest ways of dealing with the problem at hand. Scored "proactive" vs. "avoidant."
Consequence:	Comments that point out the consequences of a behavior. Scored "social" vs. "physical" and "positive" vs. "negative."
Question:	Any request for information. Scored according to the content of the request, that is, "problem," "solution," "consequence," or "ability" ("can you do it?") or affect ("How do you feel?").
	Process categories
Facilitate:	Comments or questions that keep the family discussion on track.
Hinder:	Comments or questions or other behavior that blocks the family discussion.
Listen:	Active attending behavior.
	Affect ratings
Each behavior by an family member is scored according to affect, using Happy, Anxious, Sad, Angry, or Neutral categories. These are scored using any or all cues from facial expression, tone of voice, body posture, and self-report. Laughter is scored as anxious unless it is an appropriate response to a funny comment or behavior.	

[a]For each utterance by any family member, the observer records the speaker, the person addressed, a process or content category, and an affect rating.

"person spoken to," 84.0% for combined content codes, and 98.2% for affect ratings. Of interest is the high agreement between raters with regard to the affect, including anxiety, of family members. This finding is consistent with previous research showing that people are very consistent in judging affect in other people, especially using facial expression as the cue (Ekman, 1980).

These examples have been presented because they illustrate a number of potential directions for the development of observational strategies with anxious children. First, these strategies code the context of the child's anxiety (e.g., parental behavior), rather than focusing solely on the child. Second, they attempt to integrate observed behavior in the child with cognitive and skill processes in the child that are seen as characterizing anxiety (e.g., increased threat perception). Third, they code behavior in real time sequences, allowing for interdependencies between two or more people's behavior to be examined. Fourth, they focus on more complex and generalized forms of anxiety than on simple phobic states.

A SOCIAL–INTERACTIONAL APPROACH

In this chapter, we have not been content to simply review the literature on behavioral observations of anxiety and then make the usual set of constructive recommendations for improving methodologies and resolving substantive discrepancies. Rather, we have argued

that the adoption of an observational methodology with anxious children is a way of embracing a more comprehensive and promising view of anxiety itself. The origin of anxiety and fear is a drama played out at the intersection of the biological basis of human experience and the social context in which it occurs. Behavioral scientists should be coming in from the social contextual direction, aiming to map the origins of the social meaning of anxiety. People, especially children, find it very difficult to accurately identify and describe the characteristics of social fields in which they are immersed. A child cannot report on the role of his or her anxiety in the functioning of the family, the fears he or she has seen expressed by parents during critical developmental moments, the reactions his or her fear has brought from others, and the meaning that fear has been assigned by the group. Thus, the task of the behavioral scientist is to develop measures that will allow us to assess these sources of anxiety.

We have seen that anxiety and fear can be studied using direct and indirect measures of anxious behavior. When carefully designed and used, these methods can have adequate reliability and validity. They are also highly dependent on the social context in which they occur. This dependence, of course, can be a threat to the psychometric properties of the measure, but it also opens a door to a crucial and understudied aspect of anxiety. We need to turn our attention to the role of social context rather than try to control it as a troublesome confound.

SUMMARY

This chapter reviewed and discussed the use of observational measures in understanding anxiety and fear in children. Previous observational systems were reviewed, covering behavioral avoidance and approach tests, observation coding systems, and global rating scales. It is concluded that the use of these observational strategies has reached a high level of scientific sophistication with regard to their role as dependent variables in outcome studies and as validation measures for comparison against self-report and other indices of anxiety. However, the potential of observational strategies remains largely unexplored. Future work should give more attention to (1) the systematic observation of the social context of childhood anxiety, especially parent–child and family interaction; (2) the integration of behavioral and information-processing theories and methodologies, so that observational strategies are firmly based in contemporary theories of learning and psychopathology; (3) coding systems that record behavior sequencing and duration, rather than just simple frequency counts; and (4) threat stimuli associated with generalized anxiety states as well as simple phobias. Examples of contemporary research that use observational measures in these ways were presented.

REFERENCES

Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. Hillsdale, NJ: Erlbaum.

Bakeman, R. (1978). Untangling streams of behavior: Sequential analysis of observation data. In G. P. Sackett (Ed.), *Observing behavior*, Vol. 2 (pp. 63–78). Baltimore: University Park Press.

Barrett, P. M., Rapee, R. M., & Dadds, M. R. (1992, July). Cognitive and family processes in child anxiety. Paper presented at the World Congress of Behavior Therapy, Queensland, Australia.

Barrios, B. A., & Hartmann, D. P. (1988). Fears and anxieties. In E. J. Mash & L. G. Terdal (Eds.), *Behavioral assessment of childhood disorders*, 2nd ed. (pp. 196–261). New York: Guilford Press.

Borkovec, T. D., Weerts, T. C., & Bernstein, D. C. (1977). Assessment of anxiety. In A. R. Ciminero, K. S. Calhoun, & H. E. Adams (Eds.), *Handbook of behavioral assessment* (pp. 367–428). New York: John Wiley.

Bowlby, J. (1969). *Attachment and loss*, Vol. 2, *Separation, anxiety, and anger*. New York: Basic Books.

Butler, G., & Mathews, A. (1983). Cognitive processes in anxiety. *Advances in Behaviour Research and Therapy*, *5*, 51–62.

Cole, D. A., & Rehm, L. P. (1986). Family interaction patterns and childhood depression. *Journal of Abnormal Child Psychology*, *14*, 297–314.

Coyne, J. C. (1976). Toward an interactional description of depression. *Psychiatry*, *39*, 28–40.

Dadds, M. R., Barrett, P. M., & Rapee, R. M. (1993). Family processes in child anxiety. Paper presented at the 27th Convention of the Association for the Advancement of Behavior Therapy, Atlanta, November.

Dadds, M. R., Heard, P. M., & Rapee, R. M. (1992). The role of family intervention in the treatment of child anxiety disorders. *Behaviour Change*, *9*, 171–177.

Dadds, M. R., Sanders, M. R., Morrison, M., & Rebgetz, M. (1992). Childhood depression and conduct disorder: An analysis of family interaction patterns in the home. *Journal of Abnormal Psychology*, *101*, 505–513.

Dumas, J. E. (1989). Interact—A computer based coding and data management system to assess family interactions. In R. J. Prinz (Ed.), *Advances in behavioral assessment of children and families*, Vol. 3 (pp. 177–202). Greenwich, CT: JAI Press.

Ekman, P. (1980). *The face of man*. New York: Garland Publishing.

Foster, S. L., Bell-Dolan, D. J., & Burge, D. A. (1988). Behavioral observation. In A. S. Bellack & M. Hersen (Eds.), *Behavioral assessment*, 3rd ed. (pp. 119–160). New York: Pergamon Press.

Fox, J. E., & Houston, B. K. (1981). Efficacy of self instructional training for reducing children's anxiety in evaluation situations. *Behaviour Research and Therapy*, *19*, 509–515.

Freeman, B. J., Roy, R. R., & Hemmick, S. (1976). Extinction of a phobia of physical examination in a 7-year-old mentally retarded boy. *Behaviour Research and Therapy*, *14*, 63–64.

Giebenhain, J. E., & O'Dell, S. (1984). Evaluation of a parent training program for reducing children's fear of the dark. *Journal of Applied Behavior Analysis*, *17*, 121–125.

Glennon, B., & Weisz, J. R. (1978). An observational approach to assessment of anxiety in young children. *Journal of Consulting and Clinical Psychology*, *46*, 1246–1257.

Hamilton, D. I., & King, N. J. (1991). Reliability of a behavioral avoidance test for the assessment of dog phobic children. *Psychological Reports*, *69*, 18.

Harlow, H., & Harlow, M. (1962). Social deprivation in monkeys. *Scientific American*, *207*, 136–146.

Hops, H., Biglan, A., Sherman, L., Arthur, J., Friedman, I., & Osteen, V. (1987). Home observations of family interactions of depressed women. *Journal of Consulting and Clinical Psychology*, *55*, 341–346.

Jay, S. M., & Elliott, C. (1984). Behavioral observation scales for measuring children's distress: The effects of increased methodological rigor. *Journal of Consulting and Clinical Psychology*, *52*, 1106–1107.

Jay, S. M., Ozolins, M., Elliott, C., & Caldwell, S. (1983). Assessment of children's distress during painful medical procedures. *Journal of Health Psychology*, *2*, 133–147.

Kagan, J., Reznick, J. S., & Snidman, N. (1988). Biological bases of childhood shyness. *Science*, *240*, 167–171.

Kashani, J. H., Orvaschel, H., Rosenberg, T. K., & Reid, J. C. (1989). Psychopathology in a community sample of children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, *28*, 701–706.

Katz, E. R., Kellerman, J., & Siegel, S. E. (1980). Behavioral distress in children with cancer undergoing medical procedures: Developmental considerations. *Journal of Consulting and Clinical Psychology*, *48*, 356–365.

Kelley, C. K. (1976). Play desensitization of fear of darkness in preschool children. *Behaviour Research and Therapy*, *14*, 79–81.

King, N. J., Hamilton, D. J., & Ollendick, T. H. (1988). *Children's phobias: A behavioural perspective*. Chichester: John Wiley.

Krohne, H. W. (1992). Developmental conditions of anxiety and coping: A two process model of child rearing effects. In K. A. Hagtvet (Ed.), *Advances in test anxiety research*, Vol. 7 (pp. 143–155). Lisse, The Netherlands: Swets & Zeitlinger.

Krohne, H. W., & Hock, M. (1991). Relationships between restrictive mother–child interactions and anxiety of the child. *Anxiety Research*, *4*, 109–124.

Lang, P. J., & Lazovic, A. D. (1963). Experimental desensitization of a phobia. *Journal of Abnormal and Social Psychology*, *66*, 519–525.

Lang, P. J., Levin, D. N., Miller, G. A., & Kozak, M. (1983). Fear behavior, fear imagery, and the psychophysiology of emotion: The problem of affective response integration. *Journal of Abnormal Psychology*, *92*, 276–306.

LeBaron, S., & Zeltzer, L. (1984). Assessment of acute pain and anxiety in children and adolescents by self-reports, observer reports, and a behavior checklist. *Journal of Consulting and Clinical Psychology*, *52*, 729–738.

Lewis, S. A. (1974). A comparison of behavior therapy techniques in the reduction of fearful avoidant behavior. *Behavior Therapy*, *5*, 648–655.

Matson, J. (1981). Assessment and treatment of clinical fears in mentally regarded children. *Journal of Applied Behavior Analysis*, *14*, 287–294.

Melamed, B., & Siegel, L. (1975). Reduction of anxiety in children facing hospitalization and surgery by use of film modeling. *Journal of Consulting and Clinical Psychology*, *46*, 1357–1367.

Melamed, B., Yurchison, R., Fleece, E. L., Hutcherson, S., & Hawes, R. (1978). Effects of film modeling on the reduction of anxiety-related behaviors in individuals varying in level of previous experience in the stress situation. *Journal of Consulting and Clinical Psychology*, *46*, 1357–1367.

Milos, M. E., & Reiss, S. (1982). Effects of three play conditions on separation anxiety in young children. *Journal of Consulting and Clinical Psychology*, *50*, 389–395.

Murphy, C. M., & Bootzin, R. R. (1973). Active and passive participation in the contact desensitization of snake fear in children. *Behavior Therapy*, *4*, 203–211.

Neisworth, J. T., Madle, R. A., & Goeke, D. E. (1975). "Errorless" elimination of separation anxiety: A case study. *Journal of Behavior Therapy and Experimental Psychiatry*, *6*, 79–82.

Ollendick, T. H., & Hersen, M. (1984). *Child behavioral assessment: Principles and procedures*. New York: Pergamon Press.

Patterson, G. R. (1982). *Coercive family process*. Eugene, OR: Castalia Press.

Paul, G. L. (1966). *Insight versus desensitization in psychotherapy*. Stanford: Stanford University Press.

Sanders, M. R., Dadds, M. R., Johnston, B., & Cash, R. (1992). Child depression and conduct disorder. 1. Behavioral, affective and cognitive aspects of family problem solving. *Journal of Abnormal Psychology* (in press).

Sheslow, D. W., Bondy, A. S., & Nelson, R. O. (1982). A comparison of graduated exposure, verbal coping skills, and their combination in the treatment of children's fear of the dark. *Child and Family Behavior Therapy*, *4*, 33–45.

Van Hasselt, V. B., Hersen, M., Bellack, A. S., Rosenblum, N. D., & Lamparski, D. (1979). Tripartite assessment of the effects of systematic desensitization in a multiphobic child: An experimental analysis. *Journal of Behavior Therapy and Experimental Psychiatry*, *10*, 51–55.

Wine, J. D. (1979). Test anxiety and evaluation threat: Children's behavior in the classroom. *Journal of Abnormal Child Psychology*, *7*, 45–59.

19

Physiological Assessment

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INTRODUCTION

Although physiological measures are not routinely used in the assessment and treatment of childhood anxiety disorders, several authorities have emphasized their usefulness in both clinical work and research investigations (Barrios & Hartmann, 1988; Beidel, 1989). However, the notion that physiological data can contribute to the overall picture of the child and help in treatment design is by no means a recent development (see Blake & Andrasik, 1988; King, 1993). As early as the 1920s, Mary Cover Jones recognized the significance of monitoring physiological responses (Jones, 1924). In her now classic case study of a young phobic boy, Jones found that his blood pressure increased when he was exposed to the fear-eliciting stimulus. Thus, Jones concluded that "visceral arousal" are very much part of his fear response. On the basis of these findings, as well as behavioral observations, she developed a "deconditioning" program that was successful in alleviating the child's phobic condition. Similarly, in a comparative study of "emotionally stable" and "emotionally unstable" children, Jost (1941) used various physiological indices of emotional stability, including the galvanic skin response, blood pressure, and other physiological measures. The unstable group exhibited more physiological lability during rest periods, greater physiological reactivity to laboratory stressors, and a slow return to prestressor levels. However, the unstable group was too heterogeneous for any conclusions to be drawn about the physiological reactivity of anxious children. Nonetheless, it is clear that the physiological assessment of anxious or phobic children has been of interest to researchers at various stages in the history of clinical child psychology (see also the review by Beidel, 1989).

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Current interest in the physiological assessment of children with phobic and anxiety disorders is consistent with recent conceptualizations of anxiety. Anxiety is viewed as a complex state of emotional activity that consists of three primary components: cognitive, physiological, and overt–behavioral. This multidimensional notion of anxiety was formally developed by Lang (1968, 1971) and was subsequently articulated by many writers in relation to children's fears and anxiety disorders (e.g., Beidel, 1989; S. B. Johnson & Melamed, 1979; Ollendick, 1979). Moreover, the importance of visceral (physiological) changes is now reflected in the diagnostic criteria for childhood anxiety disorders described in DSM-III-R. Illustratively, overanxious disorder is "characterized by marked feelings of tension or inability to relax" [American Psychiatric Association (APA), 1987, p. 64]. Similarly, a child with a phobia "will almost invariably have an immediate anxiety response, such as feeling panicky, sweating and having tachycardia and difficulty breathing," when confronted with the phobic stimulus (APA, 1987, p. 243). Furthermore, recent decades have seen many technological advances in physiological recording and computers that have facilitated the growth of physiological assessment. Certainly the physiograph (polygraph) has undergone considerable technical refinement since its inception many years ago. There are also many other physiological recording options in the physiological assessment of children. Portable heart rate monitors, for example, have proven to be an unobtrusive and convenient means of physiological assessment (Barrios & Hartmann, 1988).

It is now clear that the usefulness of physiological measures in the assessment of childhood anxiety disorders depends on several factors. Kallman and Feuerstein (1986) have noted three essential points: First, because of the complexity and expense of physiological recording instruments, physiological measures should provide information that cannot be obtained as efficiently by other means. In other words, consideration should be given to cost-efficiency. Second, the physiological response should be uniquely related to the presenting disorder in such a way that the measure is of use in predicting and modifying behavior. In the clinic setting, for example, the physiological measure should contribute to the selection and implementation of an appropriate treatment strategy. Third, physiological measures must have an adequate degree of reliability and validity for their use. Thus, physiological assessment procedures should be empirically sound.

In addition to the requirements outlined by Kallman and Feuerstein, physiological assessment must also be developmentally sensitive. The age of the subject has a bearing not only on the assessment procedure, but also on the interpretation of data. The physiological assessment of a 5-year-old may be quite different from that of a 10-year-old and a 15-year-old. Above all, physiological data should be examined in conjunction with other sources of information. Certainly, physiological data are not regarded as superior merely because they are obtained through the use of "scientific" instruments.

Obviously, these features of physiological assessment are consistent with the contemporary approach to child assessment, which emphasizes multimethod assessment, reliability and validity of measures, and developmental sensitivity (Mash & Terdal, 1988; Ollendick & Hersen, 1993). Therefore, the aim of this chapter is to show how physiological assessment contributes to the overall assessment of phobic and anxiety disorders in children and adolescents. Initially, we discuss some basic principles or laws necessary for an understanding of physiological measurement. Following a brief examination of the instrumentation and measures used in physiological assessment, we then focus on physiological recording with children. Consistent with an empirical approach to the assessment of childhood anxiety disorders, we also examine the reliability and validity of physiological

assessment. A case illustration is also presented in order to show the usefulness of physiological measures in the assessment and treatment of children with anxiety and phobic disorders. A further objective is to highlight recent empirical findings in the physiological assessment of anxious children and to outline some of the major conceptual and methodological issues in these endeavors. However, biochemical measures are not discussed (see the review by Zeichner, 1987).

PHYSIOLOGICAL PRINCIPLES

The physiological assessment of anxious children requires an understanding of some basic principles or laws that underlie physiological responding. As discussed by Sturgis and Gramling (1988), these principles include the concepts of homeostasis, habituation, orienting and defensive responses, and the law of initial values. A detailed critique of these principles in relation to physiological assessment has also been provided by Ray, Cole, and Raczynski (1983). Homeostasis refers to the tendency of an organism to maintain constant conditions or a state of equilibrium between different but interdependent elements of the organism. The homeostatic state is maintained by a negative-feedback loop that "provides information directing a system to decrease activity if levels of activity are higher than normal or to increase activity if levels are lower than normal" (Sturgis & Arena, 1984, p. 15). This principle implies that when attempts are made to alter the individual's physiological functioning, protective mechanisms come into play to return the activity to the prestimulus level. Such protective mechanisms especially participate in the control of the cardiovascular and respiratory response systems (Kaufman & Schneiderman, 1986).

Habituation refers to the cessation or diminution of responding that occurs to the repeated presentation of the same stimulus (Stern, Ray, & Davis, 1980). Illustratively, the presentation of an anxiety-provoking stimulus to a child will usually elicit a marked change in heart rate that eventually disappears as the child becomes accustomed to the stimulus through repeated exposures. Habituation is influenced by a number of factors, particularly the intensity of the stimulus. Thus, a very intense stimulus will produce a slower rate of habituation. This process can also be inhibited if the child is engaged in certain cognitive or behavioral activity. However, habituation does not occur equally across physiological systems (Sturgis & Gramling, 1988). For example, finger-pulse volume and blood volume have been found to decrease across habituation trials among anxious subjects in the absence of changes in electrodermal activity (O'Gorman, 1983).

Also evident in physiological recording are the orienting and defensive responses. The orienting response is sometimes referred to as the "What is it?" reflex. As noted by Lynn (1966), the orienting response is characterized by a number of physiological changes, including increased sensitivity of the sense organs, increased muscle tone, activation of the electroencephalogram, peripheral vasoconstriction, cephalic vasodilation, increased skin conductance, respiratory changes, and decreased heart rate. More threatening stimuli are likely to elicit a defensive response. In contrast to the orienting response, this response pattern is marked by a turning away from the stimulus as well as by decreased sensitivity of the sense organs, vasoconstriction in the periphery and in the head, and increased heart rate. As noted by Sturgis and Gramling (1988), the defensive response is often exhibited by phobic subjects toward anxiety-provoking stimuli (Fredrikson, 1981; Hare & Blevings, 1975; Lang, Melamed, & Hart, 1970). The orienting and defensive responses have also been compared in terms of habituation. Not surprisingly from an evolutionary survival

viewpoint, the orienting response habituates quite rapidly, whereas the defensive response habituates more slowly (Stern et al., 1980).

Often referred to in physiological studies, the law of initial values holds that the magnitude of elicited physiological responses is determined partly by the prestimulus or baseline level of activity (Wilder, 1950). For example, a child with a relatively low heart rate may find it difficult to produce further decreases through relaxation training, compared to a child with a much higher heart rate. Although the law of initial values seems to apply to most cardiovascular and vasomotor responses, it does not appear to be operative in other physiological systems, such as electrodermal responses (Sturgis & Gramling, 1988). Nonetheless, the law of initial values should be considered in the evaluation of children's physiological responses in assessment and treatment. Further information on these principles can be found in other sources (Hassett, 1978; Sturgis & Arena, 1984; Sturgis & Gramling, 1988).

COMMON PHYSIOLOGICAL MEASURES

The instrumentation used in physiological assessment has been nicely reviewed by Sturgis and Gramling (1988). The physiograph is still the basic instrument used in physiological assessment. With this instrument, it is possible to monitor otherwise covert physiological events. Sturgis and Gramling point out that the equipment of interest in physiological assessment typically includes (1) electrodes or transducers that detect the signal; (2) the physiograph proper; (3) output devices, including penwriters and oscilloscopes; and (4) integrators and other means of quantifying the output. Regarding the detection of the physiological response, electrodes are used when the response of interest involves a bioelectric signal (e.g., muscle activity). Although needle electrodes are used for specialist purposes, most physiological recording relies on surface electrodes. Nearly all electrodes used today are made of silver–silver chloride disks encased in a plastic housing; skin contact is made through a paste or jellylike substance capable of conducting electrical activity. Transducers are used in physiological assessment when the response of interest is in the form of physical or mechanical energy (e.g., strain gauge strapped around the chest to monitor respiratory activity). Despite technological advances, however, it will be appreciated that physiological assessment requires technological expertise in electrode placement, equipment operation, and data quantification. The physiograph has been used in several studies with anxious or phobic children (e.g., Faust & Melamed, 1984; Klingman, Melamed, Cuthbert, & Hermecz, 1984).

The most common physiological measures that are taken with children are reflective of activity in the musculoskeletal system, cardiovascular system, electrodermal system, respiratory system, and central nervous system. Excellent discussions of these physiological responses, covering their anatomy, physiology, and measurement, can be found in other sources (e.g., Kallman & Feuerstein, 1986; Sturgis & Gramling, 1988). In brief, musculoskeletal activity has been subjected to different measures over the years, although the electromyogram (EMG) is the most frequently used in the assessment of "muscular tension." Strictly speaking, the EMG is a recording of electrical activity in the muscle from which the level of muscular activity is inferred (Goldstein, 1972; Nietzel, Bernstein, & Russell, 1988). The muscles most frequently assessed include the frontalis muscle (located in the forehead), the trapezius muscle (located in the shoulders), and the brachioradialus muscles (located in the lower arms) (Hassett, 1978; Sturgis & Arena, 1984). Because of the

influence of other muscles, authorities warn against assigning the muscle of origin to the EMG recording. Although we tend to speak of "frontalis EMG" in the assessment of children, for example, this degree of specificity probably cannot be justified (Stern et al., 1980).

The most common measures of cardiovascular activity in children include heart rate, blood pressure, and vasomotor activity. Of these, heart rate is the most common, as it is easily monitored and less sensitive to extraneous influences (Nietzel et al., 1988). The electrical impulses associated with the beating heart yield a distinctive pattern that is recorded as the electrocardiogram (ECG or EKG). Blood pressure is usually reported in terms of systolic and diastolic blood pressure [expressed in millimeters of mercury (mm Hg)]. Diastolic blood pressure represents the force of the blood flow at the time the cardiac muscle relax and is considered to be the more sensitive of the blood pressures in physiological assessment (Nietzel et al., 1988). Vasomotor activity has been divided into two components, blood volume and blood volume pulse. Whereas blood volume represents the absolute level of blood in the tissue, the blood volume pulse refers to blood flow through the tissue with each cardiac contraction (Kallman & Feuerstein, 1986). As sympathetic arousal produces peripheral vasoconstriction and a reduction in blood supply to the extremities, skin temperature is yet another measure of physiological arousal.

Measures of electrodermal activity are also frequently used in the physiological assessment of children; the two most common measures of electrodermal activity are skin conductance and its reciprocal, skin resistance (Zeichner, 1987). Innervated by the sympathetic nervous system, the sweat glands have a direct influence on skin conductance and skin resistance. More specifically, increases in sweating produce increased conductance (decreased resistance). Consequently, measures of electrodermal activity are believed to be useful indices of autonomic arousal in children. As noted by Nietzel et al. (1988), the kind of changes that occur after the presentation of a stimulus are referred to as "elicited" or "evoked" responses. However, changes in skin conductance may also occur in the absence of any specific stimulus presentations. These changes are called "spontaneous" or "nonspecific" fluctuations. Although the latter changes are less marked compared to evoked responses, they are considered to be a relatively valid measure of arousal (Nietzel et al., 1988).

PHYSIOLOGICAL RECORDING WITH CHILDREN

Given their physical and cognitive abilities, children should not be expected to act like miniature adults during physiological assessment. Sometimes anxious children exhibit fear and apprehension about equipment (cf. Blanchard & Andrasik, 1985). This is particularly true in the case of obtrusive instrumentation such as the physiograph. Children may feel vulnerable and express worries about physical danger and harm (e.g., receiving an electric shock). Blanchard and Andrasik also point out that children have a reduced ability to comprehend the rationale of the assessment procedures. Another problem concerns the resistive behaviors that children sometimes display toward personnel responsible for attaching and removing electrodes and transducers.

The adaptation period is an important part of physiological assessment. Sturgis and Arena (1984) have noted that the adaptation period provides the subject with an opportunity to become familiar with the setting and thus allows for the stabilization of the physiological response being measured before baseline and experimental data are gathered. From the

studies that have examined the adaptation period (e.g., Meyers & Craighead, 1978), Sturgis and Arena concluded that the time needed for stabilization ranges from 5 to 13 minutes. Thus, a conservative approach would allow for a 13-minute adaptation period or the stabilization of the response over a shorter period (say 3 minutes) (Sturgis & Gramling, 1988). Of course, maintaining the cooperation of children for extended durations in the laboratory can be problematic, as they are likely to become bored and restlessness. A recent investigation of cardiovascular reactivity in anxious children to social-evaluative tasks allowed for an adaptation period of 10 minutes (Beidel, 1988).

To some extent at least, these difficulties can be anticipated by the clinician. Age-appropriate explanations of the equipment and the purpose of the visits should be offered to children prior to assessment. As suggested by Blanchard and Andrasik (1985), videotaped demonstrations and a tour of the facilities prior to assessment are helpful in this respect. Having parents participate in the assessment procedure, while the child observes, is also a useful strategy in alleviating anxiety and gaining the child's trust. For Blanchard and Andrasik, even "humorous" references to electric chairs and electric shock are discouraged, with electrodes being referred to as "sensors" and "pickups."

Sometimes less threatening and intrusive options are possible in physiological assessment. For example, Sharpley, Parsons, and Tillinh (1989) examined heart rate reactivity in children to academic tasks in school settings. In this study, heart rate was monitored by a photoelectric pulse transducer attached to the earlobe and coupled to a personal computer. Other less threatening physiological assessment procedures have also been reported. Representative of these methods is the palmar sweat index. This particular measure is a quantification of the sweat gland activity of the hand and is obtained via an impression of the skin (Dabbs, Johnson, & Leventhal, 1968; R. Johnson & Dabbs, 1967; Lore, 1966). Although it lacks the precision of the physiograph, it has proved to be a useful physiological measure in the assessment of transitory anxiety in children in the field (e.g., P. A. Johnson & Stockdale, 1975; Melamed & Siegel, 1975). However, measures such as the palmar sweat index have fallen into disfavor due to their questionable reliability and validity (see Beidel, 1989).

Of course, we must also consider the influence of developmental factors in physiological responding. Illustratively, the potency of developmental factors is evident in the cardiac and electrodermal responses of children. In relation to tonic heart rate in children, both heart rate and heart rate variability decrease with age (Shinebourne, 1974). Furthermore, developmental influences are evident in the cardiac reactivity of children, as shown by the well-known "visual cliff" studies. Infants around 6–7 months of age display overt fear behavior and distress when exposed to a simulated cliff (Gibson & Walk, 1960; Schwartz, Campos, & Baisel, 1973). Prior to this critical stage of perceptual–motor development, infants exhibit exploratory behavior and cardiac deceleration in the presence of the "cliff" (orienting response). In contrast, the older infants who have reached this stage of development, and are obviously upset by exposure to the simulated cliff, demonstrate cardiac acceleration (defensive response). Not surprisingly, developmental changes in the cardiovascular response system are associated with complex age-related functional and morphological changes (Porges & Fox, 1986). More extensive reviews of developmental trends in cardiac activity can be found in other sources (e.g., Graham & Clifton, 1974; Porges & Fox, 1986; Venables, 1980).

Although the literature on electrodermal activity in infants and children is somewhat conflicting, developmental factors appear to have a bearing on the tonic and phasic activity of this physiological system as well (Edelberg, 1972; Venables, 1980). In a large cross-

sectional study of children on the island of Mauritius, Venables and his colleagues found that a peak value of conductance level was reached at about 5 years (Venables, 1980). In view of the sampling bias, however, the generalizability of these data is questionable. Regarding evoked electrodermal responses, Janes, Hesselbrock, and Stern (1978) found that younger children were more responsive than older children on a variety of electrodermal responses. These differences were evident in conditioning, habituation, and spontaneous activity between trials. Morrow, Boring, Keough, and Haesly (1969) studied skin resistance conditioning in three groups of subjects: children, young adults, and aged adults. Although all three groups exhibited conditioning, age differences were observed in the magnitude of the responses. Underlying these developmental shifts are a set of physical changes related to sweat gland density and functioning (Porges & Fox, 1986). In sum, developmental factors appear to exert a profound influence on the electrodermal activity of children (reviewed by Edelberg, 1972; Porges & Fox, 1986; Venables, 1980).

As already implied, other subject variables may influence the physiological responses of children. In a study on racial differences in autonomic responses, Janes, Worland, and Stern (1976) found that black children were more responsive in a vasomotor measure, whereas white children were more responsive in skin potential. These differences were explained in terms of possible greater hydration in the skin of black children. No differences emerged for heart rate between the two groups. In a subsequent study, however, Janes et al. (1978) found fewer racial differences than expected in measures of electrodermal activity. As pointed out by Sturgis and Arena (1984), data on possible sex differences in physiological response patterns are scarce (e.g., Murphy, Alpert, Willey, & Somes, 1988). However, the phases of the menstrual cycle might be expected to influence the physiological responding to girls, particularly in view of the varying levels of estrogen and progesterone that are secreted into the body (Wineman, 1971).

Looking at this complex state of affairs, what conclusions are to be drawn for the purposes of child assessment? As noted by Porges and Fox (1986), early development is marked by the maturation of the peripheral physiological systems, which become more "integrated" with central control systems. During the later years of life, the physiological systems exhibit various levels of attenuated output and dysfunction. In other words, the effect of age is biphasic. Thus, in physiological assessment, we should examine how much an aspect of autonomic reactivity may be limited by the child's physiological development before we consider alternate interpretations (Venables, 1980). Unfortunately for the clinician, this evaluation is not always a straightforward exercise, as there are insufficient normative data on the physiological responses of children. Of course, age-related norms are available in certain areas, such as tonic heart rate (Shinebourne, 1974). However, physiologists themselves have confirmed the general dearth of normative data and have called for prospective, longitudinal investigations (Venables, 1980). In the meantime, clinicians are required to make judgments about physiological responses on the basis of such limited data as are available.

RELIABILITY AND VALIDITY

In the light of the preceding considerations, it is not surprising that reliability and validity are of major concern in the physiological assessment of children. As Kallman and Feuerstein (1986) have emphasized, some changes in physiological recording may not be attributable to psychobiologically relevant stimuli. These kinds of changes are referred to as

artifacts. We have already noted the susceptibility of the child to respond—behaviorally and physiologically—to novel stimuli and the consequent need for adaptation periods and repeated assessments. However, many other artifacts need to be controlled in order to obtain satisfactory reliability and validity.

Movement artifacts are a particular concern in the assessment of children, as any shift of the interface between the subject and the electrode will produce an artifact in the physiological recording. Given the likelihood of some movement, it is recommended that the child be closely observed so that movements preceding changes in the physiological recording can be noted. Kallman and Feuerstein (1986) point out that in the case of small bioelectric signals (i.e., EMG or EEG), movement artifacts become crucial. Even eye blinks will produce changes in the EEG or frontalis muscle tension recording.

Turning to other kinds of artifacts, it has been found that transient electrical fields interfere with physiological recordings. Electrical interference may arise from fluorescent lights, AC power outlets, and electromechanical equipment. This artifact can be controlled through electrically shielding the physiological laboratory, by filtering, or by "grounding" the child (see Kallman & Feuerstein, 1986; Stern et al., 1980). Furthermore, noise, light, and other sensory stimuli affect the child's physiological responding. Thus, attention should be given to ambient sensory levels during physiological assessment. The ideal assessment environment would be electrically shielded, temperature-controlled, sound-insulated, and illuminated at a constant level during and between assessment sessions (Kallman & Feuerstein, 1986).

In a similar vein, Sturgis and Arena (1984) have cautioned that the reliability of physiological measures is affected by many factors. Focusing on test–retest reliability of physiological measures, these authors believe that we should expect some degree of change in physiological reactivity over time. The test–retest reliability of physiological measures has been examined in several investigations with adults. Recently, Waters, Williamson, Bernard, Blouin, and Faulstich (1987) examined the test–retest reliability of a number of physiological measures to anger imagery, aversive slides, and other assessment procedures. Significant but modest correlations were found for skin conductance level and response, skin temperature, respiration rate, heart rate, and systolic blood pressure. Absolute scores were more often stable than change scores. However, the reliability of physiological measures with children must be examined empirically rather than assumed on the basis of adult studies.

As noted by Blake and Andrasik (1988), once confidence in the reliability of physiological recording is achieved, validity issues can be assessed. These authors discuss the validity of physiological measures from several perspectives. For example, the validity of a physiological measure can be examined by comparing measurement results with a criterion believed to represent the construct under investigation (i.e., *criterion-related validity*). To illustrate, heart rate as an index of anxiety experienced during an evaluative task will have criterion validity if it closely parallels the child's ratings of subjective distress. When expected physiological changes result from a successful treatment, the measure is described as having *treatment validity*. For example, hand temperature measures as an index of anxiety are supported when an individual shows reduced anxiety symptomatology coincident with increased peripheral temperature following relaxation training and desensitization. However, as we shall find, there are many complexities relating to the issue of validity (see the "Response Fractionation" section below). Crucial as they are to the physiological assessment of childhood anxiety disorders, reliability and validity await fuller articulation and psychometric evaluation.

RECENT EMPIRICAL FINDINGS

In an excellent review, Beidel (1989) has discussed the extant literature on the physiological responses of infants, toddlers, and school-aged children when placed in stressful or fear-provoking situations. Autonomic changes have been shown to occur in normal children when they are exposed to such anxiety-provoking situations as receiving an injection (Shapiro, 1975), dental examination (Howitt & Stricker, 1969; Simpson, Ruzicka, & Thomas, 1974), and tests or examinations (Darley & Katz, 1973; Sharpley et al., 1989). However, this review is confined to recent physiological investigations of anxious children (Beidel, 1988, 1991; Matthews, Manuck, & Saab, 1986; Van Hasselt, Hersen, Bellack, Rosenblum, & Lamparski, 1979).

In the Matthews et al. (1986) study, the cardiovascular responses of adolescents ($N = 23$) were examined during a naturally occurring stressor. The stressor involved a 5-minute presentation in a high school English class (a compulsory assessment requirement). The subjects were divided into anxious and nonanxious groups on the basis of their scores on the Trait Anxiety scale of the State–Trait Personality Inventory (STPI) (Spielberger et al., 1979; Spielberger et al., 1983). Blood pressure and heart rate were monitored by an automated electrosphygmomanometer on the nondominant arm. Physiological measures were taken at 90-second intervals at four different stages associated with the stressor—prior to the speech, on the signal for the speech, immediately after the speech, and at the next English class. The researchers found that the anxious group exhibited elevated systolic blood pressure and heart rate responses to the stressor of giving a speech, relative to the English class. Clearly, the physiological changes that occurred in the anxious youngsters were due to the stressor of giving a speech and not to the general level of stress that is experienced in attending high school classes.

These researchers also examined the relationship of cardiovascular reactivity to other psychological and behavioral characteristics, including anger and hostility. Interestingly, angry adolescents experienced a somewhat different physiological reaction to the stressor of giving a speech. Whereas anxious adolescents exhibited changes in systolic blood pressure and heart rate during the stressor, angry adolescents experienced an increase in diastolic blood pressure. However, several major methodological limitations are apparent with this investigation. In the absence of a diagnostic interview, it is unknown whether any of the anxious adolescents had an anxiety disorder. Also, the findings should be regarded as tentative in view of the small sample size.

In her investigation, Beidel (1988) compared the physiological responses of test-anxious and non-test-anxious children during two social-evaluative laboratory tasks: a timed vocabulary test and an oral reading session. Elementary-school children were designated as test-anxious or non-test-anxious on the basis of scores on self-report inventory and diagnostic interview. The two groups were equivalent with regard to age, sex, and grade level (25 children per group). The results of diagnostic interviewing indicated that 60% of the test-anxious children met criteria for a DSM-III anxiety disorder, the most common diagnoses being overanxious disorder and social phobia. Blood pressure and heart rate were measured every 2 minutes during baseline and the two evaluative tasks. The results revealed that the test-anxious group had a significantly larger heart rate increase during the evaluative tasks compared to their non-test-anxious peers [test-anxious, $M = 95.5$ beats/minute (BPM), 6.44 BPM increase, vs. non-test-anxious, $M = 90.7$ BPM, 0.95 BPM increase]. However, there were no differences between the groups on systolic or diastolic blood pressure. Visual examination of the data revealed that the heart rate of the non-test-

anxious children declined during the tasks, suggesting a tendency for habituation or adaptation to task demands. In contrast, the test-anxious children maintained a constant heart rate elevation. Bearing in mind the heterogeneity of the test-anxious group, caution should be exercised in making generalizations about the physiological reactivity of anxious children. In fact, further examination of the data by the researcher showed that physiological reactivity was related to the specific type of anxiety disorder exhibited by the child (Beidel, 1991). Children with social phobia were found to be the most physiologically responsive during the evaluative tasks. In contrast, children with overanxious disorder were remarkably unresponsive, a finding that led the researcher to question the validity of this particular diagnostic category (cf. generalized anxiety disorder). However, in view of the small sample sizes involved in comparisons across diagnostic categories, it is important that further physiological research be undertaken on much larger samples of children with different types of anxiety disorders.

Relatively few investigations have included physiological measures in the evaluation of treatment programs. However, Van Hasselt et al. (1979) used measures of cardiovascular reactivity in their assessment and treatment of an 11-year-old multiphobic boy. As part of his initial assessment, he was interviewed and completed a fear survey schedule for children that indicated three primary fears: blood, heights, and test-taking. The child's self-reported fears were corroborated by parents and teachers. Subsequent to the identification of the target phobias via self- and other-reports, the phobias were assessed on motoric, physiological, and cognitive indices. For example, the child's fear of blood was assessed by bringing a blood-soaked pillowcase progressively closer to him while he was seated until he signaled the termination of the test (motoric). In conjunction with such exposures, he was also required to assess his level of subjective fear (cognitive). Heart rate and finger-pulse volume were also monitored during such exposures in order to ascertain his level of autonomic arousal (physiological).

Assessment data indicated that the child exhibited marked changes in the motoric, cognitive, and physiological channels for each of the phobias. Relaxation training and systematic desensitization were therefore implemented to help the boy overcome his excessive fears. Consistent with multiple-baseline strategies, treatment was directed sequentially and cumulatively to the targeted fears. The assessment of the motoric, cognitive, and physiological response systems continued independently of the child's treatment. On the basis of data derived from these "probe" sessions, it became apparent that the fear-reduction procedures were effective on motoric and cognitive measures. However, less substantial results were observed with regard to changes in physiological functioning. Except for heart rate changes in relation to his phobia of heights, reduction of fear as assessed by physiological indices did not coincide with the introduction of treatment. Nonetheless, all gains were maintained over 1-, 4-, and 6-month follow-up periods. This study is a nice illustration of physiological assessment as part of multimethod assessment. As a result of physiological monitoring over the treatment period and at the follow-ups, it was also possible to examine the relationship between the dependent variables.

