

EMERGENT ISSUES IN
THE FIELD OF DRUG ABUSE

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FUTURE DIRECTIONS IN RESEARCH, INTERVENTION, AND PREVENTION IN THE FIELD OF DRUG ABUSE

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Over the past several decades the field of drug abuse research has blossomed. From a period of time when there were few social science researchers interested in the topic, a large variety of persons from many academic disciplines now produce research in a wide variety of journals. Confronted by a variety of new psychoactive substances (such as crack in the 1980s) appearing on the scene, the waxing and waning of patterns of use of drugs such as heroin and powder cocaine, the growing recognition that alcohol and other drug use is a complex, multifaceted phenomenon, the increasing threat of HIV to drug users and their sexual partners, and the realization that how drug use is dealt with is embedded in a socially, culturally, and politically defined context, the drug abuse research field has become increasingly complex and sophisticated. The papers represented in this volume reflect this rich diversity of topics and address many of the “cutting edge” issues in the field.

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PART I. INITIATION AND PROGRESSION TO DRUG USE AND ITS HEALTH CONSEQUENCES

Epidemiological research documenting the incidence and prevalence of substance use patterns in the United States has been among the most extensive research conducted in the social sciences. Resulting data suggest that drug use may follow a cyclical pattern in American society. Based on the Monitoring the Future Studies (Johnston et al. 1998a), drug use appeared to follow an upward trend among youth from the initial data collected in the mid-1970s until about 1980. From that point until the early 1990s, each year saw a decline in the prevalence of illegal drug use as well as tobacco use. By the early 1990s reported annual marijuana use rates among high school seniors were only half of 1980 reported levels. Then from 1991 through 1997, the prevalence of illegal drug use (primarily marijuana use) increased steadily each year. Data from 1998, however, indicated that drug use among American youth may again be declining (Johnston et al. 1998b) and thus perhaps initiating another part of the cycle of use.

Society seems to pay considerable attention to drug use trends. For over two decades the findings from the Monitoring the Future Study and other major monitoring efforts such as the National Household Survey and the Partnership Attitude Tracking Study have been reported in major media. These epidemiological reports have stimulated major national and local prevention efforts and have certainly resulted in increased prevention funding availability.

The epidemiology of drug use and prevention efforts have major implications for health consequences, service needs, and costs. A considerable volume of research literature has focused on the health consequences of substance use. This literature has suggested that such use (particularly injection drug use) is related to a wide variety of bacterial and viral infections, the most significant of which perhaps are hepatitis C and HIV. The Centers for Disease Control classifies injection drug use as a major means of HIV transmission (Centers for Disease Control and Prevention 1998), particularly for women, Hispanics, and African Americans. Drug use is related to increased health problems (including incidence of a variety of sexually transmitted diseases) through associated lifestyle behaviors including the exchange of sex for drugs. Recent research by Chitwood and his colleagues (1998) shows that injection and other chronic drug users are significantly more likely to perceive themselves to be in poor health and in need of health services than a neighborhood non-drug using comparison group. Economic analysis by French and his colleagues (1999) has shown that chronic illicit drug use is associated with a significant independent increase in the cost of health services. In this era of managed care's pressure to reduce drug treatment costs, it is important to examine both the health consequences of drug use and what America's cyclical use patterns may mean for future health consequences.

The first paper in this section by Zili Sloboda, examines the traditions and significant findings of epidemiological and prevention research in the United States over the past few decades. Because of her experience as a National Institute on Drug Abuse Division director responsible for drug use epidemiology and prevention research, Dr. Sloboda is uniquely qualified to provide a summary overview of the field and suggest gaps that need to be addressed. Specifically, she argues it is crucial that there be an integration of epidemiological and prevention research. She notes that epidemiology provides the basic framework for prevention by identifying basic etiologic sequences in variables associated with substance use. Sloboda argues that by integrating epidemiology and prevention research, epidemiological findings can have rapid input into prevention programming and effectively inform community and national prevention research efforts. Sloboda concludes that current epidemiology and successful prevention efforts should include an increased focus on integrated theory from biology, psychology, sociology, anthropology, and economics. This focus would increase our understanding of population vulnerability to substance abuse in general as well as our knowledge of specific issues in the initiation, staging, continuation, and cessation of use. Prevention programming could be further enhanced by utilizing theoretically based epidemiological findings and applying them to the interactional world of youth in schools, families, and among peers.

The second paper in this section by Ryan E. Spohn and Howard B. Kaplan addresses classical issues regarding long-term health consequences of substance use. As the authors note, much of our knowledge about the health consequences of substance use is derived from retrospective and cross-sectional studies. Such research designs make it nearly impossible to sort out the multiple co-factors associated with substance use and health care problems, service needs, and costs. Spohn and Kaplan provide a longitudinal analysis with baseline data collected in a 1971 junior high school population and follow-up data collected 25 years later. Using structural equation models, Spohn and Kaplan's analysis shows that adolescent substance use significantly relates to poor physical health in adulthood even when controlling for psychological health, an important co-factor of adolescent substance use. However, the most important contribution of the paper is the use of a general construct of adolescent deviance in latent variable analysis within a structural equation model. The latent variable analysis shows that general deviance (of which drug use is a part), rather than drug use alone, appears to be related to poor health in adulthood. The authors view drug use as a component of adolescent risk-taking behaviors associated with accidents and other health consequence risks which in turn are then associated with increased health problems in middle adulthood. While the authors call for continued research examining the complex interrelationship between drug use and other deviant behaviors, their findings remind us that drug use is a part of a broader behavioral context that needs to be addressed in treatment and prevention. Their findings imply that the prevention of

drug use must include a focus on the multiple aspects of adolescent risk behavior—not just drug use.

The final paper in this section is by Duane C. McBride, Holly Van Buren, Yvonne M. Terry, and Burton J. Goldstein. It examines depression, one of the most commonly identified co-morbid variables associated with drug use. A wide variety of research has shown a high rate of depression among drug users; these authors also report a very high rate of depression in a street population of drug users in Miami/Dade County, Florida, compared to non-drug-using neighborhood controls. McBride and colleagues examine the impact of depression on health problems, service needs, actual utilization, and costs. They report that depression is significantly and independently related to increases in the number of health problems, use of the emergency room, number of hospital admissions, and health care costs. However, the data also suggest that depression significantly relates to unmet health care needs. The authors further report an interactive effect between drug use and depression that adds significantly to the cost of health care for drug users. These data suggest that if efficient utilization of scarce resources and equity of access are to be addressed in the provision of health services to drug users, it may be important to assess and treat depression.

Taken together, these three studies have important implications for future directions in drug use epidemiological and health consequences studies. The wide variety of disciplinary traditions that study drug-using behavior is somewhat staggering. However, often these disciplines attempt to argue for the ultimate validity of their perspective in “scientifically” explaining the phenomenon of drug use. The scientific understanding of drug using behavior would be significantly advanced if researchers used multidisciplinary models to understand the behavior and integrated their theoretically based findings with the development and implementation of prevention programs. The papers also imply that drug use, misuse, or abuse is not an isolated behavior but generally occurs within the framework of a wide variety of other behaviors associated with psychological and physical health consequences. Thus, it is important for future research to use more complex and integrated theoretically based independent and dependent variables that derive from the many disciplines that contribute to understanding drug use. These variables need to be combined in integrated models to help us understand the interaction of drug use with other high-risk behaviors.

PART II. CURRENT TREATMENT ISSUES

Over the past couple of decades there has been a voluminous and very impressive series of studies which document the general conclusion that treatment for drug abusers can be characterized as successful for significant percentages of this population. Among such studies are Simpson and colleagues (1990), Hubbard and colleagues (1989), NTIES (1997), and CALDATA (Gerstein et al. 1994). The

National Institute on Drug Abuse currently sponsors the DATOS project and the Center for Substance Abuse Treatment the PETS (Persistent Effects Treatment Study) which will continue to explore the overall effectiveness of treatment programs. Taken as a whole, prior studies demonstrate not only the overall effectiveness of these programs (except for short-term detoxification) but also that most major modalities are generally equally effective in reducing drug use and criminality and increasing employment and other pro-social activities. Clearly, all studies also demonstrate that the single best predictor of treatment effectiveness is length of time in treatment. Another major finding of these studies is that while the majority of clients benefit from treatment, there is also a rather large and significant minority of clients who continue to abuse drugs even after many years of exposure to a variety of treatment programs. Thus, it appears that the effectiveness of drug treatment has been well established and we need no longer devote large amounts of energy to documenting this point. What needs to be accomplished now is to shine a brighter light on what occurs in the “black box” of the treatment process. We need to know not only that a modality is effective but also what elements of that modality contribute to its success and for which types of clients. The exploration of this question begins with the issues of who enters treatment, why they enter, what is the nature of the client-therapist interaction, and why some clients remain in treatment while others drop out. Indeed, much of the answer to the above questions may lie in the concept of client motivation. “Motivation” helps us to understand why clients enter treatment, why they engage themselves in the ongoing treatment process and relate positively to treatment providers and why they elect either to remain in or terminate treatment. One of the leaders in exploring the role of client motivation in all these aspects is George DeLeon. In conjunction with his research team, he has operationalized the concept and studied its role in treatment, particularly in the therapeutic community setting. In the chapter in this book, DeLeon and his colleagues provide an excellent overview of the concept beginning with its theoretical importance, a review of how he and others have operationalized the concept, the varying levels of motivation among different user sub-populations, and the demographic, drug use, and psychological correlates of motivation. He demonstrates that indeed motivation is crucially important in understanding the treatment process. Higher motivation levels are related to entry into treatment, engagement with the treatment process, and retention. Obviously, the exploration of motivation for treatment is in its infancy. Much remains to be done to further elucidate the role of motivation in the treatment process, how motivation develops in individuals and also how higher levels of motivation can be fostered in clients.

One of the conclusions which DeLeon and colleagues drew in their chapter is that motivation levels relate not only to whether someone will seek out treatment but also the types of programs to which they will agree to be referred. The next chapter in this section by Scott, Muck, and Foss focuses specifically on the central importance of the referral process. Clearly, if a client can be appropriately, expe-

ditiously, and successfully referred into treatment, the very first step in the treatment process has been achieved. In the early 1980s the Center for Substance Abuse Treatment sponsored a large national research project called Target Cities which had as its goal assessment of the effectiveness of a specific centralized and integrated model of assessment, treatment referral, and case management. In cities throughout the nation Central Intake Units (CIUs) were established which provided the above-referenced services. Project evaluators explored the impact of the CIU model both on the treatment provider system and on individual client outcomes. The Scott, Muck, and Foss chapter presents some of the first outcome data from the Target Cities experience. The chapter opens with a review of the various models of centralized intake and then moves to an assessment of the impact of the Target Cities model in Chicago. These data show that the CIU increased access to treatment by almost halving the time between assessment and entry into treatment and by increasing the rate at which clients actually appeared for treatment. Overall, clients also reported greater satisfaction with their CIU referral process as contrasted with the previous assessments they experienced in treatment programs.

The final paper in this section titled "Health Services for Chronic Drug Users in an Era of Managed Care" by Clyde B. McCoy, Lisa R. Metsch, Dale D. Chitwood, James E. Rivers, H. Virginia McCoy, and Sarah E. Messiah also addresses referral and provision of treatment services; specifically it analyzes how existing health and human services are organized in Miami/Dade County, Florida, to identify, screen, and assess the service needs of drug users and provide appropriate referral. Barriers to service provision are also discussed and an initial attempt is made to develop and implement a model system to improve access to needed services for drug users. The authors report that most health and human service organizations in the community did not routinely screen for or assess substance use nor did most have a systematic means of managing or referring drug users. Further, analysis showed that drug users had significantly higher rates of perceived poor health, more health care problems and unmet health care needs than non-drug-using neighborhood controls. Service providers perceived primary barriers to health and other care for drug users to be their organizations' limited availability to provide child care and assessment, case management, and referral services. Based on the analysis of data from both service providers and drug users, an intervention was designed and implemented attempting to (1) improve provider competencies to screen, assess, manage, and/or refer drug users, (2) improve access to needed service and enhance the continuity of care through case management training, and (3) institute the use of technology to identify and manage needed care. This health services integration model provides important strategies to affect system change as well as enhance system utilization. While the authors report the study is still ongoing, preliminary data suggest that this model is well received by both providers and drug users.