RESPONSE FRACTIONATION

It is apparent from the foregoing discussion that the relationship between physiological measures and measures of activity in other channels (cognitive and overt–behavioral) is

characterized by a lack of significant covariation. These measures do not necessarily covary with changing environmental conditions, nor do they demonstrate similar effects from intervention (Haynes, 1978). Terms such as *desynchrony*, *asynchrony*, and *response fractionation* have been used to describe this lack of response covariation. This concept has been cogently argued in the general literature on behavioral assessment (e.g., Hodgson & Rachman, 1974; Haynes, 1978) and more recently articulated in relation to the assessment of child disorders (King, Hamilton, & Ollendick, 1988; Mash & Terdal, 1988; Ollendick & Hersen, 1993).

Response fractionation may occur in the outcomes of intervention with anxious children. In the treatment of the multiphobic boy described in the previous section, Van Hasselt et al. (1979) found that physiological improvements were not as evident as were gains on subjective and behavioral measures. Obviously, it cannot be assumed that treatment improvements in one response system imply improvements in the other response systems. Thus, the breadth of treatment improvements must be determined empirically. Of course, response fractionation is confounded by measurement issues. Quite simply, the low degree of correspondence among such measures may be due to methodological deficiencies (Papillo, Murphy, & Gorman, 1988). Although it is difficult to escape from the overall conclusion that desynchrony exists, we should continue to refine our measures so that we can obtain a greater understanding of these complexities in child assessment.

In addition to the desynchrony between physiological measures and nonphysiological measures, there is not always synchrony among physiological measures. It will be recalled that in her physiological monitoring of test-anxious children during an evaluative task, Beidel (1988) observed increases in heart rate, but not in diastolic and systolic blood pressures. Even under the same assessment conditions, children may also exhibit different response patterns. Illustratively, stressful stimuli may elicit mainly cardiac responses in some children, whereas other children may show greater responsitivity on other physiological measures. Haynes (1978) has noted that response fractionation is closely tied to the concept of individual-response and stimulus-response specificity, a relationship that suggests that reliable patterns of autonomic responses tend to be associated with specific stimuli and individuals. In the light of these complexities, a range of physiological measures are preferred in the assessment of anxious children (e.g., Hermecz & Melamed, 1984).

CASE ILLUSTRATION

Eileen is a 10-year-old girl who was referred to the Monash University Anxiety Disorders Clinic for Children because of an extreme fear of dogs. Several years ago, Eileen had been attacked by a dog as she was walking home from school. A few months later, she was the victim of another dog attack while shopping. As a result of these traumatic experiences, Eileen became very frightened of dogs. Also, she avoided walking to school and playing outdoors because of her fear of dogs. In a structured clinical interview, it was evident that Eileen's fear of dogs met the DSM-III-R criteria for simple phobia. In elaborating on her anxiety symptomatology, Eileen reported various physiological changes indicative of cardiovascular and respiratory distress. In discussion about antecedent stimuli that trigger her phobic reaction, Eileen identified the proximity of the dog to be an especially powerful cue, along with the sound of barking. Of particular concern to her parents was the possibility that her fear may have generalized to other animals. The mother

had heard of another child who was supposedly fearful of nearly all animals following a traumatic experience with a dog. Eileen appeared somewhat confused or uncertain when questioned as to whether or not she feared other animals.

In order to further investigate these issues, physiological assessment was conducted in the clinic laboratory. Eileen was shown the equipment (polygraph) and reassured about the safety of the procedure. As a further ethical safeguard, the procedure was also explained to her mother. A 10-minute adaptation period was successful in stabilizing her physiological responses. Various stimulus materials were then introduced to Eileen in a controlled sequence: baseline, slides of dogs, baseline, slides of dogs plus audiotapes of dogs barking, baseline, and slides of other animals. The physiological measures that were taken included heart rate, skin conductance, and frontalis EMG. The most sensitive physiological response was heart rate, as shown by the mean BPM recorded for each of the testing phases: baseline (86 BPM), slides of dogs (94 BPM), baseline (88 BPM), slides of dogs plus audiotapes of dogs barking (98 BPM), baseline (90 BPM), slides of other animals (88 BPM). Clearly, the presentation of the phobia-related stimuli produced marked increases in mean heart rate. Also, changes in heart rate paralleled Eileen's ratings of subjective distress, taken at each phase. However, measures of skin conductance and frontalis EMG showed no such clear pattern. Repeated testing a week later in the clinic laboratory yielded similar findings, thus confirming the reliability of the results.

The results of physiological assessment were consistent with the clinical interview data and diagnosis of simple phobia. It also appeared that Eileen's phobic reaction was confined to dogs, much to the relief of the child and her parents. Behavioral observations of Eileen on subsequent visits to pet shops and farms provided further evidence as to the specificity of her animal phobia. Consequently, treatment efforts focused solely on overcoming her phobia of dogs. A desensitization program was developed for Eileen involving graduated exposure to dogs (especially barking dogs). Desensitization therapy is believed to be well suited for children with extreme fears involving physiological reactivity and avoidance behavior (King et al., 1988; Wolpe, 1958). Eileen was also taught various coping skills to help control any future physiological distress that might be experienced when she was in proximity to dogs. Overall, physiological recording was useful in the assessment and treatment of Eileen's dog phobia.

SUMMARY

Concern for physiological measures is consistent with contemporary conceptualizations of anxiety and diagnostic criteria for phobic and anxiety disorders in children and adolescents. Technological developments have also facilitated the growth of physiological assessment. An understanding of physiological laws or concepts such as homeostasis and habituation is essential for the clinician interested in physiological measurement. Although the physiograph is the basic instrument used in physiological assessment, many other physiological recording instruments are now available to the clinician. The most common physiological measures used in the assessment of anxiety include those representative of activity in the musculoskeletal system (e.g., frontalis EMG), cardiovascular system (e.g., heart rate, blood pressure, and vasomotor activity), and electrodermal system (e.g., skin conductance). Of course, the clinician wishing to undertake physiological assessment with children must develop technological expertise concerning electrode placement, the operation of equipment, and data quantification.

We also emphasized the importance of developmental factors in physiological assessment. In particular, many children require some "preparation," especially for assessment that involves obtrusive equipment and multiple recordings. Concern was also expressed about the dearth of normative data on children's physiological responses, as well as for the reliability and validity of physiological assessment. The results of several recent investigations confirm that anxious children exhibit heightened physiological reactivity in social-evaluative situations. Whether children with different types of anxiety disorders show different physiological profiles also requires further investigation, although preliminary findings are suggestive of differences between overanxious disorder and social phobia. Thus far, physiological measures have been underutilized in the evaluation of treatment programs for children with anxiety disorders and phobias.

REFERENCES

American Psychiatric Association (1987). *Diagnostic and statistical manual of mental disorders*, 3rd ed., revised. Washington, DC: Author.

Barrios, B. A., & Hartmann, D. P. (1988). Fears and anxieties. In E. J. Mash & L. F. Terdal (Eds.), *Behavioral assessment of childhood disorders*, 2nd ed. (pp. 196–262). New York: Guilford Press.

Beidel, D. C. (1988). Psychophysiological assessment of anxious emotional states in children. *Journal of Abnormal Psychology, 97*, 80–82.

Beidel, D. C. (1989). Assessing anxious emotions: A review of psychophysiological assessment in children. *Clinical Psychology Review, 9*, 717–736.

Beidel, D. C. (1991). Social phobia and overanxious disorder in school-age children. *Journal of the American Academy of Child and Adolescent Psychiatry, 30*, 545–552.

Blake, D. D., & Andrasik, F. (1988). Physiological and activity measures with educational problems. In E. S. Shapiro & T. R. Kratochwill (Eds.), *Behavioral assessment in schools: Conceptual foundations and practical applications* (pp. 161–205). New York: Guilford Press.

Blanchard, E. B., & Andrasik, F. (1985). *Management of chronic headaches: A psychological approach*. New York: Pergamon Press.

Dabbs, J. M., Johnson, J. E., & Leventhal, H. (1968). Palmar sweating: A quick and simple measure. *Journal of Experimental Psychology, 78*, 347–350.

Darley, S. A., & Katz, I. (1973). Heart rate changes in children as a function of test versus game instructions and text anxiety. *Child Development, 44*, 784–789.

Edelberg, R. (1972). Electrical activity of the skin: Its measurement and uses in psychophysiology, In N. S. Greenfield & R. A. Sternbach (Eds.), *Handbook of psychophysiology* (pp. 367–418). New York: Holt, Rinehart & Winston.

Faust, J., & Melamed, B. G. (1984). Influence of arousal, previous experience, and age on surgery preparation of same day of surgery and in-hospital pediatric patients. *Journal of Consulting and Clinical Psychology, 52*, 359–365.

Fredrikson, M. (1981). Orienting and defensive reactions to phobic and conditioned fear stimuli in phobics and normals. *Psychophysiology, 18*, 232–239.

Gibson, E. J., & Walk, R. D. (1960). The "visual cliff." *Scientific American, 202*, 64–71.

Goldstein, I. B. (1972). Electromyography: A measure of skeletal muscle response. In N. S. Greenfield & R. A. Sternbach (Eds.), *Handbook of psychophysiology* (pp. 329–365). New York: Holt, Rinehart & Winston.

Graham, F. K., & Clifton, R. K. (1974). Heart rate change as a component of the orienting response. *Psychological Bulletin, 65*, 305–320.

Hare, R. D., & Blevings, G. (1975). Defensive responses to phobic stimuli. *Biological Psychology, 3*, 1–13.

Hassett, J. (1978). *A primer of psychophysiology*. San Francisco: W. H. Freeman.

Haynes, S. N. (1978). *Principles of behavioral assessment*. New York: Gardner Press.

Hermecz, D. A., & Melamed, B. G. (1984). The assessment of emotional training in fearful children. *Behavior Therapy, 15*, 156–172.

Hodgson, R., & Rachman, S. (1974). Desynchrony in measures of fear. *Behaviour Research and Therapy, 12*, 319–326.

Howitt, J. W., & Stricker, G. (1969). Sequential changes in response to dental procedures. *Journal of Dental Research, 49*, 1074–1077.

Janes, C. L., Hesselbrock, V., & Stern, J. A. (1978). Parental psychopathology, age and race as related to electrodermal activity of children. *Psychophysiology, 15*, 24–33.

Janes, C. L., Worland, J., & Stern, J. (1976). Skin potential and vasomotor responsiveness of black and white children. *Psychophysiology, 13*, 523–527.

Johnson, P. A., & Stockdale, D. F. (1975). Effects of puppet therapy on palmar sweating of hospitalized children. *Johns Hopkins Medical Journal, 137*, 1–5.

Johnson, R., & Dabbs, J. M. (1967). Enumeration of active sweat glands: A simple physiological indicator of psychological changes. *Nursing Research, 16*, 273–276.

Johnson, S. B., & Melamed, B. G. (1979). The assessment and treatment of children's fears. In B. B. Lahey & A. E. Kazdin (Eds.), *Advances in clinical child psychology*, Vol. 2 (pp. 107–141). New York: Plenum Press.

Jones, M. C. (1924). A laboratory study of fear: The case of Peter. *Journal of Genetic Psychology, 31*, 308–315.

Jost, H. (1941). Some physiological changes during frustration. *Child Development, 12*, 9–15.

Kallman, W. M., & Feuerstein, M. J. (1986). Psychophysiological procedures. In A. R. Ciminero, K. S. Calhoun, & H. E. Adams (Eds.), *Handbook of behavioral assessment*, 3rd ed. (pp. 325–350). New York: Wiley-International.

Kaufman, M. P., & Schneiderman, N. (1986). Physiological bases of respiratory psychophysiology. In M. G. H. Coles, E. Donchin, & S. W. Porges (Eds.), *Psychophysiology: Systems, processes and applications* (pp. 107–121). New York: Guilford Press.

King, N. J. (1993). Physiological assessment. In T. H. Ollendick & M. Hersen (Eds.), *Handbook of child and adolescent assessment* (pp. 180–191). Boston: Allyn & Bacon.

King, N. J., Hamilton, D. I., & Ollendick, T. H. (1988). *Children's phobias: A behavioural perspective*. Chichester: John Wiley.

Klingman, A., Melamed, B. G., Cuthbert, M. I., & Hermecz, D. A. (1984). Effects of participant modeling on information acquisition and skill utilization. *Journal of Consulting and Clinical Psychology, 52*, 414–422.

Lang, P. J. (1968). Fear reduction and fear behavior: Problems in treating a construct. In J. M. Shlier (Ed.), *Research in psychotherapy*, Vol. 3 (pp. 90–103). Washington, DC: American Psychological Association.

Lang, P. J. (1971). The application of psychophysiological methods to the study of psychotherapy and behavior modification. In A. E. Bergin & S. L. Garfield (Eds.), *Handbook of psychotherapy and behavior change* (pp. 75–125). New York: John Wiley.

Lang, P. J., Melamed, B. G., & Hart, J. (1970). A psychophysiological analysis of fear modification using an automated desensitization procedure. *Journal of Abnormal Psychology, 6*, 220–234.

Lore, R. K. (1966). Palmar sweating and transitory anxiety in children. *Child Development, 37*, 116–124.

Lynn, R. (1966). *Attention, arousal and the orientation reaction*. Oxford: Pergamon Press.

Mash, E. J., & Terdal, L. G. (Eds.) (1988). *Behavioral assessment of childhood disorders*, 2nd ed. New York: Guilford Press.

Matthews, K. A., Manuck, S. B., & Saab, P. G. (1986). Cardiovascular responses of adolescents during a naturally occurring stressor and their behavioral and psychophysiological predictors. *Psychophysiology, 23*, 198–209.

Melamed, B. G., & Siegel, L. J. (1975). Reduction of anxiety in children facing hospitalization and surgery by use of filmed modeling. *Journal of Consulting and Clinical Psychology, 43*, 511–521.

Meyers, A. W., & Craighead, E. W. (1978). Adaptation periods in clinical psychophysiological research: A recommendation. *Behavior Therapy, 9*, 355–362.

Morrow, M. C., Boring, F. W., Keough, T. E., & Haesly, R. R. (1969). Differential GSR conditioning as a function of age. *Developmental Psychology, 1*, 299–302.

Murphy, J. K., Alpert, B. S., Willey, E. S., & Somes, G. S. (1988). Cardiovascular reactivity to psychological stress in healthy children. *Psychophysiology, 25*, 144–152.

Nietzel, M. T., Bernstein, D. A., & Russell, R. L. (1988). Assessment of anxiety and fear. In A. S. Bellack & M. Hersen (Eds.), *Behavioral assessment: A practical handbook*, 3rd ed. (pp. 280–312). New York: Pergamon Press.

O'Gorman, J. G. (1983). Habituation and personality. In A. Gale & J. Edwards (Eds.), *Physiological correlates of human behavior*, Vol. 3, *Individual differences and psychopathology* (pp. 45–61). London: Academic Press.

Ollendick, T. H. (1979). Fear reduction techniques with children. In M. Hersen, R. M. Eisler, & P. M. Miller (Eds.), *Progress in behavior modification*, Vol. 8 (pp. 127–168). New York: Academic Press.

Ollendick, T. H., & Hersen, M. (Eds.) (1993). *Handbook of child and adolescent assessment*. Boston: Allyn & Bacon.

Papillo, J. F., Murphy, P. M., & Gorman, J. M. (1988). Psychophysiology. In C. G. Last & M. Hersen (Eds.), *Handbook of anxiety disorders* (pp. 217–250). New York: Pergamon Press.

Porges, S. W., & Fox, N. A. (1986). Developmental psychophysiology. In M. G. H. Coles, E. Donchin, & S. W. Porges (Eds.), *Psychophysiology: Systems, process and applications* (pp. 611–625). New York: Guilford Press.

Ray, W. J., Cole, H., & Raczynski, J. M. (1983). Physiological assessment. In M. Hersen, A. E. Kazdin, & A. S. Bellack (Eds.), *The clinical psychology handbook* (pp. 427–453). New York: Pergamon Press.

Schwartz, A. N., Campos, J. J., & Baisel, E. J. (1973). The visual cliff: Cardiac and behavioral responses on the deep and shallow sides at five and nine months of age. *Journal of Experimental Child Psychology, 35*, 86–99.

Shapiro, A. H. (1975). Behavior of kibbutz and urban children receiving an injection. *Psychophysiology, 12*, 79–82.

Sharpley, C. F., Parsons, G. M., & Tillinh, H. (1989). Children's heart rate reactivity responses to three school tasks. *Psychology in the Schools, 26*, 411–414.

Shinebourne, E. A. (1974). Growth and development of the cardiovascular system. In J. A. Davis & J. Dobbing (Eds.), *Scientific foundations of paediatrics* (pp. 198–213). London: Heinemann.

Simpson, W. J., Ruzicka, R. L., & Thomas, N. R. (1974). Physiologic responses of children to initial dental experience. *Journal of Dentistry for Children, 41*, 465–470.

Spielberger, C. D., Jacobs, G., Crane, R., Russell, S., Westberry, L., Barker, L., Johnson, E., Knight, J., & Marks, E. (1979). *Preliminary manual for the State–Trait Personality Inventory (STPI)*. Tampa: Human Resources Institute, University of South Florida.

Spielberger, C. D., Jacobs, G., Russell, S., & Crane, R. S. (1983). Assessment of anger: The State–Trait anger scale. In J. N. Butcher & C. D. Spielberger (Eds.), *Advances in personality assessment*, Vol. 2 (pp. 159–187). Hillsdale, NJ: Erlbaum.

Stern, R. M., Ray, W. J., & Davis, C. M. (1980). *Psychophysiological recording*. New York: Oxford University Press.

Sturgis, E. T., & Arena, J. G. (1984). Psychophysiological assessment. In M. Hersen, A. S. Bellack, & P. M. Miller (Eds.), *Progress in behavior modification*, Vol. 17 (pp. 1–30). New York: Academic Press.

Sturgis, E. T., & Gramling, S. (1988). Psychophysiological assessment. In A. S. Bellack & M. Hersen (Eds.), *Behavioral assessment: A practical handbook*, 3rd ed. (pp. 213–251). New York: Pergamon Press.

Van Hasselt, V. B., Hersen, M., Bellack, A. S., Rosenblum, N. D., & Lamparski, D. (1979). Tripartite assessment of the effects of systematic desensitization in a multiphobic child: An experimental analysis. *Journal of Behavior Therapy and Experimental Psychiatry, 10*, 51–55.

Venables, P. H. (1980). Autonomic reactivity. In M. Rutter (Ed.), *Scientific foundations of developmental psychiatry* (pp. 165–175). London: Heinemann.

Waters, W. F., Williamson, D. A., Bernard, B. A., Blouin, D. C., & Faulstich, M. E. (1987). Test–retest reliability of psychophysiological assessment. *Behaviour Research and Therapy, 25*, 213–221.

Wilder, J. (1950). The law of initial value. *Psychosomatic Medicine, 12*, 392–400.

Wineman, E. W. (1971). Autonomic balance changes during the human menstrual cycle. *Psychophysiology, 8*, 1–6.

Wolpe, J. (1958). *Psychotherapy by reciprocal inhibition*. Stanford, CA: Stanford University Press.

Zeichner, A. (1987). Neuropsychological, physiological and biochemical assessment. In C. L. Frame & J. L. Matson (Eds.), *Handbook of assessment in childhood psychopathology: Applied issues in differential diagnosis and treatment evaluation* (pp. 107–129). New York: Plenum Press.

20

Projective Techniques

Al J. Finch, Jr., and P. Michael Politano

INTRODUCTION

The definition, physiological and psychological correlates, etiology, and epidemiology of anxiety were dealt with extensively in Chapters 1–4. This chapter will deal with three areas: the need for projective techniques, the nature of projective techniques and their underlying hypothesis, and finally the general patterns of anxiety manifestations across projective techniques as applied to children and adolescents.

The first issue to be addressed has to do with the need for something like projective techniques. To understand the need for such techniques requires a basic understanding of the nature of the individual. Figure 1 presents a conceptualization of those aspects of the individual that make that person unique. On the first level is the overt behavior the individual exhibits. Most of this behavior is known to the person and can be observed by others. However, there are certain aspects of a person's behavior about which the person is not aware. Part of this lack of awareness of certain external behaviors arises from individuals' inability to observe all their own behavior. Just as a person cannot see his own back without an intermediary device, he cannot observe certain aspects of his own behavior. For example, the person may not realize how much his or her facial expression changes when asked a question he or she does not want to answer. However, to the external observer, it may be obvious that the person does not want to answer by the "pained" expression that appears on the person's face.

In addition to the external behaviors that a person exhibits, there are internal behaviors. Some of these behaviors are cognitive and some are affective. It really does not matter how

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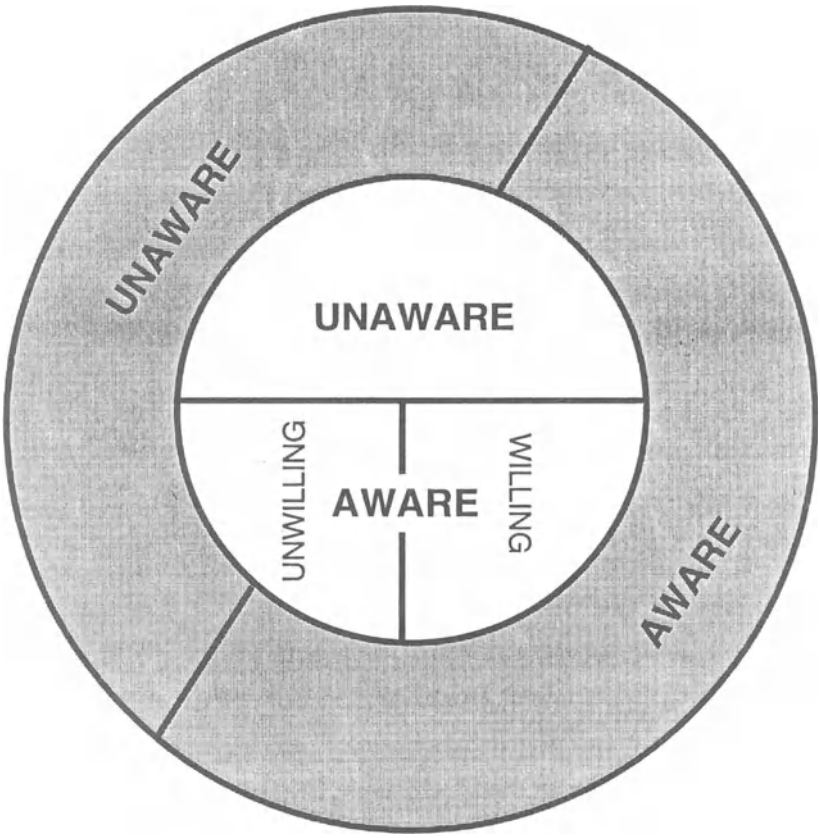

Figure 1. Conceptualization of the unique aspects of the individual.

these internal behaviors came into existence. Some people might prefer to conceptualize them as learned behaviors that reflect the individual's cumulative learning history or experiences. People who conceptualize these internal behaviors as learned are likely to see them as conditioned emotional responses, approach–avoidance conflicts, irrational beliefs, or negative thoughts or verbalizations. On the other hand, other people are likely to believe that these internal behaviors are the result of internal dynamics and conflicts, feelings of inferiority, or even archetypes. The vocabulary of this group will be very different from that of people with a learning approach. However, many of the same internal behaviors are of interest.

Of the internal behaviors, there are some of which the person is aware. For example, the individual may have a fear of dogs that he or she knows resulted from being attacked as a child by a Doberman. The source of these fears and associated internal behaviors of which the individual is aware can be shared with others. However, the person may not want to share

some of these internal behaviors. For example, children may have certain fantasies or fears that they consider too personal to share or that they believe they will be punished for having. Consequently, those internal behaviors of which people are aware can be further divided into two groups: those they are willing to share and those they are unwilling to share.

In addition to the internal behaviors of which the person is aware, there are some internal behaviors of which he or she is not aware. For example, an individual may have a fear of animals without knowing why. This fear may be the result of conditioning and generalization (Little Albert) or be due to fears of castration (Little Hans). Other internal behaviors of which the individual is unaware may be negative self-statements, irrational beliefs, achievement motivation, and feelings of inferiority or unfounded expectations. What is important for our discussion is that the person is not aware of these internal behaviors, which are likely to influence his or her reactions and behaviors.

Given this conceptualization of the individual, we turn to assessment issues. The level of behavior of interest to the examiner will determine the nature of the measure to be employed in the psychological evaluation. If only overt behavior is of interest, observations, self-monitoring, ratings, and nominations might be employed. All these measures would focus on overt behaviors that could be observed by the individual or others or both. However, if one is interested in internal behaviors, a different type of measurement would be needed. Various self-report measures can be employed for internal behaviors the person is aware of and is willing and able to share. These self-report measures can include interviews, sentence completions, or questionnaires, but all require that the person be both willing and able to share the internal behaviors. What is to be done, though, about those internal behaviors the person is aware of but unwilling to share and those the person is unaware of? If the examiner believes that any of these behaviors are important in understanding the person's behavior, projective techniques are the only assessment techniques specifically designed to determine the nature of these behaviors.

The selection of a particular projective technique will depend on the examiner's knowledge and particular preferences. For example, even if the Rorschach is selected, there is no assurance that two different individual examiners will use it in the same manner. Exner (1969) compared the five major systems or approaches that evolved for using the Rorschach in the United States. He concluded that the amount of differences across the five systems was so great that it was not accurate to refer to the "Rorschach" because the only thing in common across the systems was the ten cards. This statement helps to explain some of the different and inconsistent research findings that exist in the literature regarding not only the Rorschach but also other projective measures. Certainly, some of the quality of research as well as the research findings regarding projective techniques have been poor.

Projective techniques have a long history in the field of psychology. They have become such an established part of psychological assessment that most classification systems of personality tests begin with projective and objective techniques. Within this classification system, projective techniques are those tests in which the client must provide a response to an ambiguous stimulus, and this response then provides the examiner with a view into the client's conflicts, needs, or personality dynamics.

As applied psychology became more objective, as typified by the behavioral movement, projective techniques came to be associated with a set of tests and techniques that lacked reliability, validity, and scientific support. Consequently, for many psychologists, projective techniques came to be associated with an unscientific past and were rejected as unscientific. Despite this rejection by a segment of psychology, projective techniques

continue to be employed and would appear to be enjoying a revival. In fact, Tuma and Pratt (1982) found that most clinical child psychologists use projective measures in their practices. This chapter will attempt to present a conceptual model of how projective techniques are hypothesized to assess anxiety.

A disclaimer is necessary at the outset. Whereas the validity of the existence of anxiety as a psychological phenomenon is generally well accepted, the validity of the use of projective techniques to assess anxiety—or any psychological phenomenon, for that matter—is not nearly so well accepted. The purpose of this chapter is not to validate projective techniques empirically, methodologically, or clinically. It would be impossible to do so. Rather, the purpose of this chapter is simply to present an explanation of the rationale for the use of projective techniques and to say, essentially, that if one chooses to use projective techniques, then this is what anxiety might look like on those projectives.

THE PROJECTIVE HYPOTHESIS

In a somewhat tongue-in-cheek fashion, Murstein (1963, p. 1) suggested the following definition of projective tests:

> A projective test, a wag might say with some justification, is a certain indescribable something which has nothing to do with projection and is, moreover, not a test.

While such a definition captures a degree of the essence of the criticism of projective techniques, e.g., an "indescribable something," there is also an often-overlooked and important element of the definition, that is, "a projective test . . . is, moreover, not a test."

The justifications for why projective techniques should not be considered true tests are stated elsewhere (see Frank, 1939; Rosenzweig, 1961; Sargent, 1953). The gist of this argument is best captured by Anastasi (1982), who suggests that projective techniques, rather than being "tests," are a special extension of the clinical interview method and owe their usefulness and utility as much to the skill of the clinician as to any present, or absent, statistical property.

Abandoning the application of a "test" definition to projective techniques paves the way for understanding the rationale behind projective methods. Originally, the concept of projection was employed by Sigmund Freud (1894) to describe a defensive process whereby the ego attempted to defend itself by attributing unacceptable impulses to the external world. Freud's concept of projection was broadened by Murray (1938) to include more than a defensive strategy. For Murray, projection referred to people's tendencies to be influenced by their total previous experiences, including internal needs and past events, when responding to an ambiguous situation. As a result, when faced with a situation with considerable response uncertainty, such as an ambiguous stimulus, the person "projects" previous experiences and needs onto that situation.

The concept of projection was taken by Frank (1939) and formulated into the *projective hypothesis*, which was then applied to a number of psychological tests. The rationale for projective methods is captured in the projective hypothesis, which states, basically, that projective stimuli, be they drawings or inkblots, act as a screen onto which an individual "projects" his or her thought processes, needs, conflicts, unconscious wishes, attitudes, anxieties (fears), and world concepts (Anastasi, 1982; Cronbach, 1990; Frank, 1939). Additionally, a person's *approach* to the projective stimuli, as well as the content of his or

her response, may reflect fundamental aspects of that person's psychological makeup and intrapsychic functioning.

Since the formulation of the projective hypothesis, the Thematic Apperception Test, human figure drawings, and a number of other less structured tests have been traditionally classified as "projective tests." It is interesting to note that the Rorschach was developed before the projective hypothesis and is not regarded as a projective technique by many of its users (Exner, 1991). However, most classifications of psychological tests usually also include it as a projective technique.

The projective hypothesis can be broken down further into related tenets, thus adding some clarity to what projective methods are designed to accomplish. The first tenet holds that behavior is not, by nature, random. It is determined by the collection of all a person's thoughts, feelings, and emotions, as well as by the current and past reinforcement history. Following from this, the second tenet states that if behavior is not random, it must be organized. Third, if behavior is organized, then there must be an organizing entity, and that organizing entity is called "personality" (defined as "deeply ingrained patterns of behavior") [American Psychiatric Association (APA), 1987, p. 403)]. It follows, then, that if one can observe and understand the manner in which another person organizes his or her responses to the environment, then to that extent it becomes possible to gain some understanding of those aspects of the person's personality that were involved in the organization of the behavior(s) under observation.

Projective methods are special cases of environmental stimuli designed and developed to tap into what are considered to be psychologically important thoughts (e.g., about self), needs (e.g., nurturance, dependency), conflicts (e.g., id–ego–superego, approach–avoidance), wishes (e.g., self-enhancements), attitudes (e.g., toward others), anxieties (e.g., the unknown, fears), and concepts (e.g., love, anger, sadness). The ways in which a person responds to and organizes the stimulus material around these psychologically important functions gives some degree of insight into how that individual's personality potentially organizes his or her behavior under specific conditions; they also give insight into the interactions of that organization. More succinctly, projective techniques purport to give insight into the internal dynamics by which a person's external behaviors are organized around issues that have been determined to be psychologically potent.

Going one step further, it follows that more ambiguous projective stimuli will require greater organization and thus require a greater reliance on the organizational unit itself (personality), rather than reliance on knowledge, past experience, cognitive processing ability, and other factors (Anastasi, 1982). Additionally, the ambiguity represents a less structured channeling of energy such that more basic anxieties, needs, and wishes are expressed. Of course, ambiguity can be carried to the point where bizarre responses of no real value are consistently elicited—which is not the purpose of ambiguity within the projective methodology.

With the basic hypothesis and tenets of projective methodology in mind, the acceptance of the usefulness of projectives as part of the diagnostic interview process becomes an acceptance based on individual training, individual taste, and, to some extent, on faith in the techniques derived through the consistency of findings built up over time, across cases, and across situations. If one cannot accept projective techniques as an important extension of the clinical interview process and operate within the parameters of the projective hypothesis and its tenets, then the discussion that follows will be meaningless. If, however, one can so operate, then the discussion will give some general guidance to the manifestations of anxiety as elicited by the use of projective methods.

PROJECTIVE CONSIDERATIONS

Anxiety has been conceptualized, theoretically, as existing in either a state or a trait form (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). For the purpose of examining anxiety projectively, it might be conceptualized better as a drive force or an emotional state, thus moving away from endogenous–exogenous issues into a realm where one can deal more effectively with these more simplified questions: "Is anxiety present?" "To what extent is anxiety present?" As a drive, the effects of anxiety may be evident in the approach to the projective task, e.g., behaviors, mannerisms, interpersonal and self-related speech. As an emotional state, anxiety may be readily seen, projectively, in the actual production or content of the responses to the projective stimulus. Consequently, both approach and production become two major areas of focus and interest for the person administering the projective tasks.

CAUTIONS

On the basis of experience teaching graduate students and interns, the authors can say that there appears to be a strong tendency to want to look for one-to-one correspondences between certain projective responses and corresponding emotional states such that, for example, drawing long paths leading to houses always means distancing from human contact or tall and large chimneys always indicate phallic concerns. The search for this one-to-one correspondence seems, as much as anything, a search on the part of students for a degree of structure within this initially and, by contrast to objective personality testing, more amorphous process, thus alleviating their own anxiety caused by the apparent lack of structure to projective assessment.

While it would be nice for such cookbook-like correspondences to exist, the bottom line is that they basically do not (Buck, 1987). One must remember that as Anastasi (1982) pointed out, projective methodology is an extension of the clinical *interview*, not a test in which answers can be scored, summed, converted to standard scores, and compared to normative samples. (About this point, the more empirically based approaches to the Rorschach would disagree.)

To quickly illustrate this point, one has only to turn to Ogdon (1982) and look up some characteristic drawings of, say, large heads on drawings of persons. Research summarized by Ogdon indicates that a large head could imply aggression, expansive tendencies, inflated ego, paranoia, narcissism, neurosis, overvaluation of one's intelligence, high achievement aspirations, fantasy, regression, inhibition, dependency, immaturity, poor social adjustment, anxiety, preoccupation with headaches, subnormal intelligence, psychosis, bipolar tendencies—or a child under the age of 7 for whom a relatively large head would be developmentally appropriate. Out of this mosaic of possibilities, finding any one-to-one correspondence may be nearly impossible.

How, then, does one resolve this dilemma and make any sense whatsoever out of projective material? Just as a clinical interview is a process of gathering information, formulating, testing, discarding, and reformulating hypotheses with an eye toward understanding the individual and his or her behavior within an intrapsychic and social context, so it is with projective techniques. The "validity" of projectives (if we may use that psychometrically laden term) is in the strength of the patterns that appear across techniques, which is determined, in the final analysis, by the extent to which these patterns are

consistent with the person's history and behavior. For example, if one were to test a 9-year-old with an IQ test who turned out to score in the retarded range, and this 9-year-old had also drawn a person with a large head, then a number of the possible meanings cited by Ogdon related to large heads would be strengthened by the consistency *across* these two instruments, and others would be weakened. If a third instrument were added, perhaps a Bender, with developmentally significant errors, then possible hypotheses would be strengthened even further—and others weakened even more.

Since projective techniques represent a quick way to get to information about a person in the form of psychological dynamics and defenses that could be gotten to anyway over time through repeated interviews, or discovered in the process of therapeutic treatment, it is important to ensure that such information is not inconsistent with what is known about that person, particularly when the "quick" information gathered through projectives may be less grounded in a thorough knowledge of the person's history and behavior. If inconsistencies exist between projective findings and the person's actual behavior, then caution is warranted until such time as projective findings can be validated either through history or through behavior. To reiterate, the "validity" of projective findings is a function of consistency of findings across instruments that are also consistent with what is known about the person. Does this mean that any and all inconsistent findings from projectives should be discarded? We believe that such findings should not be discarded, but simply viewed with caution until additional validation is possible.

There are, then, two primary points to be derived from this discussion so far. First, one-to-one correspondences between specific responses and specific meanings of those responses do not, generally, exist. Second, what one looks for are patterns of responses across instruments (be they projective instruments or other kinds) that "fit" what is known about the individual.

One more cautionary comment is necessary. Though anxiety can be a primary emotional state—overt, rampant, generalized, and overriding—it can also be (and more commonly is) a concomitant emotional state coexisting with, or subsumed under, other emotions. Particularly with children and adolescents, anxiety tends to be found in conjunction with insecurity (unmet dependency and nurturance needs), lack of predictability in the child's or adolescent's world (future), conflict between inner needs and environmental pressures, unacceptable fantasies, and guilt (Bowlby, 1980; A. Freud, 1965; Halpern, 1953; Horner, 1979; Mahler, Pine, & Bergman, 1975; P. M. Symonds, 1949). It follows, then, that when one sees issues of insecurity, guilt, and conflicts in projective protocols, one should also be sensitive to the possible coexistence of anxiety.

PROJECTIVE MANIFESTATIONS

As suggested earlier, one can break the projective response cycle into two components: approach and production. Production can be further broken into subcomponents dealing with organization and with content. Given these general divisions, anxiety might manifest as described below (keep in mind the preceding cautionary statements).

Approach Considerations

Familiarity with the general physiological and psychological symptoms of anxiety can lead to speculations about how such symptoms might impact on an individual's approach to

projective tasks (see Chapters 15–19). As a brief review, these correlates are: muscular tension, tremors, increased urinary output, blurred vision, sleep disruption, palpitation, tachycardia, heart pain, dyspepsia, constriction of the throat, cold or sweaty extremities, "butterflies" in the stomach, ritualized behaviors, avoidance, lack of focus to behavior, preoccupations with physical symptoms, feelings of apprehension, threat of, fear of, or impending catastrophe, panic, derealization, depersonalization, uncertainty, feelings of isolation and helplessness, tentativeness, less complex thought processes, decreased assimilation of information, decreased ability to organize sequences of behavior over time, disruptions in behavior, themes, or manner of relating, and decreases in achievement orientation (APA, 1987; Goldenson, 1970; Greenspan, 1985; Kagan, 1984; Liss, 1955; Sussman, 1985; A. Symonds & M. Symonds, 1985; Thomas, 1989; Woodruff, Goodwin, & Guze, 1974).

An approach analysis, then, would involve gathering information through observation and questioning and using that information to arrive at the most plausible hypothesis to explain current behavior with a mind always open to changing information that may redirect the hypothesis. It is essentially a process of taking pieces, as presented, and putting them together into a picture that captures and explains what is going on with that person at that time in such a way that the pieces are consistent with each other and with the person's history and behavior.

How does this process work in practice? It is basically a process of observation and intelligent development of one or more hypotheses by the examiner and therefore requires that the examiner have a wide-ranging knowledge of human behavior and psychopathology in order to make sense of the pieces being presented.

If this approach were applied to anxiety, it might go as follows: Suppose that you are evaluating an 8-year-old girl who makes frequent trips to the bathroom during the evaluation session. Possible hypotheses for this behavior might be that she is experiencing some anxiety (increased urinary output), or may have a urinogenital problem, or may be trying to avoid the evaluation, or a number of other things. Suppose the child appears somewhat disorganized, has trouble focusing, and seems distracted. Possible hypotheses still include the foregoing ones, but might now also include attention-deficit hyperactivity disorder, subnormal intelligence, and so forth. Now suppose she complains of physical symptoms that overlap with those associated with anxiety ("butterflies," tachycardia, palpitations). These complaints might shift the weight of the evidence more in the direction of anxiety, but may not rule out other competing hypotheses. Additionally, she begins to talk about an impending breakup of her parents and expresses uncertainty and apprehension over what will happen to her and to the family unit. She expresses feelings closely associated with fears and apprehension—feels helpless in the face of major changes in her world—and seems less interested in favorite activities. Now the evidence, presented by the child and built up over time and pieced together intelligently by the examiner, begins to point more persuasively toward an anxiety problem (one that may overlap with other problems, e.g., depression). As can be seen, no one element directly suggested a clear and present anxiety. Anxiety was established by the accumulation of evidence consistent with history and behavior.

At the risk of vitiating the cautions already suggested relative to one-to-one correspondence, there follows a "laundry list" of approach behaviors one *might* see that *might* suggest anxiety: negative self-statements about ability ("I can't draw very good"), expression of doubts ("I don't think this is really what you want"), structure-seeking beyond what is given ("What type of person should I draw?"), obfuscation or rejection of

requirements ("I'll just draw stick figures"), overqualification ("I could do better, but . . ."), overstriving for recognition, status, prestige ("I bet that is the best story anybody ever told you"), emotional blocking ("I won't draw my adopted sister because she is not part of the family, really"), avoidance behaviors, refusal to respond, withdrawal from the evaluation session (an inward retreat), sporadic explosive outbursts or uncontrolled emotions, inappropriate behavior (e.g., too distant or too familiar), unacceptable behavior (e.g., masturbating during the evaluation), disorganized behavior, constant need for redirection to the task at hand, tentative behavior, cowering or overly submissive behavior, abrupt, jerky, nervous movements, panic reactions to stimulus material, difficulty in comprehending and executing directions (assimilation problems), attempting to control the session, poor quality of response below expected or known ability level, and excessive self-correction (e.g., erasures) (Bellak, 1986; Buck, 1987; Halpern, 1953; Ogdon, 1982; Phillips & Smith, 1953; Tompkins, 1972). Again, it should be noted that a number of these *possible* approach behaviors could be associated with problems other than anxiety, and the list does not represent, in any way, an exhaustive compilation.

Production Considerations

As suggested, production can be further subdivided into organization and content. Organizational features involve such aspects of projective production as sequence of elements (story parts, picture components, and so forth), symmetry of elements, placement and use of space (dealing more with drawings), preservation of elements, contamination from one task to another or one element to another, rigidity or invariance of presentations (e.g., always starting drawings in the same place on the page).

Content deals more with the actual material produced. For example, content considerations would involve story themes and settings, endings and consequences of stories, detail or lack thereof of drawings, specific elements of drawings, such as shading, and ground lines (lines representing the floor or ground).

Again, at the risk of seeming to gloss over comments about one-to-one correspondences, there follows a list of production elements that one *might* see that *might* indicate anxiety: invariance of content, sequence, or level of production, indeterminant endings, contamination from one element (story or drawing) to another, perseveration of themes around unknown outcomes or unanticipated happenings, absence of appropriate detail, perseveration in detail, irrelevant detail, breaks in sequences (e.g., drawing part of a person, leaving to draw clouds, returning to the person), shading on picture stimuli (e.g., Rorschach cards) or heavy, overdone shading on drawings, excessive time in completing tasks, overmeticulous concern, excessive line force in drawings, use of clouds or heavy bark on trees, use of shadows, heavy ground lines or anchoring points in drawings or use of edges to ground figures, exclusions in drawings (e.g., leaving people out of a family drawing), unconventional sequences (drawing a person from the feet up, rather than the head down), imbalance in placement of drawings on page, rigidly consistent placement on page, unusually small drawings, fragmentation of drawing or presentations, and inconsistencies in the treatment of males and females (Buck, 1987; Halpern, 1953; Ogdon, 1982; Tompkins, 1972).

Again, this list is not meant to be exhaustive. Equally important, this list does not include those specific elements one might look for that are associated with feelings of insecurity, perceptions of lack of predictability, conflict between inner needs and external pressures, questionable or unacceptable fantasies, insecurely moored ego, and

guilt, the most common alternate emotional states that may have a concomitant dose of anxiety.

CASE ILLUSTRATION

This case presentation illustrates some of the issues discussed above in practice. The full case is not presented, but rather selected parts that are of interest for our purposes.

Bill: A Case of School Refusal

Bill was referred for a psychological evaluation by his outpatient therapist, who had been working with him for about 5 months. Despite the efforts of the therapist, school personnel, and Bill's family, school remained a problem. Bill was an 11-year-old boy who had originally been referred because of his school refusal on beginning middle school (6th grade). He came from an intact upper-middle-class family. He was the older of two children of a professional couple who had been married 4 years when he was born. His developmental history was characterized by advanced development. His language development was early, and he was reading by the middle of kindergarten. His elementary school behavior and school achievement were good. In fact, Bill had been evaluated for the program for the gifted and was accepted into this program while in kindergarten.

His sister was 4 years younger than he, and her birth was greeted by the usual ambivalent feelings on his part. His parents reported a satisfactory marriage and denied any problems beyond minor disagreements over who did what around the house. In addition, the parents reported that they had had no concerns about Bill until the beginning of the 6th grade, when he moved from a small community-based elementary school into a large middle school. He initially did not appear to be overly concerned with the move, but began to voice his dislike for the school after about 4 weeks and then began to complain about not feeling well. The parents had him medically evaluated, and he was found to be in good physical health. However, his complaints continued, and he remained at home or called a parent to come pick him up from school about twice a week. His grades for the first 9 weeks were passing, but not as good as his parents had come to expect. About a week after he received his first report card, he refused to attend school.

Bill's parents engaged in the usual threats, bribes, pleading, and guilt-inducing behaviors in an attempt to return him to school. He would fight with them, cry, beg, and run away to avoid school. After a week of this behavior, the therapist was contacted and Bill was seen on an emergency basis. After interviewing Bill and his parents, the therapist contacted the school personnel and found them equally perplexed to understand Bill's behavior. His teacher reported that Bill had not been picked on by the other children and that she did not know any reason for his difficulty attending school. From the guidance counselor, he learned that Bill's teacher was demanding but fair and generally liked by the children.

The therapist felt that Bill's behavior was an example of avoidance learning and set up a behavioral program designed to get him back in school. Initially, a gradual reintroduction was planned, but Bill refused to cooperate. Finally, in frustration, Bill's father physically forced him into the classroom and told him that if he left he would physically punish him. Bill sat in the classroom with his head on the desk and refused to say or do anything. This going to class but refusing to say or do anything continued for about a week and a half. Next, Bill threw up in class, which resulted in his being sent to the nurse's office. Over the course

of the next few days, he threw up in class whenever he was returned. The school personnel did not feel that they could continue to work with Bill and his family because of the disruption to the other members of the class. They "encouraged" the family to consider homebound instruction until Bill was over his "school phobia." His therapist recommended inpatient treatment at this point, and Bill was admitted to a child psychiatry inpatient unit. He received the usual services and was placed on antidepressive medication. The family was involved in family therapy, and Bill's behavior appeared to improve. He attended the inpatient school and did well. After 60 days, he was discharged to his family and returned to school. His behavior very quickly returned to its prehospital level. Another series of medical evaluations were conducted at a prestigious medical school, and no significant physical problems were found. Shortly after being placed on homebound instruction, Bill was referred for a complete psychological evaluation.

Bill was a very pleasant youngster with whom to interact and denied any anxiety about being tested. He was found to have superior intellectual ability without significant difference between verbal and performance scores. His subtests were fairly even. Achievement was well above grade level. His self-report measures were nonsignificant, with average scores on the Children's Depression Inventory, the State–Trait Anxiety Inventory, and the Revised Children's Manifest Anxiety Scale. Behavioral ratings obtained from his teacher and parents were not revealing. Only those items related to somatic complaints and oppositional behavior were significant.

Projective testing appeared more interesting. His human figure drawings were very small, and the lines were very "sketchy" and tentative. Both these features have been suggested to indicate feelings of anxiety and of being unable to deal with the external world. Bill's stories on the Thematic Apperception Test were full of threat and danger. In addition, his main characters were frightened of being injured, and there was no one able to protect them from the various threats from the external world. His Rorschach indicated good resources, but suggested considerable situation stress with excessive shading and an exceptional number of inanimate movements. In addition, he had an unusual number of morbid or damaged responses.

The examiner felt that Bill was a very freighted, worried, and fearful youngster. In addition, he felt that the anxiety was of fairly recent onset and that Bill had the level of resources to deal with normal levels of stress. Something appeared to have resulted in Bill's feeling very frightened and vulnerable. In addition, Bill did not feel that those around him would protect him from danger.

The parents were mystified. As far as they knew, nothing had happened. There was no increase in marital distress prior to his school refusal. They admitted that his behavior had produced some added stress, but felt that their relationship had actually improved because they were more united in dealing with his problems.

The examiner asked to meet with the therapist and Bill together to go over the results of the testing. The examiner routinely gave feedback to adolescents and felt that although Bill was younger, he had the intellectual ability to understand what was being discussed. The examiner began to talk with Bill about how frightened he felt Bill was and how many of Bill's characters on testing had been injured and no one could protect them. Bill brought up card 13 MF (a picture of a barebreasted woman in bed with a man standing over her with his arm covering his face and his back turned toward the woman). His behavior became more agitated as he talked about his story on this card: The man had "messed" with the woman and had killed her so she would not tell. The therapist mentioned to Bill how distressed he looked. Bill became silent, and the examiner asked Bill if anything like that had ever

happened to him. Bill started crying and related having been sexually abused by two older boys shortly before school started. He did not tell anyone because he was fearful of being punished. After starting school in the fall, he found that these two boys attended the middle school he was in, and he was fearful that they would hurt him again.

Who is to say what role the projective techniques played in this case? However, it is noteworthy that close to $100,000 had been spent to determine what was "wrong" with Bill. After Bill shared his experience and fears, the proper actions were taken, including notification of the authorities. In addition, the focus of treatment changed from "school phobia" to helping deal with his feelings about being sexually abused and his feeling unprotected by those around him. His behaviors greatly improved, and he was gradually able to return to school full-time.

SUMMARY

Projective techniques, whether considered "tests" or an extension of the clinical interview, are aimed at gathering information from a person that he or she may be aware of, but unwilling to share, or information that he or she may not be aware of at all but that may influence the person's behavior. The "validity" of projective techniques, in a non-statistical sense, rests on the assumptions that underlie the projective hypothesis, these assumptions being that people will organize ambiguous stimuli or situations by projecting their experiences, wishes, needs, conflicts, attitudes, and anxieties onto the stimuli/situation as a means of reducing the ambiguity and increasing their understanding of the stimuli/situation. Further, given that behavior is organized and reflects the individual's personality as the organizational entity, such attempts to understand and organize ambiguous stimuli or situations reflect the individual's basic personality structure.

Responses to projective stimuli do not have a one-to-one correspondence with personality factors; rather, repeated patterns of responses across a variety of projective stimulus materials that are consistent with known behavior form plausible hypotheses about the individual's personality. As specifically related to projective assessment of anxiety, three primary considerations need to be taken into account: conceptualization of anxiety as a drive force, the individual's approach to projective materials (observed behaviors in the evaluation setting), and the individual's production relative to projective materials (organization and content of responses). As a drive force, anxiety can be conceptualized as a problem that stands on its own or as a concomitant state accompanying other problem areas, particularly insecurity, lack of predictability, conflicts between inner needs and environmental pressures, unacceptable fantasies, and guilt in children and adolescents. The case study of "Bill" illustrates the use of projective techniques in clinical practice.

REFERENCES

American Psychiatric Association (1987). *Diagnostic and statistical manual of mental disorders*, 3rd ed., revised. Washington, DC: Author.

Anastasi, A. (1982). *Psychological Testing*, 5th ed. New York: Macmillan.

Bellak, L. B. (1986). *The Thematic Apperception Test, the Children's Apperception Test, and the Senior Apperception Technique in clinical use*, 4th ed. New York: Grune & Stratton.

Bowlby, J. (1980). *Attachment and loss*, Vol. III, *Loss, sadness, and depression*. New York: Basic Books.

Buck, J. N. (1987). *The House–Tree–Person Technique: Revised manual*. Los Angeles: Western Psychological Services.

Cronbach, L. J. (1990). *Essentials of psychological testing*, 5th ed. New York: Harper Collins.
Exner, J. E. (1969). *The Rorschach systems*. New York: Grune & Stratton.
Exner, J. E. (1991). *The Rorschach: A comprehensive system*, Vol. 2, *Interpretation*, 2nd ed. New York: John Wiley.
Frank, L. D. (1939). Projective methods for the study of personality. *Journal of Psychology, 8*, 389–413.
Freud, A. (1965). *Normality and pathology in childhood: Assessments of development*. New York: International Universities Press.
Freud, S. (1894). The anxiety neurosis. *Collected papers*, Vol. 1 (pp. 76–106). London: Hogarth Press, 1953.
Goldenson, R. L. (1970). *The encyclopedia of human behavior*. New York: Doubleday.
Greenspan, S. I. (1985). Normal child development. In H. I. Kaplan & B. J. Sadock (Eds.), *Comprehensive textbook of psychiatry*, 4th ed. (pp. 1592–1607). Baltimore: Williams & Wilkins.
Halpern, F. (1953). *A clinical approach to children's Rorschachs*. New York: Grune & Stratton.
Horner, A. J. (1979). *Object relations and the developing ego in therapy*. New York: Jason Aronson.
Kagan, J. (1984). *The nature of the child*. New York: Basic Books.
Liss, E. (1955). Motivations in learning. *Psychoanalytic Study of the Child, 10*, 100–116.
Mahler, M. S., Pine, R., & Bergman, A. (1975). *The psychological birth of the human infant*. New York: Basic Books.
Murray, H. (1938). *Explorations in personality*. New York: Oxford University Press.
Murstein, B. I. (1963). *Theory and research in projective techniques (emphasizing the TAT)*. New York: John Wiley.
Ogdon, D. P. (1982). *Psychodiagnostics and personality assessment: A handbook*, 2nd ed. Los Angeles: Western Psychological Services.
Phillips, L., & Smith, J. G. (1953). *Rorschach interpretation: Advanced technique*. New York: Grune & Stratton.
Rosenzweig, S. (1961). Idiodynamics in personality theory with special reference to projective methods. *Psychological Review, 58*, 213–223.
Sargent, H. (1953). The Rorschach. In O. Buros (Ed.), *The fourth mental measurement yearbook* (pp. 213–218). Highland Park, NJ: Gryphon.
Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1983). *Manual for the State–Trait Anxiety Inventory*. Palo Alto, CA: Consulting Psychologists Press.
Sussman, N. (1985). Academic problems and borderline intellectual functioning. In H. I. Kaplan & B. J. Sadock (Eds.), *Comprehensive textbook of psychiatry*, 4th ed. (pp. 1870–1872). Baltimore: Williams & Wilkins.
Symonds, A., & Symonds, M. (1985). Theories of personality and psychopathology: Cultural and interpersonal psychoanalytic schools. In H. I. Kaplan & B. J. Sadock (Eds.), *Comprehensive textbook of psychiatry*, 4th ed. (pp. 419–426). Baltimore: Williams & Wilkins.
Symonds, P. M. (1949). *Adolescent fantasy: An investigation of the picture-story method of personality study*. New York: Columbia University Press.
Thomas, C. L. (Ed.). (1989). *Taber's cyclopedic medical dictionary*. Philadelphia: F. A. Davis.
Tomkins, S. S. (1972). *The Thematic Apperception Test*. New York: Grune & Stratton.
Tuma, J., & Pratt, J. (1982). Clinical child psychology: Practice and training. *Journal of Clinical Child Psychology, 11*, 27–34.
Woodruff, R. A., Goodwin, D. W., & Guze, S. G. (1974). *Psychiatric diagnosis*. New York: Oxford University Press.

IV

SPECIFIC TREATMENT AND PREVENTION STRATEGIES

21

Family Systems Interventions

Derek Bolton

INTRODUCTION

It is plausible to suppose that the principles that underlie family systems interventions differ from those that underlie individual interventions in the following relatively straightforward way: Family therapy assumes that the causes of disorder in the identified patient lie primarily within family function, while individual therapy assumes that they lie primarily within the patient. On the other hand, it is also customary to distinguish family from individual therapy according to background psychological theory, so-called "orientation." Roughly, individual therapy is typically behavioral or cognitive–behavioral, or psychodynamic, or (differently) pharmacological, while family therapy is paradoxical, structural, strategic, or transgenerational, and so on.

The first way of distinguishing between the principles at work in family as opposed to individual interventions is more helpful than the second. It has validity at least as a first approximation: There is a simple, logical linkage between assumptions about the system, inter- or intrapersonal, that determines the disorder and the choice of "patient." On the other hand, the second way of distinguishing between the principles at work in family as opposed to individual interventions, i.e., in terms of background psychological theory, or "orientations," is largely the product of historical forces and developments and has for most purposes outlived its usefulness. It is obvious enough that family therapy can be behavioral or psychodynamic. Equally, it can be cognitive–behavioral. Conversely, principles familiar in family therapy can be applied in individual therapy, with focus on such themes as paradoxes and counterparadoxes, intergenerational boundaries, patterns and loyalties through generations, and so on. These different theories and subtheories have been

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associated with individual as opposed to family interventions, or vice versa, in their origins and original emphases, but they do not essentially apply only to the one or to the other.

Indeed, one need make only fairly weak (relatively uncontroversial) assumptions to infer that whatever psychological principles are relevant to individuals have analogues relevant to families, and vice versa. These assumptions are in brief as follows: first, that family patterns (of cognition, affect, and behavior) are a major determinant of most forms of behavior acquired in childhood and, second, that patterns of interaction become internalized within the individual (as cognitive–affective schemata, or conditioning histories, realized in biological structures and functions). The first assumption leads to the expectation that practically any behavior of a child, problematic or other, is substantially affected by family patterns of belief, emotion, and behavior, at the very least by responses to the child's behavior, while the second implies that internalized representations of family patterns continue to regulate action notwithstanding the apparent absence of the family, such as while the child is at school or in the hospital or after the young adult has left home. These considerations imply that the distinction between family and individual factors in etiology is blurred, and this blurring in turn complicates the simple distinction with which we began between etiological assumptions of family therapy, on one hand, and those of individual therapy, on the other.

Broadly speaking, it makes sense from a general theoretical point of view to use family therapy particularly for children, for whom it may be assumed that ongoing interactions with caregivers are as powerful an influence as mediation by internalized models of interactions. Family therapy may be counterindicated for other reasons, however, if other of its presuppositions are not met. Therapy that makes use of the family presupposes, for example, that the caregivers wish to serve the interests of the child, at least consciously, and will not consciously subvert the therapeutic process—for example, in the extreme, by lying about what matters most. This assumption is invalid in some cases, including specifically in cases of child abuse; where such abuse is suspected, family therapy alone has to be regarded as inadequate.

Arguably, ongoing, real-life family interactions continue throughout life to be a very powerful determinant of behavior, and indeed a powerful influence on internal models of interpersonal relationships, and to this extent family therapy continues to be a valuable therapeutic resource regardless of the age of the person seeking help. On the other hand, internalized models assume increasing importance as regulators of belief, affect, and interpersonal behavior with age. Already by middle to late adolescence, the young person may benefit from the opportunity to examine his or her experience in individual therapy, with a view to finding his or her own ways of developing. Individual therapy, perhaps combined with family therapy, is appropriate in adolescence also, in light of the young person's task of "leaving home." This multifaceted task is of course connected to the increasing importance of internalized, mental models as determinants of behavior.

It was assumed above that practically any behavior of a child, including symptomatic behavior, is substantially affected by family patterns of belief, emotion, and behavior, at the very least by responses to the child. This relatively uncontroversial assumption provides a broad justification for treatment of childhood disorders by family therapy, but it falls far short of what might be called for convenience the "strong family systems hypothesis." According to this hypothesis, the appearance of individual psychopathology in the identified patient is to be explained in terms of family function, typically whole family function, in which all members have a role. This assumption has been made by some schools of family therapy, particularly the early Milan group (Palazzoli, Boscolo, Cecchin, & Prata, 1978), influenced by Bateson's combination of general systems theory and Russell's theory

of paradox (Bateson, 1971). Structural family therapy (Minuchin, 1974; Minuchin & Fishman, 1981) and strategic family therapy (Haley, 1976, 1980) also fit comfortably with the strong family systems hypothesis. Allegiance to the hypothesis that the etiology of individual disorder lies within whole family function (or structure, or family life-cycle problem-solving endeavors) has had several ramifications. First, there has been an insistence on attendance of whole families and qualifying the term "patient" by "identified" or by scare quotes or in both ways. Second, and most critical from the point of view of theory, there has been an absence of any theory of individual (as opposed to family) dysfunction. The systemic, structural, and strategic approaches, with their assumption about etiology within the family, have had something of a monopoly over the term "family therapy," the contrast being with models of therapy with families that were not committed to that strong assumption, but envisaged disorder of one kind or another within the individual. The latter models would include medical, psychiatric, behavioral, and psychodynamic ones. The paradigmatic family therapy approaches undoubtedly have done a great service by drawing attention to and elaborating family factors involved in what presents as disorder within the individual. Their insights and methods remain, though the strong etiological assumption that distinguished them from individually focused therapies has become harder, and arguably no longer necessary, to maintain as a general rule. [The origins of the various schools of family therapy, including those referred to above, their early claims, and their subsequent developments, have been excellently reviewed recently by Nicols and Schwartz (1991).]

It is possible to combine principles and methods of the paradigmatic family therapy approaches with those originating in individual-focused therapies. Similarities and overlaps were always apparent, for example, in family systemic formulations of the function of symptoms, and psychoanalytic interpretations, or in the structural emphasis on parental boundaries and alliance and the behavioral emphasis on consistent parental rules and reinforcement schedules. As to the problem of family as opposed to individual factors in etiology, reasons have already been given for deconstructing it within psychological theory. These reasons apply whether the theory be conditioning, cognitive–behavioral, or psychoanalytic theory: The critical point is the minimal one that behavior is largely learned. On the other hand, psychological (learning) theory runs out at the biological boundaries of behavior, in genetically determined behaviors or predispositions. On the other hand, again, much usually depends on how biologically conditioned vulnerabilities or discrete handicaps are managed within the family. It is possible (in the sense that there is no good theoretical argument against doing so) to combine a variety of family therapy insights and techniques with a variety of working assumptions about the relative contributions of biological constitution, innate or acquired individual psychological characteristics, and family function (or structure, or problem-solving skills).

In light of these considerations, it will be assumed in what follows that the family therapist has to draw on models of the presenting disorder, of relevant family function, and of the causal connections between the two. These points, applied to childhood anxiety disorders, are considered in the following two sections. The fourth section considers assessment and treatment methods, which follow fairly clearly from what has gone before.

The methodological assumption of the chapter, that there is a close connection between individual and family factors in the etiology, maintenance, and treatment of childhood anxiety disorders, has been emphasized and clarified in the recent cognitive–behavioral approaches, particularly by Kendall and his colleagues (e.g., Kendall, Chansky, Friedman, Kim, Kortlander, Sessa, & Siqueland, 1991; Kendall, Chansky, Kane, Kim, Kortlander, Ronan, Sessa, & Siqueland, 1992). Family treatment for childhood anxiety is described by

Combrinck-Graham (1986), and a variety of treatment approaches to childhood anxiety disorders, including family therapy, are compared and contrasted by McDermott, Werry, Petti, Combrinck-Graham, and Char (1989).

ANXIETY AND ANXIETY DISORDERS

The notion of anxiety disorder is broad and complex, comprising many kinds of symptoms and syndromes, depending on which system of classification is used. It is possible, on the other hand, to define some core themes in anxiety disorders; moreover, it is possible for this definition to be driven by a theory of "normal" anxiety, which is a relatively rare advantage in psychopathology. (That there is a prior notion of what is "in disorder" is already implicit in the term "anxiety disorder." Contrast, for example, psychosis and depression.) It is obviously not the task of this chapter to attempt any full review of theories of anxiety and anxiety disorders, but some assumptions have to be made explicit, in preparation for discussion of the relevance of family function and of treatment methods.

Detection of Danger

Fundamental to anxiety is the detection by the organism of danger to itself, which typically involves intensification of, and selection of, various preattentional and attentional processes, including hypervigilance toward and mental preoccupation with danger and with danger and safety signals (e.g., Eysenck, 1992; Gray, 1982; Oatley & Johnson-Laird, 1987). These processes lead in turn to what are essentially inevitable side effects of anxiety, such as lowered interest in (i.e., lowered concentration on, and motivation for) other situations and tasks and, possibly, impaired semantic information-processing (Ellis, Thomas, McFarland, & Lane, 1985; Humphreys & Revelle, 1984; Williams, Watts, Macleod, & Matthews, 1992).

Unconscious Processing

The cognitive processing that permeates anxiety is not necessarily conscious, in the sense of conscious awareness or verbal report (Dixon, 1981; Kemp-Wheeler & Hill, 1987; Tyrer, Lewis, & Lee, 1978). This feature of anxiety, together with its fundamental role of danger detection, supports the methodological principle that will be appealed to later in the chapter, namely, that one should assume that the anxious child perceives some threat to himself or herself, this assumption being independent of whether or not the child (or the parents) can spell out what the perceived danger is. Unconscious processing is not, of course, confined to information regarding threat. In general, the information-processing that mediates between perception and action (affective responses and behavior) may not be conscious, in the sense of being unavailable for, and perhaps misrepresented by, self-report (Bolton, in press; Jacoby & Witherspoon, 1982; Nisbett & Wilson, 1977).

"Normal" and "Abnormal" Anxiety

The postulate that anxiety is a response to perceived threat (consciously identified or not) is a methodological principle, not an empirical generalization. It defines the "normal" case, and by implication the "abnormal," but not all cases. "Normal" is most readily

understood in this sort of context in terms of evolutionary biology (Millikan, 1984): The normal function of a biological or biopsychological system is that which it was selected in evolution to serve (i.e., it would not have been selected had it not served that function). In brief, then, the normal function of the anxiety system is the detection of threat. It is possible, however and of course, for the anxiety system to run free of the detection of danger, but then it is functioning abnormally (i.e., it is not serving the function for which it was selected). Abnormal function can be caused in various ways, but all are variations on abnormalities in the physiological structures and functions that realize the anxiety system, such that this system operates in the absence of appropriate (in the sense of evolutionary theory) information-processing.

Another way of making this point is in terms of "meaningful and causal connections" (Bolton & Hill, 1994; Jaspers, 1923). It is methodologically sound to assume the operation of meaningful connections, conscious or other, even in cases of clinical disorder. On the other hand, meaningful connections can by all means run out, and when one has exhausted all reasonable possibilities, the default conclusion would be that there must be some physiological cause, constitutional or functional, of the anxiety, running free of any information-processing. Of course, if there is already direct evidence that this is the case, the search for (too much) meaning would be misguided.

Coping Skills and Their Appraisal

Once detected, threat has to be dealt with by the child or adolescent. Ways of doing this that are relatively primitive (from the evolutionary point of view) include avoidance and destruction of the source of danger. Avoidance and destruction have in common that they get rid of the danger: They get the agent out of harm's way, or vice versa. A different kind of coping strategy can be called "problem-solving" (as opposed to problem avoidance or problem destruction), which involves interacting with the source of danger in such an adaptive way that after all it does no harm to the agent.

These behavioral coping skills find mental analogues (i.e., analogues in mental representations) in living beings with the requisite cognitive capacity. This capacity means, roughly, that the organism need not think about some possible dangers at all or, if at all, that the dangers can be disqualified in the imagination. Or again, there are problem-solving analogues within the realm of mental representations that involve making plans as to how to cope with the difficult situation if and when it arises.

Fundamental to anxiety is appraisal of coping skills (Eysenck, 1992; Lazarus, 1966). This appraisal is necessary because perceived absence of being able to cope, in the form of perceived unpredictability or uncontrollability of significant events, is critical in the generation of anxiety. Much research has addressed this aspect of anxiety in animals (Mineka & Kihlstrom, 1978) and human beings (Endler & Parker, 1990; Olah, Torestad, & Manusson, 1984). If, in the face of threat, no coping skills that work can be found, the result tends to be runaway, uncontrolled anxiety (panic).

Maladaptive Coping Skills: The Anxiety Disorders

The coping strategies described so far may work, but if the perceived threat cannot be managed satisfactorily, they tend in one way or another to get out of hand, leading to the exaggerated and persistent combinations of avoidance, perhaps destructive acts, at least in the imagination, and panic (the so-called "anxiety disorders"). Overreliance on coping

with anxiety by avoidance, physical and mental, tends to alternate with unexpected panic, as in panic disorder. Physical avoidance is an efficient strategy for keeping safe and therefore calm, but is maladaptive in case the feared situation is also desired for some reason, as is usually the case in agoraphobia or social phobia. Avoidance is mandatory when situations are seen as really dangerous, as life-threatening, but for the very same reason they demand attention and vigilance: Paradoxical attempts to avoid and attend simultaneously, in reality and in the imagination, are seen most clearly in posttraumatic stress disorder (Bolton & Hill, 1994). The worry characteristic of generalized anxiety disorder, verging on panic, endless and fruitless, appears as a form of cognitive avoidance in adults (Borkovec & Inz, 1990), and in children as well, once they develop the prerequisite cognitive capacities (Keppel-Benson & Ollendick, 1993; Vasey, 1993). A method of dealing with otherwise uncontrollable events is ritual, which belongs with prerational thought such as is found in magical culture and in children (Freud, 1913; Subotskii, 1985). Obsessive–compulsive disorder may represent this prerational coping style getting out of hand, exhibiting the characteristic, paradoxical combinations of coping and not coping, being in and out of control, avoidance and panic.

ANXIETY AND THE FAMILY

Anxiety, Child Development, and Family Life

Danger includes most obviously threat to physical integrity, though there are certainly other kinds of threat. The general principle is that high anxiety is a response to threat to self-preservation (Oatley & Johnson-Laird, 1987), but what that amounts to depends on what is essential to, or what is perceived (consciously or otherwise) as essential to, the self. This perception is a complicated matter for human beings. The foundations of various aspects of the sense of self are established early in life (Stern, 1985), and these aspects are developed and elaborated at least through childhood and adolescence (Erikson, 1963). Formation of the sense (or senses) of the self depends on the accomplishment of a wide and complex variety of tasks, including physical actions, affective responding, interpersonal relating, speech, educational achievement, and so on. Tasks generate anxiety, and solutions require coping skills.

Through all the variety in developmental and life tasks, there is for the child at least one constant theme, namely, dependence on adults, who are therefore closely implicated in anxiety and its management. It may be noted in this connection that psychoanalytic theory puts no lower limit to the age at which patterns of anxiety and its management are generated. The patterns belong from the beginning to the mother–infant interaction, and the first critical type of coping task is attributed naturally enough to mother. Mother has to contain the infant's anxiety, which means, briefly, that her task is to not, out of her own anxiety, avoid or panic in the face of the child's, but is rather to stay with the baby, physically and mentally, holding him or her calm (Winnicott, 1965). This kind of task and its vagaries become apparent enough as the child grows older.

The child starts with practically no coping skills and thus starts off, according to our working definitions of anxiety, highly prone to anxiety, being all but entirely dependent on adults. To the extent that adults have poor coping skills, the child has no experience, no modeling, of adaptive problem-solving. At a more complex level, including theory explicit in language, caregivers' appraisal of the child's attempts is likely to influence the child's

self-appraisal of his or her coping skills. All else being equal, pessimism, worry, disqualification, criticism of the child's attempts to work out solutions (e.g., in making friends or learning to read) are all bound to make or keep the child anxious. In sum, tasks generate anxiety, solutions require coping skills, and persistent failure of coping skills gives rise to one form or another of anxiety disorder.

Family Function and Childhood Anxiety Disorder: Some Causal Pathways

These sorts of considerations regarding children's great dependency on adults for problem-solving capacities suggest that family function is likely to play a major role in the etiology of anxiety disorders, both in childhood and indeed in continuations into adulthood. Evidence from a wide range of studies, using a variety of approaches, supports the general conclusion that anxiety disorders, and related difficulties such as depression, tend to run in families. A high proportion of the mothers of children with anxiety disorders themselves have a lifetime history of anxiety disorder (Last, Hersen, Kazdin, Francis, & Grubb, 1987), and children of anxious parents are at increased risk for anxiety disorder (Sylvester, Hyde, & Reichler, 1987; Turner, Beidel, & Costello, 1987). There is increased incidence of anxiety disorders and other types of psychopathology in the relatives of individuals with anxiety disorders (Carey & Gottesman, 1981; Harris, Noyes, Crowe, & Chaudery, 1983), and there are relationships between anxiety and depression and familial patterns of psychopathology (Bernstein & Garfinkel, 1988; Bernstein, Svingen, & Garfinkel, 1990; Leckman, Weissman, Merikangas, Pauls, & Prusoff, 1983; Livingston, Nugent, Rader, & Smith, 1985; Weissman, Leckman, Merikangas, Gammon, & Prusoff, 1984).

As well as environmental mechanisms, there is also the possibility of genetic transmission. Of course, the influence of these mechanisms may be different for different anxiety disorders. Where physiological signs dominate, there may be a constitutional, genetically based, low threshold for functioning of the anxiety system. There is evidence of more genetic contribution to panic disorder than to generalized anxiety disorder (Torgersen, 1990), for which the evidence so far is for environmental familial transmission (Eysenck, 1992).

In practice, any genetic influence will normally be intertwined with the other kind of causal connection between child and parental behavior, namely, learning from parental modeling. Two main kinds of cases come under this general heading: learning excessive anxiety reactions and failing to learn appropriate coping strategies. As emphasized above, failure to cope with anxiety-provoking situations is an important aspect of anxiety, but it has particularly strong relevance under the plausible assumption that many childhood fears are innate, or least an inevitable theme in biopsychological maturation. For in this case what stands in need of explanation in the case of disorder is not so much the appearance of anxiety as failure to handle it and the situations that give rise to it. This learning process, like most others, is highly sensitive to parental example and instruction.

A further, major way in which family function may be causally linked to childhood anxiety disorder concerns the content of the anxiety. Family life may be a source of major stressors, including death or serious illness within the family, parental mental illness, chronic marital conflict, and of course sexual abuse. Again, the circumstances may be different for different anxiety disorders. Adult patients with generalized anxiety disorder often report there having been more trauma in the family when they were children than do patients with panic disorder (Torgersen, 1986). Therefore, it is important to bear in mind at assessment of childhood anxiety disorder the possible role of stressors within the family.

Although the child may not be able to say, or to think, what his or her anxiety is about in such cases, it can still be hypothesized that the affect is being regulated by the information in question.

There is a complicated maladaptive coping strategy that the family can use to avoid intrasystem stress that is perceived as intolerable or unmanageable or both. The key principle is the familiar one of avoidance, mainly in its mental (or conversational) form. Thus, the family will not think about, or talk about important stressors (e.g., father's illness). On the other hand, we are supposing, father's illness is perceived as alarming and generates anxiety reactions. In such a case, we may have, in some or all family members, perhaps in a child alone, anxiety reactions (physiological, behavioral, mental, and verbal) for which the original object is unidentified, and which is therefore attributed to nothing (as in free-floating anxiety) or to something else (such as school attendance or headaches). In the kind of intrapsychic and interpersonal mechanism being envisaged here, the child's symptoms have the effect of being functional for the family, in that they serve to deny, by avoiding and by diverting attention away from, some intolerable but in any case unspoken theme in family life. This functionality is typically stressed by family therapists influenced by psychoanalytic thinking, which emphasizes the primary gain of symptoms (e.g., Byng-Hall & Campbell, 1981; Hickie & Silove, 1989; Palazzoli et al., 1978).

Thus, there are various kinds of causal connections that can link childhood anxiety disorder to family function. They are not mutually exclusive; on the contrary, there are reasons for supposing that they are more likely than not to be associated. Let us sketch the extreme case: A child may have a relatively low threshold for anxiety responses due to biological constitution, genetically inherited. She is raised by one or more parents similarly endowed, who themselves never learned good coping skills. They pass on their poor coping skills, variations on the themes of avoidance and panic, to the child. Family life is in these conditions more fearful than the average, with much worry about actual and more or less possible disasters, such as father's poor health, or disintegration of the family, or eventual death. Or, further, the family has more than its average share of adverse life events and difficulties. But the stresses, ordinary or extraordinary, cannot be handled, so the child learns and is conditioned to preoccupy everyone with something really less catastrophic, like stomach pains, the presentation of which, however and inevitably, carries the full affective charge of everything that leads up to it.

This case is a hypothetically extreme one of overdetermination, but not an extremely far-fetched one. Something like this kind of picture can sometimes be seen in the most anxious of families, and it is sometimes suggested by the histories from adult patients with lifelong anxiety disorder of one form or another. In principle, however, the various causal connections sketched above are distinct and separable, and a major aim of assessment is to determine which ones are at work in a particular case.

FAMILY THERAPY

Assessment: Tracing Causal Pathways

Parents of children with anxiety problems are relatively easy to engage initially, to the extent that they are anxious themselves and feel in need of help and guidance (coping skills). Perhaps the main risk to the engagement process relevant to the topic of this chapter is premature reframing of the child's difficulties in terms of family function. This cautionary note, of course, applies practically always in family assessment, regardless of the symp-

toms of the identified patient. The general point is simple enough though sometimes neglected: If the child's symptoms serve to distract from some other problem in the family, then the safest working assumption is that this problem is otherwise insoluble for them for the time being and that the coping strategy they present, maladaptive and costly though it is, is the best one the family has so far been able to find. If a patient "comes in on crutches," it is not a good idea to kick them away, even though he or she may be better off learning to walk without them!

In any case, the supposition that the child's symptoms are functional for the family is only one among various kinds of hypotheses, as already discussed. The assumption that this sort of functional explanation is alone valid is theoretically unjustified and hangs together with the tendency at assessment to overperceive family problems such as marital discord. On the other hand, it is equally naïve to take for granted the family's explicit theory of the problem, that the anxiety is about such-and-such (as opposed to such-and-such else), or perhaps that it is about nothing at all. This assumption, too, neglects other kinds of possibilities, particularly that affect and behavior can be regulated by information-processing, serving a function in relation to perceptions, evaluations, and goals, regardless of whether or not the affect and behavior makes sense according to explicit theory. There are various kinds of causal pathways that might be linking anxiety disorder in the child and family functioning. All should be borne in mind at assessment, and it takes time to check out which ones are operating and in what way in the particular case.

Since family characteristics are only one group of factors that may contribute to anxiety disorder in the child, assessment should of course explore other possibilities, mainly extrafamilial stressors, particularly negative peer relations, and academic over-expectations, perhaps in the context of a learning disability, and also relatively rare extrafamilial traumas (e.g., disaster, assault). It is taken for granted in what follows that assessment would screen for all such possibilities with detailed investigations as indicated. If any extrafamilial stressors are identified, it still remains a family matter as to how the child is to be helped to identify and cope with them.

Turning, then, to family function itself, the various possible causal pathways already outlined need to be explored. "Starting where the client is" usually maximizes the chance of successful engagement, and in practice, doing so often means starting with the parents' perception of their child's problem, particularly their understanding of what he or she is anxious about, which coincides more or less with what the child is inclined to say. At the beginning, then, the clinician is presented with one or several accounts of the content of the child's anxiety, which may include being left alone to go to sleep, nightmares, being left with a caregiver other than the parents, going to school, homework, health of some family member (self or another), being sick (vomiting), or many shifting and vague anxieties, verbally and physiologically expressed, with no clear, fixed object.

At this early stage, a difference can be seen between cases in which the child's anxiety apparently is an understandable response to a reasonable perception of reality and cases in which there is apparently no meaningful connection. Cases in the former category include the following, for example: fear of being left alone, when a parent has significant illness, or when a parent has died, or when in marital conflict one partner frequently threatens to leave; fear of school in response to being isolated, or bullied, or in the context of excessive academic expectations; fear of being outside the home, or of nighttime, following assault, or some other traumatic experience.

Less straightforward at assessment are cases in which such meaningful connections are not apparent, in which the child's expressed anxiety is apparently not about anything realistic at all. The child may be desperately anxious, clinging to mother, faced with going

to school. If the father has recently died, everyone will probably accept that the child is frightened that mother will die too, and the child is likely to be heard saying this. But if, for example, father has recently had a heart attack, or been otherwise hospitalized, the parents may or may not see this as something to be worried about. Father may say he is now perfectly well, and the child, perhaps accurately, but in any case loyally, may well say that he thinks so too. So what is the clinician to think? Neither the assumption that the family's theory must be right nor the assumption that the child's anxiety must be in this way appropriately based is a priori valid, so the issue is settled, if at all, by further inquiry, taking into account such factors as the history prior to father's illness and other stressors. Similar points apply in the otherwise different case of marital discord. Account or observation may suggest a family insecure enough to make a child anxious, but this interpretation is not volunteered by anyone, and the feeling is that such a suggestion would be treated as off the wall and offensive enough to warrant seeing another therapist as soon as possible.

More complex still are cases, typically the notoriously difficult psychosomatic presentations, in which apparently the only problem is the child's anxiety. The therapist draws a blank in (nonaccusatory) inquiry about possible sources of stress for the child, being assured by mother that everything is alright, except for the child's worry about, say, feeling nauseous, or headaches. This "everything is alright . . ." attitude may communicate that the family cannot cope with things not being alright, that therefore they have to expend much energy not acknowledging problems including life itself, that their life-problem-solving skills are poor.