The three chapters in this section have several underlying themes. First, they emphasize the fact that not all drug abusing clients are the same; they differ in

their levels of motivation, their gender, and other demographic characteristics and their need for various types of treatment. Second, the chapters underscore the importance of the role that these and other variables play in intake into and retention in treatment and the dynamics of the treatment process. Finally, the chapters emphasize that both successful placement into and treatment and retention of clients needs to be much better understood so that personnel employed in assessment efforts can more accurately place clients into appropriate levels of treatment and treatment staff can more successfully affect client outcomes.

PART III. DRUG USER BELIEF AND IDENTITY SYSTEMS

When viewed cross-culturally, the social meaning of drug use and attitudes toward drug users have differed by society and across time, situation, setting, and user group. In the United States prior to the 1900s, the use of opiates and other narcotics received little legislative attention and most users could do so without strong penalty. The decades that followed, however, were characterized by enactment of harsher laws to control the trafficking and use of drugs interspersed with intervals where legislation and treatment were more permissive. American society, for example, somewhat tolerated drug use by the white middle-class counter-culture of the 1960s while treating similar offenses among African Americans and other minorities more harshly a decade before. Given that judgments about drugs and drug users are open to competing values and possible reassessments, when and how does drug use become defined as a problem requiring action?

The paper by Longshore and Sanders-Phillips examines the role of conventional moral belief in defining problems arising from serious substance abuse. The recognition that drug use is a problem frequently is the first step in seeking care. Since today's drug users often are seen as deviant and deserving of punishment, the authors hypothesize that the degree to which a person endorses law abidance and social conformity should pose a potentially important factor in recognizing problem use. Based on data drawn from an evaluation of the Treatment Alternatives to Street Crime (TASC) programs in five cities, the authors examined problem recognition among three subgroups: African American, Hispanic American and non-Hispanic white drug users. They found that endorsement of conventional moral belief was indeed significantly and positively related to recognition of drug use as a problem among African Americans and Hispanics in the sample. This relationship, however, did not hold for non-Hispanic whites.

In speculating as to reasons for these ethnic differences, the authors turn to the centrality of moral belief among nonwhite users. They note that the motive to claim or reclaim a "moral standing" may carry greater weight among nonwhites because collective identity, kinship, and interdependence are highly valued in nonwhite cultures. For those for whom such values are salient, adherence to normative behavior is a built-in feature of their socialized identity. Also, nonwhite

cultures tend to develop perceptions of self that are collective in origin. Thus, their very sense of being depends to a large degree on congruence with others and with cultural norms. Finally, identification with one's ethnic group makes practical sense when the group itself must rely heavily on interdependence to survive racism and oppression. When viewed from this perspective, endorsing law abidance and social conformity makes far more sense to African Americans and Hispanics than their white counterparts. Historically, the latter have been reared to cherish self-reliance despite the reality that such independence is more myth than fact (Coonz 1992).

According to findings reported by Black and Hardesty, moral belief and conformity to cultural values also appear crucial in successfully motivating Puerto Rican women to end their drug use. As the authors note, the role-identity of women as wives and mothers runs deeply throughout Puerto Rican culture. Using life histories as a source of data, the authors find that Puerto Rican women's recovery from heroin and cocaine abuse involves a simultaneous process of withdrawing from drugs while attempting to rebuild maternal connections with their children. The desire to reclaim the social identity and moral position that have been damaged or lost through substance abuse becomes central to the recovery process.

The women that Black and Hardesty studied brought three sets of kinship activities into their treatment trajectory. First and foremost, they sought to repair their relationship with their children. This attempt could prove beneficial or detrimental to the child depending, in part, upon the mother's skill, readiness, and ability to make a successful transition into sobriety. A second set of activities revolved around maintaining interdependent relationships with their kin. As also was true during periods of drug dependency, family members provided needed emotional support and child care during the women's recovery. Thus, they were anxious to reaffirm such ties. Third, the women attempted to reproduce the cultural patterns of kinship common to Puerto Rican family life in their relationships with treatment staff. Counselors and other drug professions were viewed as fictive kin, a stance that permitted the women to rehearse the connections they sought to reestablish with family and friends.

Taken together, these three activities point to the need for treatment centers to recognize that successful recovery for Puerto Rican women partly is driven by their image of family relationships and their place within it. Puerto Rican culture expects such kinship ties to be characterized by warmth and affection, two emotions that stand in strong contrast to professional treatment ideals that stress objectivity and distance between provider and client (Glick and Moore 1990). It's little wonder then that the women attempted to bridge this gap by recasting staff as family members. For them, the treatment process and the reclaiming of their identity as wife and mother went hand in hand.

Among all users, chronic substance abuse can become both a source of personal identity and the basis for a moral career that is characterized by a point of entry, period and pattern of use, and eventual exit from the role due to recovery or death

(Stephens 1991). Drug treatment and other social services can be seen as a means to positively alter or end this career. Yet for some users, these resources become part of the career itself. Many users move in and out of treatment throughout their lives while regularly relying on public benefits to make ends meet.

Recent restructuring of the federal programs for Supplementary Security Income (SSI) and Social Security Disability Income (SSDI) involves a societal attempt to reduce dependency on public assistance by pushing recipients out of dependence on public moneys and into gainful employment. Chronic substance abusers are among the populations that are affected by these changes. The wisdom and consequences of this new legislation for former recipients have been strongly debated.

Goldstein and his colleagues examine the perceived consequences of this reform from the perspective of those receiving SSI and SSDI payments. Drawing upon focus group discussions, the authors asked group members: "What did SSI mean to you?" The authors found three modes of adaptation to the new changes based upon the recipients' more general view about life and their own perceived abilities to cope.

Hustlers, the first category of recipients, were found to be heavily involved in crime and making money through illegal and semi-legal acts. While hustlers reported appreciating the money they received through SSI, they did not appear terribly upset by the loss. Rather, they perceived that they could obtain what they needed for survival by escalating or drawing upon their activities and skills on the street. Lost souls, on the other hand, included the seriously physically or mentally impaired. Passive toward life and highly dependent on public entitlements, they keenly felt and feared the loss of benefits. Few had either the capabilities or resources to make it on their own. Meanwhile, a third group evoked a work ethic and set of employment capabilities that had lain dormant during the period in which they received benefits. The push of no longer having access to public assistance propelled them into becoming "good citizens" by joining the workforce. It is this latter category of adaptation, partly based upon an ability to do so, that the reforms were meant to evoke.

These findings underscore the need for both public policy and programs to recognize that recipients are not homogeneous. As Goldstein and his colleagues argue, the consequences of the new regulations are differentially experienced according to a recipient's capabilities and personal orientation toward adversity and life. Their data suggest that while some recipients undoubtedly will continue to cope well with the loss of public subsidies, others simply cannot.

When viewed as a whole, the papers in this section point to the influence of normative expectations on the construction of the "self" as a social object. All three papers offer examples of how conformity to cultural definitions and adherence to values concerning drug use determine the extent to which users view themselves as either behaviorally appropriate or socially deviant. Meanwhile, recovery from use through drug treatment or other means demands that recovering addicts

develop and adopt a new concept of self consistent with reduced usage or a drug-free state. Indeed, the capacity to attain and maintain a drug-free lifestyle partly depends on the ability to construct a satisfying new identity that is recognized, accepted, and supported by others.

The papers in this section also point to the role of culturally defined beliefs in determining and reinforcing public attitudes toward both drug use and those who use illicit drugs. Over the last few decades social policies and treatment options designed to limit and discourage substance abuse have converged into an uneven melding of criminal punishment with medical treatment. Incarceration and other legal punitive measures discourage people from buying, selling, or using controlled substances. Yet, the concept of "treatment" for those who do become seriously involved connotes illness and the need for medical intervention (Stephens 1991). In this regard, Parson's (1951) concept of the sick role has characterized much of American drug policy and its social consequences over the last two decades. Consistent with the first principle of the sick role acknowledging the debilitating effects of serious illness, use of opiates and other illicit drugs increasingly has undergone medicalization to become defined as a physiological condition over which the person has little or no control. As with other illnesses for which the person is deemed not responsible, under the sick role drug dependency carries some level of reduced expectations in carrying out normal social roles. Such freedom from full-role responsibility for drug addiction has translated until recently into public subsidies for those disabled by drug dependency to help meet their survival and other basic needs. With increased emphasis on societal cost containment, however, more recent policy legislation enjoins users to conform to the last two principals of the sick role mandating that the sick must try to get better while seeking appropriate help. New policies now emphasize limited and temporary assistance for users with the anticipation that they will enter treatment and eventually leave the sick role to rejoin mainstream society as fully contributing and self-sufficient members. Such expectations do not take to account the limited economic opportunities and other social disadvantages that may have propelled or reinforced drug use initially. Neither do they acknowledge the severe shortage of treatment programs and options available nationally for those who want to stop using drugs.

PART IV. PREVENTING DOUBLE JEOPARDY: CRITIQUE OF HIV PREVENTION AMONG ILLICIT DRUG USERS

Since the mid-1980s it has become abundantly clear that drug abusers place themselves at special risk for contracting HIV. They do so for at least two different reasons: first, many injectors share needles which may be contaminated with the virus and second, many engage in sexual behaviors, such as exchanging sex for

drugs, which place them at higher risk. The National Institute on Drug Abuse recognized this problem early on and funded a large HIV prevention effort (the National Aids Demonstration Research project/NADR) in 1987 targeted at intravenous drug users and their sexual partners. The efforts and results of this huge effort were documented in a book published in 1993 (Brown and Beschner). Because of the methodological limitations and additional research questions generated by this enterprise, the National Institute on Drug Abuse funded a second series of HIV prevention efforts known as the Cooperative Agreement for AIDS Community-Based Outreach/Intervention (COOP). The COOP targeted both injectors and crack cocaine users.

While the results of some site-specific research analyses have been published, limited effort to date has gone into analyzing the cross-site national database. The first chapter in this section authored by Stephens, Kwiatkowski, and Booth represents one analysis of this very important and fertile data set. The COOP project utilized a common research design across all of the participating cities. All research subjects were recruited from the streets; none could currently be in treatment. Subjects were then randomly assigned to one of two experimental conditions: (1) a common cross-site two-session standard intervention which provided basic and abbreviated information concerning avoidance of HIV risky behaviors or (2) a locally developed enhanced intervention which was far more extensive. AIDS-risky behaviors in the areas of needle-related behaviors, drug-use patterns, and sexual behaviors were measured at baseline and six months post-intervention.

Utilizing data from eight of the COOP cities, Stephens, Kwiatkowski, and Booth explored a number of critical research questions. They found that: there were large and statistically significant pre-post changes in all areas of risky behaviors for both groups; there were few differences between the standard and enhanced groups and the differences were not consistently in one direction; and, despite the fact that many users did meaningfully alter their behavior, many others remained at high levels of risk in all areas of behavior.

Unfortunately, little explanation exists for these findings of no differences between the standard and enhanced interventions and continued high levels of risky behaviors. These facts also call out for fresh thinking and the development of new HIV-prevention initiatives. The next chapter in this section, authored by Latkin, offers intriguing clues which might help explain the COOP findings and also sketches the outline for future drug abuser-oriented AIDS-prevention efforts. While many of the various interventions offered in the NADR and COOP agreements were individually oriented and often based in theoretical models such as the health belief model or stages of change, Latkin argues for more sociologically based approaches. He applies the literature on social influence processes, network analysis, behavioral and macrosocial settings to suggest new techniques for providing and sustaining relevant intervention strategies which are sited in social settings appropriate to the user population. Indeed, one might conjecture that the COOP findings of lack of differences between the two intervention groups and

maintenance of high-risk behaviors among many users may be because of a lack of this socially relevant intervention programming.

The third and final chapter in this section addresses an important point which has far-reaching methodological and practical implications. This chapter by Reynolds and colleagues evaluates the role of providing a monetary incentive in recruiting research subjects to the Alaska COOP study. After entering a number of what the authors considered the most relevant independent variables into a regression equation, only one variable, the incentive paid at intake was predictive of recruitment. Another interaction term composed of incentive and employment-related seasonality was also significant.