This situation leads us to the other main theme, apart from content, that has to be assessed—coping skills. The skills in question are both the child's and the parents', although in view of the preceding remarks about modeling, it is a good bet that they are more or less the same. Methods of assessment are fairly straightforward and familiar. They include, in interview with the family, detailed questioning about adaptation to normal family life-cycle change such as birth, growing up, leaving home, work, marriage, children, illness, and death (Carter & McGoldrick, 1980). Signs of poor coping skills are, as already mentioned, variations on the themes of avoidance and panic. Thus, for example: Anxious families don't talk about illness and death and protect children from these events by not talking and by not taking them to hospitals or funerals; anxious families don't like new situations, at school or work or socially, and avoid or at least restrict them, or endure them with anxiety, leading up to panic. A paradoxical blend of avoidance and panic, being both but neither, is fruitless, unresolved worrying. Thus, there is typically a lot of worrying in anxious families, a chronic testimony to absence of adaptive coping skills, this being the chief alternative to not worrying about anything at all, except that in this case the child may worry a lot about nothing.

Attack is a less benign, or at any rate more aggressive and potentially violent, blend of avoidance and panic. Attack as a way of dealing with a life problem that a person is unable to solve means that the person, unable to stand the anxiety and lacking coping skills, identifies the cause of the problem and in some way or other destroys it. This picture is presented by what may be called "paranoid" families, who typically avoid therapy insofar as it implies that there might be anything wrong with them. In any case, while anxiety can be the most obvious problem presented by the children in such families, it more usually is not, since the paranoid defense against anxiety (disposal of it) is so efficient. Rather, the strategy operates in such a way that the child is more likely to present as in some way mad or bad.

Adaptive reactions, by contrast, do not deny reality, and having acknowledged it for what it is, accept what cannot be altered and try to improve what is changeable. They are

evident in talking about difficulties, in sadness about what is irretrievably lost, in willingness to be in stressful situations, in problem-solving discussions, in realistic planning for realistic difficulties.

Depending on the aims and style of the assessment stage, issues concerning the content of anxiety and strategies for dealing with it can be explored through generations, perhaps using a genogram (McGoldrick & Gersen, 1985). Broadly speaking, there are two hypotheses that can be explored concerning the experiences of parents who are themselves excessively anxious. One is that they were raised by highly anxious parents, so that the tradition of poor coping skills is passing from generation to generation. The other, more to do with content, is that the parent has been traumatized, such as by death of a parent, or violence in the marriage, or child abuse, and that these extraordinary experiences have sensitized the parent, and hence his or her child, to situations that resemble or symbolize the traumatic event. A complete formulation would draw these various strands together into a whole, tracing anxieties and responses between identified patient and parents, and between the latter and their parents. Such a transgenerational inquiry may aid assessment, by bringing out themes hidden in the present, or as a method of nonthreatening engagement that is sometimes fun, if it is not too tragic. And it may help treatment, by raising the family's insight into what troubles them all.

Some Treatment Methods

Family therapeutic interventions, and the models that underlie them, form a large and heterogenous class (Nicols and Shwartz, 1991). This subsection will therefore be necessarily selective and partial. Suppose that assessment reveals a significant extrafamilial source of stress, such as being bullied, or specific learning disability, leading to high anxiety and school refusal. An obvious way forward, then, is to facilitate articulation of the problem. A side effect of anxiety, as noted above, may be inhibition of semantic processing, so the child may feel confused about what exactly goes on in the relevant situations. Articulation in an age-appropriate form, with the child contributing, will aid semantic processing, thereby laying the foundations for formulation of remedial plans. In the matter of identification and articulation of the problem, assessment and treatment blur into one another. In family therapy, a sound principle is to encourage the parents to do as much of the work as possible. The reasons are obvious enough: The parents thereby acquire or cultivate the skills, and there is one less generalization problem. These skills include encouraging children to contribute to discussion of a topic they don't like or don't understand or both, and clinicians can help parents with this task by suggesting or modeling techniques such as sharing experiences (briefly) to cue the child, asking about specific behaviors rather than general feelings, and suggesting names of emotions, or inclinations to action, suited to the context, once the context has been clarified.

Encouraging the child and the family to articulate the problem, though helpful, cannot be a substitute for the primary goal of reducing the child's anxiety by in some way reducing his or her perception of threat. Often, particularly with younger children, doing so is appropriately a problem for the adults to solve, by, for example, talking to the teacher about work that is too hard for their child or about their child's being bullied. Certainly the child has to function on his or her own in school, so individual coping skills must also be addressed. The older the child, the more responsibility for problem-solving he or she is to be handed, or perhaps adolescent and parents can work on it together.

Strategies for coping with anxiety-provoking situations vary from task to task, of course, but several principles follow from the theoretical considerations outlined earlier and

are of fundamental importance. One is *exposure* to the situation, rather than avoidance. Clearly, avoidance in this sense is mainly physical, but physical avoidance has a mental analogue in the avoidance of processing information even when physically in the feared situation (Foa & Kozak, 1986). Another critical principle is *practice* in managing the feared situation. Like all skill practice, this can be aided, particularly if fairly new skills have to be acquired, by breaking down a complex task into components. Practice will be aided by relative calmness, since information-processing may be inhibited by excessive anxiety. These considerations are among those that recommend gradual exposure. But there are, of course, other ways of practicing skills, for example, role-play. This method points to a third critical skill in learning to manage anxiety, *planning*, which is usually done in words. The parents can be involved in all these ways of helping the child learn to cope with anxiety-provoking situations.

Here, we could briefly link points raised in the preceding three paragraphs. One way of helping the child cope with anxiety is parental understanding of how the child feels, their acceptance that he or she is anxious, without denying this anxiety in one way or another. Parental understanding helps partly by containing anxiety, and partly insofar as it implies that they will after all keep the child safe, i.e., worry about and somehow solve the child's problem.

All these types of interventions cans be subsumed under the heading of using parents as therapists, a method favored in the behavioral and cognitive–behavioral paradigms (Schaefer & Briesmeister, 1989). In practice, the methods are addressed as much to changing the parents' behavior as to changing the child's, and it would be reasonable to describe the method as one of family therapy. Its interventions overlap with those of structural family therapy (Minuchin, 1974; Minuchin & Fishman, 1981), insofar as the latter aims to clarify generational boundaries, to affirm the parental alliance, and to set parenting tasks.

The notion of enlisting parents as therapists raises the question whether to include siblings as well in family therapy. The "strong family systems hypothesis" recommends an affirmative answer to this question, but it is not being adopted here. There are indeed sometimes reasons for not insisting on the regular attendance of siblings, including, for example, that they may have other pressing commitments such as major school or college examinations. There is always reason, on the other hand, not to go along too readily with the parents' reluctance to bring siblings in order to protect them from the stress of the problem. This would be a maladaptive coping strategy, based on a false premise (that children can be protected from what is under their noses), typical of anxious families. Parents' expression of reluctance to bring siblings in order not to upset them presents an opportunity for therapeutic change. The therapist can challenge the false premise, although this must be done in the context of connoting positively the parents' wish to protect the other children, and also the underlying assumption that they could not cope at all. The notion of containing and managing anxiety can be introduced in this "live" (currently important) context, early in therapy. Helping a sibling with what can generally be assumed to be a major stressor for him or her as well, the anxiety disorder of his or her sister or brother, is one reason for a strong recommendation that the sibling should attend at least some family therapy sessions. Another reason is evidence that the sibling is or may be significantly involved in some way in the problem, for example, if the two children quarrel a lot, apparently in competition for scarce parental attention. Also, the sibling may be a source of, or a means of facilitating family discussion of, coping skills. This applies particularly to an older sibling who has been through it (whatever "it" is) before.

The therapeutic strategies referred to so far—family articulation of the problem, encouraging the parents to assume an appropriate share of responsibility for its solution, physical exposure to the feared situation, practice, and planning—were introduced in relation to extrafamilial stressors, such as at school. While these same treatment principles continue to apply, the whole position is more complex in relation to intrafamilial sources of anxiety, which by their nature tend not to be the presenting complaint. The simplest way of dealing with threat is avoidance. The child can avoid extrafamilial sources of threat, such as school, but cannot avoid family life—family life being, for the child, hardly distinguishable from life itself. Avoidance, if this is the response to perceived danger within the family, has to be mental rather than physical. Given the fundamental role of modeling, if the child is using mental avoidance as a response to threat, it is likely that he or she has learned this response from the parents, likely that they have not taught (shown) him or her any other way. Thus, we have to envisage the situation in which the source of anxiety for the child is some perceived danger within the family, though neither the child nor the parents will say that they have such a worry, but will say rather that they are worried about something else, or nothing at all. In such a case, the therapeutic task is the delicate one of speaking the unspeakable in such a way that the family can hear it (i.e., cope with it). Some examples of intrafamilial stressors, such as illness, are obvious enough. Others, concerning family life-cycle changes, especially when problematic from the point of view of transgenerational patterns and expectations, have been clarified by various family therapy models, including the systemic (early Milan) and strategic approaches referred to earlier. Appropriate interventions include articulation of the hypothesized underlying anxiety that the symptom is masking and encouraging active attempts at more adaptive problem-solving.

CASE ILLUSTRATION

The case to be described, an actual case with identifying features removed, illustrates both explicit anxiety about an extrafamilial situation (school) and, plausibly, an implicit anxiety about an intrafamilial stressor (illness), conditioned by transgenerational experience. It illustrates some, though of course not all, of the points about assessment and intervention made so far in this chapter.

Jack was 11 years old when he was referred by his general practitioner with anxiety concerning school, leading to avoidance, and multiple somatic complaints with frequent requests for reassurance about his health. Jack had started secondary school 3 months before referral, but the difficulties had started before that, while he was still in primary school. During the last 18–24 months of primary school, when Jack was between 9 and 11 years old, he had complained about lots of stomachaches and headaches and had frequently been reluctant to go to school. In his last term of primary school, Jack had missed several days a week of school, saying he didn't feel well enough to attend, and this pattern continued when he started secondary school. At the new school, he was truant for several days on several occasions without his hparents or teachers realizing, causing concern for his safety when they did find out. Following this, his mother took him into class, under which regime he was attending school about 4 days a week, though he continued to complain vociferously about aches and pains, and the situation was felt to be precarious by parents and the school. This was the situation as described at referral.

Jack was assessed with his parents, Mr. and Mrs. Smith, and his younger sister Sarah, age 10 years. Jack was neatly dressed, very attentive, and looked somewhat young for his

age. The family was middle-class and professional, and appeared so. Jack began the interview by whispering to his father. He turned out to be expressing concern at Sarah's presence and the opinion that she should leave in case she became upset. Frequently in the session, Jack took the lead or answered questions first, acting as though he were a parent, or grandparent, in the family. A straightforward assessment was carried out, covering presenting complaints, history of complaints, developmental history, social functioning, school attainments, characteristics of family members (including current functioning and medical history), and Jack's mental state (in the presence of the family). Whenever possible, the therapist involved the children (though this was hardly necessary in Jack's case), for example, by asking them what they knew about whatever was the topic or suggesting, if they did not know anything but would like to, that they ask their parents.

The point of the assessment was to screen for possible sources of high anxiety: for things that Jack might be very anxious about. Obviously, in cases of school refusal, school is an obvious candidate. Things that can make a child very anxious about school include not being able to do the work, poor peer relations and especially being bullied, and starting a new school, especially secondary school transfer. In Jack's case, the first and third of these possibilities were very unlikely. He was bright at school, and his school refusal predated the recent secondary school transfer. As to poor peer relations, the parents at assessment identified the following first explicit sign of Jack's difficulties: At age 8, he began to worry about whom he would be sitting next to at school and whether he would be teased. Prior to this time, in the history up to 8 years, there had been no signs of peer-relationship difficulties. Jack had had trouble making and keeping friends since his current difficulties begun and was sometimes teased at school. Jack was usually teased because of his "superior," adult-like attitude to his peers; for example, he used to tell them off in a serious tone of voice if they were being naughty. As to school, Jack himself said that he enjoyed lessons and didn't like being teased, though this didn't happen very often; the worst thing about school was having to play ball in the cold.

The screening did reveal, however, another likely source of anxiety. Mr. Smith, age 47, described himself as a worrier, giving as example that he worried a lot about his work. He went on to describe a change in his life-style beginning 3 years previously. He said he had been diagnosed hypertensive, and so had to give up running, and he also had to stop playing physically with the children, because of unexplained bad headaches. Mrs. Smith had planned to return to her career after child-rearing, but she had put this off 3 years ago when her husband was diagnosed. The paternal grandfather had died suddenly and unexpectedly from thrombosis, when he was 38 and Mr. Smith was 11. No one in the family responded affirmatively to the question whether Mr. Smith's health was a worry.

On the basis of the preceding information, the following formulation was made: Jack is an 11-year old boy with an approximate 9-month history of sporadic school refusal, with somatic complaints and difficulties with peers since the age of 8 and anxiety about school attendance since the age of 9. Parents report normal development until he was 8. The question arises as to possible stressors since that time. A plausible hypothesis is that Jack shared the family anxiety at that time, when father was diagnosed hypertensive. Specifically, the fear would have been that father might suddenly die. This fear would have been exacerbated by knowledge of the early death of his paternal grandfather, and reinforced by the marked change in his father's life-style, avoidance of rigorous exercise and playing physically with the children, and by his mother's decision not to return to work outside the home. It is likely that the fear is present in the whole family. It is avoided, or denied, by the parents, and so also by the children. The avoided or denied anxiety finds expression in Jack's anxiety about his own health and school. In addition, Jack has tried to take responsibility

for (or to manage his anxiety about) the family by assuming the role of a "parental" child, which has detrimentally affected his capacity for age-appropriate peer relations. This difficulty has in turn generated the secondary stress of being isolated and teased by his peer group at school.

This formulation was based on various assumptions of the kind outlined so far in this chapter. It was assumed that Jack was very frightened about something, though the cause of, or reason for, the anxiety could not be identified correctly in self-report. This served as a working assumption, to be abandoned if no meaningful cause or reason for anxiety could be found. Jack's worry about his own health was an avoidance of worry about his father's, and others of his coping skills were also maladaptive, including physical avoidance and the assumption of age-inappropriate (psuedo)responsibility and control. School and peer relations seemed to be realistic sources of anxiety, though these concerns were plausibly secondary to a far greater perceived threat, within the family itself, namely, his father's being in danger of dropping dead. His parents did not help him contain this anxiety, since they were unable to cope with it adaptively themselves, the reasons for this inability including transgenerational issues. Typically, extrafamilial sources of stress were more open to view than the intrafamilial.

With some reframing and editing, the formulation outlined above was communicated to the family at the end of the first session. The reframing was to be in accord with the family's presentation of the problem, namely, as being the child's. The formulation was couched in these terms: The therapist believes that Jack has been worried about his father's health and that Jack believes his father and mother and sister are worried about it too. The therapist cited all the reasons enumerated above that Jack might be worried, with the exception of the paternal grandfather's early death. The therapist left out this link, on the grounds that it might be too disturbing for the father to hear straightaway. Once again, it is generally good policy not to undermine family coping strategies too early in treatment. Hence, there was also no mention of "poor coping skills" or anything of the sort, the assumption being that everyone is doing his or her best. For the same reason, the hypothesis about Jack's becoming a parental child was omitted as being premature and likely to clutter up the main point. Jack denied the main point, that he was worried about his father's health, and the parents expressed surprise that he should be. The therapist replied that the worry would be unconscious, so that Jack wouldn't know about it anyway. This was a truthful, strategic reply intended to cut a distracting debate short. There are other ways of defusing the disclaimer in family therapy, for example, by ascribing the formulation to another member of the family therapy team not in the room. The main point is to make sure that the unspeakable is spoken. The formulation of the root cause of Jack's anxiety was immediately followed up by the logical consequence: that Jack would continue to be anxious (to be worried about his own health and about leaving home to go to school) until he was persuaded, by his parents, that father was well and at no risk. This remark was akin to a "paradoxical," or "no-change," prescription of the kind recommended by the Milan group (Palazzoli et al., 1978), though in fact such prescriptions define the preconditions of change. The parents were asked to discuss how they might go about persuading Jack that his father was well and at no risk, and both agreed that Mr. Smith should go back to his doctor for a clarifying explanation of his hypertension and its possible effects. Articulation of the problem is no substitute for, though it may be a precondition of, doing something adaptive about it.

At the same time, also in the first session, the issue of school refusal was tackled directly, for many reasons, including that it was a real, handicapping problem, that children have to go to school, that it was the presenting problem, and the one most clear to

everybody. The therapist emphasized the need for a structured return to full-time attendance at school, and subsequently arranged to visit the school to find out whether the staff would and could provide the supervision necessary to keep Jack in school once one or both parents had taken him there. This plan involved considerable negotiation with the school and education authority (which is why the therapist did not leave it to the parents), but it was eventually agreed on. Use was then made of standard behavioral methods for treating school refusal with parents as therapists, which have been well described elsewhere (e.g., Yule, 1989). The therapist also had in mind the side effect of these methods particularly relevant to Jack, that he was relieved of the responsibility of school attendance, which was handed to the adults involved. In this way, Jack could give up his inappropriate adult role and go back to being a child under the care and control of his parents, this status signifying a more appropriate family structure (Minuchin, 1974; Minuchin & Fishman, 1981).

The results of the interventions in this case were as follows: Within a few sessions of the initial assessment, Mr. Smith had seen his physician, who had said he was in good health and that, contrary to Mr. Smith's previous belief, Mr. Smith did not really have to avoid physical exercise. He could start running again and could play football and play-fight with Jack again. He had already begun to do these things. Mr. Smith looked considerably less worried from this time on, and the subject of his health was hardly mentioned again. It took approximately 3 weeks for Jack to attend school all day every day, a further 3 for his anxiety in school to come down to relatively low levels, and a further 3 for the supervision by teachers and parents to be withdrawn. As illness, and then later school anxiety, ceased to be the subject for discussion, the focus turned to reestablishing peer relationships. The parents were encouraged to create opportunities for Jack to see children of his own age, in homes or in clubs, and they were very capable and willing to help in this. Over a further period of about 6 months, with relatively infrequent appointments (about every 6 weeks), Jack joined several clubs, including a drama group, and made a circle of friends. He gave up his anxious parental style and learned to play.

SUMMARY

Family systems interventions with childhood anxiety disorders may be based on psychological principles similar to those in individual therapy, and they do not presuppose that the presenting problem has to be explained in terms of family function or structure. Fundamental to anxiety is the detection of threat, though the anxiety system may run independently of processing information about danger in the abnormal case.

The object of anxiety may not be correctly identified in self-report. Fundamental to the successful management of anxiety are successful coping skills, and in their absence, persistent dependence on maladaptive coping strategies generates anxiety disorders. The developing child has to tackle many and various tasks, which inevitably generate anxiety, and for solutions, he or she is at the beginning all but entirely dependent on adult help and guidance. This circumstance suggests that family life is intimately implicated in the development of the anxiety disorders. Possible mechanisms, apart from genetic transmission, include intrafamilial stressors and modeling of maladaptive coping skills.

The aim of assessment is to track causal pathways linking the presenting anxiety disorder in the child with various aspects of family life and function. Treatment methods are generally the opposite of those processes that are thought to cause (generate or maintain) disorder, and include identification and elaboration of the cause of anxiety, physical and

mental exposure to the cause, and planning and practicing adaptive methods of coping. In the case of intrafamilial stressors, families that tend to rely on avoidance as a coping strategy are obliged to use mental rather than physical avoidance, and the source of worry will therefore be identified as something else (as an extrafamilial stress, as a somatic complaint, or as nothing). In this kind of case, identification of the intrafamilial stress in therapy constitutes the exposure that is required as prelude to more adaptive coping. The case of "Jack" illustrates these principles in practice.

REFERENCES

Bateson, G. (1971). *Steps to an ecology of mind*. New York: Ballantine.

Bernstein, G. A., & Garfinkel, B. D. (1988). Pedigrees, functioning, and psychopathology in families of school phobic children. *American Journal of Psychiatry, 142*, 1497–1499.

Bernstein, G. A., Svingen, P. H., & Garfinkel, B. D. (1990). School phobia: Patterns of family functioning. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 24–30.

Bolton, D. (in press). Self-knowledge, error and disorder. In M. Davies & A. Stone (Eds.), *Mental simulation: Philosophical and psychological essays*. Oxford: Blackwell.

Bolton, D., & Hill, J. (1994). *Meaning, causality and disorder: Explanation in psychology and psychiatry*. Oxford: Oxford University Press.

Borkovec, T. D., & Inz, J. (1990). The nature of worry in generalized anxiety disorder: a predominance of thought activity. *Behaviour Research and Therapy, 28*, 153–158.

Byng-Hall, J., & Campbell, D. (1981). Resolving conflicts in family distance regulation: An integrative approach. *Journal of Marital and Family Therapy, 7*, 321–330.

Carey, G., & Gottesman, I. (1981). Twin studies of anxiety, phobic, and obsessive disorders. In D. F. Klein & J. Rabkins (Eds.), *Anxiety: New research and changing concepts* (pp. 117–133). New York: Raven Press.

Carter, B., & McGoldrick, M. (1980). *The family life cycle*. New York: Gardner Press.

Combrinck-Graham, L. (1986). Family treatment for childhood anxiety disorders. *Family Therapy Collections, 18*, 22–30.

Dixon, N. F. (1981). *Preconscious processing*. Chichester: John Wiley.

Ellis, H., Thomas, R. L., McFarland, A. D., & Lane, W. (1985). Emotional mood states and retrieval in episodic memory. *Journal of Experimental Psychology: Learning, Memory and Cognition, 11*, 363–370.

Endler, N. S., & Parker, J. D. A. (1990). Multidimensional assessment of coping: A critical evaluation of coping. *Journal of Personality and Social Psychology, 58*, 844–854.

Erikson, E. (1963). *Childhood and society*, 2nd ed. New York: Norton.

Eysenck, M. W. (1992). *Anxiety: The cognitive perspective*. Hove, England: Erlbaum.

Foa, E. G., & Kozak, M. J. (1986). Emotional processing and fear: Exposure to corrective information. *Psychological Bulletin, 99*, 20–35.

Freud, S. (1913). *Totem and taboo, standard ed. 13* (pp. 1–161). London: Hogarth Press (1953).

Gray, J. A. (1982). *The neuropsychology of anxiety*. Oxford: Clarendon.

Haley, J. (1976). *Problem-solving therapy*. San Francisco: Jossey-Bass.

Haley, J. (1980). *Leaving home*. New York: McGraw-Hill.

Harris, E. L., Noyes, R., Crowe, R. R., & Chaudery, M. D. (1983). A family study of agoraphobia. *Archives of General Psychiatry, 40*, 1061–1064.

Hickie, I., & Silove, D. (1989). A family panics. *Australian and New Zealand Journal of Psychiatry, 23*, 418–421.

Humphreys, M. S., & Revelle, W. (1984). Personality, motivation and performance: A theory of the relationship between individual differences and information processing. *Psychological Review, 91*, 153–184.

Jacoby, L. L., & Witherspoon, D. (1982). Remembering without awareness. *Canadian Journal of Psychology, 36*, 300–324.

Jaspers, K. (1923). *Allgemeine Psychopathologie*. Berlin: Springer-Verlag. English translation by J. Hoenig & M. W. Hamilton (1963). *General psychopathology*. Manchester: Manchester University Press.

Kemp-Wheeler, S. M., & Hill, A. B. (1987). Anxiety responses to subliminal experience of mild stress. *British Journal of Psychology, 78*, 365–374.

Kendall, P. C., Chansky, T. E., Friedman, M., Kim, R., Kortlander, E., Sessa, F. M., & Siqueland, L. (1991).

Treating anxiety disorders in children and adolescents. In P. C. Kendall (Ed.), *Child and adolescent therapy: Cognitive–behavioral procedures* (pp. 131–164). New York: Guilford Press.

Kendall, P. C., Chansky, T. E., Kane, M. T., Kim, R., Kortlander, E., Ronan, K. R., Sessa, F. M., & Siqueland, L. (1992). *Anxiety disorders in youth: Cognitive–behavioral interventions*. Boston: Allyn & Bacon.

Keppel-Benson, J. M., & Ollendick, T. H. (1993). Post-traumatic stress disorders in children and adolescents. In C. F. Saylor (Eds.), *Children and disasters* (pp. 29–44). New York: Plenum Press.

Last, C. G., Hersen, M., Kazdin, A. E., Francis, G., & Grubb, H. J. (1987). Psychiatric illness in the mothers of anxious children. *American Journal of Psychiatry, 144*, 1580–1583.

Lazarus, R. S. (1966). Psychological stress and the coping process. New York: McGraw-Hill.

Leckman, J. F., Weissman, M. M., Merikangas, K. R., Pauls, D. L., & Prusoff, B. (1983). Panic disorder and major depression. *Archives of General Psychiatry, 40*, 1055–1060.

Livingston, R., Nugent, H., Rader, L., & Smith, R. G. (1985). Family histories of depressed and anxious children. *American Journal of Psychiatry, 142*, 1497–1499.

McDermott, J. F., Jr., Werry, J., Petti, T., Combrinck-Graham, L., Char, W. F. (1989). Anxiety disorders of childhood or adolescence. *Treatments of psychiatric disorders: A task force report of the American Psychiatric Association* (pp. 401–446). Washington, DC: American Psychiatric Association.

McGoldrick, M., & Gerson, R. (1985). *Genograms in family assessment*. New York: Norton.

Millikan, R. (1984). *Language, thought, and other biological categories*. Cambridge, MA: M.I.T. Press.

Mineka, S., & Kihlstrom, J. (1978). Unpredictable and uncontrollable aversive events. *Journal of Abnormal Psychology, 87*, 256–271.

Minuchin, S. (1974). *Families and family therapy*. Cambridge, MA: Harvard University Press.

Minuchin, S., & Fishman, H. C. (1981). *Family therapy techniques*. Cambridge, MA: Harvard University Press.

Nicols, M. P., & Schwartz, R. C. (1991). *Family therapy: Concepts and methods*, 2nd ed. Boston: Allyn & Bacon.

Nisbett, R., & Wilson, T. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review, 84*, 231–259.

Oatley, K., & Johnson-Laird, P. N. (1987). Towards a cognitive theory of the emotions. *Cognition and Emotion, 1*, 29–50.

Olah, A., Torestad, B., & Magnusson, D. (1984). *Coping behaviours in relation to frequency and intensity of anxiety provoking situations*. University of Stockholm: Reports of the Department of Psychology, No. 629.

Palazzoli, S., Boscolo, L., Cecchin, G., & Prata, G. (1978). *Paradox and counterpardox*. New York: Jason Aronson.

Schaefer, C. E., & Briesmeister, J. M. (Eds.) (1989). *Handbook of parent training: Parents as co-therapists for children's behavior problems*. New York: John Wiley.

Stern, D. (1985). *The interpersonal world of the infant*. New York: Basic Books.

Subotskii, E. V. (1985). Preschool children's perception of unusual phenomena. *Soviet Psychology, 23(3)*, 91–114.

Sylvester, C., Hyde, T. S., & Reichler, R. J. (1987). The Diagnostic Interview for Children and Personality Interview for Children in studies of children at risk for anxiety disorders and depression. *Journal of the American Academy of Child and Adolescent Psychiatry, 26*, 668–675.

Torgersen, S. (1986). Childhood and family characteristics in panic and generalized anxiety disorder. *American Journal of Psychiatry, 143*, 630–639.

Torgersen, S. (1983). Genetic factors in anxiety disorders. *Archives of General Psychiatry, 40*, 1085–1089.

Turner, S. M., Beidel, D. C., & Costello, A. (1987). Psychopathology in the offspring of anxiety disorders patients. *Journal of Consulting and Clinical Psychology, 55*, 229–235.

Tyrer, P., Lewis, P., & Lee, I. (1978). Effects of subliminal and supraliminal stress on symptoms of anxiety. *Journal of Nervous and Mental Disease, 166*, 88–95.

Vasey, M. W. (1993). Development and cognition in childhood anxiety: The example of worry. In T. H. Ollendick & R. J. Prinz (Eds.), *Advances in clinical child psychology*, Vol. 15 (pp. 1–39). New York: Plenum Press.

Weissman, M. M., Leckman, J. F., Merikangas, K. R., Gammon, G. D., & Prusoff, B. (1984). Depression and anxiety disorders in parents and children. *Archives of General Psychiatry, 41*, 845–852.

Williams, J. M. G., Watts, F. N., Macleod, C., & Matthews, A. (1992). *Cognitive psychology and emotional disorders*. Chichester: John Wiley.

Winnicott, D. W. (1965). *The maturational process and the facilitating environment*. New York: International Universities Press.

Yule, W. (1989). Parental involvement in the treatment of the school phobic child. In C. E. Schaefer & J. M. Briesmeister (Eds.), *Handbook of parent training: Parents as co-therapists for children's behavior problems* (pp. 223–244). New York: John Wiley.

22

Cognitive–Behavioral Interventions

Philip C. Kendall and Elizabeth A. Gosch

INTRODUCTION

Anxiety has long been a central issue in the field of psychology, having played a key role in the development of several theories, the assessment of psychological constructs, and the evaluation of forms of psychological treatment. More recently, the formal diagnostic categories of anxiety disorders have been empirically investigated, and the treatment of anxiety disorders (primarily focused on behavioral and cognitive interventions with adult populations) has received meaningful research endorsement (e.g., Barlow, Cohen, Waddell, Vermilyea, Klosko, Blanchard, & Di Nardo, 1984; Butler, Cullington, Munby, Amies, & Gelder, 1984; Clark, 1986). Taking into account childhood developmental concerns, a promising therapeutic intervention for children with anxiety disorders is emerging (e.g., Kane & Kendall, 1989; Kendall et al., 1992).

Influenced by cognitive and behavioral models, cognitive–behavioral therapy incorporates both enactive and verbal intervention strategies. Typically designed as a short-term treatment, it is characterized by flexibility in problem-solving and the use of a wide range of techniques. Within this approach, both client and therapist work together to evaluate problems and generate solutions.

Cognitive–behavioral theory views thoughts, feelings, and behavior as causally related. Thus, cognitive activities such as expectations, attributions, self-statements, problem-solving skills, and schemata are needed to produce, understand, and treat psycho-

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pathological behavior such as anxiety disorders. Interrelationships of these factors have been implicated in the development of maladaptive anxiety symptoms and disorders in children and adults (Kendall, 1992). Cognitive–behavioral therapy is one treatment that directly addresses the physiological, behavioral, and cognitive components involved in the multidimensional construct of anxiety.

GUIDING THEORY

One of the more challenging aspects of studying anxiety disorders in children is the variety of ways in which anxiety may be expressed or experienced. Different situations elicit a variety of responses in anxiety-disordered children. For example, while fear of specific objects or situations characterizes simple phobia, overanxious disorder is associated with distressing anxious arousal not linked to a specific situation. Moreover, many anxious youth react anxiously to multiple situations. Despite these differences, a core of common features of anxiety has been established.

Anxiety is a multidimensional construct that incorporates physiological, behavioral, and cognitive components. Physiologically, anxiety is characterized by autonomic arousal, which can include increased heart rate, dizziness, nausea, sweating, and muscle tension (for a review, see Barrios & Hartmann, 1988). Specific behaviors associated with anxious children range from crying to stereotypic movements to trembling voice (Barrios & Hartmann, 1988), with a general behavioral tendency for avoidance. That is, anxious youth do not face, confront, or cope with challenges/stress, but rely more on avoidance to reduce personal distress.

Until recently, little empirical work has explored the cognitive activity of clinically anxious children, although a variety of anxious children's thoughts have been described. For example, Barrios and Hartmann (1988) include thoughts of being scared or hurt, self-critical thoughts, and thoughts of danger as being typical of anxious children. Other researchers have explored the cognitions of nonclinical populations in specific situations such as test anxiety (Zatz & Chassin, 1983, 1985), diving anxiety (Prins, 1986), and dental anxiety (Prins, 1985). High anxiety is often associated with negative self-referent cognitions, such as "I'm going to mess up" or "I'm going to get hurt again." In juxtaposition, low anxiety in children has been associated with a lower frequency of negative thoughts.

Cognitive–behavioral theory asserts that individuals do not respond directly to their environment, but that their responses are cognitively mediated. A situation leads to different responses depending on the content of the child's thoughts and the manner of cognitive processing. Thus, there is some cognitive dysfunction associated with anxiety disorders. The exact nature of this cognitive dysfunction carries important treatment implications.

Although various systems of cognition have been proposed, most agree that cognition is not a singular or unitary concept. Given the myriad of complex constructs involved, an organization is necessary to better understand cognition. One such framework distinguishes among cognitive structures, cognitive content, cognitive processes, and cognitive products (Ingram & Kendall, 1986, 1987; Kendall & Ingram, 1987, 1989).

Cognitive structures refer to memory. More specifically, they refer to the manner in which information is internally organized and represented in memory. The accumulation of experiences in memory forms these cognitive structures or templates, which then filter information from new experiences. The content of the information represented and stored

within cognitive structures is called *cognitive content*. An individual's current flow of cognitive events is considered a component of content. Cognitive structures then activate automatic cognitive content and information-processing concerning specific ongoing events. Information is manipulated through *cognitive processes*, which are the operations performed by the system to input, store, transform, and control the output of information. Cognitive processes can be defined as the manner in which we perceive and interpret experiences. *Cognitive products* are the cognitions or attributions that result from the operations of the cognitive system. Attributions from events are thus incorporated into existing structures and impact on future events.

Cognitive dysfunction can be conceptualized as either cognitive deficiency or cognitive distortion. Cognitive deficiency refers to an inefficient or insufficient amount of cognitive processing (e.g., lack of problem-solving, planning) that results in maladaptive responses in many situations. Cognitive distortions, in contrast, refer to active but dysfunctional thinking processes. Anxious children often suffer from cognitive distortions; for example, although they actively engage in an evaluation of social situations, they misperceive and engage in erroneous processing (distortions). More specifically, anxious children often misperceive the demands of the environment as well as their personal abilities. For example, anxious children view themselves hypercritically and underestimate their true abilities. They may be preoccupied with concerns regarding evaluations by others and the likelihood of severe negative consequences. Rather than displaying deficits in information-processing (cognitive deficiency), anxious children evidence an information-processing style that is laced with misperceptions. Thus, one aim of treating the anxious child is to correct cognitive distortions.

ASSESSMENT

Effective treatment begins with careful assessment. Practitioners and researchers recommend a multimethod approach to assessment (e.g., Kendall & Ronan, 1990) consistent with the view of anxiety as a tripartite disorder with cognitive, behavioral, and physiological components (Barlow, 1988). Relatedly, assessment requires the use of clinical interviews, self-reports, ratings by significant others, direct observations, and in some cases physiological measures.

The assessment process requires consideration of the extensive developmental changes that occur throughout childhood. These cognitive, socioemotional, and biological changes, as well as changes in children's expressive and comprehension abilities, impact on emotional adjustment. For children, the social–familial context is especially influential. Though beyond the scope of this chapter, these important issues are addressed in other chapters in this book.

Informed treatment decisions depend in large part on the information gleaned from initial and ongoing assessments. When treatments are designed and developed for specific disorders, the assessment process can facilitate a match between disorder and treatment approach. The intervention approach described in this chapter has been found to be effective for youth meeting diagnostic criteria for overanxious disorder, separation anxiety disorder, and avoidant disorder (DSM-III-R criteria) (American Psychiatric Association, 1987) and is appropriate for ICD-9 (World Health Organization, 1977) disorders such as overanxious disorder, separation anxiety disorder, shyness disorder, and introverted disorder.

RESEARCH ON THE TREATMENT OF CHILDHOOD ANXIETY

Studies of children experiencing nighttime fears, medical/dental distress, and evaluation anxiety have suggested that components of the cognitive–behavioral approach are efficacious in the ameliorating of anxiety symptoms. The results of these studies provide a basis for an integrated cognitive–behavioral program for the treatment of childhood anxiety disorders. We first discuss some of the early studies of remediating anxious distress and then describe recent work that incorporates features of the earlier studies to develop a comprehensive cognitive–behavioral program for the treatment of children with diagnosed anxiety disorders.

Nighttime Fears

In a study that investigated the efficacy of positive self-statements in reducing children's fears of the dark, Kanfer, Karoly, and Newman (1975) compared two types of verbal controlling responses: competence self-statements (e.g., "I am a brave girl; I can take care of myself in the dark") and stimulus-directed positive statements (e.g., "The dark is a fun place to be. There are many good things in the dark"). The two groups using these procedures improved over a neutral group who were asked to repeat a distracting nursery rhyme. Overall, the competence group showed the greatest increase in tolerance of the dark. These results lend support to the usefulness of positive self-statements or "self-talk" in lowering avoidance and fear responses to anxiety-provoking situations.

The use of relaxation, positive imagery, positive self-statements, and contingent reinforcement was shown to decrease children's nighttime fears in a study by Graziano, Mooney, Huber, and Ignasiak (1979). Children learned these skills and received tokens to reinforce practice of the techniques and "bravery" through the night. Posttreatment parents' ratings showed reductions in the number and intensity of the children's fears, and all children reached the goal of 10 consecutive "fearless" nights within a 3- to 19-week period. A 1-year follow-up revealed 6 of the 7 children were completely free of nighttime fears and the 7th showed improvement. Graziano and Mooney (1980) used the same procedures with a group comparison study, except parents additionally completed home observation sheets before and after the intervention. The coping-skills group showed significant reductions in fear intensity, obtained significantly greater rating of improvement, and displayed significantly less fear behavior than the waiting-list control group. Extensive follow-up revealed these gains to have been maintained in 31 of the 34 children whose families responded (Graziano & Mooney, 1982).

Giebenhain and O'Dell (1984) found parental involvement in the use of desensitization, reinforcement, and coping self-statements helpful in decreasing children's fears of the dark. They used a parent-training manual to teach parents how to use these skills to help their children cope with fears of the dark. All 6 participating children reached the goal of sleeping with only a nightlight and without reporting fear. Gains in fear reduction were maintained at 1-year follow-up for all 6 children.

Medical and Dental Fears

Research on children's reaction to aversive medical and dental procedures has also augmented our knowledge of coping and cognitive processing in anxiety-provoking

situations. Much of the research supports a cognitive–behavioral model. For example, there exists substantial research suggesting that children's dental anxiety is poorly correlated with specific treatment factors, such as the number of visits or the age at first treatment. Rather, their anxiety is correlated with broader factors, such as the child's general level of anxiety, intolerance of discomfort, more negative mood, problems in adapting to change, and difficulty in interacting with unfamiliar children (Brown, Wright, & McMurray, 1986; Sermet, 1974; Williams, Murray, Lund, Harkiss, & DeFranco, 1985). Coping skills packages similar to those described in the treatment of nighttime fears have been used to ameliorate children's fear reactions to medical and dental stressors.

In one such study, Siegel and Peterson (1980) divided children into three groups: One treatment group received training in a coping skills package, another group received information about the procedures they would experience, and a third group received no treatment. Compared to the control group, both groups of treated children displayed reduced anxiety and increased cooperative behavior during their first dental visit. These results suggest that coping skills and information concerning anxiety-provoking situations may be useful in reducing anxiety.

Coping skills, training, modeling, and information have also been found useful in reducing children's distress while undergoing medical procedures. Peterson and Shigetomi (1981) randomly assigned children to one of four groups: an information group, coping skills training, filmed peer-modeling, and information plus coping plus filmed modeling. Both groups receiving coping skills training displayed less distress than the other groups. Furthermore, children receiving the combined treatment were more cooperative and calm during invasive procedures than the other groups. For children undergoing painful medical procedures such as burn and cancer treatments, cognitive–behavioral interventions have also proven efficacious in alleviating fear responses and anxiety (Elliott & Olson, 1983; Dahlquist, Gil, Armstrong, Ginsberg, & Jones, 1985; Jay, Elliott, Ozolins, Olson, & Pruitt, 1985). In addition to receiving training in the use of coping skills packages, some of these treatments included the child's creation of a "heroic scenario" in which medical procedures were reinterpreted. To provide alternative meaning to the procedures, the patient played the role of hero in the context of a story. The coping skills package included some form of breathing or relaxation exercises, positive self-statements, positive reinforcement for practicing or using coping skills, and imagery. These skills have been incorporated into cognitive–behavioral treatment programs such as that employed by Kane and Kendall (1989) (see Kendall et al., 1992).

Evaluation Anxiety

The literature concerning the use of cognitive–behavioral therapy in the treatment of child and adolescent evaluation anxiety includes studies regarding math anxiety, test anxiety, and public speaking fears. One group of researchers compared cognitive modification with systematic desensitization procedures in the treatment of test-anxious youth (Leal, Baxter, Martin, & Marx, 1981). The members of the cognitive modification group were taught to substitute positive thoughts and self-statement for negative, maladaptive thoughts during test-taking situations. The systematic desensitization group incorporated deep muscle relaxation and imagined exposure to test situations. Compared to a wait-list control group, the cognitive modification treatment was shown to be superior in modifying self-reported anxiety (State–Trait Anxiety Inventory for Children State Scale scores), while the

systematic desensitization was superior in ameliorating performance. The finding that cognitive modification is superior to systematic desensitization in reducing self-report measures of text anxiety is consistent with the results of other studies (Holroyd, 1976; Kaplan, McCordick, & Twitchell, 1979; Meichenbaum, 1972). However, no strong conclusions can be drawn at present regarding the superiority of cognitive modification over other methods of treatment. It does appear that cognitive modification and systematic desensitization may be useful in treating different components of anxiety. Newer approaches incorporate both features in treating anxiety (e.g., Kendall, 1992).

In comparing two different coping skills programs to a no-treatment control group, Stevens and Pihl (1983) found that both groups receiving instruction showed significant posttreatment increases in the number and quality of coping strategies generated. Teachers also rated these groups as displaying significantly greater coping abilities than prior to treatment. In addition, these groups' scores increased significantly over the control group on the Wechsler Intelligence Scale for Children—Revised Coding and Mazes subtests. Despite these gains, treated and control subjects performed similarly in grades and in a stressful simulated test situation. This study's somewhat puzzling results serve as a reminder that researchers must use clinically relevant criteria in their development of intervention studies.

Fox and Houston (1981) compared two intervention programs to a no-treatment group in their study of public-speaking anxiety. The assessment task consisted of 4th grade children reciting a memorized poem while being videotaped. Between pre- and posttreatment assessment, treated subjects received one training session. One treatment group was taught self-instruction procedures that focused on reappraisal of the negative aspects of the task (e.g., "Even if I don't do this correctly, nothing terrible will happen"). The other group was taught self-instructions that centered on factual information about the situation (e.g., "This will take just a few minutes"). In this study, both self-instruction groups showed greater behavioral anxiety while reciting the poem. Among other explanations of the results, the authors hypothesized that the double-negative nature of the self-instructions used (in comparison to positive self-statements in other coping skills programs reviewed) may have sensitized the children in that condition to the unpleasantness of the anxiety-arousing situation.

Anxiety-Disordered Children

Although cognitive–behavioral methods have been recommended for the treatment of anxiety (e.g., Graziano, DeGiovanni, & Garcia, 1979; Wells & Vitulano, 1984), few studies to date have evaluated the treatment of childhood anxiety disorders. Effective behavioral treatments have been employed primarily for specific fears and phobias in childhood, modeled after anxiety-reduction approaches in the adult literature (King, Hamilton, & Ollendick, 1988). Much of the existing cognitive–behavioral literature discussed so far focuses on circumscribed fears, such as nighttime fears, specific phobias, dental/medical fears, and evaluation anxiety with nonclinical samples. Most have reported treatment success over control groups when using a coping-skills approach that combines self-instructional techniques with behavioral techniques such as *in vivo* exposure, imagery, relaxation, and contingent reward. The emerging studies geared to evaluate cognitive–behavioral treatment of anxiety-disordered children have incorporated the successful interventions employed in these earlier studies. These contributions have led to the development of integrated cognitive–behavioral programs that have been used to treat

anxiety-disordered children. These studies have yielded promising results, but further research with this population is needed.

Early research with anxiety-disordered youth consisted of a few uncontrolled case studies. Investigators of cognitive–behavioral interventions for childhood obsessive–compulsive symptoms have reported successful treatment outcomes (Ownby, 1983; Barlow & Seidner, 1983). Unfortunately, the small number of subjects and the lack of a control group limited the conclusions that could be drawn from these studies.

More recently, Kane and Kendall (1989) employed a multibaseline design in an initial evaluation of their cognitive–behavioral treatment program. Four children diagnosed with overanxious disorder individually completed this 16- to 20-session program. The treatment focused on teaching children a coping skills package that included: (1) recognizing anxious feelings and somatic reactions to anxiety; (2) clarifying cognitions in anxiety-provoking situations and examining unrealistic or negative attributions or expectations; (3) developing a plan to help cope with the situation, modifying anxious self-talk into coping self-talk, and determining what actions might be effective; and (4) evaluating the success of the coping strategies and providing self-reward when appropriate. All children showed improvement on parent-, independent clinician-, and self-report measures. In addition, target behaviors were significantly improved. Self-report and parent report at 3 months following treatment revealed these gains to have been maintained by two of the children. The other two children also reported gains maintained, but their parental report evidenced a return of some previous difficulties. The results of this study suggest that a cognitive–behavioral treatment can be efficacious in the treatment of anxiety disorders in children.

A randomized clinical trial evaluating the effectiveness of the cognitive–behavioral treatment program was recently conducted and reported (Kendall, 1994). The study compared the 16-week treatment program with an 8-week wait-list condition at the Child and Adolescent Anxiety Disorders Clinic of Temple University. Subjects were 47 children of ages 9–13 who met diagnostic criteria for an anxiety disorder based on the Anxiety Disorders Interview Schedule for Children (Silverman, 1987) and were randomly assigned to treatment conditions and to therapists. Self-report, parent-report, and behavioral-observation measures revealed a statistically significant positive change from pre- to posttreatment assessments for the treated group compared to the wait-list group. The results were clinically significant as well; 64% of treated cases did not meet diagnostic criteria at posttreatment on parent and child interview data, while only 1 wait-list subject showed no diagnosis at the termination of the wait-list period. Teacher reports, however, were not significantly different across assessment periods. Gains were maintained at a 1-year follow-up, as posttreatment and follow-up measures did not differ significantly for treated subjects across parent and child measures. Overall, the results of this study provide support for the effectiveness of the cognitive–behavioral program for the treatment of anxiety disorders in youth.

COGNITIVE–BEHAVIORAL TREATMENT

Cognitive–behavioral treatment marries the enactive techniques of behavioral therapy with the emphasis on thought processes found in cognitive therapy. In this section, we first describe various methods individually. We follow with an integrative model of treatment, as our data suggest that a combination of these individual components forms the most effective therapeutic intervention.

Therapist's Role

In cognitive–behavioral therapy, the therapist acts as diagnostician, educator, and consultant to the client. The therapist assesses maladaptive cognitive processes and works with the client to design learning experiences that may remediate these dysfunctional cognitions in conjunction with associated behavioral and affective patterns. In some contexts, the therapist may also work with the child's family to help identify and change family patterns, such as modeling of anxious behaviors, that may reinforce the child's maladaptive cognitions and behavior.

Exposure

A major component of cognitive–behavioral as well as behavioral treatment of anxiety disorders is exposure to or contact with the objectives or situations that elicit anxiety. Researchers have found that continued exposure to the anxiety-producing stimulus results in dissipation of the anxiety response in children (for a review, see Barrios & O'Dell, 1989). The methods of exposure vary in many dimensions, such as imaginal vs. live (*in vivo*) exposure, graduated vs. prolonged exposure, individual vs. group exposure, and therapist-assisted vs. self-exposure (Last & Hersen, 1988). The question of why exposure is effective in reducing anxiety remains unanswered, but several hypotheses have been proposed that are consistent with cognitive–behavioral therapy. According to these views, exposure results in the extinction of conditioned responses and habituation of physiological arousal while increasing perceived self-efficacy or changes in the cognitive "set," such as decreases in catastrophic thoughts and negative self-verbalizations.

Relaxation

Relaxation training seeks to address the symptoms of muscle tension and heightened physiological arousal that are strongly associated with anxiety. This training helps children increase their awareness of when they are experiencing tension, differentiate between tense and relaxed body states, and use their body sensations as stimuli to relax. Relaxation scripts developed for children are useful when teaching relaxation techniques (e.g., Koeppen, 1974; Ollendick & Cerny, 1981).

One typical type of relaxation exercise, systematic tension-releasing exercises, entails the progressive relaxation of major muscle groups (King et al., 1988). Children may benefit most from learning to relax a maximum of three muscle groups per session and practicing the relaxation exercises twice daily at home (Strauss, 1988). Cued controlled relaxation is another technique helpful to children. In this process, clients learn to associate a personalized cue word such as "relax" or "calm" with a relaxed state. As clients enter a deeply relaxed state through relaxation exercises, they subvocalize their cued word when exhaling. They can then utilize the cue word to induce a more relaxed state when they feel anxious. Deep breaths often become a cue to relaxation when practiced in conjunction with muscle relaxation and can be used in conjunction with a cue word.

Relaxation training has been shown to reduce anxiety symptoms in moderately depressed children (Reynolds & Coats, 1986) as well as in normal 6- and 7-year old children (Weisman, Ollendick, & Horne, 1978). Weisman et al. (1978) found that the use of procedures described by both Ollendick and Cerny (1981) and Koeppen (1974) resulted in significantly reduced muscle tension levels as measured by electromyographic recordings.

These findings suggest that relaxation training may offer an effective means of ameliorating symptoms associated with anxiety. However, no firm conclusions as to their effectiveness with clinical populations can be made as well-controlled evaluations of their efficacy with diagnosed cases are lacking and needed (Ollendick, 1986).

Modeling

Originating in the observational learning paradigm (Bandura, 1969, 1986), modeling consists of demonstrating nonfearful behavior in a fear-producing situation. This demonstration suggests an appropriate response to the fearful situation. Children learn appropriate skills and reduced fear through watching others cope with anxiety-provoking situations. This learning is furthered by the child's imitation of the role models. The therapist provides ongoing feedback and reinforcement to the child for a performance that approximates that of the model. Through operant principles, the desired behaviors are maintained and anxious symptoms are extinguished (Ollendick & Francis, 1988).

Contingent Reinforcement

According to the principles of operant conditioning, environmental responses to particular behaviors affect the frequency of their occurrence. Thus, behaviors that are followed by positive reinforcement are more likely to be repeated. Contingent reinforcement has served as an effective method for modifying a wide variety of behaviors, such as school-phobic behavior (e.g., Ayllon, Smith, & Rogers, 1970). However, further work concerning the utility of reinforcement in the treatment of anxious children is needed (e.g., Rines, 1973; Leitenberg & Callahan, 1973). Given the overwhelming evidence that supports the use of reinforcement in modifying child behavior, the use of rewards appears to be a promising method for increasing the occurrence of coping behaviors in anxious children.

Cognitive Restructuring

Anxious children tend to engage in distorted cognitive processing involving unrealistic self expectations, negative self-evaluation, and avoidance of self-reinforcement. Cognitive–behavioral therapies attempt to change these maladaptive thinking patterns through building a cognitive coping template. Building such a template entails the identification and modification of maladaptive self-talk while putting together a more adaptive way to view situations based on coping as opposed to fear. The therapist and child work together to question, and eventually invalidate, the negative, unrealistic interpretations the child has of events he or she experiences. As anxious children often engage in distorted processing concerning forthcoming events, the therapist intervenes by guiding the child in more realistic appraisal of these events with questions such as "What might happen?" and "How many times has this happened before?". Through such interventions, these negative beliefs are gradually replaced with coping strategies and a greater belief in positive outcomes.

Developmental factors may determine the extent to which a child is able to engage in cognitive processing with the therapist. It is crucial for the therapist to use language familiar to the child and arrive at a method of processing that is comfortable to the child. For example, although many children benefit from discussing events prior to their onset, some children benefit more from processing events after their occurrence. For these children, the

extreme anxiety they experience prior to the event often prevents them from being able to process the thoughts associated with the stressful situation. Of course, perceptions of stress will continue to affect the child, but these perceptions will be filtered through the cognitive coping structure, which prompts the child to use coping strategies.

Problem-Solving

In cognitive–behavioral therapy, therapists often work with anxious children to develop problem-solving skills. One example of a problem-solving sequence developed by D'Zurilla and Goldfried (1971) consists of five stages (see also Spivack & Shure, 1974; D'Zurilla, 1986). Children begin in the first stage, general orientation, to prepare for the solution of the problem. In stage two, problem definition, they describe the problem to be solved and their major goals. During stage three, they generate a variety of alternative solutions and choose what they deem to be the best solution. The solution is then implemented (stage four), and the success of this choice is verified in stage five (for discussions, see Kendall & Braswell, 1993; Kendall & Siqueland, 1989). Through practice and success with solving anxiety-related problems, children learn to cope with future problems. They also gain a sense of themselves as individuals who can manage their problems, which aids in the process of cognitive restructuring discussed above.

Kleiner, Marshall, and Spevack (1987) found problem-solving to enhance the post-treatment therapeutic gains of *in vivo* exposure. In this study, 26 agoraphobic patients were randomly assigned to either an *in vivo* exposure treatment or *in vivo* exposure plus a problem-solving skills training program. Although all the patients improved significantly after 12 treatment sessions, only those who received training in problem-solving continued to improve at follow-up. None of the patients in the exposure-only group showed further gains at follow-up, and some had relapsed. It appears that problem-solving may enhance the gains of other treatment strategies during and after cessation of therapy (e.g., Arnow, Taylor, Agras, & Telch, 1985; Jannoun, Munby, Catalan, & Gelder, 1980).

AN INTEGRATED COGNITIVE–BEHAVIORAL MODEL

Our cognitive–behavioral program for the treatment of childhood and adolescent anxiety disorders integrates behavioral and cognitive procedures, such as *in vivo* exposure and cognitive restructuring, discussed earlier [for the specifics of the program, see the *Treatment Manual* (Kendall, Kane, Howard, & Siqueland, 1989); for a more detailed discussion of the integrated program, see Kendall et al. (1992)]. Designed as a short-term treatment (16–20 sessions), this program consists of 8 training sessions followed by an 8-session practice segment. In the training period, children learn skills that enable them to identify and modify anxious cognitive processing as well as physical responses (e.g., body tension) to anxiety-provoking situations. Additionally, children learn the steps of a problem-solving framework that they apply to imaginal *in vivo* situations. This training sets the occasion for the practice segment, in which children use the strategies they have learned in the first 8 sessions to cope with experiencing specific situations that have been identified as anxiety-provoking for them.

This program seeks to teach youth to recognize their individual signs of anxious arousal and use these signs as cues for the use of anxiety-management strategies. They first learn to recognize the presence of anxiety and the situations in which they experience it. We

then teach them a variety of coping skills that they use to decrease the debilitating effects of their anxiety. By decreasing their feelings of distress while more successfully engaging in anxiety-provoking situations, these children develop a sense of mastery that can generalize to other areas.

Building a Positive Relationship

As in most therapy, the therapist begins with relationship-building activities that continue throughout treatment. The type of rapport established depends on the interaction of child and therapist as well as the child's developmental stage. The establishment of rapport facilitates the training and practice of new skills. These skills include awareness of bodily reactions to feelings and those physical symptoms specific to anxiety; recognition and evaluation of "self-talk," or what the child thinks and says to himself or herself when anxious; problem-solving skills, including modifying anxious self-talk and developing plans for coping; and self-evaluation and reward (Kendall et al., 1992).

Differentiation of Emotional and Somatic Responses

In the initial sessions, the therapist focuses on teaching the child to differentiate his or her experiences of various feelings. As they page through pictures or drawings from magazines, books, and educational materials, the therapist asks the child to identify the emotions people are experiencing by looking at their differing facial expressions and body postures. Younger clients may create a scrapbook of pictures that express different feelings, a "Feelings Dictionary." The therapist then turns to discussing how the child knows what different people in his or her life are feeling, placing emphasis on the information gleaned from their body postures and facial expressions. This leads to opportunities for role plays of various emotions by the therapist and child. As with all skills introduced, the therapist may first model the exercise, then ask the child to "tag along" in the role-play (Ollendick, 1986), and finally have the child role-play alone.

After discussing emotions in the abstract and then in relationship to others, the therapist focuses on the child's personal experiences of emotions. The child reports and role-plays his or her own physical responses to various emotions, especially physical symptoms specific to anxiety. Common somatic responses to anxiety include headaches, shakiness, stomachaches, choking, flushes/chills, and motor tension (Beidel, Christ, & Long, 1991). We have found that these children often have difficulty in distinguishing different feelings, such as fear, sadness, and anger. One way the therapist may help the child recognize these differences is by disclosing his or her own bodily reactions to anxiety and asking how these symptoms compare to or differ from the child's experience. Some children, especially younger or lower-functioning children, may have greater difficulty articulating their responses. The therapist must be creative in utilizing different examples and formats to meet the abilities of each particular child.

To help the child become a better reporter of personal experiences, the therapist encourages the child to verbalize his or her feelings and responses to situations. As an additional aid, children receive a copy of the *Coping Cat Workbook* (Kendall, 1990) to supplement their therapy. This workbook is a type of journal with various exercises based on the child's experiences in a given week. For the first week, the child records a pleasant experience that occurs in the ensuing week. For sessions 2 and 3, the child records his or her bodily reactions to one pleasant and one anxious experience. The child receives stickers for

compliance with these "Show That I Can" (STIC) tasks. After the 4th and 8th sessions, they also receive small rewards such as markers or baseball cards for their participation.

Relaxation Training

After identifying the child's symptoms of anxiety, the therapist teaches the child to use these symptoms as cues for relaxation. Children participate in deep-breathing exercises and modified progressive muscle relaxation that focuses on three or four muscle groups (e.g., Koeppen, 1974; Ollendick & Cerny, 1981). The therapist and child discuss when it might be useful to use relaxation. The therapist may model or role-play such a situation and encourage the child to do the same. Each child receives a personalized relaxation audiotape, based on the child's bodily responses to anxiety and his or her abilities. They are encouraged to practice this relaxation tape at home each night for a week as part of their STIC task assignment. These exercises are reviewed periodically and practiced regularly throughout the treatment. Younger children may demonstrate the procedure to their parents, who can act as coaches to help the child practice at home.

Self-Talk

The training program next focuses on the concept of self-talk, the child's internal dialogue, particularly when experiencing anxiety. The therapist seeks to educate the child about the way he or she thinks about himself or herself, others, and situations. As noted earlier, anxious children tend to underestimate their abilities, overestimate the demands of situations, and catastrophize about event outcomes. These cognitive distortions are reflected in their internal dialogue as they tend to focus on negative self-evaluation, perfectionistic standards for performance, heightened self-focused attention, concern about evaluation by others, and fears of failure.

The idea of self-talk can sometimes be difficult for children to grasp. Most people do not monitor their specific thoughts or realize the kind of statements they make to themselves when anxious. To introduce self-talk, the therapist shows children cartoons of characters with empty thought bubbles in simple, nonthreatening situations. The therapist models what the characters might be thinking. With encouragement, the child follows suit and generates various alternative thoughts for the characters. The child's responses provide information about his or her thought processes and thought flexibility. The cartoons increase in ambiguity and the scenes become more anxiety-provoking as the exercise continues. The therapist helps the child generate two sets of thoughts for the cartoons: those that increase anxiety and those that alleviate it.

The therapist also explains that the way the child thinks affects what he or she might feel or do. For example, the therapist might talk about two children who are about to meet someone new. One child thinks, "I hope she'll play computer games with me," while a second child might think, "I bet he won't like me." The first child will probably look forward to the meeting, while the second will experience anxiety and may even try to avoid the meeting. The therapist uses the children's own examples to point out the ways they often think about situations and shows them alternatives to their own self-talk. These alternatives, called "coping self-talk," are typically based on concrete examples from the child's own life that help him or her think differently about a situation. To further apply the concept of self-talk to their own experiences, the children record two anxiety-provoking situations that occur during the following week and the thoughts that accompany them.

Problem-Solving

The discussions concerning self-talk support the introduction of problem-solving, the next concept presented in our program. First, the therapist helps the child generate various alternative solutions to a simple, nonthreatening problem in a type of brainstorming process. Often, therapists use an example such as misplacing their tennis shoes or leaving a toy at a friend's house. The child has already learned some coping strategies through his or her experience with relaxation training and coping self-talk. Other solutions may involve relieving muscle tension, changing his or her self-talk to coping statements, or asking others for help. For example, the therapist could suggest that the child take a deep breath and say "Relax" to himself or herself in a frightening situation while remembering how relaxed he or she felt when doing relaxation exercises.

To aid the child in recognizing and changing maladaptive thoughts, the therapist may ask what the child expects to happen in the situation. By further questioning how likely these often catastrophic, negative expectancies are, the therapist helps the child challenge these beliefs. Questions asked of the child include: "How likely is it that his will happen?" "Has that happened before?" "How many times has this happened to you?" and "What will happen if [the feared event] occurs?". The therapist helps the child to begin replacing maladaptive thoughts with coping thoughts by asking the child for other ways he or she might think about the situation.

Often, possible solutions involve enlisting friends or family members for support or advice, watching how others cope with situations, and rehearsing skills required by the situation, such as academic, performance, or social skills. Younger children, especially, may benefit from choosing a hero to use as a model for their own behavior. The hero persona can be a cartoon character, a parent, or even the child as the child himself or herself would like to be. The child may consider how the hero would handle the fearful situation or pretend to take the hero along for support in the situation.

After all the alternatives are on the table, the child evaluates the efficacy of each one and chooses the one he or she feels is the best solution. The therapist aids in this process, as the child may be unfamiliar with evaluating solutions in a nondistorted manner. With the therapist's support, the child gradually applies the process to more difficult, threatening situations, such as speaking in front of the class or getting lost in a strange place.

One child was afraid of going to stores because he believed that he could get lost, be abducted, or look foolish in front of others. Some solutions to his fears included taking deep breaths periodically and relaxing his muscle tension, asking "safe" people such as police officers or business people for directions, finding a telephone and calling home if lost, learning the plan of the store with a parent before going to the store alone, and wearing a whistle that he could blow if strangers threatened him. Coping self-talk also formed part of the solution as he considered various adaptive ways to think about the situation, such as "No one in my family has ever been lost for more than 15 minutes during my whole life," "I know how to handle being lost and finding help because I have a plan to cope with it," "People are too busy with their own business to be too concerned about how I look," "I have never done anything really stupid in a store before, so it's not likely I'll do anything now," and, "Even if I do something silly, people will forget it quickly and I won't die or lose friends because of it."

Problem-solving offers children alternative ways to make anxious situations less distressing and cope with them in a productive manner. To help generalize the skill, each child is instructed to record two anxious situations that occur during the following week.

Additionally, the child notes his or her feelings and self-talk that accompany the situations. Finally, he or she applies problem-solving to the situations and records the results of his or her coping strategy.

Self-Evaluation and Reward

The final skills presented to the child are self-evaluation and reward. Anxious children often do not know how to reward themselves and lean heavily on others for praise or monitoring. Additionally, they find it difficult to praise their own performance because it always falls short of their unrealistically high expectations. In our program, we strive to help them develop more realistic goals for their performance. For example, the therapist and child may individually rate the child's performance in a given situation on a scale from 1 to 10. Typically, the therapist rates the child more positively than the child rates himself or herself. Using concrete examples from the performance, the therapist explains why the child deserved such a positive rating. The reason for the child's lower score are discussed and challenged if unreasonable.

In addition, the children are encouraged to reward themselves for even partial successes. For instance, they may be directed to rate and reward themselves for the positive ways in which they dealt with a situation. The therapist validates the child's positive actions, which helps the child see and value aspects of his or her behavior that had previously been ignored. Children also evaluate the ways they could do things differently in the future, but without the self-denigration they previously associated with self-evaluation.

While developing appropriate self-evaluation skills, children are introduced to the idea of self-reward. Each child generates a list of possible self-rewards such as spending more time in an activity he or she likes (e.g., playing computer games), giving oneself a pat on the back (e.g., "I did do a good job with that"), and spending time with family and friends (e.g., going to the movies, eating out, sleeping over).The child applies self-evaluation and reward skills in the following week by recording two problematic situations, noting how he or she coped with the situations, rating his or her coping method, and describing his or her self-reward.

The FEAR Steps

The treatment employs an acronym—FEAR—that helps the child recall his or her coping strategies (Kendall et al., 1992). When faced with an anxiety-provoking situation, children can ask themselves and think through the FEAR questions:

F—"*F*eeling frightened?" They answer this question by noting the physical symptoms of anxiety they are experiencing.

E—"*E*xpecting bad things to happen?" The answer to this question revealed their self-talk and what they fear in a given situation.

A—"What *A*ctions and *A*ttitudes will help?" The child uses problem-solving skills to generate different behaviors and coping statements that he or she can use to cope with the situation. The child then implements a coping strategy.

R—"What are the *R*esults of my coping actions?" and "How can I *R*eward myself for trying to cope with this situation?" The child engages in realistic self-evaluation and self-reward for coping with the situation.

The therapist role-plays using the FEAR steps with the child in imaginary situations. The child also makes a small carrying card with the FEAR steps on it as a reminder of how to

cope with difficult situations outside of therapy. To further process the steps, the child explains the steps to a parent. This explanation enables the parent to help the child in difficult situations by cueing the use of the FEAR steps. For a STIC task, the child applies these steps to two low-level fear-inducing situations during the week.

Practice and Exposure

Learning the skills involved in the FEAR steps is only half the treatment picture. Applying and practicing these skills in anxious situations forms the second segment of our treatment. In each of the last 8 sessions, the child works with the therapist to experience and cope with problematic situations, such as public speaking, riding elevators, or separating from a parent. The therapist continues to utilize role-play and modeling of these situations to help the child cope effectively with them. The therapist encourages the child's use of the FEAR steps as a coping strategy. Initially, the therapist may need to prompt the child through the steps as he or she applies them to problematic situations. These prompts should gradually fade as the child comes to master the steps and apply them independently. Although the FEAR steps provide an anchor for the child's coping strategy, the therapist encourages children to personalize the steps to fit their needs and apply them in a flexible manner.

The *in vivo* exposures experienced by the child begin with low-level fear situations and slowly increase to high-intensity fears. For some children, imaginal exposure is used before any kind of *in vivo*. The therapist often uses a hierarchy of anxiety-provoking situations that has been developed with the child's and parents' input to determine the sequence and nature of each child's *in vivo* experiences. One child in our program summarized how many of them feel after their first successful *in vivo*. When discussing the next situation to be challenged, he exclaimed, "Well, I figure if I could walk to the library by myself, I can do this too." This sense of competency encourages the children to experience and master situations that they avoided in the past. In the week following each of the practice sessions, the child uses the FEAR steps in two *in vivo* situations. The child notes the successes and difficulties encountered in the STIC tasks. This time provides an excellent opportunity for parents to develop their role as facilitators of their child's coping actions.

The children attending our program have encountered numerous types of *in vivo* situations. Children with academic fears have taken math tests and taught peers how to do science projects. Children with social anxieties have introduced themselves to office personnel, asked store workers for directions, and given oral presentations to small groups. Some have interacted with peers in play settings. Others go to sites outside the clinic, such as the zoo, shopping centers, or bus stops. Children who have difficulty separating from parents have gone to stores without their parents and tolerated their parents' "unexpected" late arrivals after therapy sessions. We may also arrange for children who fear talking with their parents about a particular topic to discuss the topic with their parents. With the support of school personnel, we have arranged a variety of naturally occurring academic and social situations for the children attending our program.

Commercials

To consolidate each child's therapeutic gains, children create and produce a "commercial" about their experiences in our program. The children make short videos, booklets, audiotapes, or cartoons to tell other children about our clinic. Since we call on these children as "experts" to help others learn how to cope with anxiety, these commercials

provide clear evidence of the child's success. Copies of the commercial are given to the child so he or she may display this success to others if he or she chooses to do so.

Posttreatment

The ultimate goal of our program is to provide children with the problem-solving skills and adaptive cognitive sets that will help them better manage anxiety and anxiety-related problems in daily life. To aid in achieving this goal, we encourage children and parents to practice these skills regularly after leaving treatment. Continuing examples of success affirm the child's coping template and sense of competence. The child and parent are also instructed to anticipate some difficulties, but to frame them as opportunities for further learning. After therapy ends, the child may need some help in labeling difficulties realistically as opposed to catastrophizing them. The child is encouraged to reward himself or herself generously for partial success and effort. Occasionally, the child may recontact the therapist for an additional "booster" session. These sessions are useful when the child is facing a particularly difficult situation, such as attending a new school or coping with the impending divorce of his or her parents. These sessions aid the child in framing the situation in a constructive manner and refreshing the child's problem-solving skills. The therapist also helps the child remember the sense of mastery he or she has experienced in the past and maintain this coping template when dealing with current difficulties.

WORKING WITH FAMILIES

Consideration of a child's social and interpersonal contexts is vital to the treatment process. The most salient of these contexts, the family, provides the earliest learning environment for the child. Family interactions in many ways shape a child's thoughts, actions, attributions, and expectations. Possible family factors that may contribute to the development of anxiety disorders include stressful life events, such as maternal separation, death or illness (Waldron, Shrier, Stone, & Tobin, 1975), marital conflict (Eisenberg, 1958a,b; Waldron et al., 1975), familial modeling (Silverman, Cerny, & Nelles, 1988), parenting styles (McFarlane, 1987; Parker, 1983), and increased rates of pathology in relatives of anxiety probands (Carey & Gottesman, 1981). Although the nature of the relationship between family and the development remains unclear, our experience in treating anxiety-disordered children indicates that it is important to involve the family in the child's treatment.

Cognitive–behavioral approaches may involve the family indirectly as consultants or more directly as active participants in the child's treatment. The extent of family involvement varies across families. Unlike systems-oriented family therapy, cognitive–behavioral family therapy does not focus solely on the dynamics of family interaction processes. Rather, parents/family are involved in many ways that facilitate the child's progress.

As consultants, parents may provide information about past learning experiences and aid in the planning of interventions (e.g., *in vivo* experiences). This involvement begins in the assessment process as therapists interview parents and gather parent-report measures. It is critical for the therapist to establish a positive relationship with parents at this early phase of treatment through meetings and telephone contacts. At this stage, parents often want to know why their child began experiencing debilitating anxiety problems. Often, parents express feelings of guilt and blame for their child's problems. We address these

feelings by urging the parents to focus with us on the present and participate in helping their child learn coping strategies.

Therapists also meet with parents after seeing the child for three sessions to provide information about the therapy program and to gather information from the parents about their concerns. This meeting provides an opportunity to clarify parents' expectations for their child and the therapy. Parents sometimes have unrealistic expectations for their children. For example, some parents may expect their child to be "cured" after just a few meetings with the therapist. The therapist seeks to modify these unrealistic expectations while encouraging the parents to appreciate positive changes in their child's behavior. Additionally, information about family behavior patterns that may promote the child's anxiety often leads the therapist to plan *in vivo* experiences to address these patterns. For example, one child talked to his parents about the fear he felt when they argued. This meeting also provides an opportunity for the therapist to share his or her impressions of what types of situations provoke anxiety for the child and how the child typically responds in these situations. Finally, the therapist suggests specific ways the parents can participate in the program and invites the parents to contact the therapist if they have any questions or information they think would be helpful to the therapy.

Throughout treatment, parents are encouraged to act as coaches and models to aid children in generalizing problem-solving skills across situations outside of therapy. They can cue the child when to use the FEAR steps or help the child consider different problem solutions. In the treatment of obsessive–compulsive disorder, they have been called on to become highly involved when implementing response-prevention programs for their children (Wolfe & Rapaport, 1988). They may practice relaxation with the child or model problem-solving and coping self-talk for the child. This type of parent involvement helps the child maintain therapeutic gains after cessation of treatment.

At times, it may be appropriate to refer parents for treatment. Some parents have difficulty maintaining structure in the home, a difficulty that can sometimes increase child anxiety. Parents may benefit from parent training for instruction on limit-setting and behavioral-management techniques that are often useful in the implementation of cognitive–behavioral treatment. Other parents may find treatment useful in addressing their own psychological difficulties. For example, an anxiety-disordered mother may unwittingly be serving as a model of fearful, avoidant behavior. The amelioration of her symptoms may lead her to model more coping behavior as well as decrease her reinforcement of the child's fearful behavior.

Family involvement, thus far, has been discussed in relation to a child-centered therapy. However, a family-centered cognitive behavioral program could prove efficacious in the treatment of childhood anxiety. Given the important role families have been hypothesized to play in the development and maintenance of child anxiety disorders, family-centered programs (e.g., Kendall et al., 1992) merit further investigation. Indeed, the question of the optimal level of parental involvement in the treatment of child disorders is both important and interesting (Fauber & Long, 1991; Kendall & Morris, 1991).

CASE ILLUSTRATION

Robert, a 12-year-old boy, was referred to the Child and Adolescent Anxiety Disorders Clinic (CAADC) at Temple University by his school counselor. On the basis of a structured diagnostic interview, the Anxiety Disorders Interview Schedule for Children (ADIS-C)

(Silverman, 1987, 1991), he met DSM-III-R criteria for a primary diagnosis of overanxious disorder and a secondary diagnosis of simple phobia, fear of the dark. On the State–Trait Anxiety Inventory for Children (STAIC) (Spielberger, 1973), he reported experiencing a significant degree of anxiety (Trait Scale *T*-score = 60; State Scale *T*-score = 71). His parents also reported a large number of internalizing symptoms on the Child Behavior Checklist (CBCL) (Achenbach & Edelbrock, 1983) (Internalizing Scale *T*-score = 81). Additionally, he experienced some depressive symptoms. Several symptoms associated with posttraumatic stress disorder were noted following an accident in which Robert's 5-year-old sister fell into a 12-foot hole at a construction site near their home while he was babysitting her. On first meeting, he exhibited many nervous mannerisms, such as wringing his hands and fidgeting while answering questions hesitantly. By the second session, his speech took on a pressure quality as he poured out a litany of fears and distress.

On the Fear Survey Schedule for Children—Revised (Ollendick, 1983), he reported having a great deal of fear of 25 items (total score = 156), which ranged from safety concerns (e.g., a burglar breaking into his house) and evaluation concerns (e.g., poor grades) to family concerns (e.g., his parents arguing). He related a multitude of somatic concerns, such as stomachaches and headaches that he reported experiencing almost every day. His mother stated that he begged her to stay home from school at least two times a week, complaining of feeling sick. He often worried about his parents' safety and called his mother each day from school. Each night at home, he checked the door locks some four times to make sure they were secure. In addition, he ruminated about his performance in schoolwork and sports. The night before a test or football game, he found it difficult to sleep and experienced pronounced psychomotor agitation. Nightmares and difficulty falling asleep were common. He often catastrophized about events and worried that he had displeased or hurt others. Self-conscious and self-critical, he often feared that others would reject him. Moreover, he found decision-making difficult and anxiety-provoking.

Robert lived with his mother, father, older brother, and two younger sisters. Robert's mother was an administrative assistant; his father, a recovering alcoholic, was an independent construction contractor. The family lived in a lower-middle-class neighborhood and were experiencing economic difficulties. According to his parents, they frequently argued, and these arguments often escalated to throwing objects at each other. They were attending marital therapy in an attempt to ameliorate these problems, but they were uncertain as to whether or not they would remain married.

The main focus of therapy concerned Robert's somatic symptoms, performance fears, safety concerns, and attempts to please everyone in order to avoid their disapproval or anger. Therapy also dealt with Robert's feelings of responsibility concerning his parents' problematic marriage and possible separation. These issues were addressed through Robert's participation in the integrated cognitive–behavioral program detailed in this chapter (Kendall et al., 1989, 1992).

Although Robert experienced a number of somatic complaints, he did not link their occurrence to his own anxiety. To help Robert make this connection, the therapist instructed Robert to keep his own record of the times and situations in which he felt sick over the week. In session, the therapist helped Robert link these somatic feelings and their accompanying thoughts with anxious times. Robert's therapist also made a list to model how stressful situations and thoughts led the therapist herself to experience somatic symptoms. Robert responded positively to the idea that he had to play detective and find the clues, such as body tension, that would alert him to the fact that he was experiencing anxiety.

To help Robert relax in session, his therapist often played football catch with him while talking. This served as an introduction to relaxation training, as the therapist led Robert to

compare his body tenseness before beginning to play catch and afterward. Given the pressure Robert put on himself to please others, the therapist cautioned him that he would probably not relax when learning relaxation exercises for the first time and that most people took awhile to become relaxed. This allowed Robert to concentrate on the exercises, not on how well he was doing them, and he responded by entering a state of deep relaxation after participating in progressive muscle relaxation exercises. Thereafter, Robert often used a personalized audiotape of these exercises to relax before he went to sleep at night and before playing in football games. Three deep breaths at the beginning and end of the tape helped Robert link taking a deep breath with relaxation. He was thus able to use a deep breath to remain calm before tests in school or when walking alone in his neighborhood.

A difficult part of the program for Robert was identifying anxious self-talk and distinguishing it from coping self-talk. The therapist used extensive "tag-along" modeling to show herself identifying these types of thoughts. Also, at critical moments when playing games, the therapist would "freeze" the action and ask questions such as, "What would an anxious [or coping] thought be now?" If Robert had difficulty responding, the therapist provided examples like, "An anxious thought might be, 'What if I make the wrong move?', and a coping thought might be, 'I've won this game before, I might just win again.' " Since Robert liked using the chalkboard, he made lists of situations and types of thoughts and also drew pictures illustrating these scenes on the chalkboard. To help him generate coping self-talk, the therapist encouraged Robert to shift his focus from what he thought others were thinking and onto what others were doing. For example, he watched others in school to see how they and others around them responded to mistakes. He found that others often didn't notice the mistakes. He also thought of individuals he had seen make mistakes and his acceptance of them. He realized they may not think negatively about him for making mistakes as well.

When learning problem-solving, Robert initially required much assistance from the therapist. He had difficulty considering different types of actions to take when coping with anxious situations. The therapist helped him by generating different options, including ludicrous possibilities that often made Robert laugh. As therapy progressed, the therapist offered fewer alternatives and would sometimes sit in silence until Robert came up with an idea. Robert also enjoyed using the chalkboard when learning the FEAR steps by making a column for each step and filling in the columns with a situation he experienced that week.

Given Robert's tendency to be self-critical, the therapist worked hard to help Robert recognize that his coping actions were deserving of reward even if he did not cope perfectly with a given situation. The therapist often had to prompt Robert to reward himself and modeled rewarding herself. Through the therapist's continued acceptance and praise, Robert began to give himself a pat on the back for his efforts.

Throughout the program, Robert's therapist used humor to help Robert be less self-critical and less tense. To help him overcome fears involving his actions, the therapist often used coping modeling to find humor in her own imperfections and mistakes. The therapist gradually extended the use of humor to Robert's imperfections by engaging in gentle teasing when appropriate and encouraging Robert to tease the therapist at times. Robert's efforts and performance were accepted and praised. As Robert reported, he himself learned to use humor to cope in anxious situations. Whenever he fell on the football field, he felt embarrassed, but made a joke about it, and toward the end of treatment was able to laugh with his teammates about the fall.

In the second part of the program, Robert began to apply his newly acquired problem-solving skills to *in vivo* situations. He faced low-level anxiety-provoking situations regarding others' perceptions of him and performance fears. For example, he asked a clinic staff

member whom he did not know for information, he presented a speech about football to a small group, and he completed a timed achievement test knowing that the results would be discussed with his parents. Before each of these early *in vivo* experiences, the therapist guided Robert through the FEAR steps in order to develop a coping plan. At this stage, Robert found it difficult to apply what he had learned to real situations without the therapist's help.

He then progressed to moderately anxiety-provoking situations that focused on safety concerns and social evaluation. He found his way independently to the university's library, and he took the subway with his therapist. At this point, he began to be able to use the FEAR steps with only occasional prompts by the therapist. When asked to find the university library, Robert agreed but began to fidget in his chair. The therapist prompted him to use the FEAR steps, and he was able to complete them with only an occasional suggestion from the therapist. He stated he knew he felt anxious and jittery. He worried that he might get lost, be kidnapped, or look stupid. As for coping actions, he decided to ask the therapist to draw him a map, identified people he could ask for directions, and told himself that lots of people (definitely over a hundred) went to the library every day (at least 300 days a year) without being kidnapped. He later used this experience as one of his coping thoughts when dealing with other situations as he said, "I figured if I could do that library thing, I know I can do this okay."

For the highest-level *in vivo* situations, he talked with his mother and father about their fighting, his desire for their approval, and their possible separation. Through meeting with Robert and his therapist, Robert's parents were educated as to how their actions, particularly their fighting and disorganization in the home, were affecting Robert. His mother occasionally suggested to Robert that he use the FEAR steps when he appeared anxious and went through them with him to help him cope more effectively with various situations. During the second part of treatment, Robert completed homework assignments to cope with situations such as his dog being sick, leaving locks on doors at home unchecked, hearing his parents fight, taking tests in school, and playing football. He thus practiced using the FEAR steps independently to cope with anxiety-provoking situations he encountered outside the clinic.