This finding has both methodological and practical implications. First, of course, is the issue of external validity. Technically speaking, the population to whom the findings of the Alaska team's COOP interventions apply is limited to those for whom an incentive was provided. The same conclusion could be drawn for all subjects in both the NADR and COOP data sets. What is the generalizability of study findings? Can one say that the intervention would be embraced by those for whom no incentive is provided?

Indeed, will equal proportions of those in the targeted populations even agree to be exposed to the intervention in the absence of an incentive? This latter question has far-reaching implications. Virtually all of the findings in this area, as well as in other areas discussed in this volume (for instance, treatment effectiveness) depend upon research conducted with subjects who were remunerated for their participation in the research project (and often this includes rewards for participation in the components of the intervention itself). When transferring this technology to the field, there must be great concern about the external validity of the findings. Simply put, will drug abusers agree to participate in such efforts in the same proportions and with the same levels of investment when they are not rewarded with incentives such as money, groceries, clothing, and other inducements?

The papers in this section also point to some very interesting observations which are often overlooked in this field. First, the changes in drug use patterns and needle-risky behaviors documented both by NADR and the COOP are often more dramatic than those found in the drug treatment evaluation literature. In other words, the magnitude of change in these behaviors following very abbreviated educational sessions (even in the enhanced interventions) are often of the same or greater magnitude as are observed after months of treatment for drug abuse. The dynamic of how this rather noteworthy change occurs is a research question of the highest order. Similarly, the NADR and COOP projects are huge repositories of data, not only about needle and drug-related behaviors but about sexual behaviors, as well. Because of their size and complexity, these also offer opportunities for analysis of subsets of populations based on gender, ethnicity, age, geographical location, and a whole host of demographic and other factors. Ironically, we may

know more about the sexual behaviors of these “deviant” populations than we know about the behavior of mainstream Americans.

Finally, while the chapters in this section focused on HIV, we must recognize that equally debilitating and dangerous diseases such as antibiotic resistant tuberculosis and the various strains of hepatitis pose grave threats to both these users and the general population. We must explore further whether those educational strategies which appear successful with AIDS can be transferred to imparting knowledge about these newer threats. Or do new strategies have to be implemented to cope with them?

PART V. DEFINING DRUG USE AS A SOCIAL PROBLEM

Part V in this volume examines how our communities and society have responded to alcohol and drug use and abuse. For sociologists, C. Wright Mills (1959) provided a powerful perspective defining the difference between personal problems and social problems. For Mills, personal problems and issues were focused on issues with self and had limited effect beyond a small interactional world. On the other hand social problems (or social issues) affected large numbers of people and emerged within the context of the history of society and societal institutional arrangements. Sociologists have often examined how society organizes in its response to social problems from local community voluntary organizations to large institutions created to specifically monitor the occurrence of the “problem” and attempt to ameliorate or “cure” its occurrence (Scarpitti et al. 1997).

Mills reminds us that social problems emerge within a historical context of behavior and particularly in a complex society are strongly affected by the institutions of society. Alcohol is one of the oldest substances used by human beings and is well integrated into a wide variety of human behaviors and cultural practices in almost all human cultures. Many human beings and cultures could hardly consider celebrating, relaxing, relating, romancing, or even having a spiritual experience without some form of alcohol beverage. Many of the other substances discussed in this volume are based on local plants that have been used for centuries by indigenous people. However, over the last few centuries the global trading village, agricultural science, and chemistry have produced much more powerful psychoactive chemicals than these traditional plants. Societal response also occurs within the context of historical experience. The use of alcohol and other drugs has often resulted in strong negative sanctions by religious, moral, and political leaders (McBride et al. 1996).

The two articles in this section, “Community Organization and Drug Prevention Readiness” by Mark Peyrot and H. Lovell Smith and “The Transformation of Private Alcohol Problem Treatment: Results of a National Study” by Paul M. Roman, J. Aaron Johnson, and Terry C. Blum examine the factors involved in

local community organization in response to drug use and the development of the private alcohol treatment industry in this century.

Peyrot and Smith examine the determinates of neighborhood readiness to engage in collective actions for substance abuse prevention. Their review of the literature suggests that such neighborhood characteristics as socioeconomic status, presence of children, ethnic composition, neighborhood interaction, and neighborhood organizations are all related to the willingness to organize for drug-use prevention. Generally they found that severity of drug problem, lower socioeconomic status, more single-parent households, and more neighborhood events were positively related to readiness to address local drug problems. While multivariate analysis yielded complex results, the data continued to show the importance of neighborhood context in understanding community organizations developed to respond to the local severity of drug use with all of its neighborhood consequences.

The second paper, by Roman and his colleagues provides a strong sociological analysis of the history of community to national response to alcohol use with a particular emphasis on current responses in the era of managed care. The authors provide an excellent overview of the phenomenon of alcohol use with a concise history of the emergence of private alcoholism treatment, the factors involved with the rapid growth of the treatment industry, and the institutional crisis caused in the private alcohol treatment industry by managed care. In examining how the private treatment industry emerged and prospered within the context of public support, the authors examine cultural traditions, treatment philosophy, and institutional arrangements that made the industry resistant to change. Finally they examine how some treatment centers are reorganizing and surviving this era of rapid change. Their analysis suggests that diversification and small market niching are related to survival. Their analysis reminds us the community responses to social problems often produces large institutions that become part of the larger (in this health care) systems and are then caught up in wider social changes that effect those larger systems.

Both of these papers also suggest the continuing need to understand and utilize sociological perspectives in understanding a neighborhood's or community's readiness to change and the macro sociological and economic factors that are involved in how society organizes to address substance use problems. There is an extensive literature on individual readiness for change as an important part of substance use treatment success. It is also important to examine stages of readiness to address substance use problems in the community. It is important for future research to examine neighborhood stages of readiness to change neighborhood patterns and problems of use and how they interact with individual readiness to change. Future research should also examine the socioeconomic issues that surround society's willingness to invest resources to address social problems and the interaction between public and private structures.

The chapters presented in this section indicate that macro social factors that changed reimbursement structure for the treatment of alcohol (and implicitly) other drugs play a major part in rapid changes in treatment organizational structure and the interaction between public and private treatment systems. Further understanding of these types of developments may be an important part in understanding and managing major organizational changes in the delivery of substance use treatment.

PART VI. IMPLEMENTING SOCIOLOGICAL RESEARCH FINDINGS IN COMMUNITY PRACTICE

In a prior section we discussed the very important ramifications of external validity, namely the extent to which our findings can be inferred from the research to the applied setting. While these methodological concerns remain, the final chapter in our book addresses the equally important and “real world” issue of providing “real world” practitioners with the knowledge developed in the “laboratory.” Barry S. Brown provides deep insight into the complexities of this thorny issue by: denoting the barriers to research knowledge being transferred to practitioner; reviewing studies of technology transfer and issues in conducting such studies; discussing models of technology transfer; and issuing a call for action. He argues that journals, the medium through which researchers communicate their findings to one another, are an inappropriate vehicle for technology transfer. This is because the journals are more methodologically oriented, are expensive and therefore inaccessible, and are often targeted to those with extensive methodology as counterposed to clinical training. Since much “in the trenches” treatment and prevention efforts are provided by paraprofessionals and others with more limited academic training, journals are simply too arcane. He also argues that there is little incentive for researchers to develop effective technology transfer mechanisms.

Brown discusses a number of other impediments to technology transfer including timeliness with which findings are provided, their relevance, their clarity, and other issues. He reviews the two predominant models of technology transfer: use of consultants and workshops. Finally, Brown calls for the conduct of studies which address technology transfer. He argues that we must know much more about how to effectively and efficiently impart our knowledge to the world of the practitioner. He concludes by suggesting the outlines of such research and how it can be conducted.

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EPIDEMIOLOGY AND PREVENTION RESEARCH AMONG U.S. CHILDREN AND ADOLESCENTS

Zili Sloboda

ABSTRACT

The drug abuse prevention research and practice community has recognized only in the past two decades the important relationship between findings from epidemiologic studies and the development of effective preventive interventions. Epidemiologic studies show what drugs are being used, in what ways, and by whom. They show the age at which most drug users initiate the use of illicit drugs and what characteristics and factors are most likely to be associated with increased risk to initiate drug use. This information and advances in understanding behavior change have had significant impact on the design of effective interventions to prevent drug abuse. This chapter discusses the relationship between epidemiologic and prevention intervention research in five sections: (1) a brief history of drug abuse epidemiologic and prevention intervention research; (2) an overview of the epidemiology of drug abuse with an emphasis on the initiation of drug use among children and adolescents; (3) a discussion of the implications of epidemiologic findings for the design of prevention interventions; (4) a review of recent positive findings from prevention intervention

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research; and (5) a summary of gaps in our knowledge base requiring additional research.

DRUG USE AND RESEARCH IN THE UNITED STATES

The changing face of drug abuse in the United States and around the world over this past century presages what will confront the fields of drug abuse prevention and treatment as we enter a new millennium. For the first time ever, we are prepared to address the challenge. Unlike those that preceded us, we can depend on science-based knowledge rather than ideology to design effective interventions (Sloboda 1999). Although most of this science is derived from richly supported research in the United States, a growing research infrastructure and a number of interactive networks now incorporate research from other countries. This research and these interconnected networks enable the work of those committed to protecting future generations from the devastating psychological, social, and physical consequences that come from abuse and dependence on drugs, particularly illicit substances.

History of Drug Abuse Epidemiology and Prevention Research in the United States

Although studies were conducted to estimate the size of the drug abuse problem in the early years of this century (Musto 1991) a formal structure to support such research was not established until the late 1920s by the National Research Council, the Committee on Drug Addiction (Austin 1979; Institute of Medicine 1996). The Committee founded the now famous “narcotic farms” in Lexington, Kentucky and Fort Worth, Texas. Most of the research conducted at these sites aimed to understand the mechanisms of addiction to guide the development of treatment approaches rather than the epidemiology and etiology of drug abuse needed to inform the development of prevention interventions. By the 1960s, growing concern about increased use of marijuana and heroin prompted several epidemiologic studies such as the New York Narcotics Register (Amsel et al. 1969) and those studies of Chein (1964) and Cloward and Ohlin (1960) that examined high risk groups in order to learn about factors leading to the onset of heroin abuse. While research methods and findings began to accumulate over the decade, it was not sufficient to guide prevention programmers in the design of interventions. They, therefore, depended mostly on intuition and anecdotes with few positive effects.

The Emergence of the National Institute on Drug Abuse: The Focal Point for Drug Abuse Research in the United States

With the enactment of the Comprehensive Drug Abuse and Control Act of 1970, the National Commission on Marijuana and Drug Abuse (1971–1973) was created. The purpose of the Commission was to report on drug abuse issues and to conduct studies on the nature and extent of drug abuse. Two reports were published: *Marihuana: A Signal of Misunderstanding* (1972) and *Drug Use in America: Problem in Perspective* (1973). The second report pointed out the need for research and recommended government-sponsored research and the continuation of national surveys initiated by the Commission. These reports and the Drug Abuse Office and Treatment Act of 1972 were instrumental in creating the National Institute on Drug Abuse (NIDA) in 1974 from the Division of Narcotic Addiction and Drug Abuse within the National Institute of Mental Health. The creation of the Institute gave recognition to the importance of drug abuse as a public priority. In 1992, NIDA became part of the National Institutes of Health placing drug abuse and dependence along with the nation's other health problems. NIDA supports about 85 percent of all drug abuse-related research in the world. Its research program includes estimating the extent and nature of drug abuse in the general population and specific subgroups such as the homeless, determining the addictive and toxic properties of drugs, and developing effective interventions to prevent and to treat drug abuse.