Robert viewed the end of treatment as an accomplishment, complete with a diploma from the CAADC. For his commercial, he played an expert on anxiety who was being interviewed on a "talk show." At posttreatment and 1-year follow-up, he displayed no diagnosable disorders on the ADIS-C. He still held high standards for himself and worked to please others, but these characteristics did not interfere significantly with his social relationships or participation in activities. Posttreatment, his STAIC scores fell approximately 30 points from his pretreatment score (Trait Scale T-score = 27; State Scale T-score = 32). His parents reported that he remained a sensitive child who often worried; however, he did not experience inordinately high levels of distress or needs for reassurance. On the CBCL Internalizing Scale, his parents' report of anxious symptoms was also considerably lower than prior to treatment (T-score = 40). A few months following treatment, his parents separated. Robert reported being conflicted over the event. Even so, he expressed a desire to handle the situation on his own with his parents' help. This expression of mastery stood in sharp contrast to his pretreatment feelings of incompetence and cries for help.

SUMMARY

Cognitive–behavioral treatments of distressing anxiety in children have yielded initially promising results. Integrative cognitive–behavioral programs for anxiety-

disordered youth—programs that are applied flexibly to meet the child's needs and incorporate parental involvement—have met with favorable outcomes. However, much more research is needed to affirm the results of existing studies and unravel the many remaining questions surrounding treatment of this population. Moreover, various combinations of the individual cognitive–behavioral treatment components need to be compared. Methodological recommendations for this type of research include: (1) randomized clinical trials of carefully assessed and diagnosed cases, (2) use of proper control groups such as wait-list groups, (3) dependent measures from multiple sources including both specifying level and impact level measures, (4) manualized treatments with checks on integrity and quality of treatment as provided, and (5) examination of clinical as well as statistical significance (Kendall & Morris, 1991).

Future research is needed to establish whether treatment approaches differ in effectiveness for various anxiety disorders. For example, cognitive–behavioral treatments may be less effective in the treatment of obsessive–compulsive disorder, for which response prevention has been cited as the most often utilized intervention (Wolfe & Rapaport, 1988), but may offer the most promising method of treatment for overanxious disorder (Strauss, 1988).

As we consider the efficacy of various treatment approaches in relation to one another, we must also explore the integration of pharmacological interventions with child- or family-focused therapy or both in the treatment of childhood anxiety disorders. How does pharmacotherapy compare with cognitive–behavioral therapy? What are the merits of child-focused therapy in contrast to family therapy? Existing cognitive–behavioral interventions may be enhanced by incorporating pharmacotherapy, parent-training, family sessions, or personal therapy for parents. The answers to these questions require research attention.

Treatment will need to be modified as we learn more about the social and cognitive functioning of anxiety-disordered youth. Similarly, the impact of developmental factors on treatment has remained a relatively unexplored area and certainly merits further investigation. Studies also need to address the issue of comorbidity for other disorders such as depression or attention-deficit hyperactivity disorder and the impact of comorbidity on treatment outcome.

Initial research outcomes support the efficacy of an integrated cognitive–behavioral program for the management of anxiety-provoking situations. We hope that the information provided and the many questions raised in this chapter serve as a challenge in the ongoing effort to develop more effective programs for the prevention and remediation of children's fears and anxieties.

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REFERENCES

Achenbach, T. M., & Edelbrock, C. S. (1983). *Manual for the Child Behavior Checklist and Revised Child Behavior Profile*. Burlington: Associates in Psychiatry, University of Vermont.

American Psychiatric Association (1987). *Diagnostic and statistical manual of mental disorders*, 3rd ed., revised. Washington, DC: Author.

Arnow, B. A., Taylor, C. B., Agras, W. S., & Telch, M. J. (1985). Enhancing agoraphobia treatment outcome by changing couple communication patterns. *Behavior Therapy*, *16*, 452–467.

Ayllon, T., Smith, D., & Rogers, M. (1970). Behavioral management of school phobia. *Journal of Behavior Therapy and Experimental Psychiatry, 1*, 125–138.

Bandura, A. (1969). *Principles of behavior modification*. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1986). *Social learning theory*. Englewood Cliffs, NJ: Prentice-Hall.

Barlow, D. H. (1988). *Anxiety and its disorders*. New York: Guilford Press.

Barlow, D. H., & Seidner, A. L. (1983). Treatment of adolescent agoraphobics: Effects on parent–adolescent relations. *Behaviour Research and Therapy, 21*, 519– 526.

Barlow, D. H., Cohen, A. S., Waddell, M. T., Vermilyea, B. B., Klosko, J. S., Blanchard, E. B., & Di Nardo, P. A. (1984). Panic and generalized anxiety disorders: Nature and treatment. *Behavior Therapy, 15*, 431–449.

Barrios, B. A., & Hartmann, D. B. (1988). Fears and anxieties. In E. J. Mash & L. G. Terdal (Eds.), *Behavioral assessment of childhood disorders*, 2nd ed. (pp. 196–264). New York: Guilford Press.

Barrios, B. A., & O'Dell, S. L. (1989). Fears and anxieties. In E. J. Mash & R. A. Barkley (Eds.), *Treatment of childhood disorders* (pp. 167–221). New York: Guilford Press.

Beidel, D. C., Christ, M. A., & Long, P. J. (1991). Somatic complaints in anxious children. *Journal of Abnormal Child Psychology, 19*, 659–670.

Brown, D. F., Wright, F. A. C., & McMurray, N. E. (1986). Psychological and behavioral factors associated with dental anxiety in children. *Journal of Behavioral Medicine, 9*, 213–218.

Butler, G., Cullington, A., Munby, M., Amies, P., & Gelder, M. (1984). Exposure and anxiety management in the treatment of social phobia. *Journal of Consulting and Clinical Psychology, 52*, 642–650.

Carey, G., & Gottesman, I. (1981). Twin and family studies of anxiety, phobic, and obsessive disorders. In D. F. Klein & J. Rabkin (Eds.), *Anxiety: New research and changing concepts* (pp. 117–133). New York: Raven Press.

Clark, D. M. (1986). Cognitive therapy for anxiety. *Behavioural Psychotherapy, 14*, 283–294.

Dahlquist, L. M., Gil, K. M., Armstrong, F. D., Ginsberg, A., & Jones, B. (1985). Behavioral management of children's distress during chemotherapy. *Journal of Behavior Therapy and Experimental Psychiatry, 16*, 325–329.

D'Zurilla, T. J. (1986). *Problem-solving approaches to therapy*. New York: Springer.

D'Zurilla, T. J., & Goldfried, M. R. (1971). Problem-solving and behavior modification. *Journal of Abnormal Psychology, 78*, 107–126.

Eisenberg, L. (1958a). School phobia: Diagnosis, genesis and clinical management. *American Journal of Psychiatry, 4*, 645–666.

Eisenberg, L. (1958b). School phobia: A study in the communication of anxiety. *American Journal of Psychiatry, 114*, 712–718.

Elliott, C. H., & Olson, R. M. (1983). The management of children's behavioral distress in response to painful medical treatment for burn injuries. *Behavior Research and Therapy, 21*, 675–683.

Fauber, R.L., & Long, N. (1991). Children in context: The role of the family in child psychotherapy. *Journal of Consulting and Clinical Psychology, 59*, 813–820.

Fox, J. E., & Houston, B. K. (1981). Efficacy of self-instructional training for reducing children's anxiety in an evaluative situation. *Behaviour Research and Therapy, 19*, 509–515.

Giebenhain, J. E., & O'Dell, S. L. (1984). Evaluation of a parent-training manual for reducing children's fear of the dark. *Journal of Applied Behavior Analysis, 17*, 121–125.

Graziano, A. M., & Mooney, K. C. (1980). Family self-control instruction for children's nighttime fear reduction. *Journal of Consulting and Clinical Psychology, 48*, 206–213.

Graziano, A. M., & Mooney, K. C. (1982). Behavioral treatment of children's "nightfears": Maintenance of improvement at 2- to 3-year follow-up. *Journal of Consulting and Clinical Psychology, 50*, 598–599.

Graziano, A. M., DeGiovanni, I. S., & Garcia, K. A. (1979). Behavioral treatment of children's fears: A review. *Psychological Bulletin, 86*, 804–830.

Graziano, A. M., Mooney, K. A., Huber, C., & Ignasiak, D. (1979). Self-control instruction for children's fear reduction. *Journal of Behavior Therapy and Experimental Psychiatry, 10*, 221–227.

Holroyd, K. A. (1976). Cognition and desensitization in the group treatment of test anxiety. *Journal of Consulting and Clinical Psychology, 44*, 991–1001.

Ingram, R. E., & Kendall, P. C. (1986). Cognitive clinical psychology: Implications of an information processing perspective. In R. E. Ingram (Ed.), *Information processing approaches to clinical psychology* (pp. 3–21). New York: Academic Press.

Ingram, R. E., & Kendall, P. C. (1987). The cognitive side of anxiety. *Cognitive Therapy and Research, 1*, 331–341.

Jannoun, L., Munby, M., Catalan, J., & Gelder, M. (1980). A home-based treatment program for agoraphobia: Replication and controlled evaluation. *Behavior Therapy, 11*, 294–305.

Jay, S. M., Elliott, C. H., Ozolins, M., Olson, R. A., & Pruitt, S. D. (1985). Behavioral management of children's distress during painful medical procedures. *Behaviour Research and Therapy, 23*, 513–520.

Kane, M. T., & Kendall, P. C. (1989). Anxiety disorders in children: A multiple-baseline evaluation of cognitive–behavioral treatment. *Behavior Therapy, 20*, 499–508.

Kanfer, F. M., Karoly, P., & Newman, A. (1975). Reduction of children's fear of the dark by competence-related and situational threat-related verbal cues. *Journal of Consulting and Clinical Psychology, 43*, 251–258.

Kaplan, R. M., McCordick, S. M., & Twitchell, M. (1979). Is it the cognitive or the behavioral component that makes cognitive–behavioral modification effective in test anxiety? *Journal of Counseling Psychology, 26*, 371–377.

Kendall, P. C. (1985). Toward a cognitive–behavioral model of child psychopathology and a critique of related interventions. *Journal of Abnormal Child Psychology, 13*, 357–372.

Kendall, P. C. (1990). *Coping cat workbook*. Department of Psychology, Temple University, Philadelphia, Pennsylvania.

Kendall, P. C. (1994). Treating anxiety disorders in youth: Results of a randomized clinical trial. *Journal of Consulting and Clinical Psychology, 62*, 100–110.

Kendall, P. C., & Braswell, L. (1993). *Cognitive–behavior therapy for impulsive children*, 2nd ed. New York: Guilford Press.

Kendall, P. C., & Ingram, R. E. (1987). The future for cognitive assessment of anxiety: Let's get specific. In L. Michelson & M. Ascher (Eds.), *Anxiety and stress disorders: Cognitive–behavioral assessment and treatment*. New York: Guilford Press.

Kendall, P. C., & Ingram, R. E. (1989). Cognitive–behavioral perspectives: Theory and research on depression and anxiety. In P. C. Kendall & D. Watson (Eds.), *Anxiety and depression: Distinctive and overlapping features*. New York: Academic Press.

Kendall, P. C., & Morris, R. J. (1991). Child therapy: Issues and recommendations. *Journal of Consulting and Clinical Psychology, 59*, 777–784.

Kendall, P. C., & Ronan, K. R. (1990). Assessment of children's anxieties, fears, and phobias: Cognitive–behavioral models and methods. In C. R. Reynolds & R. W. Kamphaus (Eds.), *Handbook of psychological and educational assessment of children: Personality, behavior, and context*. New York: Guilford Press.

Kendall, P. C., & Siqueland, L. (1989). Child and adolescent therapy. In A. M. Nezu & C. M. Nezu (Eds.), *Clinical decision making in behavior therapy: A problem-solving perspective* (pp. 321–337). Champaign, IL: Research Press.

Kendall, P. C., Chansky, T. E., Kane, M. T., Kim, R. S., Kortlander, E., Ronan, K. R., Sessa, F. M., & Siqueland, L. (1992). *Anxiety disorders in youth: Cognitive–behavioral interventions*. Boston: Allyn & Bacon.

Kendall, P. C., Kane, M., Howard, B., & Siqueland, L. (1989). *Cognitive–behavioral therapy for anxious children: Treatment manual*. Department of Psychology, Temple University, Philadelphia, Pennsylvania.

King, N. J., Hamilton, D. I., & Ollendick, T. H. (1988). *Children's phobias: A behavioral perspective*. Chichester, England: John Wiley.

Kleiner, L., Marshall, W. L., & Spevack, M. (1987). Training in problem-solving and exposure treatment for agoraphobics with panic attacks. *Journal of Anxiety Disorders, 1*, 219–238.

Koeppen, A. S. (1974). Relaxation training for children. *Elementary School Guidance and Counseling, 9*, 14–21.

Last, C. G., & Hersen, M. (1988). *Handbook of anxiety disorders*. New York: Pergamon Press.

Leal, L. L., Baxter, E. G., Martin, A., & Marx, R. W. (1981). Cognitive modification and systematic desensitization with test anxious high school students. *Journal of Counseling Psychology, 28*, 525–528.

Leitenberg, H., & Callahan, E. J. (1973). Reinforced practice and reduction of different kinds of fears in adults and children. *Behavior Research and Therapy, 11*, 19–30.

McFarlane, A. C. (1987). The relationship between patterns of family interaction and psychiatric disorder in children. *Australian and New Zealand Journal of Psychiatry, 21*, 383.

Meichenbaum, D. H. (1972). Cognitive modification of test anxious college students. *Journal of Consulting and Clinical Psychology, 39*, 370–380.

Ollendick, T. H. (1983). Reliability and validity of the Revised Fear Survey Schedule for Children. *Behavior Research and Therapy, 21*, 685–692.

Ollendick, T. H. (1986). Behavior therapy with children and adolescents. In S. L. Garfield & A. E. Bergen (Eds.), *Handbook of psychotherapy and behavior change*, 3rd ed (pp. 525–564). New York: John Wiley.

Ollendick, T. H., & Cerny, J. A. (1981). *Clinical behavior therapy with children*. New York: Plenum Press.

Ollendick, T. H., & Francis, G. (1988). Behavioral assessment and treatment of childhood phobias. *Behavior Modification, 12*, 165–204.

Ownby, R. L. (1983). A cognitive–behavioral intervention for compulsive handwashing with a thirteen-year-old boy. *Psychology in the Schools, 20*, 219–222.

Parker, G. (1983). *Parental overprotection: A risk factor in psychosocial development*. New York: Grune & Stratton.

Peterson, L., & Shigetomi, C. (1981). The use of coping techniques in minimizing anxiety in hospitalized children. *Behavior Therapy, 12*, 1–14.

Prins, P. J. (1985). Self-speech and self-regulation of high- and low-anxious children in the dental situation: An interview study. *Behavioral Research and Therapy, 23*, 641–650.

Prins, P. J. (1986). Children's self-speech and self-regulation during a fear-provoking behavioral test. *Behavior Research and Therapy, 24*, 181–191.

Reynolds, W. M., & Coats, K. I. (1986). A comparison of cognitive–behavioral therapy and relaxation training for the treatment of depression in adolescents. *Journal of Consulting and Clinical Psychology, 54*, 653–660.

Rines, W. B. (1973). Behavior therapy before institutionalization. *Psychotherapy: Theory, Research, and Practice, 10*, 281–283.

Sermet, O. (1974). Emotional and medical factors in child dental anxiety. *Journal of Child Psychology and Psychiatry, 15*, 313–321.

Siegel, L. J., & Peterson, L. (1980). Stress reduction in young dental patients through coping skills and sensory information. *Journal of Consulting and Clinical Psychology, 48*, 785–787.

Silverman, W. K. (1987). *Anxiety Disorders Interview Schedule for Children* (ADIS-C). Unpublished manuscript. Florida International University, Miami, FL.

Silverman, W. K. (1991). Anxiety Disorders Interview Schedule for Children (ADIS-C). Albany, NY: Graywind Publications.

Silverman, W. K., Cerny, J. A., & Nelles, W. B. (1988). Familial influence in anxiety disorders: Studies on the offspring of patients with anxiety disorders. In B. B. Lahey & A. E. Kazdin (Eds.), *Advances in child clinical psychology*, Vol. 16 (pp. 223–248). New York: Pergamon Press.

Speilberger, C. (1973). *Manual for the State–Trait Anxiety Inventory for Children*. Palo Alto, CA: Consulting Psychologists Press.

Spivack, G., & Shure, M. (1974). *A problem-solving approach to children's adjustment*. San Francisco: Jossey-Bass.

Stevens, R., & Pihl, R. O. (1983). Learning to cope with school: A study of the effects of a coping skill training program with test-vulnerable 7th-grade students. *Cognitive Theory and Research, 7*, 155–158.

Strauss, C. C. (1988). Behavioral assessment and treatment of overanxious disorder in children and adolescents. *Behavior Modification, 12*, 234–251.

Waldron, S., Shrier, D. K., Stone, B., & Tobin, F. (1975). School phobia and other childhood neuroses: A systematic study of the children and their families. *American Journal of Psychiatry, 132*, 802–808.

Weisman, D., Ollendick, T. H., & Horne, A. M. (1978). A comparison of muscle relaxation techniques with children. Indiana State University, Terre Haute: Unpublished manuscript.

Wells, K. C., & Vitulano, L. A. (1984). Anxiety disorders in childhood. In S. Turner (Ed.), *Behavioral theories and treatment of anxiety* (pp. 413–433). New York: Plenum Press.

Williams, J. M. G., Murray, J. J., Lund, C. A., Harkiss, B., & De Franco, A. (1985). Anxiety in the child dental clinic. *Journal of Child Psychology and Psychiatry, 26*, 305–310.

Wolfe, R., & Rapaport, J. (1988). Behavior treatment of childhood obsessive compulsive disorder. *Behavior Modification, 12*, 252–266.

World Health Organization (1977). *Manual of the international statistical classification of diseases, injuries, and causes of death*, 9th ed. (ICD-9). Geneva: Author.

Zatz, S., & Chassin, L. (1983). Cognitions of test-anxious children. *Journal of Consulting and Clinical Psychology, 51*, 524–534.

Zatz, S., & Chassin, L. (1985). Cognitions of test-anxious children under naturalistic test-taking conditions. *Journal of Consulting and Clinical Psychology, 53*, 393–401.

23

Psychopharmacological Interventions

Gail A. Bernstein

INTRODUCTION

Anxiety disorders are one of the most prevalent categories of childhood and adolescent psychopathology, as has been demonstrated in epidemiological studies (Anderson, Williams, McGee, & Silva, 1987; Costello, 1989; Kashani & Orvaschel, 1988; McGee, Feehan, Williams, Partridge, Silva, & Kelly, 1990). There is also evidence that children with untreated anxiety disorders often follow a chronic course and commonly take a long time to recover (Keller, Lavori, Wunder, Beardslee, Schwartz, & Roth, 1992).

Therefore, treatment studies are an important area to pursue. This chapter focuses on the psychopharmacological studies involving children and adolescents with anxiety disorders. First, the shortcomings of the pharmacological research will be presented, so that results of the scientific studies can be placed into perspective. This discussion will be followed by an examination of each class of medications that has been used to treat children and adolescents with juvenile anxiety disorders. Finally, a clinical guide to initiation of antianxiety medication treatment in children and adolescents is included.

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METHODOLOGICAL LIMITATIONS IN PSYCHOPHARMACOLOGICAL STUDIES

There are a limited number of studies evaluating the efficacy of antianxiety medications in children and adolescents. Moreover, because many of these studies have methodological shortcomings, the results are often equivocal or difficult to interpret. For example, most of the pharmacological studies were conducted with small sample sizes. Since placebo response rates are high in children, large sample sizes are needed. Thus, the majority of the pharmacological studies evaluating the efficacy of anxiolytics in children and adolescents lack the statistical power to identify even moderate medication effects (Kutcher, Reiter, Gardner, & Klein, 1992).

Another important problem is the "lack of diagnostic rigor in many therapeutic studies" (McDaniel, 1986, p. 70). Studies of the 1960s–1970s evaluating the efficacy of antianxiety agents often included heterogeneous samples of subjects with mixed diagnoses based on outdated diagnostic systems. In subsequent studies, the psychiatric diagnoses of the subjects are not always systematically evaluated. Furthermore, in virtually all drug studies of children with anxiety disorders, comorbid diagnoses are not taken into account when the efficacy of the medication is evaluated.

Another problematic design issue is whether adequate dosages of medications are achieved. In studies of tricyclic antidepressants, plasma blood levels are not always utilized to document the drug levels achieved. Many studies are open-label without a placebo-controlled design. Concurrent treatments (e.g., behavior therapy, psychodynamic psychotherapy) are often not controlled (Kutcher et al., 1992).

In evaluating the scientific studies presented, it is important to keep in mind the sample size and characteristics of the study sample, the design of the investigation, and whether controls and comparison groups are included. These variables will determine the validity and generalizability of the findings. This chapter will focus on recent psychopharmacological studies, including controlled studies, uncontrolled studies, and case reports.

BENZODIAZEPINES

The primary site of action of benzodiazepines is the γ-aminobutyric acid (GABA) receptors. GABA is the principal inhibitory neurotransmitter in the brain (Biederman, 1991; Salzman, 1989). According to animal models, the antianxiety effects of the benzodiazepines are related to their actions in the hippocampus or amygdala in the brain's limbic system (Biederman, 1991). Absorption, distribution, binding, and metabolism are variables that determine the concentration of the benzodiazepines at the receptor sites in the brain (Salzman, 1989). The lipid solubility of benzodiazepines allows them to penetrate the blood–brain barrier (Salzman, 1989).

Several studies suggest the possible benefit of benzodiazepines in treating anxiety symptoms. In a 4-week open-label study, 12 children and adolescents (ages 8–16) with avoidant or overanxious disorder or both received 0.5–1.5 mg alprazolam per day (Simeon & Ferguson, 1987). On alprazolam, 7 manifested at least moderate improvement in symptoms on clinician ratings. Parents reported that their children had a decrease in initial insomnia and a decrease in restless sleep while on alprazolam. However, self-report did not document an improvement in anxiety. Subsequently, a 4-week, double-blind, placebo-controlled study of 30 children and adolescents (ages 8–16) with avoidant ($N = 9$) or overanxious disorders ($N = 21$) was completed by these researchers (Simeon, Ferguson,

Knott, Roberts, Gauthier, Dubois, & Wiggins, 1992). The mean dosage of alprazolam was 1.6 mg daily. At the end of the 4 weeks, the trends indicated greater improvement in the alprazolam group compared to the placebo group on global improvement ratings. However, the results were not statistically significant. Klein [unpublished data (1991) cited in Kutcher et al., 1992] treated 18 children (ages 6–17 years) with separation anxiety disorder in an open trial of alprazolam. The dosage range was 0.5–6.0 mg per day. Improvement as rated by psychiatrists was 89%; by mothers, 82%; by teachers, 64%; and by self-report, 65%.

Benzodiazepines have been described as effective in alleviating symptoms of childhood anxiety disorders in case reports. In one report, 3 anxious children (one with separation anxiety disorder, one with comorbid separation anxiety disorder and avoidant disorder, and one with overanxious disorder) benefited from a trial of clonazepam (Biederman, 1987). Each of the 3 children also had panic attacks, which improved on the clonazepam.

Benzodiazepines are also being studied for the treatment of panic disorder in adolescents. In an open-label trial, clonazepam treatment was associated with a decrease in the frequency of panic attacks and a decrease in the severity of anxiety symptoms in 4 adolescents with panic disorder (Kutcher & MacKenzie, 1988). Preliminary findings from an ongoing double-blind, placebo-controlled study of clonazepam in adolescents with panic disorder have been reported (Kutcher et al., 1992). Of 12 subjects who finished the protocol, 80% on active medication and 20% on placebo were rated as moderately to markedly improved on a clinician's global improvement rating. The average number of panic attacks decreased from 2 per week to 0.5 per week in the clonazepam group and from 2 per week to 1.8 per week on placebo. The mean scores on the Hamilton Anxiety Rating Scale (Hamilton, 1959) dropped from 25 to 10 in the active medication group and from 29 to 21 in the placebo group.

In an open-label study, low-dose alprazolam was evaluated in 13 pediatric cancer patients prior to painful, anxiety-producing procedures (e.g., spinal taps, bone marrow aspirations) (Pfefferbaum, Overall, Boren, Frankel, Sullivan, & Johnson, 1987). The medication was administered on each of the 3 days prior to and on the day of the procedure. The data indicated that the benzodiazepine was beneficial in alleviating symptoms of anticipatory and acute situational anxiety.

The clinical studies that have employed benzodiazepines in children indicate that this class of medications is tolerated with minimal side effects (Bernstein, Garfinkel, & Borchardt, 1990; Biederman, 1987; Pfefferbaum et al., 1987; Simeon & Ferguson, 1987; Simeon et al., 1992). Side effects tend to be dose-related (Kutcher et al., 1992) and include sedation, drowsiness, ataxia, slurred speech, diplopia, tremor, and decreased mental acuity (Biederman, 1991; Kutcher et al., 1992). There has been a report of behavioral disinhibition manifested by lability, irritability, and oppositional behavior in children receiving clonazepam (Graae, Milner, Rizzotto, & Klein, 1994). In addition, behavioral disinhibition including irritability and angry outbursts has been reported in 2 adolescents on clonazepam (Reiter & Kutcher, 1991).

Data in adults suggest that benzodiazepines given over long periods of time may lead to tolerance and to physiological and psychological dependence (Salzman, 1989). The risks of tolerance to and dependence on benzodiazepines in children are unknown (Biederman, 1991). It is recommended that the length of the treatment trial be short because there may be the potential for dependence. The benzodiazepines are relatively safe in overdose (Kutcher et al., 1992). However, they may add to the sedative effects of alcohol, antidepressants, and antihistamines (Edwards, 1981).

Discontinuation of benzodiazepines can result in rebound anxiety, recurrence of initial

anxiety, and withdrawal symptoms (Coffey, 1993). To avoid possible withdrawal symptoms, these drugs should be tapered gradually (Biederman, 1991; Coffey, 1990). Withdrawal symptoms occur most often after rapid discontinuation of benzodiazepines (Coffey, 1993). Withdrawal symptoms may include gastrointestinal distress, flu-like symptoms, insomnia, and muscle tension (Coffey, 1993; Kutcher et al., 1992). More serious withdrawal symptoms include seizures (Coffey, 1993).

The half-life of each benzodiazepine is important in determining the duration of action of the drug and the potential for inducing withdrawal symptoms after discontinuation of the drug. Compared to benzodiazepines with long half-lives, the short-half-life benzodiazepines are metabolized through briefer pathways to inactive metabolites. Rapid cessation of a benzodiazepine with a short half-life is more likely to be associated with withdrawal symptoms than rapid cessation of a benzodiazepine with a long half-life and active metabolites (Salzman, 1989).

TRICYCLIC ANTIDEPRESSANTS

The tricyclic antidepressants have been shown to be effective in controlled treatment studies of panic disorder in adults (D. F. Klein, 1984; Zitrin, Klein, Woerner, & Ross, 1983). Also, there are case reports describing tricyclic antidepressants as effective in treating children and adolescents with panic disorder (Ballenger, Carek, Steele, & Cornish-McTighe, 1989; Black & Robbins, 1990; Garland & Smith, 1990; Van Winter & Stickler, 1984). This class of medications has also been studied in the treatment of separation anxiety disorder, which may be accompanied by panic-like reactions. The mechanism of action of the tricyclic antidepressants in anxiety disorders probably involves both the noradrenergic and the serotonergic system (Ryan, 1990). The tricyclic antidepressants are metabolized more rapidly in children than in adolescents and more rapidly in adolescents than in adults (Ryan, 1990).

Four double-blind, placebo-controlled studies of tricyclic antidepressants in the treatment of school refusal or separation anxiety disorder or both show contrasting results. In the first study, Gittelman-Klein and Klein (1971, 1973) used imipramine, 100–200 mg/day (mean dosage of 159 mg/day), for 6 weeks to treat 35 children with separation anxiety disorder. All subjects had missed 2 weeks of school and failed psychosocial interventions prior to entering the study. The group receiving imipramine was significantly more successful in returning to school (81% on imipramine went back to school vs. 47% on placebo); in addition, the children in the imipramine group were rated by self-report, by clinicians, and by mothers as showing a significant decrease in anxiety and somatic symptoms.

On the other hand, Berney, Kolvin, Bhate, Garside, Jeans, Kay, and Scarth (1981) found no significant difference between clomipramine and placebo in facilitating a return to school or decreasing symptoms. The duration of the study was 12 weeks. The subjects (ages 9–15) included 51 anxious children and adolescents, 44% of whom had comorbid depressive symptoms. A major criticism of this study is that the medication dosage (40–75 mg per day) was likely subtherapeutic.

In a study of 24 children and adolescents (ages 7–17) treated with alprazolam, imipramine, or placebo (Bernstein et al., 1990), there were no significant differences among treatment groups in symptoms of anxiety or depression after 8 weeks. The mean dosage of alprazolam was 1.8 mg per day and the mean dosage of imipramine was 164.3 mg per day.

While there were trends favoring the active medications, it could not be determined whether the trends were explained by drug effects or baseline differences in symptom severity among groups.

R. G. Klein, Koplewicz, and Kanner (1992) compared 6 weeks of imipramine vs. placebo in 20 children (ages 6–15 years) with separation anxiety disorder. Between two thirds and three fourths of the children had school refusal secondary to separation anxiety disorder. Prior to entering the study, all subjects had failed a 1-month behavioral intervention. The average imipramine dosage was 153 mg per day. At the end of the study, there were no significant differences between the active medication and placebo groups; approximately half the subjects in each group showed improvement. Therefore, the study did not replicate the findings of the earlier study of Gittelman-Klein and Klein (1971, 1973).

Only one of these four studies definitively supports the effectiveness of the tricyclic antidepressants in treating separation anxiety with or without school refusal. Yet, two of the negative studies had small sample sizes (Bernstein et al., 1990; R. G. Klein et al., 1992) and one study employed very low medication dosage (Berney et al., 1981). Furthermore, clinical experience indicates that some children and adolescents with anxiety-based school refusal show remarkable improvement on tricyclic antidepressants. Additional studies with improved methodology are needed. Perhaps such studies will identify a subtype of anxious children and adolescents who benefit from tricyclic antidepressants.

Studies of fixed doses of imipramine administered to prepubertal children have demonstrated 10- to 20-fold variability in plasma levels (Preskorn, Bupp, Weller, & Weller, 1989). Therefore, plasma monitoring is recommended to assure levels in a therapeutic range. The most common side effects of tricyclic antidepressants are due to their anticholinergic properties and include sedation, dry mouth, blurred vision, orthostatic-induced lightheadedness, constipation, and urinary retention. These side effects are often noticeable on starting the medication or when changing the dosage, and an individual may become tolerant so that these side effects are no longer noticeable. More unusual side effects from imipramine include: heart rhythm problems, jaundice, allergic reaction and central nervous system side effects of agitation, sleep disturbance, and lethargy. Overdosage of imipramine can lead to serious medical complications, including heart rhythm problems, seizures, and delirium. Therefore, it is important for the medication to be taken as prescribed and for the parents to monitor the administration closely.

Contraindications to tricyclic antidepressants include documented hypersensitivity, significant heart conduction abnormalities, and treatment within the previous 2 weeks with a monoamine oxidase inhibitor (Kutcher et al., 1992). As with the benzodiazepines, tricyclic antidepressants should be tapered gradually before discontinuing them. Withdrawal symptoms may include flu-like symptoms, sweating, restlessness, irritability, and insomnia due to cholinergic syndromes (Kutcher et al., 1992).

BETA-BLOCKERS

In adults, this class of medication blocks peripheral autonomic symptoms of anxiety, such as increased heart rate, tremor, and sweating, by blocking β-adrenergic receptors at multiple sites in the body. Some of the β-blockers (e.g., propranolol) cross the blood–brain barrier. However, it is not well known whether β-blockers have central nervous system antianxiety effects. Side effects of the β-blockers include nausea, vomiting, constipation, and diarrhea. Other potential side effects are sedation, hypotension, bradycardia, depres-

sion, and increased airway resistance. β-blockers are contraindicated in persons with asthma.

Typically, β-blockers are used in adults on an intermittent basis for anxiety-producing situations such as performing, public speaking, or taking tests. Generally, β-blockers are not recommended for ongoing usage.

One study evaluated a β-blocker for the treatment of physiological arousal symptoms in children with posttraumatic stress disorder. In this study, 11 children with posttraumatic stress disorder (mean age of 8½ years) were included in a 4-week trial of propranolol in a B-A-B design (B = no propranolol, A = propranolol) (Famularo, Kinscherf, & Fenton, 1988). The target dosage was 2.5 mg/kg per day in a divided dosage schedule. There was a significant improvement in symptoms with active medication compared to placebo and a significant deterioration in symptoms after medication was discontinued. The authors caution that the primary treatments for posttraumatic stress disorder include psychotherapy and the provision of a safe environment. However, the study also indicates that a β-blocker may be helpful in blocking the concomitant physiological arousal symptoms.

Since the antianxiety effects of β-blockers in children and adolescents have not been clearly established (Coffey, 1990), this class of medications is not commonly used in children. If a β-blocker is to be considered, the patient should be medically monitored and the drug used for treatment-resistant patients with situational anxiety (Kutcher et al., 1992).

BUSPIRONE

Buspirone is a nonbenzodiazepine antianxiety drug. It has been suggested that the antianxiety effects may be related to a decrease in serotonergic neurotransmission (Eison, 1989). Buspirone may have effects on serotonergic, dopaminergic, and noradrenergic systems (Kutcher et al., 1992). Buspirone is not sedating and has less potential than the benzodiazepines for abuse (Cole, Orack, Beake, Bird, & Bar-Tal, 1982). It may take 1–4 weeks for the antianxiety properties to take effect. Advantages of buspirone include the wide margin of safety, the lack of major side effects, the limited potential for abuse, and the low likelihood of inducing withdrawal effects on cessation (Kutcher et al., 1992).

A 13-year-old boy with overanxious disorder and school refusal was reported to benefit from an open-label trial of buspirone (Kranzler, 1988). This case study was uncontrolled and the adolescent was lost to follow-up, so definite conclusions cannot be reached. Buspirone is being studied in an ongoing open-label trial in adolescents with overanxious disorder or generalized anxiety disorder (Kutcher et al., 1992). At a dosage of 15–30 mg per day, treatment with buspirone has been associated with a significant decrease in anxiety scores at the end of 6 weeks of treatment (Kutcher et al., 1992). However, some clinical experience with buspirone raises questions about the drug's antianxiety efficacy (Biederman, 1991).

ANTIOBSESSIONAL DRUGS

Data indicate that clomipramine, a tricyclic antidepressant that inhibits serotonin reuptake, and fluoxetine, a serotonin reuptake blocker, are effective in targeting symptoms of obsessive–compulsive disorder in children and adolescents. The efficacy of clomipramine in treating childhood obsessive–compulsive disorder has been demonstrated in several studies (Flament, Rapoport, Berg, Sceery, Kilts, Mellstrom, & Linnoila, 1985;

Leonard, Swedo, Rapoport, Koby, Lenane, Cheslow, & Hamburger, 1989; DeVeaugh-Geiss, Moroz, Biederman, Cantwell, Fontaine, Greist, Reichler, Katz, & Landau, 1992). In the first study (Flament et al., 1985), 19 children (ages 6–18) were treated in a double-blind, placebo-controlled crossover including 5 weeks of clomipramine and 5 weeks of placebo. The mean dosage of clomipramine achieved was 141 mg per day. Plasma levels of medication were in the therapeutic range. Results showed that clomipramine was significantly better than placebo in decreasing symptoms of obsessive–compulsive disorder after 5 weeks of treatment. Overall, 75% of those on active medication had a moderate to marked improvement.

A subsequent study compared clomipramine to desipramine, a tricyclic antidepressant without selective serotonin reuptake blocking properties (Leonard et al. 1989). In this study, 48 children and adolescents (age range of 7–19) with severe obsessive–compulsive disorder completed the double-blind, placebo-controlled crossover design. Subjects received 5 weeks each of clomipramine and desipramine. Half received the clomipramine first and the other half received the desipramine first. Clomipramine was significantly more efficacious than desipramine in decreasing the obsessive–compulsive disorder symptoms after 5 weeks. In 64% of the subjects who received the desipramine after the clomipramine, there was indication of some relapse of obsessive–compulsive disorder symptoms during desipramine treatment.

A multicenter study (DeVeaugh-Geiss et al., 1992) treated 60 subjects with obsessive–compulsive disorder (ages 10–17) in a double-blind, placebo-controlled study of clomipramine. There was a 2-week single-blind placebo washout phase followed by 8 weeks of placebo or clomipramine. The clomipramine was titrated gradually to a maximum of 3.0 mg/kg per day. The primary dependent measure of change was the Children's Yale–Brown Obsessive–Compulsive Scale (CY-BOCS) (Goodman, Price, Rasmussen, Mazure, Fleischmann, Hill, Heninger, & Charney, 1989; Goodman, Price, Rasmussen, Mazure, Delgado, Heninger, & Charney, 1989). At the end of 8 weeks of treatment, there was a statistically significant decrease of 37% in mean CY-BOCS score in the clomipramine group compared to a decrease of 8% in the placebo group. The improvement in the clomipramine group was described as clinically significant. Since patients with Hamilton Depression Rating Scale (Hamilton, 1967) scores greater than 16 at baseline were excluded, the researchers felt they showed that clomipramine's antiobessional effect was separate from its antidepressant effect.

These well-controlled studies demonstrate the effectiveness of clomipramine in decreasing the symptoms of obsessive–compulsive disorder in children and adolescents. The studies provide a consistent conclusion about the antiobsessional efficacy of the drug. Future studies might compare the efficacy of clomipramine with and without behavior therapy. Since obsessive–compulsive disorder appears to be a chronic disorder in many individuals, the duration of drug therapy also needs to be studied.

Fluoxetine also shows promise in the treatment of children and adolescents with obsessive–compulsive disorder (Riddle, Hardin, King, Scahill, & Woolston, 1990; Riddle, Scahill, King, Hardin, Anderson, Ort, Smith, Leckman, & Cohen, 1992; Liebowitz, Hollander, Fairbanks, & Campeas, 1990). Riddle et al. (1990) evaluated fluoxetine in open trials of 4–20 weeks at dosages of 10–40 mg per day. The subjects included 10 children with obsessive–compulsive disorder or Tourette's disorder plus obsessive–compulsive disorder. Results showed that 2 of 4 subjects with primary obsessive–compulsive disorder and 3 of 6 with Tourette's disorder and comorbid obsessive–compulsive disorder showed improvement on the CY-BOCS.

An 8-week, double-blind, placebo-controlled study of fluoxetine (20 mg per day)

($N = 7$) vs. placebo ($N = 6$) demonstrated significant improvement on some measures with the fluoxetine (Riddle et al., 1992). In an open trial of 20–80 mg fluoxetine per day, 4 of 8 teenagers improved (Liebowitz et al., 1990). Improvement was defined as a decrease of 50% or greater in time spent on obsessions and compulsions and a substantial decrease in psychosocial impairment.

ANTIHISTAMINES

An uncontrolled study including a heterogeneous diagnostic group of children suggests that diphenhydramine may modify anxiety symptoms (Effron & Freedman, 1953). However, there are no controlled studies that evaluate the effectiveness of antihistamines in treating anxiety in children and adolescents (Coffey, 1990). This class of medications may have a role in treating insomnia associated with anxiety. A double-blind, placebo-controlled crossover study evaluated 1 mg/kg diphenhydramine in 50 children (ages 2–12) with a variety of types of sleep disturbances (Russo, Gururaj, & Allen, 1976). The medication was given 30 minutes before bedtime and was significantly more efficacious than placebo in decreasing sleep latency time and midsleep awakenings over a duration of 1 week.

NEUROLEPTICS

Neuroleptics can be associated with serious side effects, including cognitive impairment and irreversible tardive dyskinesia. Therefore, without indications such as Tourette's disorder or psychosis, neuroleptics are contraindicated in treating symptoms of anxiety. Furthermore, school phobia has been described as developing in children with Tourette's while they were on haloperidol or pimozide and has been referred to as "neuroleptic separation anxiety syndrome" (Linet, 1985; Mikkelson, Detlor, & Cohen, 1981).

CLINICAL APPROACH TO USING ANTIANXIETY MEDICATIONS IN CHILDREN AND ADOLESCENTS

Prior to diagnosing an anxiety disorder, physical conditions that may present with anxiety symptoms, including hyperthyroidism, cardiac arrhythmias, pheochromocytoma, and caffeinism, should be ruled out by history, physical examination, or laboratory tests. Medications that may produce anxiety symptoms (e.g., sympathomimetics, fluoxetine, antiasthmatics) need to be considered when obtaining the history.

A careful clinical evaluation following *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV) (American Psychiatric Association, 1994) criteria should be employed to document specific anxiety diagnoses and comorbid diagnoses. In addition, it is helpful to quantify the severity of the anxiety symptomatology from a variety of perspectives. Self-report rating scales for use with children and adolescents include the Revised Children's Manifest Anxiety Scale (Reynolds & Richman, 1978) and the State–Trait Anxiety Inventory for Children (Spielberger, 1973). The Child Behavior Checklist—Parent Form (CBCL-P) (Achenbach, 1991) and the Child Behavior Checklist—Teacher Form (CBCL-T) (Achenbach & Edelbrock, 1986) are parent-teacher-rated checklists that evaluate internalizing and externalizing symptoms. Specific internalizing subscales on the

CBCLs vary depending on age and gender of the child, but may include "anxious," "somatic complaints," and "social withdrawal." The Anxiety Rating Scale for Children (Erbaugh, 1984, unpublished instrument), is a clinician rating scale for anxiety.

Feedback to the patient and family about the child's specific anxiety disorders and treatment modalities, including medication, is necessary. It is useful to ask the family about their biases regarding medications. Some families are antimedication; other families consider medication to be the "magic" solution. Consultation with the primary case physicians and school personnel is also important.

Medications are not used as the sole treatment for anxiety disorders in children and adolescents, but rather are used in conjunction with behavioral or psychotherapeutic interventions or both. Most commonly, a combination of approaches is employed in treating a child or adolescent with an anxiety disorder (McDermott, Werry, Petti, Combrinck-Graham, & Char, 1989). Medication is considered more strongly as part of the treatment plan if anxiety symptoms are severe. Age is also an important variable. Medication is more frequently prescribed in older children and adolescents, although if a young child has severe symptoms, medication is a consideration.

The benzodiazepines and the tricyclic antidepressants are the most commonly used anxiolytics for children and adolescents. The choice of which class of anxiolytic to prescribe depends on a variety of factors. Benzodiazepines have a quicker onset of action; unlike the tricyclic antidepressants, benefit may be apparent within 1 or 2 weeks. In general, the benzodiazepines are used for a shorter duration, while the tricyclic antidepressants are continued for a longer period of time. Sometimes a benzodiazepine is considered on a short-term basis to target anticipatory anxiety and panic symptoms in a child with severe separation anxiety and school refusal. The medication may serve to allay anxiety symptoms during the critical, anxiety-producing period of school reentry, as psychotherapy or behavioral interventions or both are being instituted.

Diagnostic comorbidity is an important factor in the selection of the class of anti-anxiety medication. If a comorbid diagnosis of major depression, attention-deficit hyperactivity disorder, or enuresis is present, a tricyclic antidepressant might be favored over a benzodiazepine. The presence of obsessional thinking in a child with an anxiety disorder may lead the clinician to select clomipramine or fluoxetine. If an adolescent has a history of alcohol or substance abuse or dependence, treatment with benzodiazepines should be avoided (Coffey, 1993).

The side-effects profile of each class of anxiolytics and of each drug within a medication class is considered in making a choice. Patient and parents should be informed of potential side effects, the risk/benefit ratio evaluated, and their informed consent to a medication trial given. Prior to initiating a medication trial, a list of physical symptoms should be obtained to serve as a baseline from which to monitor emergence of side effects.

When using tricyclic antidepressants, a baseline electrocardiogram is often obtained, especially if there is any concern about the child's cardiac condition. Repeat electrocardiograms may be obtained with dosage increases or at maximum dosage or both. An electrocardiogram should be obtained if the dosage exceeds 3.0 mg/kg per day.

Medication is started at a low dosage and gradually titrated as it is carefully monitored. Adverse effects are assessed with subjective reports from child and parent and by objective measures (e.g., pulse and blood pressure) (Biederman, 1991). Plasma monitoring is available for the tricyclic antidepressants and is helpful in evaluating compliance, efficacy, and toxicity. After a period of clinical stabilization, a reevaluation of the need for continued pharmacotherapy is indicated (Biederman, 1991).

Further pharmacological research including placebo-controlled medication trials are needed to evaluate efficacy, optimal dosages, duration of treatment, and combinations of treatments for anxiety disorders of childhood and adolescence.

CASE STUDY

Dennis, an 8-year-old boy in the 2nd grade, presented with a history of reluctance to attend school. On weekdays (especially Mondays), he had physical complaints, including stomachaches, and claimed that he was just too sick to go to school. Sometimes he developed these somatic symptoms on Sunday nights when thinking about going to school the next morning. He often looked distressed and panicky when it was time to leave for school. His mother described him as appearing pale and sweaty. Despite the complaints, his mother took him to school. On arriving at school, he would cling to her and beg her to stay. He was a frequent visitor to the school nurse, stating he did not feel well and wanted to be sent home. At times, he requested permission to call home and check in with his mother.

The family history was positive for a father with panic disorder. The father sometimes had trouble leaving the house to go into crowds. There was an older sister with recurrent major depression and separation anxiety disorder who had poor school attendance.

On mental status exam, the boy appeared attractive and neatly groomed. There were no abnormalities in speech or motor activity. He manifested marked difficulty separating from his mother and insisted that she remain just outside the examination room rather than go to the waiting room, which was farther away. Dennis's thinking was coherent. There was no evidence of psychosis. Thought content revealed worries about the safety of his mother. He described worrying that she would get into a car accident or a burglar would enter the house and harm her. He was preoccupied with harm to himself during periods of separation from his mother (e.g., he worried that he would get lost walking home from school). He endorsed having recurrent nightmares with themes of separation, including monsters taking him away from his parents. His mood was described as "scared" when it was time to leave for school. He said that he got a "butterflies" sensation in his stomach when his mother drove him to school and they were approaching the building. Sometimes as he was getting close to school, he felt as though he would vomit. His affect was anxious, and several times during the interview he asked if he was done yet and could leave to join his mother.

Dennis was diagnosed with separation anxiety disorder. Self-report rating scales for anxiety were obtained and were elevated. In addition to individual and family therapy, a tricyclic antidepressant was recommended to target his panic-level anxiety symptoms. The risks and benefits were described to the family, and they agreed to the medication trial. Dennis's weight was 26 kg. His baseline electrocardiogram was within normal limits.

Imipramine was started at 25 mg (1 mg/kg per day) at bedtime. This dosage was gradually increased to 75 mg (3 mg/kg per day) at bedtime. A plasma level obtained after 1 week at 75 mg was in the therapeutic range. He experienced a dry mouth and mild lightheadedness when he got up quickly from a lying or sitting position. These side effects were present initially and with the dosage increases, but Dennis became tolerant to the side effects, which disappeared after 10 days on 75 mg.

After 3 weeks at 75 mg imipramine per day, Dennis reported that he no longer felt intensely anxious as they approached the school building when his mother drove him. He was able to leave the car without clinging to his mother and enter the building by himself.

While he continued to have occasional thoughts that something bad would happen to him or his mother while they were separated, his trips to the school nurse and his requests to call home gradually decreased and then stopped. He appeared most comfortable on the playground and became somewhat more secure in his peer relationships. The medication was continued until the end of the school year, which was a 6-month period, and then gradually tapered. There was no recurrence of symptoms during the summer. It was recommended that Dennis be reevaluated near the beginning of the upcoming school year to determine whether medication should be reinstituted.

SUMMARY

This chapter reviewed the scientific studies that employed antianxiety agents in the treatment of anxiety disorders of children and adolescents. Since there are a limited number of studies available, the review included controlled studies, uncontrolled studies, and case reports. Although most of the chapter focused on benzodiazepines and tricyclic antidepressants, data on β-blockers, buspirone, antiobsessional drugs, antihistamines, and neuroleptics were also presented. Shortcomings of the pharmacological investigations were noted. In addition to the studies of efficacy, information on side effects and guidelines for the clinical use of these drugs were emphasized. Medications are not used as the sole treatment for anxiety disorders in children and adolescents, but rather as an adjunct to behavioral or psychotherapeutic interventions or both.

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REFERENCES

Achenbach, T. M. (1991). *Manual for the Child Behavior Checklist/4-18 and 1991 Profile*. Burlington: Department of Psychiatry, University of Vermont.

Achenbach, T. M., & Edelbrock, C. (1986). *Manual for the Teacher's Report Form and Teacher Version of the Child Behavior Profile*. Burlington: Department of Psychiatry, University of Vermont.

American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders*, 4th ed. Washington, DC: Author.

Anderson, J. C., Williams, S., McGee, R., & Silva, P. A. (1987). DSM-III disorders in preadolescent children: Prevalence in a large sample from the general population. *Archives of General Psychiatry, 44*, 69–76.

Ballenger, J. C., Carek, D. J., Steele, J. J., & Cornish-McTighe, D. (1989). Three cases of panic disorder with agoraphobia in children. *American Journal of Psychiatry, 146*, 922–924.

Berney, T., Kolvin, I., Bhate, S. R., Garside, R. F., Jeans, J., Kay, B., & Scarth, L. (1981). School phobia: A therapeutic trial with clomipramine and short-term outcome. *British Journal of Psychiatry, 138*, 110–118.

Bernstein, G. A., Garfinkel, B. D., & Borchardt, C. M. (1990). Comparative studies of pharmacotherapy for school refusal. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 773–781.

Biederman, J. (1987). Clonazepam in the treatment of prepubertal children with panic-like symptoms. *Journal of Clinical Psychiatry, 48(Suppl.)*, 38–41.

Biederman, J. (1991). Psychopharmacology. In J. M. Wiener (Ed.), *Textbook of child and adolescent psychiatry* (pp. 545–570). Washington, DC: American Psychiatric Press.

Black, B., & Robbins, D. R. (1990). Case study: Panic disorder in children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 36–44.

Coffey, B. J. (1990). Anxiolytics for children and adolescents: Traditional and new drugs. *Journal of Child and Adolescent Psychopharmacology, 1*, 57–83.

Coffey, B. J. (1993). Review and update: Benzodiazepines in childhood and adolescence. *Psychiatric Annals, 23*, 332–339.

Cole, J. O., Orack, M. H., Beake, B., Bird, M., & Bar-Tal, Y. (1982). Assessment of the abuse liability of buspirone in recreational sedative users. *Journal of Clinical Psychiatry, 43*, 69–74.

Costello, E. J. (1989). Child psychiatric disorders and their correlates: A primary care pediatric sample. *Journal of the American Academy of Child and Adolescent Psychiatry, 28*, 851–855.

DeVeaugh-Geiss, J., Moroz, G., Biederman, J., Cantwell, D., Fontaine, R., Greist, J. H., Reichler, R., Katz, R., & Landau, P. (1992). Clomipramine hydrochloride in childhood and adolescent obsessive–compulsive disorder—A multicenter trial. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 45–49.

Edwards, J. (1981). Adverse effect of antianxiety drugs. *Drugs, 22*, 495–514.

Effron, A. S., & Freedman, A. M. (1953). The treatment of behavior disorders in children with Benadryl. *Journal of Pediatrics, 42*, 261–266.

Eison, M. S. (1989). The new generation of serotonergic anxiolytics: Possible clinical roles. *Psychopathology, 22*, 13–20.

Famularo, R., Kinscherf, R., & Fenton, T. (1988). Propranolol treatment for childhood post-traumatic stress disorder, acute type: A pilot study. *American Journal of Diseases in Children, 142*, 1244–1247.

Flament, M. F., Rapoport, J. L., Berg, C. J., Sceery, W., Kilts, C., Mellstrom, B., & Linnoila, B. (1985). Clomipramine treatment of childhood compulsive disorder. *Archives of General Psychiatry, 42*, 977–983.

Garland, E. J., & Smith, D. H. (1990). Case study: Panic disorder on a child psychiatric consultation service. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 785–788.

Gittelman-Klein, R., & Klein, D. F. (1971). Controlled imipramine treatment of school phobia. *Archives of General Psychiatry, 25*, 204–207.

Gittelman-Klein, R., & Klein, D. F. (1973). School phobia; Diagnostic considerations in the light of imipramine effects. *Journal of Nervous and Mental Disease, 156*, 199–215.

Goodman, W. K., Price, L. H., Rasmussen, S. A., Mazure, C., Delgado, P., Heninger, G. R., & Charney, D. S. (1989). The Yale–Brown Obsessive Compulsive Scale (Y-BOCS). Part II. Validity. *Archives of General Psychiatry, 46*, 1012–1016.

Goodman, W. K., Price, L. H., Rasmussen, S. A., Mazure, C., Fleischmann, R. L., Hill, C. L., Heninger, G. R., & Charney, D. S. (1989). The Yale–Brown Obsessive Compulsive Scale (Y-BOCS). Part I. Development, use and reliability. *Archives of General Psychiatry, 46*, 1006–1011.

Graae, F., Milner, J., Rizzotto, L., & Klein, R. G. (1994). Clonazepam in childhood anxiety disorders. *Journal of the American Academy of Child and Adolescent Psychiatry, 33*, 372–376.

Hamilton, M. (1959). The assessment of anxiety states by rating. *British Journal of Medical Psychology, 32*, 50–55.

Hamilton, M. (1967). Development of a rating scale for primary depressive illness. *British Journal of Social Psychology, 6*, 278–296.

Kashani, J. H., & Orvaschel, H. (1988). Anxiety disorders in midadolescence: A community sample. *American Journal of Psychiatry, 145*, 960–964.

Keller, M. B., Lavori, P., Wunder, J., Beardslee, W. R., Schwartz, C. E., & Roth, J. (1992). Chronic course of anxiety disorders in children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 595–599.

Klein, D. F. (1984). Psychopharmacologic treatment of panic disorder. *Psychosomatics, 25*, 32–36.

Klein, R. G., Koplewicz, H. S., & Kanner, A. (1992). Imipramine treatment of children with separation anxiety disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 21–28.

Kranzler, H. R. (1988). Case study: Use of buspirone in an adolescent with overanxious disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 27*, 789–790.

Kutcher, S. P., & MacKenzie, S. (1988). Successful clonazepam treatment of adolescents with panic disorder. *Journal of Clinical Psychopharmacology, 8*, 299–301.

Kutcher, S. P., Reiter, S., Gardner, D. M., & Klein, R. G. (1992). The pharmacotherapy of anxiety disorders in children and adolescents. *Pediatric Clinics of North America, 15*, 41–67.

Leonard, H. L., Swedo, S. E., Rapoport, J. L., Koby, E. V., Lenane, M. C., Cheslow, D. L., & Hamburger, M. A. (1989). Treatment of obsessive–compulsive disorder with clomipramine and desipramine in children and adolescents: A double-blind crossover comparison. *Archives of General Psychiatry, 46*, 1088–1092.

Liebowitz, M. R., Hollander, E., Fairbanks, J., & Campeas, R. (1990). Fluoxetine for adolescents with obsessive–compulsive disorder. *American Journal of Psychiatry, 147*, 370–371.

Linet, L. S. (1985). Tourette syndrome, pimozide, and school phobia: The neuroleptic separation anxiety syndrome. *American Journal of Psychiatry, 142*, 613–615.

McDaniel, K. D. (1986). Pharmacologic treatment of psychiatric and neurodevelopmental disorders in children and adolescents (part 1). *Clinical Pediatrics*, *25*, 65–71.

McDermott, J. F., Werry, J., Petti, T., Combrinck-Graham, L., & Char, W. F. (1989). Anxiety disorders of childhood or adolescence. In T. B. Karasu (Ed.), *Treatments of psychiatric disorders*, Vol. I, 1st ed. (pp. 401–446). Washington, DC: American Psychiatric Press.

McGee, R., Feehan, M., Williams, S., Partridge, F., Silva P. A., & Kelly, J. (1990). DSM-III disorders in a large sample of adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, *29*, 611–619.

Mikkelson, E. J., Detlor, J., & Cohen, D. J. (1981). School avoidance and school phobia triggered by haloperidol in patients with Tourette's disorder. *American Journal of Psychiatry*, *138*, 1572–1576.

Pfefferbaum, B., Overall, J. E., Boren, H. A., Frankel, L. S., Sullivan, M. P., & Johnson, K. (1987). Alprazolam in the treatment of anticipatory and acute situational anxiety in children with cancer. *Journal of the American Academy of Child and Adolescent Psychiatry*, *26*, 532–535.

Preskorn, S. H., Bupp, S. J., Weller, E. B., & Weller, R. A. (1989). Plasma levels of imipramine and metabolites in 68 hospitalized children. *Journal of the American Academy of Child and Adolescent Psychiatry*, *28*, 373–375.

Reiter, S., & Kutcher, S. (1991). Disinhibition and anger outbursts in adolescents treated with clonazepam. *Journal of Clinical Psychopharmacology*, *11*, 268.

Reynolds, C. R., & Richman, B. O. (1978). "What I Think and Feel": A revised measure of children's manifest anxiety. *Journal of Abnormal Child Psychology*, *6*, 271–280.

Riddle, M. A., Hardin, M. T., King, R. & Woolston, J. L. (1990). Fluoxetine treatment of children and adolescents with Tourette's and obsessive–compulsive disorders: Preliminary clinical experience. *Journal of the American Academy of Child and Adolescent Psychiatry*, *29*, 45–48.

Riddle, M. A., Scahill, L., King, R. A., Hardin, M. T., Anderson, G. M., Ort, S. I., Smith, J. C., Leckman, J. F., & Cohen, D. J. (1992). Double-blind, crossover trial of fluoxetine and placebo in children and adolescents with obsessive–compulsive disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*, *31*, 1062–1069.

Russo, R. M., Gururaj, V. J., & Allen, J. E. (1976). The effectiveness of diphenhydramine HCl in pediatric sleep disorders. *Journal of Clinical Psychopharmacology*, *16*, 284–288.

Ryan, N. D. (1990). Heterocyclic antidepressants in children and adolescents. *Journal of Child and Adolescent Psychopharmacology*, *1*, 21–31.

Salzman, C. (1989). Treatment with antianxiety agents. In T. B. Karasu (Ed.), *Treatments of psychiatric disorders*, Vol. III, 1st ed. (pp. 2036–2052). Washington, DC: American Psychiatric Press.

Simeon, J. G., & Ferguson, H. B. (1987). Alprazolam effects in children with anxiety disorders. *Canadian Journal of Psychiatry*, *32*, 570–574.

Simeon, J. G., Ferguson, H. B., Knott, V., Roberts, N., Gauthier, B., Dubois, C., & Wiggins, D. (1992). Clinical, cognitive and neurophysiological effects of alprazolam in children and adolescents with overanxious and avoidant disorders. *Journal of the American Academy of Child and Adolescent Psychiatry*, *31*, 29–33.

Spielberger, C. (1973). *Manual for the State–Trait Anxiety Inventory for Children*. Palo Alto, CA: Consulting Psychologists Press.

Van Winter, J. T., & Stickler, G. B. (1984). Panic attack syndrome. *Journal of Pediatrics*, *105*, 661–665.

Zitrin, C. M., Klein, D. F., Woerner, M. G., & Ross, D. C. (1983). Treatment of phobias: Comparison of imipramine hydrochloride and placebo. *Archives of General Psychiatry*, *40*, 125–138.

24

Preventative Strategies

Susan H. Spence

INTRODUCTION

The prevention of fears and anxiety disorders in childhood has received very little attention. This omission is perhaps not surprising, given that the whole area of prevention of psychological problems has been relatively neglected. Various legislative influences, however, have emphasized the need for preventative interventions. For example, in the United States, the Joint Commission on Mental Health and Mental Illness created by the Mental Health Study Act in the 1950s was asked to review and make recommendations about practices designed to reduce the number of new cases and the duration of mental illness (Hightower & Braden, 1991). Prevention was also specified as a direct service to be provided under the 1963 Mental Retardation Facilities and Community Mental Health Centers Construction Act (PL 88-164).

Despite an awareness of the need for and value of preventative interventions, prevention occupies an extremely small proportion of the professional time of mental health workers. Peterson, Hartmann, and Gelfand (1980) reviewed studies that reported the degree to which mental health workers are involved in preventive interventions. It was noted that prevention was rarely mentioned as an area in which time was spent, and only around 5% of work time was spent in areas such as education or consultation, which were the areas most closely related to prevention. Even then, much of this time was focused on early intervention, rather than prevention prior to the onset of problems. Behavior therapists were just as neglectful of prevention as were other mental health workers (Wade, Baker, & Hartmann, 1979).

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The lack of effort given to preventative efforts is disappointing when one considers the potential value of preventative programs. Psychological disorders in children affect a significant proportion of the child population, and mental health resources struggle to meet the demand for therapy (Price, Cowen, Lorion, & Ramos-McKay, 1988). Even worse, evidence suggests that the majority of children in need of psychological intervention are not referred for treatment (Esser, Schmidt, & Woerner, 1990). The large numbers of children who progress through childhood without intervention or who continue to show psychological problems despite therapy are problematic. It is of concern not only that so many children experience the distress of psychological problems during childhood, but also that many will continue to show such problems during adulthood. There is now considerable evidence to suggest that the onset of many adult psychological problems can be traced back to childhood, and this is particularly true for anxiety disorders (Mattison, 1992; Öst, 1987). For example, a high proportion of socially phobic adults recall an onset during early adolescence (Turner & Beidel, 1989). Similarly, evidence from prospective studies of children suggests that a high proportion of children do not "grow out of" anxiety disorders. Unless successfully treated, anxiety disorders in childhood frequently persist or develop into some other form of anxiety disorder. For example, Cantwell and Baker (1989) completed a 4-year follow-up of children 2–11 years old. These authors found that a high proportion of the children with a DSM-III diagnosis of an anxiety disorder either maintained their diagnosis or could be classified as fitting the criteria for another disorder. As an illustration, 25% of the overanxious children remained overanxious 4 years later, 25% had no diagnosis at follow-up, and the remainder met the criteria for some other problem, which mainly related to another anxiety or affective disorder. Mattison (1992), in reviewing studies that have investigated the persistence of childhood anxiety disorders, concluded that although more definitive follow-up studies are needed for specific child anxiety disorders, a variety of evidence suggests that children with anxiety disorders are at risk for ongoing morbidity.

Thus, there is a strong case for the development of programs that aim to reduce the prevalence of psychological problems in childhood, and anxiety disorders in particular. If we could prevent the onset of such disorders, the benefits in terms of cost savings to the mental health system and reductions in the degree of personal suffering experienced by individuals and their families would be enormous.

A great deal has been written about models of prevention. Traditionally, three levels of prevention have been described (Caplan, 1964). Primary prevention, the first level, aims to reduce the prevalence of disorders by reducing the incidence of new cases through intervention before disorders occur. Secondary prevention aims to reduce the prevalence of disorders through early identification of problems or mild disorders, with intervention before the disorder becomes severe. Tertiary prevention aims to reduce the prevalence of disorders by reducing their duration. This third level involves treatment of existing disorders and prevention of relapse (Hightower & Braden, 1991; Weinstein, 1990).

This chapter will focus on primary prevention. Various approaches may be taken to primary prevention. Interventions may be designed that are applied to all individuals within a community with the aim of reducing the probability that a disorder will develop. Whole classes or schools may be involved in a prevention program, or whole communities may be targeted through media communications or community programs. Alternatively, preventative efforts may be targeted at specific groups who are considered to be "at risk" for the development of particular problems. For example, children who have experienced some traumatic event, or whose parents experience some form of psychological disorder, may be considered to be more likely to develop certain psychological problems in comparison to the general population. Preventative interventions may therefore be targeted toward these

specific groups, on the basis of the assumption that it is more cost-effective to focus on high-risk groups rather than on the population as a whole, who have a lower probability of developing psychological difficulties. A further type of primary prevention approach is targeted to children who are required to undergo some form of aversive experience, such as certain medical or dental procedures. The aim in this case is to reduce negative psychological reactions during the procedure and to future occurrences of the event.

PREVENTION AS IT APPLIES TO CHILDREN'S FEARS

It is important to make a distinction between the prevention of maladaptive anxiety disorders and fear vs. adaptive fearful behavior in children. Undoubtedly, the prevention of pathological anxiety disorders is an important goal for mental health professions. The prevention of fears, however, requires a little more discussion. It must be acknowledged that fear does serve an important function in the survival of the human species, and a certain degree of fear and avoidance behavior may be adaptive in some situations. Thus, the aim of prevention is to reduce the prevalence of pathological fear, rather than to eliminate adaptive fear. For example, a certain degree of fear of road traffic, poisonous spiders and snakes (if you live in Australia!), and fast-flowing water currents is valuable in reducing the chance of a fatal accident for children. It is only if the fear produces consequences that interfere with daily living or produces distress in the absence of dangerous stimuli that the fear becomes problematic. As part of their development, children need to acquire control over their fears by learning to:

1. Discriminate dangerous from nondangerous situations or stimuli and thus learn when it is adaptive and appropriate to be afraid and avoid them (e.g., a fast-flowing river vs. a swimming pool with a swimming teacher present).
2. Develop appropriate avoidance procedures that deal successfully with threatening stimuli without interfering in daily living (e.g., learning to avoid being hit by a car by learning to cross the street at a pedestrian crossing; pathological avoidance would be staying at home and avoiding school because of fear of crossing the road).
3. Acquire practical skills for maximizing the chance of a positive outcome and reducing the chance of a negative outcome from potentially dangerous situations (e.g., learning to swim).
4. Cope with relatively aversive situations that may be necessary or inevitable (e.g., dental or medical procedures, or school exams).

These goals should be taken into account in the establishment of preventative programs.

A MULTILEVEL MODEL FOR THE PREVENTION OF CHILDREN'S MALADAPTIVE FEARS AND ANXIETY DISORDERS

Programs that aim to prevent the development of mental health problems typically make use of approaches that manipulate those factors that are normally involved in the development or maintenance of the problems in question. Thus, in designing a preventative intervention for children's maladaptive fears or anxiety disorders, it is important to have a thorough understanding of the etiology of these conditions and an awareness of the variables that determine their persistence. Etiological and maintaining variables may relate to

features of the environment or the individual's characteristics. The environmental influences may, in turn, be broken down into general influences (such as cultural or physical environment factors) and into more direct, specific influences that form each person's learning experiences.

Table 1 summarizes some of the many factors that are thought to influence the development and maintenance of maladaptive fears and anxiety disorders in childhood. This table illustrates the way in which an awareness of these factors provides an indication of the methods that may be incorporated into preventive programs. In the same way that etiological and maintaining factors may stem from the environment and the individual, preventative interventions may also be targeted toward environmental change or toward altering "person" characteristics.

General Sociocultural and Physical Environment Influences

It is clear that the prevalence of many psychological problems in childhood is associated with a variety of sociocultural variables, such as socioeconomic status, housing conditions, family size, and marital discord. In the case of childhood anxiety disorders, however, the relationship with such variables is unclear, and we do not have clear evidence to permit conclusions to be drawn (Gittelman, 1986). There is therefore a need for studies that clarify the relationship between the development of childhood anxiety disorders and sociocultural factors. Once such evidence is forthcoming, governments and social change agencies will have an indication of the type of social policy and legislative changes that could assist in reducing the prevalence of anxiety disorders among children.

Table 1. A Multilevel Model for the Prevention of Maladaptive Fears and Anxiety Disorders in Childhood

Source of influence	Etiological or maintaining factor	Preventative approaches
General sociocultural/ physical environment	Sociocultural factors (yet to be determined)	Sociopolitical activities directed to sociocultural change
		Community education programs
	Physical environmental factors (e.g., presence of snakes/dogs)	Environmental change (e.g., reducing aversive events)
Specific environmental influences/learning experiences	Modeling of fearful responses	
	Modeling of nonfear/coping skills	Modeling of nonfear/coping skills
	Operant conditioning of fear behaviors	Operant conditioning of nonfear and behaviors
	Classical conditioning	
	Preexposure (latent inhibition)	Preexposure (latent inhibition)
	Instructions and education re feared event and coping skills	Instructions and education re feared event and coping skills
	Parental attitudes re feared event	Changing parental attitudes
		Cognitive restructuring with children
	Exposure to negative life events (e.g., bereavements, family separation, trauma)	Coping skills training
Child characteristics	Genetic Influences	Identification of high-risk children (e.g., via early temperament factors or parent anxiety disorder)
	Temperament factors	
	Conditionability	
	Coping skills repertoire	Coping skills training
	Cognitive style	Cognitive restructuring

At first sight, social policy and legislative change may appear to be rather an idealistic goal for mental health practitioners. The creation of an optimal sociocultural environment in which to promote the development of mental health should, however, remain a long-term goal for mental health professions, governments, and social change agencies alike. One example of a way in which legislative changes could facilitate the prevention of distress and anxiety problems in children was proposed by Hess and Camara (1979). These authors suggested that the legal system at that time exacerbated the adjustment problems of many children following their parents' divorce. The way in which custody, access, and property settlements were negotiated tended to impair relationships between parents and increase the risk of child maladjustment. Thus, Hess and Camara stressed the need for changes in public policy in order to facilitate the maintenance of positive family relationships following divorce.

Prevention programs may also focus on reducing the presence of those factors that generate increased risk for psychological disorder in children. For example, in addition to reducing the negative impact of divorce, it may also be feasible to develop programs that enhance marital satisfaction and thereby reduce divorce rates. Obviously, social change of this type is not the only answer to prevention. Many cases of psychological disorders emerge from what appear to be ideal sociocultural backgrounds, in which none of the traditional sociocultural risk factors such as poverty, marital discord, or large family size is evident. Thus, prevention programs must also look to other environmental and individual factors.

Physical environment factors include the presence of events and stimuli that are likely to increase the probability of traumatic or aversive experiences. Although many physical environment factors, such as storms or earthquakes, cannot be modified, there are some stimuli that are associated with the development of children's fears that could be influenced. One possible example could be stricter regulations for the control of dogs in order to reduce the number of children who experience negative experiences and subsequently develop phobias of dogs. Similarly, reduction in the number of children who have aversive dental experiences has been suggested as a means of preventing the incidence of dental fears (Weinstein, 1990). Increased use of anesthetics and attempts to make the physical environment more appealing to children have been proposed as methods of reducing the aversive nature of dental visits.

Specific Environmental Influences and Learning Experiences

It is clear that a variety of learning processes may be involved in the development of pathological fears in children, and an understanding of these processes is useful in guiding the content of preventative approaches. Primary prevention programs have typically attempted to create learning experiences that serve to minimize the development of new fears. Secondary prevention approaches, on the other hand, have aimed to create learning experiences that reduce the severity of existing fears before they worsen. The following section reviews some of the major aspects of children's learning history that may influence the development and maintenance of maladaptive fears.

Classic Conditioning and Latent Inhibition

We know that many pathological fears develop following an aversive experience with the feared stimulus, indicating a classic conditioning explanation in many instances. For

example, Dollinger, O'Donnell, and Staley (1984) reported a high level of fears of storms in a group of children who were survivors of a severe lightning strike. A generalization gradient of fears relating to storms, noise, the dark, death, and dying was found, with fears being strongest for the stimuli most related to storms, with least fear being found to unrelated events such as social or school situations. This effect was not found among nontraumatized matched control children. Milgrom, Vignehsa, and Weinstein (1992) also found an association between the development of maladaptive fear and a previous aversive experience. Adolescents who exhibited dental fear were much more likely to have experienced a painful dental procedure compared to those who were not fearful.

Evidence suggests that the degree of classic conditioning to an aversive stimulus may be influenced by a process of latent inhibition. Classic conditioning is less likely to occur if the CS is presented alone on several occasions without the UCS. Weinstein (1990) suggests that latent inhibition accounts for the findings that anxiety related to dental visits is less likely to develop if children experience nontraumatic dental visits prior to any painful procedure. Thus, preexposure to nonaversive experience of a potentially fearful situation may be used in programs to prevent the development of fears.

Influence of Parent Behavior and Modeling

Evidence suggests that parent behavior plays an important role in the development of children's fears. For example, McFarlane (1987) reported that the best predictor of posttraumatic phenomena in children following a bush fire disaster was the mother's response to the events. This effect was even stronger than the degree of exposure to the disaster in determining the child's behavior. The children of mothers who were the most anxious and overprotective following the fire tended to exhibit the most posttraumatic symptoms. Parents also have a strong influence on the degree of anxiety and distress shown by children during medical procedures. Children are more likely to exhibit greater distress during medical procedures if accompanied by an anxious mother (Jacobsen, Manne, Garfinkle, & Schorr, 1990; Bush, Melamed, Sheras, & Greenbaum, 1986).

The response of parents to fearful situations has also been implicated in the development of anxiety disorders in children. For example, Heard, Dadds, and Rapee (1992) demonstrated that the parents of children referred for treatment of anxiety disorders tended to influence their children's judgments about the degree of threat involved in performing specific tasks (in a negative direction) in comparison to the parents of control children.

Several mechanisms may be proposed to account for the way that parents influence the development of children's fears. The modeling of fearful behavior is one possibility. Similarly, parents may influence their child's perceptions of the degree of threat posed by situations and thus reduce the child's degree of self efficacy relating to ability to cope with the situation. This type of parental behavior may also serve to inhibit the child's development and use of coping strategies, such as relaxation or positive self-talk. Parents may also encourage avoidance behavior, thereby reducing the likelihood of exposure to feared situations in the absence of negative outcomes. Thus, the child may fail to learn that the feared negative consequences will not occur.

An alternative possibility is that in some instances, parents may unwittingly reinforce fearful behavior through provision of attention and social reinforcement. If this process is combined with a failure to reinforce nonfearful and coping behavior, then it would not be surprising if fearful behavior was strengthened and maintained.

Learning through the observation of others is known to be important in determining

the fear responses of children. The role of modeling in demonstrating fearful behavior and in the use or nonuse of coping strategies was mentioned above, in relation to parental influences. Parents are not the only source of modeling experiences for children, however, and siblings, teachers, peers, and television may provide alternative forms of influence.

Given the importance of observational learning in the development and maintenance of maladaptive fears, it is perhaps not surprising to find that modeling may also be an effective means of reducing fearful behavior. The work of Bandura and colleagues has been influential in demonstrating the forms of modeling that are most effective in modifying children's reactions to fearful stimuli (Bandura, 1971). These studies showed that anxiety reduction is greater if the characteristics of the model are similar to those of the observer. Furthermore, anxiety reduction is enhanced if the model engages in coping behaviors in the presence of the feared stimulus, rather than mastery responses, and if a positive outcome results from the interaction. The results of these studies have had an enormous influence on the development of programs to prevent or reduce fear and anxiety.

The model outlined in Table 1 emphasizes the role of modeling in prevention programs and also indicates the value of interventions that aim to change the parental factors that influence the development and maintenance of children's maladaptive fears. For example, training parents in skills to facilitate the reinforcement of nonfearful behavior and to reduce the reinforcement of maladaptive responding would be beneficial.

Characteristics Relating to the Child

We all differ remarkably in terms of our individual characteristics, and this difference extends from physical features to psychophysiological, temperamental, intellectual, cognitive style, and coping skill characteristics. These features serve to mediate the impact of environmental events and life experiences. The degree to which these characteristics are genetic vs. acquired will not be the focus of this discussion, but an interactionist view will be accepted in which the importance of genetic influences is not ignored.

The question arises why some children develop fears and anxiety disorders following certain learning experiences (e.g., an aversive exposure) and others do not. A variety of explanations may be proposed, although evidence is lacking. Innate temperamental and conditionability factors may play a role in this phenomenon, and it is clear that children show individual differences in behavioral and physiological reactivity to novel and fearful situations, and these differences may be relevant in explaining differential fear acquisition. Kagan and his research team have conducted several studies on what they describe as inhibited and uninhibited children. Kagan, Snidman, Julia-Sellers, and Johnson (1991) described the inhibited temperament as being reflected in behaviors such as initial timidity, shyness, and emotional restraint when exposed to unfamiliar people, places, or contexts. Uninhibited children, on the other hand, approach the same events with minimal uncertainty and affective spontaneity. Kagan and his colleagues have also demonstrated in a series of studies that these two groups of children can be distinguished physiologically. Indeed, Kagan et al. (1991) reported that children who are classed as behaviorally inhibited tend to show a specific pattern of heart rate changes and pupillary dilations to stressor tasks, in addition to higher urinary levels of the derivatives of norepinephrine, higher levels of morning salivary cortisol, and greater increases in muscle tension levels compared to uninhibited children. These physiological patterns were proposed to reflect a difference in the threshold of excitability in the limbic system in inhibited children. Inhibited status for children who fall at the extreme end of this dimension also tends to be relatively stable over

time (Kagan, Reznick, & Gibbons, 1989). Kagan and Snidman (1991) suggested that although shy, timid, and fearful behavior can be the product of specific environmental learning experience, a small proportion of children begin life with a predisposition to develop such a profile, given specific environmental conditions. If Kagan and colleagues are correct, then these extremely "inhibited" children may well turn out to be a high-risk group for the development of anxiety disorders in later childhood. It is to be hoped that ongoing longitudinal studies will indicate whether this is indeed the case.

Variations in cognitive style may also be relevant to the development of fears and anxiety disorders in childhood, although evidence appears to be lacking. Certainly, in the area of depression in childhood, studies suggest that children who manifest a style of thinking that leads to negative appraisal of events are more likely to report symptoms of depression (Ward, Friedlander, & Silverman, 1987; Weiss, Weiss, Wasserman, & Rintoul, 1987). It is likely that bias toward interpretation of events as fearful and uncontrollable, or a tendency to anticipate aversive outcomes, may also predispose children toward development of anxiety disorders. Certainly, this suggestion warrants investigation.

Children also differ markedly in their ability to use a range of coping skills that influence the degree of fear, anxiety, and distress experienced in response to unpleasant experiences. Much of this evidence comes from the literature on coping with aversive medical procedures. Methods such as seeking out information, positive self-talk, diversion of attention, relaxation, and thought-stopping have been demonstrated to be associated with lower levels of anxiety and distress (Brown, O'Keefe, Sanders, & Baker, 1986; Peterson, Harbeck, Chaney, Farmer, & Thomas, 1990). Interestingly, there appear to be developmental differences in the way children try to cope with feared situations. Band and Weisz (1988) proposed a primary–secondary model of coping in children. Primary approaches to coping aim to change the aversive stimulus directly (e.g., attempting to remove the feared event through verbal protest or running away). Secondary coping strategies, on the other hand, accept the occurrence of the aversive situation and focus on methods of producing the least degree of aversiveness and distress. Band and Weisz suggested that children gradually learn that primary coping attempts are generally not successful in preventing the feared situation. Thus, with increasing age, children begin to use secondary coping methods that aim to produce the least degree of distress to the aversive situation. This model fits with evidence that with increasing age, children show increased use of strategies such as positive self-talk or relaxation (Brown et al., 1986).

The importance of coping strategies in enabling children to deal with aversive and fearful situations has clear implications for the way in which prevention programs should be designed. The ultimate aim of primary prevention of childhood fears and anxiety disorders should be to teach children strategies that may facilitate their handling of a wide range of fearful and aversive situations. This approach provides children with the skills that may be generalized to novel situations, rather than being limited to specific fearful events. These skills could include relaxation, use of positive self-talk strategies, rational interpretation of events and prediction of outcomes, and problem-solving abilities. It would obviously be much more cost-effective to approach preventative interventions in this way, rather than to target specific situations one at a time, such as the dark, swimming lessons, routine dental visits, or test-taking. Nevertheless, it is acknowledged that some situations may be sufficiently aversive or difficult to handle that they require additional training in the use of coping skills. For example, specific preventative efforts may be warranted to help children deal with painful medical or dental procedures. Some situations may also occur very infrequently and require specific coping skills. For example, children transferring from

elementary grades up to secondary school may find that the transition requires many new skills. These skills may relate to the use of public transport, social skills for making friends, and independent study skills, all of which may influence the success of the school transfer. Specific skills training may therefore be important, in addition to the acquisition of more general anxiety- and fear-management skills.