Several major studies were conducted to estimate heroin use in the United States around the time that NIDA was established. These studies included the Narcotics Register in New York City mentioned above, studies of heroin copping in Chicago (Hughes et al. 1971) and of heroin use in other cities (Hunt 1974). The National Household Survey on Drug Abuse (NHS) and the Monitoring the Future Study (MTF) (which surveys drug use among seniors in high school) also were established. In addition, surveillance systems were developed to monitor the consequences of drug abuse and to detect emergent drug abuse patterns (Sloboda and Kozel 1999). These systems included such databases as the Drug Abuse Warning Network (DAWN; which reported on drug use occurring among admissions to sentinel hospital emergency rooms), the Client Oriented Data Acquisition Program (which reported on drug abuse treatment admissions and discharges), and what is now called the Community Epidemiology Work Group (CEWG; a group of researchers who report semiannually on drug use patterns using existing treatment, arrest, medical, and other data sets in 20 cities across the country). The establishment of the NHS and MTF surveys in addition to DAWN and CEWG has provided the best information on drug abuse trends and emergent new problems for more than two decades. These also have informed and have been used to evaluate national drug control strategies since the Office of National Drug Control Policy was established under Section 1005 of the Anti-Drug Abuse Act of 1988 (21 U.S.C.).

By the mid-1970s, NIDA was supporting longitudinal studies of adolescents to identify those factors and processes leading to drug abusing behaviors. It was this research that spurred the development of the current prevention research program based on the study of theoretically guided intervention models.

THE EPIDEMIOLOGY OF DRUG ABUSE—1998

The epidemiologic picture of drug abuse in the United States has changed considerably over the past thirty years. Marijuana, along with heroin, have always been the dominant illicit drugs abused. With the availability of synthetic drugs such as LSD and MDMA, the characteristics of drug abuse changed in the 1970s. By the mid-1980s, drug producers were able to process the expensive drug, cocaine, into a cheaper form, crack-cocaine. After marijuana, crack-cocaine became the dominant drug of abuse. With evidence of increased risk of infection for HIV among crack-cocaine users and with the increased availability of high quality heroin, another shift in drug using practices has occurred through the 1990s to the intranasal use of heroin.

It is important to note here that these patterns of use are not limited to adults but include adolescents. For this reason, prevention interventions must take note of new patterns of drug abuse that include the type of drug used and the way the drug is used. Furthermore, although there is a certain degree of universality regarding drugs of abuse, patterns do vary by geographic area.

As indicated above, two types of systems assess the nature and extent of drug using behaviors in the United States: (1) the consequence databases such as DAWN, Arrestee Drug Abuse Monitoring (ADAM), and Treatment Episode Data System (TEDS) or CEWG which is more comprehensive; and (2) general population surveys such as the National Household Survey on Drug Abuse (NHS) and the Monitoring the Future Study (MTF). These latter three data systems (CEWG, NHS, and MTF) have informed the nation's leaders on drug abuse for over twenty years. The following summarizes the current status of drug abuse in the United States with a special focus on children and adolescents, the target populations for most drug abuse prevention programs in the country.

Consequence Data: Surveillance—Emergent Drug Problems

The CEWG has over the past twenty years detected emergent new drug trends which, most often, were observed one to two years later on the national surveys, particularly MTF. New use patterns such as methaqualone, crack-cocaine, "ice," blunts (marijuana in cigars which preceded the resurgence of marijuana use in 1992 among teens), intranasal use of heroin, Rohypnol (the "date-rape" drug) and most recently the use of methamphetamines, were observed initially among the CEWG members. Many of these new patterns either remained regionally based

such as “ice,” which is primarily used in Hawaii and the West coast, or expanded across all regions such as Rohypnol. These surveillance systems recognize that most emergent drug abuse patterns occur within those groups which are already involved with drugs. As these patterns become more entrenched in such user groups, they spread to the more drug-naïve groups, although how is somewhat open to question. Reconstruction of the spread of crack-cocaine has been attempted by many in the field (Sloboda 1997) and most recently by the Government Accounting Office (1998). However, we only have been successful in characterizing the geographic and demographic changes over time without fully understanding the why and how of these changes. Clearly, trafficking and marketing are key to the spread of these new trends but information on these aspects is difficult to obtain. Trafficking information from the Drug Enforcement Administration (DEA) has been useful in understanding recent increases in methamphetamine use in areas and among population groups known for abuse of the drug and also for new areas and new population groups. For instance, until recently the Midwest has had little history of problems with methamphetamine abuse. Previously, most methamphetamines were prepared by local laboratories on a small scale. This pattern changed with the establishment of mobile laboratories (National Institute on Drug Abuse 1998). Also, trafficking patterns changed as Mexican marijuana groups began selling prepared methamphetamines in addition to marijuana.

A number of troubling new drug trends have been observed by the CEWG. These include escalation of the intranasal use of heroin first noted in the early 1990s. The lower priced, increased purity of heroin coming from Asia, the Middle East, Mexico and now from Colombia permits users to achieve desired psychoactive effects without injecting. The introduction of this purer form of heroin into former drug abusing groups which began early in this decade appears to have spread to nonusing youth in the mid-1990s and has been observed in the MTF among eighth graders (see below). In addition, the CEWG notes that more adolescents are entering treatment and seeking care in the emergency room for severe problems associated with marijuana. It is not clear whether marijuana creates the problem that prompts the need for service or if exogenous factors are involved. Several ethnographic studies are ongoing to explore these relationships.

Other trends to watch include the use of drugs around party or club “scenes.” Three substances are becoming more frequently noted through the CEWG (National Institute on Drug Abuse 1998): GHB (gamma-hydroxybutyrate)—a dietary supplement, ecstasy (methylenedioxymethamphetamine)—a hallucinogen, and ketamine—an anesthetic used by veterinarians. Finally, although multiple drugs or polydrug use has been a problem since the 1970s (Weston et al. 1978), more substances are available for abuse today than ever before. Concern about the interactions of various drugs and the combination of drugs with alcohol continues to plague the field of public health.

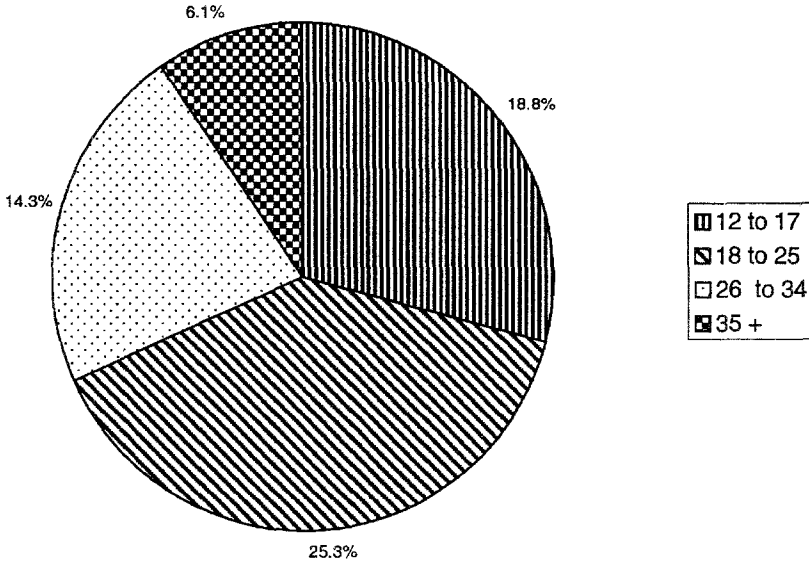
Many of the types of drug use patterns mentioned above tend to be “rare” in the general population. They appear among only small numbers of people or may be confined to a local geographic area. The surveys administered to national probability samples based on demographic characteristics may not measure these special drug using behaviors or may not have sufficient power to calculate precise estimates. The surveillance systems are designed to overcome these shortcomings. Detection of these trends in the general population signal a major public health problem. Such is the case with marijuana, heroin, and in some areas of the country methamphetamines among school children (Edwards 1998).

Monitoring Data Systems—Surveys of General Populations

Since their inception, surveys have provided estimates of both increases and decreases in drug use. Both the MTF and NHS report use of several categories of drugs for four prevalence periods: used at least once in lifetime, annual/past year use, current/past month use, and for specific drugs, daily use. Each of these prevalence periods tells something different about drug use practices. Lifetime use reflects secular trends and cohort differences. Annual and “current” rates are useful for planning prevention and treatment interventions as they indicate the level of today’s drug abuse problem. Daily use is usually associated with a number of problems including the use of multiple substances and social and health disorders.

The 1997 National Household Survey of Drug Abuse (NHS) reports that more than one-third (77 million people) of the noninstitutionalized civilian population aged 12 and older had used an *illicit drug* at least once in their lifetimes. Over 90 percent of this use was for marijuana. Eleven percent or 24 million had used an illicit drug in the year prior to the survey, and 14 million had used a drug in the prior month, again most (about three-fourths) had used marijuana (Office of Applied Studies 1998b). Most of these people used only marijuana (60 percent) while 20 percent had used marijuana and another drug and about 20 percent had used an illicit drug other than marijuana (Office of Applied Studies 1998a). Analyses of the NHS indicate important differential rates of drug use by age groups. Since the survey was initiated, drug use rates over time consistently have been highest for those 18 to 25 years of age than for any other age group, followed by those 26 to 34 years of age (Office of Applied Studies 1998b; see Figure 1).

Examination of trends of drug use over time for all age groups shows that overall rates of drug use have decreased until 1992 and 1993 when increases were noted for those aged 12 to 17 and those 18 to 25. These age groups are of special interest to those in the field as they represent segments of the life course in which initiation to drug abuse tends to take place (Office of Applied Studies 1997c). Most prevention programming today focuses on those aged 12 to 17. For this reason most of the ensuing discussion focuses on this age group. One of the first principles of drug abuse prevention is knowing what drugs young people use, their availability, their psychoactive effects, and their harmful side effects.



Source: Office of Applied Studies (1998b).

Figure 1. Age Distribution of Persons Aged 12 and Older by Illicit Drug Use in the Past Year: 1997 National Household Survey on Drug Abuse

For two reasons, the bellwether for monitoring drug use trends has been the use of *marijuana*. First, marijuana is one of the first illicit drugs individuals try and there is evidence that most persons who try other illicit drugs, used marijuana first. Second, marijuana usually accounts for most of the illicit drug use in the United States and generally is one of the drugs used by multiple drug users. Since the initiation of MTF and NHS, the peak year for marijuana use was in 1979. In that year the MTF reported that 50.8 percent of high school seniors and in the NHS, 16.6 percent of those 12 and older had used marijuana at least once in the prior year. Since that time declines in marijuana use were steady until 1992 when the annual rate of use reached a low of 21.9 percent for high school seniors and 7.9 percent for those 12 and older (National Institute on Drug Abuse 1997; Office of Applied Studies 1997c).

In 1991, samples of eighth and tenth graders were added to the MTF study. An increased rate of marijuana use among eighth graders was first noted in 1992; an observation that foresaw the upward trend across all grades for the next several years. This increase, however, was not of statistical significance among those aged 12 and older as observed in the NHS until 1997 (Office of Applied Studies 1998a). Among those 12 to 17, however, overall trends are similar. From a high

of 14.2 percent in 1979, the monthly rate of use of marijuana decreased to 3.4 percent in 1992 and then increased to a high of 9.4 percent by 1997 (Office of Applied Studies 1998a). Differences in the estimates for teens from these two surveys perhaps are due to differences in data collection. The MTF is self-administered in the classroom whereas with the NHS, which is also self-administered in the home, parents are often present.

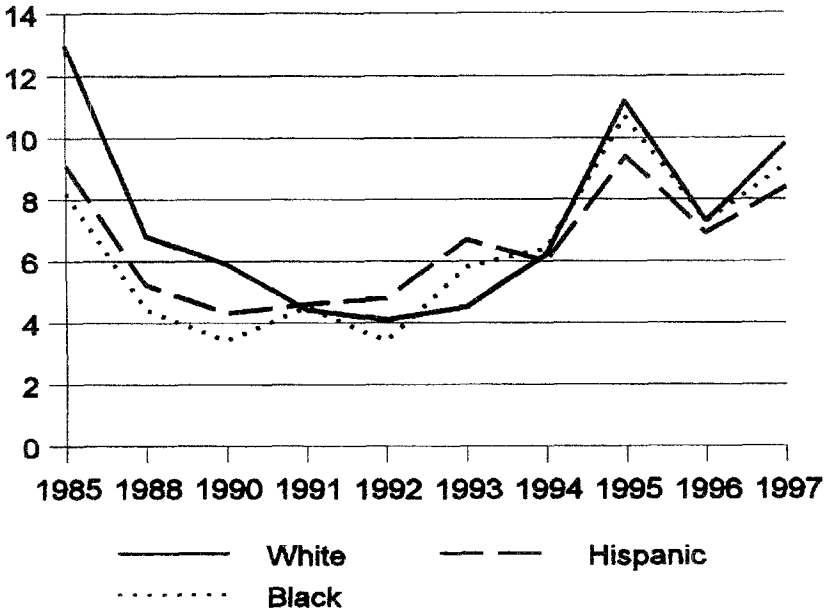
Other drugs that warrant consideration here are cocaine, heroin, inhalants, hallucinogens, and stimulants. *Cocaine* remains one of the major drug problems in the United States. Increases in the use of cocaine first were observed in 1978 among MTF twelfth graders, a trend that peaked in 1985 when the lifetime rate was 17.3 percent. For the NHS, the peak year for lifetime cocaine use was 1982 (11.7 percent). Questions regarding the use of *crack-cocaine* were added to the MTF survey form in 1987. That year, lifetime use among seniors crested at 14 percent. The NHS distinguished crack from the use of powder cocaine in 1988 (Office of Applied Studies 1997c).

Lifetime rates of cocaine use among eighth and tenth graders have increased significantly since 1991 from 2.3 percent and 4.1 percent to 4.4 percent and 7.1 percent in 1997, respectively. Lifetime use of crack also has increased in this time period for all grades (National Institute on Drug Abuse 1997). These rates remain below the 1987 levels. The lifetime rates of use of other drugs such as *hallucinogens* and *heroin* also have increased across all grades since 1991. Meanwhile, increased lifetime use of inhalants was noted only for eighth and tenth graders.

Changing trends in drug use are also reflected in *gender and ethnicity*. In general, as with other deviant and antisocial behaviors, males tend to have higher rates of illicit drug use than females and also different patterns of use. These differences, however, are declining. For instance, whereas the rates of past month use of illicit drugs were 19.2 percent and 9.4 percent in 1979 for males and female respondents to NHS, respectively, by 1988 these rates narrowed to 9.4 percent and 6 percent and in 1997 to 8.5 percent and 4.5 percent (Office of Applied Studies 1997b, 1998a).

More detailed analyses of the drug use patterns of the twelfth graders who used illicit drugs from the 1995 MTF study indicate that boys reported different patterns than girls (National Institute on Drug Abuse 1997). For instance, more boys report use of marijuana than girls (38% of boys used in the prior year compared to 31% of girls). Meanwhile, annual rates of use of heroin, other opiates, cocaine, crack-cocaine, inhalants, and LSD for boys are one to two- and-one-half times higher than they are for girls. Also, in many cases, as with marijuana, boys tend to use drugs more frequently than girls. Nonetheless, twelfth grade boys and girls have equivalent annual rates of use for stimulants.

Whites tend to have higher initiation rates of drug use (ages 12–17) than either Hispanics or African-Americans (Office of Applied Studies 1997b). In addition, historically, these racial/ethnic groups have differed by patterns of



Source: National Household Survey on Drug Abuse: Main Findings (1985, 1988, 1990-1997).

Figure 2. Percentage of Past Month Marijuana Use Among Youth Aged 12 to 17 by Ethnicity: 1985-1997

use. For instance, African-Americans report higher rates of cocaine use than whites and Hispanics. As can be seen in Figure 2, the gaps among the ethnic groups began to disappear for marijuana in 1993 (Office of Applied Studies 1997a).

Factors Influencing Drug Trends

Many hypotheses have been posed to explain the decreasing use of drugs during the 1980s and now, to explain the increases seen in the 1990s. Few have been tested. Perhaps the most promising of these focuses on the relationship between prevalence of use and perceptions of the harmful effects of drugs and of the social disapproval of drug use. The MTF study and the NHS have found an inverse relationship between these perceptions and the reported use of drugs. This relationship, however, is strongest for marijuana and cocaine but does not necessarily hold for the other illicit drugs. Changes in perceptions usually precede increases or decreases in reported use by one year (Bachman et al. 1988, 1990). Children and adolescents are also responsive to background attitudes, particularly those of

their parents and other influential adults. Responses by subjects aged 35 and older from the NHS, the age of parents of preadolescents and adolescents, on the question about the level of risk associated with marijuana use changed significantly between 1988, when these responses were first reported and when drug use among children was on the decline, and 1994, the most recently available information when increasing drug use was noted. In 1988, 67.2 percent of those 35 and older reported that they thought that persons who used marijuana on one or more occasions placed themselves at "great risk" for harm physically and "in other ways" compared to 46 percent in 1990 and 43.4 percent in 1994. When asked the same question about "occasional" use and "regular" use, the percentages for the three years showed also that attitudes were eroding over the time period (Office of Applied Studies 1996).

Progression and Discontinuation of Drug Use

A key question for policy makers and program planners is: What proportion of those who initiate and continue to use drugs become dependent on them? As noted above, not everyone who initiates drug use progresses to abuse and dependence, a fact that raises questions as to how much of drug dependency is based on biological properties. Only within the past decade have neuroscientists in the drug abuse field had the tools to explore the neurobiological and neurochemical nature of addiction. With the development of new brain imaging technologies such as MRI, PET, and SPECT scans, they now can actually view the living brain in humans to learn about the basic brain mechanisms involved in drug abuse and addiction and to map the specific areas in the brain where these effects occur. Changes in the brain during and after the use of drugs have been detected that affect emotions, cognition, and movement (Volkow et al. 1991; Childress et al. 1995; Altman 1996). Social scientists, psychiatrists, and epidemiologists independently have developed behavioral criteria to diagnose drug abusers and those dependent on drugs. This classification system has been codified in the Diagnostic and Statistical Manual of Mental Disorder and in 1994 the fourth edition was published (American Psychiatric Association 1994). Questions paralleling the criteria for abuse and dependence were added to the NHS in 1995 (Office of Applied Studies 1997a). Several investigators have analyzed these data to determine the proportion of dependent persons by drug category (for an example see Kandel et al. 1997).

The report from the 1996 NHS presented the most recent information on responses to dependency questions for marijuana. Forty percent of those reported to have used marijuana in the prior year had at least one of seven dependency problems; 24.8 percent reported two or more problems and 16.6 percent, three or more problems. Rates of "dependence" problems are higher for younger than older users: 56.9 percent of those aged 12–17 and 45.1 percent of those 18–25 report having at least one problem compared to 36.6 percent of those 26–34 and

27.1 percent of those 35 and older. This reversed trend by age group was similar for those with two or more problems and for those with three or more problems (Office of Applied Studies 1998a). The survey also revealed that all age groups reported having had a period of a month or more during the past year when the respondent spent a great deal of time getting the drug, using the drug, or getting over its effects. The 1996 NHS also asked similar questions about cocaine, alcohol, and tobacco. Although rates of use were lower for cocaine, a comparable percentage of users within the prior year reported at least one problem (35.8%).

Information on the discontinuation of drug use is quite limited. Perhaps the best data on this issue comes from the MTF. The researchers who conduct this annual survey follow a sample of each senior high school class over time. They have shown that a high percentage of users of selected drugs tend to discontinue their use. For instance, looking at discontinuation rates of use of alcohol, marijuana, LSD, heroin, cocaine and inhalants for the senior class of 1995, they found that the highest rates for discontinuation are for inhalants while a significant proportion of users continue to use the other drugs. They also found that the substances most likely to be continually used are tobacco (in cigarettes), followed by alcohol, marijuana, and cocaine (National Institute on Drug Abuse 1996).

Origins and Pathways to Drug Use, Abuse, and Dependence

What explanations exist as to why children initiate and abuse drugs? Since the mid-1970s, the National Institute on Drug Abuse has supported longitudinal studies that followed children through their teenage years into adulthood. From these studies, researchers have been able to identify not only those factors that put children at risk of drug abuse but also for those children most at risk for using drugs, those factors that protect them from being involved in drug use.

Those of us in the drug abuse field continue to be confused by the large numbers of factors that have been determined to put a child at risk for drug use (Hawkins et al. 1992; Brook et al. 1988; Newcomb and Felix-Ortiz 1992; Pandina 1998). These include genetic and biological factors, individual personality and emotional characteristics, parenting and family dynamics, experiences within the school setting, relationships with others particularly peers, and environmental conditions. An integrative approach to understanding these findings appears promising (Pandina 1998; Petraitis and Flay 1995), perhaps by using a human developmental framework and through identifying the degree and type of influence that the family, school, peers, and community have on a growing child. A child's inherent potential is the outcome of a cumulative interactional process with various sources of influence having differential importance across his/her lifetime.

A review of the risk factors that significantly influence vulnerability to drug use indicate that some aspects of the social and psychological developmental process are more important than others. For example, primary care givers serve an essential role in providing nurturing, stimulation and modeling to enable infants to

communicate with the world around them. Failure to form a warm relationship during early development has been linked to poor language skills and cognitive ability as well as to inappropriate self-regulatory behavior in early childhood and drug abuse. Failure in one phase of the process may increase one's risk to fail in another and that failure in each phase has an incremental effect on one's life opportunities.

Recent research focusing on protective factors reinforces these concepts (Brook et al. 1990). The basis for this shift in research from studying risk factors to those that protect a child from drug abuse grows out of the findings that among certain groups of children determined to be susceptible to drug use, there are those who do not succumb. Researchers are studying these children to learn what has protected them from drug abuse. As the research on protective factors is emergent, however, what these factors or processes are and how much weight they need to carry to overcome risk is unclear. For instance, would having a strong teacher role model counter failure to bond within the early family?

Other research examines the processes that are closer or more proximate to becoming a drug user such as the availability of drugs, knowledge on how to obtain drugs, and having more positive attitudes about drugs. For example, research has found that children tend to avoid initiation into drugs when they understand the negative physical, psychological, and social effects of their use and when they perceive social disapproval of drug use by their friends and families.

The richness of the findings of this research has not been fully mined and we continue to learn from it. Even with existing limitations it has been the information regarding risk factors that has greatly influenced the development of effective prevention interventions that are discussed below more fully. Drug abuse is not the direct target for these interventions. Rather, the factors manipulated or addressed by intervention components are those that either place individuals at risk for or protect them from initiating drug use.

The Sequencing of Substance Use

In addition, prospective studies of youngsters over time have consistently identified a sequencing that takes place from tobacco and alcohol use to marijuana use and then on to other drugs (Kandel et al. 1992). What drives this sequencing or why it does not occur in every case is unclear. Nonetheless, the risk of using marijuana is higher among those who have smoked or drunk than among those who have not (65 times higher) while the risk of moving on to cocaine is much higher for those who have used marijuana than for those who have not (104 times higher; National Institute on Drug Abuse 1996). Prevention intervention researchers recognize this sequencing pattern as important. As a result, both tobacco and alcohol also are included as target substances in intervention components.

IMPLICATIONS OF THE EPIDEMIOLOGY OF DRUG USE AMONG YOUTH FOR EFFECTIVE PREVENTION INTERVENTIONS

Defining the Target Population and the Intervention

As discussed above, epidemiologic research findings inform those planning prevention interventions about whom and how to target their efforts and also what the thrust of the intervention should be. Clearly, if the age of onset is between 13 and 16, it follows that interventions should target children early. Interventions need to address both skills to refuse and avoid drugs and also to reinforce antidrug attitudes and perceptions. Scientifically sound information regarding the effects of drugs on the brain and behavior and the harmful consequences of drug abuse need to be emphasized. Furthermore, interventions should target the licit drugs, tobacco and alcohol, as well as the illicit drugs. Finally, interventions need to enhance protective factors and reduce risk factors.