FROM THEORY TO PRACTICE

The model for the prevention of maladaptive fears and anxiety disorders outlined above emphasizes the need for preventative efforts at three levels producing changes in (1) the general sociocultural/physical environment, (2) specific environmental influences/learning experiences, and (3) characteristics relating to the child. Given that most clinicians are not in a position to produce a marked impact on the general sociocultural/physical environment or genetic influences, we will focus here on preventative approaches that may be used to reduce the probability that fears will develop and increase the child's ability to cope with unpleasant or stressful events.

The literature suggests that various methods may be beneficial in teaching coping skills and reducing the development of fears. These methods include:

1. Modeling of coping skills and successful handling of the feared situation.
2. Provision of information about feared situations, in order that children obtain a sense of control over the feared event
3. Direct instruction in the use of coping strategies, including positive self-instructions, relaxation, and attention-diversion methods.
4. Use of latent inhibition to reduce the probability of classic conditioning of feared stimuli by prior exposure of CS (situational cues) in the absence of UCS (aversive situation).
5. Exposure to fearful situations in the absence of feared consequences.
6. Training of parents to model appropriate coping behavior, to reinforce their child's use of coping skills, and to reduce their own overprotective and anxious behaviors.

EXAMPLES OF PREVENTION PROGRAMS AND THEIR EFFECTIVENESS

Several authors have written about the need for programs to prevent childhood maladaptive fears and anxiety disorders and have even outlined the types of approaches that could be used (e.g., King, Hamilton, & Murphy, 1983; Martinez, 1987; Robinson, Rotter, Fey, & Robinson, 1991). Robinson et al. (1991) discussed various levels of intervention that could be used in the prevention of childhood fears. They stressed the need to teach coping skills to facilitate the child's ability to cope effectively with threatening situations that are an inevitable and essential part of normal development. Their approach emphasized the development of concepts of control, security, and self-worth and the acquisition of coping skills to deal with developmentally appropriate fear situations. As an illustration, these authors outlined a classroom-based intervention for the prevention of fears of the dark, which included components such as studying creatures of the night, talking about night shift workers, reading stories about the dark, and studying the stars and the night sky. This

program also stressed the need for parent education concerning the developmental process of normative childhood fears and parenting techniques for dealing with fearful behavior. The use of parent newsletters and workshops was proposed.

Unfortunately, suggestions for programs to prevent childhood fears and anxiety disorders have rarely been put into practice. There is a marked absence of empirical data to permit evaluation of the effectiveness of preventative programs for children's maladaptive fears or anxiety disorders. What are needed are large-scale studies that assess the long-term impact of preventative interventions, in comparison to no intervention and placebo approaches. Reliable and valid outcome measures of maladaptive fears and anxiety problems should be included, which should involve information from a variety of sources (e.g., parent, child, and teacher) across a range of settings (e.g., home and school). Furthermore, follow-ups should be of adequate duration (e.g., 5–10 years) to permit evaluation of the long-term impact of any preventative intervention. Ideally, such programs should aim to teach the type of generalizable coping skills outlined above, in order to reduce maladaptive fear and anxiety across a wide range of situations.

To date, well-controlled experimental studies of this type are yet to be conducted. We can gain some insights into the effectiveness of preventative interventions, however, by considering those studies that have examined the prevention of fears relating to specific situations or prevention approaches with "high-risk" samples.

Prevention of Dental Fears

Fear of attending the dentist and subsequent avoidance of dental treatment represents a significant public health problem. Estimates of the prevalence of dental fears vary according to the criteria used to define the problem, but Milgrom et al. (1992) reviewed evidence to suggest that between 10% and 20% of children and adolescents are classified as having high dental fear. Dental fears do not tend to decline with age, and it is important to note that a high proportion of adult dental phobics report an onset in childhood and adolescence, with a mean age of onset of 12 years (Öst, 1987; Milgrom et al., 1992). Prevention of dental fears in childhood is important for several reasons. First, it would reduce the degree of subjective distress to the patient. Second, prevention of dental fears and their associated disruptive behavior would reduce the work stress experienced by dentists in having to deal with anxious patients. Finally, prevention of dental fears would limit the dental health problems that result from avoidance of dental visits.

Weinstein (1990) reviewed the literature relating to prevention of dental fears in children. Methods such as providing the child with as much control over the procedure as possible, nontraumatic preexposure prior to invasive treatment, and videotaped modeling of another child coping with the same procedure have all been reported to be beneficial in reducing child anxiety to subsequent dental visits. The effectiveness of modeling videotapes has been most widely researched, with several studies demonstrating that viewing another child coping with the dental procedure reduces fear and disruptive behavior in young children (Melamed, Hawes, Heiby, & Glick, 1975; Melamed, Weinstein, Hawes, & Katin-Borland, 1975). Modeling has not always been found to be effective, however, with negative results being reported by Sawtell, Simon, & Simeonsson (1974). Interestingly, the provision of information about the procedures, either verbally or through film, has not been found to reduce fear and disruptive behavior; thus, the provision of information alone is unlikely to explain the positive results of modeling studies (Green, Meilman, Routh, & McIver, 1977; Melamed, Yurcheson, Fleece, Hutcherson, & Hawes, 1978).

Prevention of Fear and Anxiety Relating to Medical Procedures

Many children are required to undergo medical procedures that are novel, stressful, and sometimes painful or unpleasant. The aversive nature of some medical procedures makes it likely that children will be fearful of undergoing such experiences and may develop fear reactions in anticipation of future occurrences. It must be pointed out, however, that medical procedures do not have to be painful in order for the event to be perceived as stressful and anxiety-provoking to a child. A variety of events related to hospitalization and illness are stressful to children, and fears relating to separation from parents, illness, and unfamiliar surroundings may also be involved (Traughber & Cataldo, 1983).

There are several obvious reasons that fear of medical procedures is problematic. First and foremost is the subjective distress experienced by the child before and during the experience. Second, the fearful behaviors may include avoidance responses, such as temper tantrums, running away, and protestations. These behaviors in turn produce considerable distress to the parents, nurses, and medical personnel and may also result in noncompliance with medical regimens. Some medical procedures, such as a tonsillectomy, occur only once, and the goal is to reduce the degree of anxiety experienced by the child before and during the procedure and to facilitate a psychological state that promotes rapid recovery during the postexperience phase. Other stressful medical procedures may occur repeatedly. Such procedures include injection treatments (insulin for diabetes or growth hormone), changing of burn dressings, and bone marrow aspirations in pediatric oncology, to mention just a few. The goal with repetitive experiences is to reduce the child's subjective distress and to facilitate the child's cooperation with the procedure. For occasional and repetitive interventions, the aims are to enhance the child's coping skills for dealing with the procedure and to prevent the occurrence of anxiety and fear responses.

Early attempts to reduce anxiety and distress during medical procedures focused primarily on providing children with information about the forthcoming event. This approach was based on the rationale that unpredictable stressors produce higher levels of anxiety than anticipated events. Thus, informing children about what to expect during a medical procedure was proposed to reduce the level of anxiety experienced. Preparatory information, if used in isolation, appears, however, to be of limited value in preventing child anxiety (Melamed, Seigel, & Ridley-Johnson, 1988). Similarly, the use of modeling demonstrations, usually involving films or puppets, has been reported to produce some benefits in reducing children's anxiety toward medical procedures (e.g., Melamed & Seigel, 1975). Evidence suggests, however, that modeling alone is not sufficient to enable many children to reduce their fear of unpleasant stimuli, and additional measures may be required to teach the skills necessary to cope with the situation (Peterson & Shigetomi, 1981). Peterson and Shigetomi showed that a combination of training in coping skills plus modeling was superior to modeling or instructions alone in reducing child distress at tonsillectomy. The coping skills taught included cue-controlled relaxation, distracting mental imagery, and use of comforting self-talk.

Programs that teach coping skills have now been developed for use with children undergoing a wide variety of medical procedures. For example, Jay, Elliott, Katz, and Siegel (1987) reported the effectiveness of a cognitive–behavioral intervention to reduce anxiety during bone marrow aspirations. This study demonstrated that children receiving modeling plus training in coping strategies showed significantly lower behavioral distress, lower pain ratings, and lower pulse rates than when they received Valium or an attention-control procedure. The cognitive–behavioral procedure involved exposure to a modeling

videotape that demonstrated the procedures plus positive coping behaviors such as breathing exercises, imagery, and positive self-statements. The imagery methods included emotive imagery using hero images, such as Superman or Wonder Woman, and attention-distraction methods, such as pleasant mental scenes. These approaches were combined with a positive incentive scheme that presented the child with a small trophy for successful coping and behavior rehearsal involving role-played conduct of the bone marrow aspiration procedure with a doll, using actual equipment with the older children.

Although group design studies suggest that coping skills training can be beneficial in reducing anxiety and distress relating to medical procedures, it is clear that children differ in their responses to particular coping skills, and different coping skills may be required for different types of medical procedures. Furthermore, different skills may be required at different stages of a medical procedure, such as prior to, during, and after the event. The task of current researchers in the area is to attempt to match optimal coping strategies with the child's individual characteristics and the medical situation being faced at a given time.

As mentioned above, parent behavior also influences the level of anxiety experienced by children during medical treatments. Preventative interventions should therefore aim to bring about changes in parent behavior in addition to enhancement of child coping skills. For example, a component of any preventative intervention should also aim to reduce parent anxiety and increase parent coping skills. Parents should also be encouraged to model coping behaviors and to reinforce their child's nonanxious behavior.

Prevention of Test Anxiety

It seems that coping skills training can be effective in the prevention of anxiety and fear relating to stressful and aversive medical and dental procedures. This suggests that similar approaches are likely to be valuable in preventing the development of fear and anxiety in relation to other forms of aversive situations that children have to deal with in the course of their lives, such as transition to new schools or taking examinations. Test anxiety is one of the most common fears among 9- to 12-year-olds and frequently persists through adolescence (Morris and Kratochwill, 1991). The negative consequences of test anxiety include not only the distress experienced by the young person, but also impairment of test performance. In extreme instances, the child may also resort to a variety of avoidance behaviors, including absence from school and failure to attend exams (Tryon, 1980). Given the high incidence of test anxiety and the negative consequences produced, there is a strong case for preventative programs in this area.

Research into methods of reducing test anxiety has focused primarily on children who are already highly anxious about examinations. Nevertheless, techniques found to be effective in the treatment of existing test anxiety may provide an indication as to methods that are likely to be effective in preventing the onset of test anxiety in children. In a review of treatments for test anxiety, Tryon (1980) concluded that a variety of methods have been found to be effective in reducing subjective, affective feelings of anxiety concerning tests. These methods included relaxation training, systematic desensitization, flooding, training in study skills, positive self-talk training, cognitive restructuring, and modeling. Of particular importance was the finding that most of the studies that actually produced an improvement in test performance were those that attempted to reduce the "worry" component of test anxiety. Those methods that focused purely on the affective component of test anxiety were less effective in improving academic performance. Tryon suggests that it is important to reduce both the affective feelings of anxiety and the level of worrying

thoughts in the treatment of test anxiety. If worry remains high, then the interfering thoughts continue to disrupt the cognitive processes required for academic tasks.

Van der Ploeg-Stapert and Van der Ploeg (1986) outline a complex cognitive–behavioral program that was found to be effective in reducing test anxiety with test-anxious 11- to 20-year-olds. The program was conducted on a group basis with approximately 12 students per group over 8 sessions. The intervention included muscle relaxation exercises, study skills training, self-monitoring with concentration techniques, and rational emotive training to reduce worry. The 3-month follow-up data suggested that the program was effective in reducing affective test anxiety and worry and improved grades for around half the students in comparison to a waiting-list control sample. It may be feasible to adapt programs of this type for implementation on a class basis as a means of prevention of test anxiety.

Facilitating the Transition to a New School

Children are required to deal with many changes throughout their lives, but the transition to a new school is suggested to be one of the most stressful (Soussignan, Koch, & Montagner, 1988). Changes to a new school occur at different ages in different countries, but transitions typically occur from preschool to infant/primary/elementary at around age 5, with a further transfer occurring to secondary school at around the age of 11–12 years. In response to such transitions, children are generally required to adapt to different physical, social, and academic environments. They are faced with new buildings to negotiate their way around, a new peer group, new teachers, and a new set of rules and regulations. The styles of teaching and studying are also likely to be different. Not surprisingly, many children find the changes very difficult to accommodate, and a variety of behavior problems have been linked with school transitions. These problems include peer-relationship difficulties, school refusal, and somatic complaints, with academic failure, increased substance abuse, delinquency, and school dropout in older children (Hightower and Braden, 1991).

Fortunately, the stressful nature of school transitions is now being recognized, and programs have been developed to prevent or reduce the distress produced. For example, Felner and Adan (1988) describe the School Transition Environment Project (STEP). In particular, the program targeted schools with complex organizational structures, which received children from a large number of feeder schools and which had limited support services. The STEP program consists of three components. The first organizes the physical plan of the school into units with homerooms, in order to facilitate familiarity with the school environment. Children allocated to the program attend core academic subjects together in these homerooms. This process is suggested to make the school transition less overwhelming and stressful to incoming students.

The second aspect of STEP includes a "homeroom" staff member who has the responsibility for taking the daily attendance list, following up absences, and counseling pupils regarding academic or school-adjustment problems. The final component involves a coordinated liaison between teaching and school counseling staff. The overall aims of the program are to increase personal relationships between pupils and staff and to create subenvironments within the overall large school environment.

Evaluations of the STEP approach have demonstrated that children who participated in the program showed greater improvements in academic performance and self-esteem, better school attendance, and lower school dropout rates compared to control children who did not take part (Felner & Adan, 1988). Furthermore, the benefits have been replicated in a

variety of different school settings with children from various social backgrounds. Overall, the approach appears to be a valuable method of reducing the problems associated with school transition and to provide a model that could be routinely adopted by school authorities. Although not designed specifically to prevent fears or anxiety disorders in children, this program illustrates an approach to the reduction of the severity of a stressor experience in order to prevent the development of a range of behavioral difficulties. It is particularly interesting in that the approach is essentially one of environmental and organizational structural change.

Working with "At-Risk" Children

The previous section focused on prevention of anxiety, fear, or distress in children who are required to deal with various aversive or stressful events. Some aversive events, however, occur unexpectedly and are of sufficient magnitude that they constitute a traumatic experience to the child. Such trauma may occur on a group basis, as is often the case with environmental disasters (e.g., earthquakes, war, storms, or fires), or on an individual basis, such as occurs with death of a parent, a car accident, or parental separation or divorce.

Prevention of Fears and Anxiety Disorders following a Traumatic Experience

There is now considerable evidence that children who experience traumatic events are at risk of developing fears and anxiety problems (see Chapter 12). For example, following trauma, children may show increased levels of fears relating to stimuli associated with the traumatic event, avoidance behaviors, somatic complaints, depression, sleep disturbance, and intrusive experiences (Dollinger, 1986; Dollinger et al., 1984; Terr, 1981; Yule & Williams, 1990). Although such problems abate relatively quickly in most children, a significant proportion of children show persistent anxiety symptoms for many months after the trauma (Terr, 1981). There is therefore a strong case for rapid intervention following trauma in order to prevent or at least minimize the development of persistent psychological problems.

Although much has been written about the need for interventions to prevent long-term psychological difficulties following trauma in children, we still have very little empirical evidence to permit us to determine the most effective approaches to prevention. This is particularly true for large-scale natural disasters, which tend to be unpredictable and limit the possibility of neat experimental designs. We are therefore reliant on subjective opinions regarding which intervention approaches should be used following trauma. Sugar (1989) emphasized the need for initial interventions with the parents of children who experience a traumatic event, given the evidence that parent reaction plays a highly significant role in determining child response (e.g., McFarlane, 1987). In large-scale disasters that affect whole communities, Sugar (1989) also stressed the need for community counseling and crisis-oriented group approaches in order to provide mutual support, decrease isolation, and provide a larger perspective for the individual. Sugar pointed out, however, that the cornerstone of therapy should be individual counseling with children, which takes into account their developmental level and specific details of the traumatic situation experienced. The approach taken to intervention should therefore be tailored to the needs of each child.

A variety of approaches have been used in what is commonly termed the "debriefing"

of trauma victims. Yule (1990) suggests that this procedure should commence somewhere between 7 and 14 days following the event, with most survivors being too numb to benefit from counseling prior to this time. Nevertheless, Yule admits that there is a lack of data to validate this proposal, and we really do not know what type of intervention should best be used or at what time after the occurrence of a traumatic event it should be instituted.

A variety of debriefing methods have been suggested to be beneficial in preventing long-term adjustment problems in child trauma victims. These methods include encouraging children to describe their reactions and reassuring them that such reactions are understood and a normal response to an abnormal experience. Alternatively, children may be trained in relaxation skills and exposed to stimuli and memories relating to the trauma event. In this instance, Yule (1990) draws on the Rachman (1980) model of emotional processing, which emphasizes the need for vivid and prolonged exposure to disaster-related cues in order to facilitate emotional processing. This approach contrasts with the avoidance of disaster-related stimuli and situations, which is frequently encouraged by the parents of a child who has experienced a traumatic event.

Debriefing methods such as these are proposed to be beneficial in facilitating children's adaptation following trauma and in preventing the development of long-term psychopathology. There is now a need for studies that evaluate the effectiveness of various approaches in achieving these goals. Such studies may be feasible using children who have experienced the type of trauma that occurs relatively frequently within society, such as the survivors of car accidents involving a fatality.

Working with Children following Parental Divorce

Divorce of the parents has been suggested to represent one of the most common and severe life stressors that confront children and adolescents (Hightower & Braden, 1991; Hodges, 1991). Many authors have emphasized the potential negative impact of divorce on children and adolescents. For example, Hess and Camara (1979) suggested that the emotional consequences for children are often severe, and include depression, anger, anxiety, and withdrawal, particularly in the first 2 years following the divorce or separation. These authors concluded, however, that the adverse emotional consequences of parental separation and divorce are mediated by the quality of the intrafamily relationships involved. Thus, the negative effects were greatly mitigated when positive relationships between the parents were maintained. Furthermore, the child's relationship with the noncustodial parent was as important as that with the custodial parent. Hess and Camara highlighted the need for public policy to focus on the development of systems that facilitate the type of postdivorce family relationships that will enhance children's adjustment to the situation. For example, the authors noted that many legislative and judicial practices shape negative parental relationships through the procedures involved in custody, access, and property settlements. Although recent family court practices go some way toward reducing the potential animosity between divorcing parents and emphasize the need to maintain positive relationships between children and both parents, Hess and Camara's comments remain valid today. It is interesting to note that the need for public policy and judicial changes in this area provides an example of the type of sociopolitical activities proposed in Table 1.

Changes in public policy relating to separation and divorce may go some way to increasing the chance that separating and divorcing parents will be able to create the type of positive family relationships that make it less likely that children will manifest severe

anxiety reactions (and other behavioral problems). Children are still likely, however, to experience the situation as extremely aversive and distressing. Attention has turned recently to the development of programs designed to help children to cope with parental divorce and to reduce the chance that long-term emotional or behavioral problems will develop.

Before we describe such interventions, it is important to discuss the extent to which children do experience long-term adjustment problems. As mentioned above, Hess and Camara (1979) concluded that the consequences can be severe over the first 2 years, but that the effects were less noticeable among children who had good relationships with both parents and whose parents managed to continue a positive relationship. Forehand (1992) has recently been highly critical of popular and alarmist literature that emphasizes the relationship between parental divorce and maladjustment in children and adolescents. Forehand presented evidence to suggest that, although children and adolescents to exhibit more problems relating to anxiety–withdrawal and conduct disorder following parental divorce, this effect is relatively small. Furthermore, being group results, the data mask the fact that a large number of children continue to be well-adjusted following divorce and the negative consequences may be limited to a minority of children. This point also emerges from the meta-analysis conducted by Amata and Keith (1991). Thus, it is important that preventative interventions relating to children of divorce bear in mind that not all children are going to be seriously impaired by their family circumstances. One must question whether, if a child is coping well with a difficult environmental situation, it may be preferable to avoid any intervention that could disrupt this coping process. Ideally, we need to identify the characteristics of those children who are most at risk of developing adverse reactions to parental divorce and separation and target preventative programs in their direction. The possible adverse consequences of preventative interventions for children who would normally have coped well with a traumatic life event must be considered. Some would say, however, that the possibility of adverse consequences is sufficiently small that the advantages of large-scale preventative interventions for all children who fall into a "high-risk" group outweigh the potential disadvantages.

Several programs have been developed for use with children whose parents have recently divorced (e.g., Hodges, 1991; Pedro-Carroll & Cowen, 1985). Pedro-Carroll and Cowen (1985) outlined the Children of Divorce Intervention Project (CODIP), which was developed for use on a small group basis within schools. The project aims to prevent or ameliorate academic, behavioral, and emotional problems that children often experience during or after their parents' divorce. More specifically, the aims include (1) developing a supportive group environment, (2) facilitating the identification and expression of divorce-related feelings, (3) promoting understanding of divorce-related concepts and rectifying misconceptions, (4) teaching coping skills, including social problem-solving skills, and (5) enhancing children's positive perceptions of themselves and their families. The program involves 12–16 sessions, with methods including discussion, role-play, skills training, and home-based tasks.

Evaluations of the program have demonstrated its effectiveness in producing reductions in anxiety, fewer behavioral problems, greater gains in school competencies, decreased feelings of self-blame, and better ability to solve divorce-related problems in comparison to children of divorce who did not participate in the project. Follow-up information suggests that the benefits are maintained for the majority of children at 2-year follow-up, although only around half the children continued to show the gains they had made over the comparison group at 3-year follow-up (Hightower & Braden, 1991).

Although independent replications using this approach are required, the CODIP appears to offer promise in the prevention of adverse psychological consequences in children following parental divorce.

Working with the Siblings of Pediatric Cancer Patients

It is only relatively recently that attention has been paid to the siblings of terminally ill children, with the focus previously being directed toward the hospitalized or sick child rather than the siblings. Bendor (1990) described the types of fears and anxieties experienced by siblings of pediatric cancer patients and emphasized the need for prevention programs. Bendor outlined two multisession groups that she conducted, one for elementary-school-age children and one for adolescents who had a brother or sister suffering from cancer. A wide variety of concerns were identified among the children. These concerns included feelings of resentment toward the sick sibling, jealousy about the amount of parental attention directed toward the sick brother or sister, feelings of being neglected by the parents, guilt, anger, loneliness, and lack of family recreational activity. The youngsters also reported fears concerning contamination, getting sick, the sibling's death, and their own death.

In addition to small-group preventative counseling, Bendor proposed a range of additional activities that are likely to be beneficial in facilitating the adjustment of healthy siblings of pediatric cancer patients. For example, she suggested that parents need to be encouraged to redirect their attention to the needs of the healthy siblings, rather than to focus purely on the sick child. In addition, parents need to be helped to discuss death with their healthy children and to prepare them for events such as attending the funeral. Postdeath follow-ups with families and liaison with siblings' schools were also recommended. Although Bendor did not provide any data regarding the effectiveness of the program, the approach makes intuitive sense and justifies studies to evaluate its efficacy.

Other High-Risk Groups

There are many other factors associated with the development of anxiety and fear problems in childhood that could be taken as indicators of "high risk." These factors include being a child of a parent who experiences an anxiety disorder (Mattison, 1992) and possession of early temperament characteristics that are predictive of later development of anxiety problems. Space does not permit a detailed investigation of these areas, but a few comments are warranted here. First, in relation to the children of parents with anxiety disorders, it may be feasible to develop interventions targeted toward parents and children in order to reduce the probability of development of anxiety problems in the child. Such interventions could include training the parents to increase behaviors such as modeling of use of coping skills and reinforcement of their child's use of coping skills and approach rather than avoidance behaviors. "At-risk" children could also be taught a range of coping skills that could be applied across a wide range of stressful and aversive situations as they arise. These skills could include relaxation, use of positive self-instruction, rational interpretation of events and outcome expectancies, and problem-solving abilities.

Second, there is a strong case for the application of preventative approaches with children who early on manifest physiological and behavioral characteristics that predict a greater probability of developing anxiety or fear problems in later childhood. Although research in this area is in its infancy, there is certainly some evidence to suggest that

children who exhibit what Kagan terms "inhibited" temperamental characteristics may be at risk for development of later anxiety problems, particularly relating to social anxiety (see the section entitled "Characteristics Relating to the Child" above). If Kagan is correct and these children can be regarded as being at risk for the development of fears and anxiety disorders, then there would be a strong case for early intervention. It may be possible, for example, to teach children to modify physiological reactivity to novel and stressful situations through relaxation training and cognitive self-instruction approaches. So far, this area remains speculative but certainly warrants investigation.

METHODOLOGICAL PROBLEMS IN THE IMPLEMENTATION AND EVALUATION OF PREVENTATIVE PROGRAMS

It is clear from this chapter that there are many ways in which preventative programs could be implemented in an attempt to reduce fears and anxiety problems in children. Much of what has been written, however, refers to proposals or hypothetical models for approaches to prevention. Very few programs have actually been implemented for the prevention of childhood fears or anxiety disorders, and even fewer have been evaluated empirically. The few studies that have described experimental evaluations of outcome in this area have been limited to a specific type of trigger situation, such as school transition or parental divorce. We still await evaluation of a large-scale preventative program that is designed to prevent childhood fears and anxiety disorders more generally.

There are several explanations that could be proposed to account for the lack of involvement of mental health researchers and practitioners in the prevention of childhood fears and anxiety problems. Indeed, many of these points could equally be made to explain the lack of attention paid to prevention programs generally. First, the training of most mental health professionals places minimal emphasis on prevention, and thus many practitioners may not feel they have the skills or confidence to develop and implement preventative programs. In fact, most mental health clinicians who have a good understanding of the etiological and maintaining factors of a psychological disorder and are trained in behavior-change methods would also have the skills to design and conduct a preventative intervention.

Second, Hightower and Braden (1991) propose that many practitioners hold irrational beliefs that reduce the probability that they will engage in preventative work. These include the beliefs that they do not have time to engage in preventative efforts and that preventative efforts do not work. These authors also emphasize the bias that many clinicians have toward direct casework, rather than community-based interventions or work with nonclinical groups before any diagnosable disorder is present. Obviously, attitudes such as these within mental health professions would be a major barrier to progress in prevention programs.

Third, it is important to discuss the practical issues related to prevention programs when it comes to empirical outcome studies. In order to evaluate the outcome of a preventative program, studies typically need extremely large sample sizes if the base rate of the disorder in the population is relatively low. Only with such large samples is it then possible to determine whether the prevalence of the presenting problem is lower in the group receiving the preventative intervention compared to the no-intervention control group. Studies of this type are therefore extremely expensive, and researchers are more likely to work with populations and problems for which the base rate for the disorder or problem is

higher. Thus, programs are more likely to be implemented for "high-risk" groups and frequently presenting problems (e.g., anxiety following parental divorce) than large-scale studies with the general population and less commonly presenting problems (e.g., child anxiety disorders). The wide range of possible etiological factors in childhood fears and anxiety also produces practical problems for preventative programs. The ideal program would need to tackle the numerous factors outlined in Table 1, and doing so would obviously be very costly. There may be little point, however, in tackling only one etiological variable if other adverse factors remain in place. For example, a school-based program to teach coping skills to children for dealing with aversive and difficult situations would probably not be particularly effective if a child remains in a home environment that actively models and reinforces anxious and avoidance behaviors.

Although the points made in this section may explain why mental health researchers and practitioners have paid relatively little attention to preventative interventions, it is important that the relevant professions make attempts to redress this situation in the future. The small amount of information available from research studies to date has produced some optimistic results in the prevention of specific anxiety and fear problems in childhood, in response to specific situations. We now have a great deal of information regarding the types of methods that can be used to prevent fears and anxiety. These methods include the use of modeling and teaching children a range of coping strategies for dealing with aversive and stressful situations. We also know a great deal about the environmental and individual factors that are related to the development of fears and anxiety problems in childhood, as outlined in Table 1. Given this knowledge, we should therefore be in a position to design and implement large-scale programs to prevent maladaptive fears and anxiety disorders in childhood. These programs could be targeted toward high-risk groups or conducted on a school–community basis with general population samples.

Although proposals of this type may appear grandiose, it is important to remember the long-term benefits of prevention, in terms of long-term cost savings to the community and reductions in personal suffering.

SUMMARY

There is a strong case for programs to prevent the development of maladaptive fears and anxiety problems in childhood. Unfortunately, childhood anxiety disorders are relatively prevalent and persistent. Although a costly process, prevention of such problems would produce enormous cost savings to mental health services and would have the benefits of improved quality of life and reduced suffering for many children.

This chapter outlined a multilevel model for the prevention of children's maladaptive fears and anxiety problems. The model stressed the need for intervention at three levels, namely: (1) the sociocultural/physical environment, (2) specific environmental influences/learning experiences, and (3) the child's individual characteristics. Factors relating to the etiology and maintenance of childhood maladaptive fears and anxiety at each of these levels were outlined, followed by suggestions for appropriate intervention.

Although much has been written about hypothetical prevention programs designed to prevent childhood anxiety disorders, large-scale, multifaceted programs of the type proposed here are yet to be conducted. A review of the literature, however, reveals a large number of studies that have evaluated the effectiveness of approaches for preventing fear

and anxiety in children facing aversive or stressful situations. These studies have demonstrated the value of modeling and training children in the use of coping strategies. Environmental manipulations of the type outlined in the School Transition Environment Project (STEP) also offer promise in the reduction of child anxiety problems. Methods used in the prevention of specific fears provide some insight into the types of programs that could be applied more generally to be prevention of childhood maladaptive fears and anxiety disorders.

It is suggested, however, that mental health practitioners need to restructure their beliefs about the role and importance of preventative interventions and their responsibility to spend a significant proportion of their employment time on this area of work. There are a great many benefits to be gained from prevention, if only we can shift our beliefs away from the idea that we have to sit in our offices and wait for the client to present with the problem.

REFERENCES

Amata, P. R., & Keith, B. (1991). Parental divorce and the well-being of children: A metanalysis. *Psychological Bulletin, 110*, 26–46.

Band, E., & Weisz, J. R. (1988). How to feel better when it feels bad: Children's perspectives on coping with everyday stress. *Developmental Psychology, 24*, 247–253.

Bandura, A. (1971). Psychotherapy based upon modeling principles. In A. E. Bergin & S. L. Garfield (Eds.), *Handbook of psychotherapy and behavior change* (pp. 653–708). New York: John Wiley.

Bendor, S. J. (1990). Anxiety and isolation in siblings of pediatric cancer patients: The need for prevention. *Social Work in Health Care, 14*, 17–35.

Brown, J. M., O'Keefe, J., Sanders, S. H., & Baker, B. (1986). Developmental changes in children's cognition to stressful and painful situations. *Journal of Paediatric Psychology, 11*, 343–357.

Bush, J. P., Melamed, B. G., Sheras, P. L., & Greenbaum, P. E. (1986). Mother–child patterns of coping with anticipatory medical stress. *Health Psychology, 5*, 137–157.

Cantwell, D. P., & Baker, L. (1989). Stability and natural history of DSM III childhood diagnoses. *Journal of the American Academy of Child and Adolescent Psychiatry, 28*, 691–700.

Caplan, G. (1964). *Principles of preventative psychiatry*. New York: Basic Books.

Dollinger, S. J. (1986). The measurement of children's sleep disturbances and somatic complaints following a disaster. *Child Psychiatry and Human Development, 16*, 148–153.

Dollinger, S. J., O'Donnell, J. P., & Staley, A. A. (1984). Lightning-strike disaster: Effects on children's fears and worries. *Journal of Consulting and Clinical Psychology, 52*, 1028–1038.

Esser, G., Schmidt, M. H., & Woerner, W. (1990). Epidemiology and course of psychiatric disorders in school-age children—results of a longitudinal study. *Journal of Child Psychology and Psychiatry, 31*, 243–264.

Felner, R. D., & Adan, A. M. (1988). The School Transition Environment Project: An ecological intervention and evaluation. In R. H. Price, E. L. Cowen, R. P. Lorion, & J. Ramos-McKay (Eds.), *Fourteen ounces of prevention: A case book for practitioners* (pp. 111–122). Washington, DC: American Psychological Association.

Forehand, R. (1992). Parental divorce and adolescent maladjustment. *Behaviour Research and Therapy, 30*, 319–327.

Gittelman, R. (1986). Childhood anxiety disorders: Correlates and outcome. In R. Gittelman (Ed.), *Anxiety disorders of childhood* (pp. 101–121). New York: Guilford Press.

Green, R. V., Meilman, P., Routh, D. K., & McIver, F. T. (1977). Preparing the preschool child for a visit to the dentist. *Journal of Dentistry, 5*, 231–236.

Heard, P., Dadds, M., & Rapee, R. (1992). Cognitive patterns in anxious children and their families. Paper presented at the World Congress on Behavior Therapy, Gold Coast.

Hess, R. D., & Camara, K. A. (1979). Post-divorce family relationships as mediating factors in the consequences of divorce for children. *Journal of Social Issues, 35*, 70–95.

Hightower, A. D., & Braden, J. (1991). Prevention. In T. R. Kratochwill & R. J. Morris (Eds.), *The practice of child therapy* (pp. 410–440). New York: Pergamon Press.

Hodges, W. F. (1991). *Interventions for children of divorce*. New York: John Wiley.

Jacobsen, P. B., Manne., Garfinkle, K., & Schorr, O. (1990). Analysis of child and parent behavior during painful medical procedures. *Health Psychology, 9*, 559–576.

Jay, S. M., Elliott, C. H., Katz, E., & Siegel, S. E. (1987). Cognitive–behavioral and pharmacologic interventions for children's distress during painful medical procedures. *Journal of Consulting and Clinical Psychology, 55*, 860–865.

Kagan, J., & Snidman, N. (1991). Infant predictors of inhibited and uninhibited profiles. *Psychological Science, 2*, 40–43.

Kagan, J., Reznick, J. S., & Gibbons, J. (1989). Inhibited and uninhibited types of children. *Child Development, 60*, 838–845.

Kagan, J., Snidman, N., Julia-Sellers, M., & Johnson, M. O. (1991). Temperament and allergic symptoms. *Psychosomatic Medicine, 53*, 332–340.

King, N. J., Hamilton, D. I., & Murphy, G. C. (1983). The prevention of children's maladaptive fears. *Child and Family Behavior Therapy, 5*, 43–57.

Martinez, J. G. R. (1987). Preventing math anxiety: A prescription. *Academic Therapy, 23*, 117–125.

Mattison, R. E. (1992). Anxiety disorders. In S. R. Hooper, G. W. Hynd, & R. E. Mattison (Eds.), *Child psychopathology: Diagnostic criteria and clinical assessment* (pp. 179–202). Hillsdale, NJ: Erlbaum.

McFarlane, A. C. (1987). Posttraumatic phenomena in a longitudinal study of children following a natural disaster. *Journal of the American Academy of Child and Adolescent Psychiatry, 26*, 764–769.

Melamed, B. J., & Seigel, L. J. (1975). Reduction of anxiety in children facing hospitalization and surgery by use of filmed modeling. *Journal of Consulting and Clinical Psychology, 43*, 1357–1367.

Melamed, B. J., Hawes, R. R., Heiby, E., & Glick, J. (1975). Use of filmed modeling to reduce uncooperative behavior of children during dental treatment. *Journal of Dental Research, 54*, 791–801.

Melamed, B. G., Siegel, L. J., & Ridley-Johson, R. (1988). Coping behaviors in children facing medical stress. In T. M. Field, P. M. McCabe, & M. Scneiderman (Eds.), *Stress and coping across development* (pp. 156–171). Hillsdale, NJ: Erlbaum.

Melamed, B. J., Weinstein, D., Hawes, R. R., & Katin-Borland, M. (1975). Reduction of fear-related dental management problems with use of film modeling. *Journal of the American Dental Association, 90*, 822–826.

Melamed, B. G., Yurcheson, R., Fleece, E. L., Hutcherson, S., & Hawes, R. (1978). Effects of film modeling on the reduction of anxiety-related behaviors in individuals varying in levels of previous experience in the stress situation. *Journal of Consulting and Clinical Psychology, 46*, 1357–1367.

Milgrom, P., Vignehsa, H., & Weinstein, P. (1992). Adolescent dental fear and control: Prevalence and theoretical implications. *Behavior Research and Therapy, 30*, 367–375.

Morris, R. J., & Kratochwill, T. R. (1991). Childhood fears and phobias. In T. R. Kratochwill & R. J. Morris (Eds.), *The practice of child therapy* (pp. 76–114). New York: Pergamon Press.

Öst, L. G. (1987). Age of onset in different phobias. *Journal of Abnormal Psychology, 96*, 223–229.

Pedro-Carroll, J. L., & Cowen, E. L. (1985). The Children of Divorce Intervention Project: An investigation of the efficacy of a school-based prevention program. *Journal of Consulting and Clinical Psychology, 53*, 603–611.

Peterson, L., & Shigetomi, C. (1981). The use of coping techniques to minimize anxiety in hospitalized children. *Behaviour Therapy, 12*, 1–14.

Peterson, L., Harbeck, C., Chaney, J., Farmer, J., & Thomas, A. M. (1990). Children's coping with medical procedures: A conceptual overview and integration. *Behavioral Assessment, 12*, 197–212.

Peterson, L., Hartmann, D. P., & Gelfand, D. M. (1980). Prevention of child behavior disorders: A lifestyle change for child psychologists. In P. O. Davidson & S. M. Davidson (Eds.), *Behavioral medicine: Changing health lifestyles* (pp. 195–221). New York: Brunner/Mazel.

Price, R. H., Cowen, E. L., Lorion, R. P., & Ramos-McKay, J. (Eds.) (1988). *Fourteen ounces of prevention: A casebook for practitioners*. Washington, DC: American Psychological Association.

Rachman, S. J. (1980). Emotional processing. *Behaviour Research and Therapy, 18*, 51–60.

Robinson, E. H., Rotter, J. C., Fey, M. A., & Robinson, S. L. (1991). Children's fears: Towards a preventative model. *The School Counselor, 38*, 187–202.

Sawtell, R., Simon, J., & Simeonsson, R. (1974). The effects of five preparatory methods upon child behavior during the first dental visit. *Journal of Dentistry for Children, 41*, 37–45.

Soussignan, R., Koch, P., & Montagner, H. (1988). Behavioral and cardiovascular changes in children moving from kindergarten to primary school. *Journal of Child Psychology and Psychiatry, 29*, 321–333.

Sugar, M. (1989). Children in a disaster: An overview. *Child Psychiatry and Human Development, 19*, 163–179.

Terr, L. C. (1981). Psychic trauma in children: Observations following the Chowchilla school-bus kidnapping. *American Journal of Psychiatry, 138*, 14–19.

Traughber, B., & Cataldo, M. F. (1983). Biobehavioral effects of pediatric hospitalization. In P. McGrath & P.

Firestone (Eds.), *Pediatric and adolescent behavioral medicine: Issues in treatment* (pp. 107–131). New York: Springer.

Tryon, G. S. (1980). The measurement and treatment of test anxiety. *Review of Educational Research, 50*, 343–372.

Turner, S. M., & Beidel, D. C. (1989). Social phobia: Clinical syndrome, diagnosis and comorbidity. *Clinical Psychology Review, 9*, 3–18.

Van der Ploeg-Stapert, J. D., & Van der Ploeg, H. M. (1986). Behavioral group treatment of test anxiety: An evaluation study. *Journal of Behavior Therapy and Experimental Psychiatry, 17*, 255–259.

Wade, T. C., Baker, T. B., & Hartmann, D. P. (1979). Behavior therapists' self reported views and practices. *The Behavior Therapist, 2*, 3–6.

Ward, L., Friedlander, M., & Silverman, W. (1987). Children's depressive symptoms, negative self-statements and causal attributions for success and failure. *Cognitive Therapy and Research, 11*, 215–227.

Weinstein, P. (1990). Breaking the worldwide cycle of pain, fear and avoidance: Uncovering risk factors and promoting prevention for children. *Annals of Behavioral Medicine, 12*, 141–147.

Weiss, J., Weiss, B., Wasserman, A., & Rintoul, B. (1987). Control-related beliefs and depression among clinic-referred children and adolescents. *Journal of Abnormal Psychology, 96*, 58–63.

Yule, W. (1991). Work with children following disasters. In M. Herbert (Ed.), *Clinical child psychology: A social learning approach to theory and practice*. Chichester, England: John Wiley.

Yule, W., & Williams, R. (1990). Post-traumatic stress reactions in children. *Journal of Traumatic Stress, 3*, 279–295.

Author Index

Subject Index