Drug Abuse Prevention Science: An Evolving Field

Drug abuse prevention research in the United States has evolved through a slow and painful process into becoming prevention science. To move from a practice to a science required the development of evaluation methodologies using both experimental and nonexperimental designs and measurement instrumentation. It also required a knowledge base that consisted of descriptive and analytic epidemiologic information from well-defined populations, the results of etiologic analyses from children followed prospectively that showed associations between psychological and social dysfunction to drug abuse, and the protective influence of parental and family interactions and academic achievement (Coie et al. 1993; Heller 1996; Bachman et al. 1997). Furthermore, development of sound behavior change theory and a clear understanding of the mechanisms of psychoactive effects of drugs and their impact on the body enabled prevention researchers to develop theories and effective strategies to impact drug abuse.

The challenge to prevention researchers has been to demonstrate that their intervention approaches reduce or eliminate drug using behaviors. This challenge has led to the implementation of scientifically grounded studies using both traditional and innovative methodologies. Use of randomized controlled trials or well-controlled quasi-experimental designs are crucial to this research. Also, scientific methods are used to assess the reliability and validity of self-report measures; to more accurately evaluate the quality and fidelity of program implementation; to assess program effects on mediating and outcome variables; and to organize findings across a number of studies. As a result, several different intervention models have been found to be effective during the most "at risk" period—late adoles-

cence. Probably one of the most important contributions to the development of effective drug abuse prevention interventions has been the development of theory. Prior to the 1970s very little theory or epidemiological findings were available to inform designers of prevention programs.

Initial progress in this area derived from the work by Evans and his colleagues (Evans 1976; Evans et al. 1978). Their approach was based on McGuire's (1964) work in persuasive communication and referred to by him as "psychological inoculation." Evans and his group designed their intervention with components to counter pro-cigarette use messages and pressures by teaching children skills to identify the sources of pressures to smoke and to resist them. Another important component of the program was to convince children that smoking was not a normative behavior. With positive findings, this was the beginning of a new era. Over the next two decades, variations on the social influence model were widely tested. The combination of social norm development, with the correction of misperceptions of the normative nature of drug use, and training in drug resistance skills as well as coping and decision-making skills were found effective in preventing drug using behaviors (Hansen and Graham 1991; Botvin et al. 1995; Pentz et al. 1989).

New Classification System for Interventions Reflecting Risk

Another recent advancement in the field has been the adoption of new nomenclature used to categorize intervention strategies derived from prevention researchers in the mental health field (Mrazek and Haggerty 1994). This taxonomy utilizes level of risk in the target population: *universal* programs reach general populations, *selective* programs target groups or subsets of general populations at risk, and *indicated* programs are designed for people who are already experimenting with drugs or who exhibit other risk-related behaviors. The following examples represent each of these approaches.

Life Skills Training (LST) is an excellent example of a successful *universal* program. Developed by Gilbert Botvin, it incorporates both social learning theory (Bandura 1977) and problem behavior theory (Jessor and Jessor 1977). LST components include training in the skills and knowledge to resist social pressure to use drugs, providing accurate information about the risks and prevalence of drug abuse to dispel existing misconceptions, and teaching coping mechanisms to deal with drug abuse and other everyday problems. The program consists of 15 classes given to seventh graders, with 10 booster sessions given when they reach eighth grade, and 5 when they reach ninth grade. An assessment of LST targeting junior high students (ages 12–14 years) from 56 schools in New York State, found that students who received the full program reported significantly reduced use of tobacco, alcohol, and marijuana use by the end of the twelfth grade than those who did not receive the training (Botvin et al. 1995).

Another example of a *universal* approach was developed by Mary Ann Pentz and grew out of interventions that were developed to reduce cardiovascular dis-

ease (Farquhar et al. 1990; Sechrest 1985; Cassel 1976) by changing people's lifestyles and included both the clinical setting as well as the community in which people lived. Pentz's program, the Midwestern Prevention Program or Program Star, was designed to impact the community prevalence level of drug abuse by including parallel antidrug messages through a variety of channels aimed at the target group—children in their preteen years. The core of this program is a school-based peer resistance program called STAR (Students Taught Awareness and Resistance) that consists of a social influence curriculum incorporated into ten classroom and homework sessions focused upon the psychosocial consequences of drug abuse; correction of normative myths concerning the prevalence of drug use by teens; social resistance training to offset and counter adult, media, peer and community influences to use drugs; assertiveness and problem solving training; and a statement of public commitment to avoid using drugs. Unlike the LST program, however, other components have been added that target those groups within the community that influence children. These include organizing and educating parents about drug abuse to encourage better communications between parents and children to establish antidrug attitudes in the home; organizing community groups into task groups to promote antidrug abuse activities; and implementing community health policies to eliminate the use of drugs in the schools and in the community, for example, creation of drug-free zones and no smoking areas. All of these components are supported by a mass media campaign which heightens community awareness of the drug abuse problem and introduces the interventions being implemented by the program. This intervention is being tested in two cities—Kansas City and Indianapolis—using in the former a quasi-experimental and in the latter an experimental design.

Research results have shown positive long-term effects: students who began the program in junior high school, and whose results were measured in their senior year of high school, showed significantly less use of marijuana (30% less), cigarettes (25% less), and alcohol (20% less) than children in schools that did not receive the program (Pentz et al. 1989). Further analyses of these data by MacKinnon and his colleagues (1991) show that an increased perception of friends' intolerance to the use of drugs is the most powerful mediator found to reduce drug use.

Populations that are at the highest risk for drug abuse and other related problem behaviors require more intense interventions than those who are not. Szapocznik and others have found that omitting the family in the intervention for these populations could lead to deterioration of family functioning and an increased risk for the index individual and other family members (Szapocznik and Kurtines 1989; Dishion and Andrews 1995). This is not surprising given the key roles and functions of the family. An example then of an effective *selective* program that incorporates the family within the school setting has been developed by Thomas Dishion and his colleagues. Initially identified by Patterson (1974), parental monitoring has been found to be key to positive family management protecting chil-

dren from initiating many problem behaviors (Dishion and McMahon 1998; Wilson 1980). Positive parental monitoring requires experiences with positive behaviors on the part of children at all phases of their development, particularly during the teenage years. The Adolescent Transitions Program is delivered in the school setting and targets young adolescents in middle and junior high school. It includes a Family Resource Room with a video, *Parenting in the Teenage Years*, and other materials designed to help parents identify observable risk factors and teach effective family management skills including positive reinforcement, monitoring, limit setting, and skills to build a strong relationship with children. The program offers the Family Check-Up which allows families to assess their problems. Those who self-identify problems engage with professional support in a Parent Focus curriculum and a Teen Focus curriculum. Studies of the effectiveness of these interventions indicate the importance of parent interventions for youth at high risk for problem behaviors and for repeated booster sessions throughout the period of risk.

Whereas Dishion and others include the family with the children and have gone beyond the school setting, other researchers have focused on risk factors found in school settings. These include academic failure, antisocial behaviors—particularly the combination of shyness and aggression as well as failure to identify or bond (i.e., feel successful and confident in the school setting)—have been targets of effective interventions. For example, Hawkins and his fellow researchers are testing the efficacy of a comprehensive family, school, and peer-focused prevention program with students in grades 4–6. The program is designed to promote social bonding by improving instructional methods to enhance effective learning, cooperation among peers, and positive attitudes toward school. Children are also taught peer refusal skills to resist social pressure to use drugs. To increase levels of family bonding, parents are trained to enhance their children's involvement in the family through productive roles and activities. They are also given help to clarify and communicate family expectations about drug use by family members, and to teach their children skills to resist peer pressure to use drugs, reinforcing those skills learned in the school program component. Preliminary results indicate positive outcomes for experimental students on five factors: reductions of antisocial behavior, improved academic skills, increased commitment to school, reduced levels of alienation and poor bonding to prosocial others, and reduced school misbehavior. In addition, reduced incidents of getting high on drugs at school are also reported (O'Donnell et al. 1995).

In addition to prevention, researchers focusing on risk factors and behaviors have developed programs for children who by virtue of their family or own behaviors are most at risk of drug abuse, such as the children of substance abusers or children who have behavioral problems. Such *indicated* interventions target these problems directly. Examples of effective programs of this nature include: Strengthening Families designed by Karol Kumpfer, and Reconnecting Youth by Leona Eggert.

The Strengthening Families program is a family-focused program delivered in the community. It provides prevention programming for 6- to 10-year-old children of substance abusers. This multicomponent program helps parents improve their parenting skills and the children improve their own competencies. The program consists of three elements: a parent training program; a children's skills training program; and a family skills-training program. In each of the 14 two-hour weekly sessions, the parents and children are trained separately in the first hour. During the second hour, the parents and children come together in the family skills training. The parent component improves parenting skills and reduces substance abuse by parents. The child component decreases negative behaviors and increases socially acceptable behaviors. Finally, the family component improves the family environment by allowing parents and children to learn and practice their new behaviors and skills. The program has been assessed with a variety of populations and has shown reductions in family conflict, improvement in family communication and organization, and reductions in youth conduct disorders, aggressiveness, and substance abuse (Kumpfer 1998).

Eggert's Reconnecting Youth Program addresses the needs of young people in grades 9 through 12 with multiple risk factors for substance abuse and signs of other problem behaviors such as substance abuse, depression, and suicidal ideation within the school setting and within the school period. The program is delivered in the school setting. Students are taught skills to build resiliency with respect to risk factors and to moderate the early signs of substance abuse. The three components of the program: Personal Growth Class, Social Activities and School Bonding, and School System Crisis Response Plan, are designed to provide social support and life skills training. The Personal Growth Class is core and is structured within the school curriculum. This class provides skills for personal control, more effective communications, adaptive coping, and interpersonal relationships. The Social Activities and School Bonding component is designed to reconnect students to school- and health-promoting activities as fun alternatives to being alone and to abusing drugs. The School System Crisis Response Plan is a set of guidelines for classroom teachers and other school personnel for recognizing and responding to the warning signs of depression and potential suicidal behaviors. Research has shown that the program improves school performance; reduces drug involvement; decreases deviant peer bonding; increases self-esteem, personal control, school bonding, and social support; and decreases depression, anger and aggression, feelings of hopelessness, stress and suicidal behaviors (Eggert et al. 1994).

Moving beyond model programs per se, the field is beginning to develop principles for effective prevention interventions. Preliminary principles that have been published by the National Institute on Drug Abuse (Sloboda and David 1997) apply to the content, structure, and delivery aspects. This approach has had promising responses from practitioners and from those agencies that fund prevention programs. Materials that translate these research findings for practice and

manuals describing how to deliver effective services have been made available by federal agencies such as NIDA and the National Institute of Justice's Office for Juvenile Justice and Delinquency Prevention (OJJDP). Appreciation for research has grown as researchers in the past ten years have translated the findings from their studies for the lay person, particularly by showing the applications of these findings in the real world. This "connectedness" of the research to the everyday concerns of those who can use it has fostered bilateral communications between the university-based, and even the bench-scientist and the community service provider. In addition, funding agencies such as the Department of Education's Safe and Drug Free Schools, the Substance Abuse and Mental Health Services Administration, and the OJJDP acknowledge and support proven prevention program models available for replication in the community. Despite the progress in the acceptance of the research findings, barriers remain to the delivery of effective prevention programs as resources for training and for service delivery are limited.

GAPS AND FUTURE DIRECTIONS

Despite the dramatic increase in our understanding of drug abuse and its prevention, a sparse research base exists both in epidemiology and in prevention. Sociologists can take a particularly important role in addressing these gaps.

What Processes Drive New Drug Use Patterns?

Analysis of the reports from the CEWG indicate that trends in drug abuse patterns are defined by time and space. There are patterns that become national such as the use of marijuana, heroin and cocaine and those that are regional such as methamphetamine and PCP. Increased patterns of drug use have been observed to be both long and short term. We do not understand the social mechanisms of these trends. For instance, why is methamphetamine a problem of the west coast and not the east coast? Why has methamphetamine not been a drug of choice among African-Americans?

Another concern is the changing trends in drug use rates by gender and ethnicity. What is happening in our society that has moved more girls to initiate illicit drug use? What factors are increasing rates of illicit drug use among African-American youth?

Furthermore, much of the behavior "drug abuse" and specifications of drug abuse issues have been defined by factors associated with drug abuse through cross-sectional and longitudinal studies. These factors are but indicators of underlying processes and are not themselves causative of drug abuse. The need to develop a set of sociobiopsychological theories of drug abuse is evident. Such theories must recognize the phased nature of drug abuse behavior (from initiation through dependency), the interaction of the individual in social groups and

society, and the epidemic nature of drug use within the context of changing societal structures and processes, norms, values, and interests. Translation of this theoretical perspective into research would enable the strategic targeting of interventions to halt the devastating impact of drug abuse on the individual, families, and society.

Estimating Prevalence Among “More Difficult to Reach” Populations

In addition, as mentioned earlier, our national surveys include people who either live in households or attend schools. There are other populations that are not reached by these surveys who may be at greater risk of drug abuse and other problem behaviors. For instance, Greene et al. (1997) compared prevalence estimates for runaway and homeless youth aged 12–21 with estimates for youth in the general population. They found that the rates were highest among street youth while both youth in shelters and in households had similar rates. Other community studies of street youth also indicate high rates of drug use and dependency (Kipke et al. 1997). Not only are rates higher for homeless adolescents but also for homeless adults (Susser et al. 1989; Robertson et al. 1997; Fischer and Breakey 1991). In fact for adults, Winkleby and associates (1992) found that being homeless increased abuse of alcohol as well and drugs.

Interventions Targeting the “More Difficult to Reach” Populations

Researchers who wish to reach these very high risk populations to intervene in behaviors that put them at risk for negative health consequences, such as HIV infection, also must try approaches that either take the intervention into the community or take the individual or group to the intervention in another setting. HIV prevention investigators, who address both drug abusing and sexual risk behaviors, have developed effective new models to meet these needs (Sloboda 1998). These models include outreach to the social networks of drug abusers (Coyle et al. 1998; Neaigus 1998) and using community outreach workers (Weibel 1997; Cottler et al. 1998) or peer leaders (Broadhead et al. 1998; Latkin 1998; Valente et al. 1998). It would be important to adapt these models to other settings and populations.

Community Interventions

Many of the primary prevention models that have been effective in preventing drug abuse among adolescents often focus on norms against drug use and ways to structure these norms within the community setting. There is a continued need for assessments of the community’s role in preventing drug abuse and, particularly, in the use of institutional policy such as no smoking or drug use rules within schools. Effective community models that are multidimensional and address sev-

eral sectors of the environment are needed. What is particularly important is understanding what it is in the intervention that is explaining its effectiveness. Theory-based interventions go far in guiding intervention design and assessment measures and analyses. There is a need to include not only outcome evaluations but also assessments of process, that is, what interventions have been provided, were the intended mediators effected, and what is the relationship between the manipulations of the mediators and outcome.

Drug Abuse is a Global Problem

Clearly, a great deal of knowledge about the epidemiology and prevention of drug abuse has accrued over the past twenty-five years. The development of ongoing data systems has allowed the monitoring of increases and decreases in the use of illicit substances. We now have documentation of cohorts of young people who came through these “up” and “down” times. We have only crude explanations as to why these trends occurred and why people stopped using or continued to use into adulthood. We have very little information about the impact of drug use on the physical, psychological, and social health of those who used drugs in any of these periods. Finally, and perhaps most provocative, we need to find out why young people increasingly are using drugs in most countries around the world.

Conclusion

We enter the twenty-first century armed with the tools to begin to examine these questions. There is an impressive infrastructure that supports drug abuse research. Big “P” and small “p” policy makers look to the research for assistance in making programmatic and funding decisions. We are well prepared to enter a new phase of thinking about drug abuse in our society. With the increased ability to understand the process of drug dependence and addiction, drug abuse epidemiologic and prevention researchers face challenges and opportunities. Consistent findings from drug abuse epidemiologic research show an increased use of multiple substances, particularly as the characteristics and patterns of the trafficking and distribution of drugs have changed making more diverse substances available. Changing trends in gender and ethnic involvement with drugs and increased use of drugs among young children further influence the foci of both epidemiologic and prevention intervention research in the future. Advances in understanding the determinants associated with the initiation of the use of illicit drugs and with the progression to abuse and dependence in conjunction with the development of theory-based prevention, have led to the design of effective interventions particularly for general populations and for those with increased risk for initiating use of drugs. Today, however, the challenge to the prevention field is to work with parents, many of whom have had drug abusing experiences, to establish an antidrug

community norm across the country. Interventions designed for both general and more at risk populations will include combinations of school-based and family-focused interventions, many with community or environmental interventions. School-based programs will not only deliver drug abuse education and resistance skills but also improve academic skills and prosocial classroom behaviors. Family-focused interventions will assist parents in improving family bonding and enhancing the monitoring of children's activities.

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ADOLESCENT SUBSTANCE USE AND ADULT HEALTH STATUS

A CRITICAL ANALYSIS OF A PROBLEMATIC RELATIONSHIP

Ryan E. Spohn and Howard B. Kaplan

ABSTRACT

The intuitively appealing hypothesized relationship between drug use and physical health status is reexamined critically in a longitudinal perspective. Individuals who were first surveyed in Houston junior high schools in 1971 are followed up through personal interviews in the fourth decade of life. In addition to focusing on the baseline effect of drug use on health, we include latent constructs reflecting deviance and psychological maladjustment as theoretically relevant antecedent and mediating variables. Using structural equation models, we found a positive, significant relationship between adolescent substance use and poor physical health in adulthood. Controlling for the spurious effects of adolescent psychological health, the baseline relationship is reduced, but remains significant. However, including a latent construct for adolescent deviance in the models attenuates the baseline relationship to insignificance. On the assumption that deviance is a cause, rather than a

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consequence of drug use, we conclude that the general deviant lifestyle, rather than drug use per se, adversely effects physical health, even into middle adulthood.

INTRODUCTION

With increasing frequency, social scientists have hypothesized problematic outcomes of substance use including those relating to general adolescent development, amotivational syndrome, psychosocial dysfunction, educational impairment, deviance, mental health, and physical health (Newcomb 1987). The last outcome is arguably the most intuitively appealing of the hypothesized outcomes.

Previous research has suggested that drug use may interfere with natural metabolic processes and harm or impair the functioning of organs or systems (Newcomb 1987). In clinical studies, alcohol and illicit drugs have been found to suppress immune system functioning, leading to susceptibility to illness and disease (Kaplan 1991). For example, clinical studies have observed the immunosuppressive effects of several illicit drugs including cocaine (Klein, Newton, and Friedman 1988), heroin (Brown, Stimmel, Taub, Krochwa, and Rosenfield 1974), and opiates (Layon et al. 1984; McDonough et al. 1980; Wybran, Appelbloom, Famaey, and Govarts 1979).

In addition, substance use may influence other lifestyle behaviors that adversely affect physical health, such as poor diet, infrequent physical exercise, or inadequate health care utilization (Donahoe and Falek 1988). Because drug use may be only one component of a general adolescent lifestyle that may have adverse effects on adult physical health, however, these other predictors must be controlled in order to prove that drug use significantly and uniquely contributes to adult adverse health outcomes (Newcomb 1987). The majority of existing studies examining the effects of adolescent substance use on physical health status exclude such control variables. Moreover, because the time-at-risk in many of the existing studies is of a short duration, the true longitudinal nature of research is called into question.

REVIEW OF THE LITERATURE

Empirical evidence from nonclinical samples suggests that adolescent drug use has a moderate effect on physical symptoms and subjective physical health (e.g., Brunswick and Messeri 1986; Castro, Newcomb, and Bentler 1988; Chen, Scheier, and Kandel 1996; Guy, Smith, and Bentler 1993; Hansell and White 1991; Kandel, Davies, Karus, and Yamaguchi 1986; Newcomb and Bentler 1987). For example, examining urban black youth, Brunswick and Messeri (1986) included intervening lifestyle variables such as educational attainment, social dysfunction, and occupational opportunity in their models. They found that inhal-

ants and heroin use decreased physical health over a period of eight years. The addition of the lifestyle variables to the baseline models only slightly reduced the size of the regression coefficients of cumulative inhalant and methadone use on poor health.

In a general population study, Newcomb and Bentler (1987) found that general drug use in adolescence decreased subjective physical health over a four-year period. They report only small differences between males and females in their model and include no control variables or mediating variables in the analysis.

In a subsequent examination of the relationship of drug use and physical health using the same sample, Newcomb and Bentler (1988) control for race and ethnicity, as well as adolescent levels of the young adult outcome variables. In addition, they include mediating constructs representing "social conformity" and "social support" during adolescence (p. 72). Physical health problems were captured by a latent variable composed of three scales representing trouble with health, being unhappy with health, and health problems over the past 4 years. Accounting for the control variables and mediating constructs, general drug use was found to have a positive effect on this physical health variable.

In a similar study, Hansell and White (1991) focus on the interrelationships between substance use, psychological distress, and physical symptoms. Controlling for the effects of gender and parental education and accounting for the mediating effects of antecedent and concurrent psychological distress, they report that higher levels of general drug use increased physical symptoms over a period of three years.

Finally, Castro et al. (1988) conducted a study focusing only on cocaine use. This study does take into account the confounding influence of depression in reporting physical health status, but fails to control for other relevant characteristics such as race and gender. Castro et al. (1988) did not find a relationship between general cocaine involvement and physical health, but "times super high on cocaine" did predict more health problems over a subsequent four-year period (Castro et al. 1988, pp. 175, 177).

The previous four studies found moderate relationships between drug use and physical health, but they all have a time-at-risk of less than nine years that extends only into the subjects' early twenties. Because adolescents and young adults tend to be at the peak of their physical health, more severe, long-term damage to health may not become measurable until later periods of life (Chen et al. 1996). Two studies (Kandel et al. 1986; Guy et al. 1993) that utilized extended at-risk periods between adolescent substance use and health outcomes produced mixed findings. Kandel et al. (1986) studied a sample of youth contacted initially at ages 15 and 16 who were administered follow-up interviews nine years later at age 24 and 25. Their regression models include relevant control variables as well as intervening variables measuring high school dropout, education level, unemployment spells, and age at marriage. They found that marijuana use in adolescence was positively associated with the young adult outcome of being ill in bed within the last year.

Moreover, the use of illicit drugs in adolescence predicted increased drug-related health problems.

A similar study was conducted by Guy et al. (1993) in which a sample originally interviewed as adolescents was reinterviewed at a mean age of 25.3. The models control for gender and grade point average. In addition, measures of adolescent socialization, which incorporate Hirschi's (1969) elements of social control, moderate the effect of substance use on adult poor health. They found that adolescent substance use was significantly predictive of young adult "subjective health problems" and "substance related accidents" (Guy et al. 1993, p. 476). However, substance use was not related to subjective physical hardiness, respiratory symptoms, seizure symptoms, psychosomatic symptoms, or general accidents. These findings suggest that adolescent drug use may increase subjects' reports of general feelings of ill-health, but not increase reports of actual physical symptoms.

Two final studies examine the detrimental effects of drug use extending not only through adolescence but also into early adulthood. Johnson and Kaplan (1990), modeling educational attainment as a mediating variable, found that proximate continual daily drug use did not have a direct effect on young adult physical health, but had an indirect effect (via education) on health limitations.

In a study that examines a sample composed only of males, Chen et al. (1996) found that multiple drug use up to the age of 28–29 had a direct effect on health problems six years later. No potential intervening factors or common antecedents were included in these models, however, so it remains unclear if the relationship between drugs and health is unique or spurious.

Due to their interrelationships with substance use and physical health, we believe that two lifestyle factors in particular must be modeled as common antecedents in order to determine the unique effect of substance use on physical health status: psychological adjustment and deviant behavior. The existing literature examining the common associations between substance use, physical health, and these antecedent factors is discussed in turn.

Substance Use, Psychological Health, and Physical Health

Many authors suggest that psychological well-being is inextricably tied to drug use, and is thus a confounding factor in the relationship between drug use and physical health (Kandel, Kessler, and Margulies 1978; Kaplan 1975; Kaplan, Johnson, and Bailey 1988; Paton and Kandel 1978). Empirical research has verified the strong interrelationships between drug use, psychological health, and physical health (Castro et al. 1988; Joe, Garriott, and Simpson 1991; Johnson and Kaplan 1990; Hammersley, Lavelle, and Forsyth 1992; Hansell and White 1991; Zablocki, Aidala, Hansell, and White 1991).

The relationship between drug use and psychological maladjustment is often hypothesized as reciprocal. Emotional distress may lead to drug use as individuals

attempt to cope with negative self-feelings, depression, and anxiety. At the same time, however, drug use itself may impair an individual's emotional well-being because it represents a violation of internalized values and may evoke negative responses from significant others (Kaplan et al. 1988), because of the toxic effects of the drugs, or because of the unpleasant symptoms of withdrawal (Kaplan 1995).

A number of empirical studies have found a positive association between psychological maladjustment and physical health (Hansell and White 1991; Johnson and Kaplan 1990; Mechanic and Hansell 1987). These studies suggest that psychological maladjustment may directly contribute to physical illness by weakening the immune system. Moreover, psychological maladjustment can influence one's perceptions and reporting of physical well-being. Because perceptions of physical health are only one aspect of an individual's overall assessment of health and well-being, it is important to control for the influence of mental health on self-reports of physical health.

Substance Use, Delinquency, and Physical Health

A correlation between substance use and other forms of deviance is frequently observed in the literature (for reviews of empirical research see Elliot, Huizinga, and Ageton 1985, p. 12; Leukefeld et al. 1998). For example, McBride and McCoy (1993) cite evidence of drug use among arrestees and nonincarcerated delinquents ranging from a low of 47 percent in New Orleans to a high of 81 percent in Manhattan (p. 265). Substance use and general deviance are often seen to share common antecedents, such as an underlying tendency to engage in short-term pleasures combined with a lack of self-restraint in pursuing such pleasures (Gottfredson and Hirschi 1990; Kaplan 1995). An empirical paper examining this subject found that the common risk factors of adolescent drug use and general delinquency stem from the various domains of personality, family, peer, ecology, and acculturation (Brook et al. 1998).

In addition to the relationship of general deviance and drug use due to common antecedents, drug use and abuse have a causal relationship with subsequent violent and nonviolent delinquency. For instance, drug use often leads to an expensive addiction, and users are often pressured into committing crimes to support their habit. One study reported that over 40 percent of the total income of a sample of street-drug users was generated through criminal activity (Johnson et al. 1985). Moreover, persons involved in the illicit drug trade have no access to the law to protect their transactions, so users and sellers often resort to violence or the threat of violence to control their associates (Goldstein 1989; Johnson, Williams, Dei, and Sanabria 1990).

Both violent and nonviolent delinquency are likely to be associated with subsequent physical health problems. Delinquent adolescents may be especially prone to accidents and illness due to excessive risk-taking behaviors. Persons engaging

in high-risk behaviors might not pursue strategies to prevent illness or injury, and may be less likely to utilize medical services. Moreover, delinquents (especially those involved in the drug trade) are inclined to be victims, as well as perpetrators, of violence.

The Present Study

Because much of the existing literature consists of studies with insufficient control variables and/or a short time-at-risk, additional research is necessary to determine the long-term, unique effect of adolescent drug use on adult health status. In particular, it is important to examine the influence of common antecedents (such as race/ethnicity, etc.) which confound the relationship between drugs and health. The current study will examine the effects of adolescent drug use on subjects' adult health status nearly 25 years later. We include control variables for race and gender as well as theoretically relevant antecedent and intervening constructs reflecting psychological maladjustment and deviance. The inclusion of these constructs also allows a more complete understanding as to whether the relationship between adolescent drug use and adult physical health problems is "true" or spurious. Finally, we employ structural equation modeling techniques which allow simultaneous estimation of models composed of latent variables and the separation of measurement error from the true, error-free aspects of the measured variables reflecting the latent constructs.

The effects of adolescent deviance and mental health status are examined in separate, theoretically developed models in order to determine the effect of each construct. Due to the confusion over the causal direction of the relationship between psychological adjustment and substance use, the current research will model psychological maladjustment as both a common antecedent and an intervening variable in the relationship between adolescent drug use and adult physical health status. Similarly, in order to consider the possibly spurious effects of a delinquent lifestyle, we model delinquency as both a common antecedent and an intervening variable in the relationship between adolescent drug use and adult physical health status.

METHOD

Sample and Data Collection

The data for this analysis were drawn from the first and fifth waves of a panel study of all of the seventh grade students in a random sample of one-half of the 36 junior high schools of the Houston Independent School District (Time 1) in 1971. The first wave was collected by self-administered questions in the students' classes in the spring of 1971 when the subjects' modal age is 13 years. Of the

Table 1. Selected Demographic Characteristics of the Sample

<i>Characteristics</i>	<i>Percentage</i>
Gender	
Male	49.5
Female	50.5
Race/Ethnicity	
White-Anglo	60.0
Black	27.2
Mexican-American	10.6
Other	2.2
Father's Education	
Did not complete elementary school	5.7
Completed elementary school	13.4
Graduated high school	32.0
Graduated college	48.9
Age	
11 or younger	3.4
12	33.6
13	47.0
14 or older	16.0
Religion	
Protestant	62.2
Catholic	20.4
Jewish	2.6
Other non-Christian	4.0
Unaffiliated	9.2

9,335 subjects composing the target sample, 7,618 students (82%) returned usable questionnaires at Time 1. The subjects were administered Time 2 and Time 3 in the eighth and ninth grades, respectively, and during the 1980s (Time 4) as young adults through personal household interviews. Finally, the subjects were interviewed in the 1990s (Time 5) during their fourth decade of life. The subjects average age at Time 5 is about 37 years. In order to determine the effects of adolescent drug use over a substantial length of time, the current study analyzes data from Time 1 and Time 5. Variables were drawn using list-wise deletion of missing values, therefore, the sample size for each model may vary. The percentage distributions of the subjects returning questionnaires at the first testing according to selected demographic characteristics are displayed in Table 1.

Analysis

We estimated the causal models using raw data of self-reported variables as input into the computer program EQS (Bentler and Wu 1993). Assuming that the joint distribution of the variables is approximately multivariate normal, this program provides consistent and asymptotically efficient maximum likelihood esti-

mates of all identified model parameters. Each model consists of independent and dependent variables, some of which are observed and some of which are unobserved latent constructs. The specified model represents effects between independent and dependent variables among which there exists an hypothesized causal structure. This model is termed the structural equation model, which represents the hypothesized causal relationships among the exogenous and endogenous variables as regression coefficients. The parameters of the equations representing the measurement model and the causal model are estimated simultaneously as a single system.

Structural equation modeling is a very useful technique for data analysis in the social sciences because it provides a method of separating measurement error from the true, error-free aspects of the measured variables reflecting the latent constructs. As a result, the latent factors represent only the commonality of the association among the observed indicators as reflected in the intercorrelations among these measured variables (Newcomb 1990).

Variables

Independent Variables

Substance Use. A latent construct of adolescent substance use is composed of three measured variables of self-reports of: (1) having used wine, beer, or liquor two or more times in the last week; (2) having used narcotic drugs within the last month; and (3) having smoked marijuana within the last month.

Antecedent and Mediating Variables

Psychological Maladjustment. A single factor reflecting an overall construct of psychological maladjustment during adolescence is measured with three cumulative scales. These measures reflect symptoms and expressions of depression, anxiety, and self-derogation. The depression scale represents depressed affect and absence of life-satisfaction. The scale representing anxiety includes responses such as nervousness, ability to keep one's mind on things, and biting fingernails. Finally, the self-derogation scale represents self-rejecting attitudes. The component items appear in the Appendix.

Deviance. Adolescent deviance is measured with a latent variable indicated by two scales. A scale representing nonviolent deviance taps behaviors such as theft, skipping school, and joy-riding in a car without the owner's knowledge. A violent deviance scale reflects behaviors such as gang fighting, fist fighting, breaking and entering, and using force to damage or destroy public property. The specific items are presented in the Appendix.

Dependent Variables

Physical Health. Poor physical health in the fourth decade of life is reflected by a latent construct with four indicator variables. The first indicator variable reflects unemployment resulting from medical impairments. The second indicator measures whether or not the respondent stayed in bed all day due to illness any time within the last 12 months. A third indicator reflecting recent physical symptoms is a nine-item scale measuring maladies such as sore throat or colds, headaches, and stomach flu over the past 30 days. Finally, the fourth indicator reflects perceived subjective health. This question asks respondents to compare their own health to other persons of the same gender and age. These items are presented in the appendix.

Control Variables

It is assumed that both race and gender will have confounding effects on the relationship between drug use and health. As a result, measures for each of these characteristics are included in the structural equation models. *Race* is modeled as an exogenous control variable. It is coded as a dichotomy (1 = nonwhite and others, 0 = white). *Gender* is also modeled as an exogenous control variable, with males coded as 1 and females coded as 0.

RESULTS

The analyses are conducted in two stages. First, we measure the effect of antecedent drug and alcohol use at Time 1 (when the youth were in the seventh grade), on physical well-being at Time 5 (middle adulthood), controlling for both race and gender. This analysis will determine if, controlling for race and gender, adolescent substance use has an impact on adult health symptoms over two decades later.

The second stage of the analysis involves the estimation of models in which the theoretically relevant mediating variables are added to the baseline model estimated in the first stage. Due to the interrelationships between substance use, psychological maladjustment, deviance, and physical health, it is necessary to determine if the inclusion of these mediating variables attenuates or reduces to nonsignificance the relationship between adolescent substance use and adult health status, whether because of their common antecedent or mediating status. We consider in turn the results relating to the baseline relationship between substance use and adult poor health and the results relating to the theoretically relevant antecedent/mediating variables.

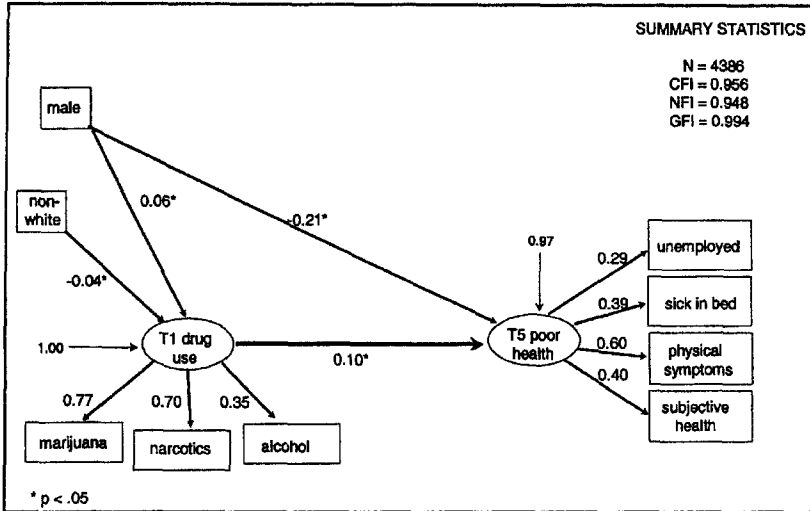


Figure 1. Baseline Model of the Effect of Adolescent Substance Use on Adult Poor Health

Adolescent Substance Use and Adult Health Status

The baseline model shown in Figure 1 provides the standardized coefficients expressing the relationship between the latent construct for adolescent substance use and a latent construct reflecting self-reported poor health in adulthood. Controlling for common antecedents of race/ethnicity and gender, a modest but statistically significant positive relationship exists between adolescent substance use and adult health status ($\beta = 0.10$, $p \leq .001$). In addition, the negative coefficient for gender suggests that males are less likely than females to report poor physical health status in adulthood ($\beta = -0.21$, $p \leq .001$). The effects of race and gender on adolescent drug use are moderate in magnitude, but significant. The overall fit of this model is good, with a comparative fit index value of 0.956. A CFI value greater than .90 indicates an acceptable fit of the model to the data (Byrne 1994).

This baseline model is noteworthy because it provides evidence that adolescent substance use has negative effects on physical health, even into the fourth decade of life. Previous studies have focused primarily on adverse effects of adolescent drug use extending only into the late teenage years or early adulthood. However, in order to establish that this relationship is causal rather than a spurious outcome of common correlates of substance use and poor health, in the subsequent analysis we control for variables that may theoretically serve as common antecedents or intervening variables.

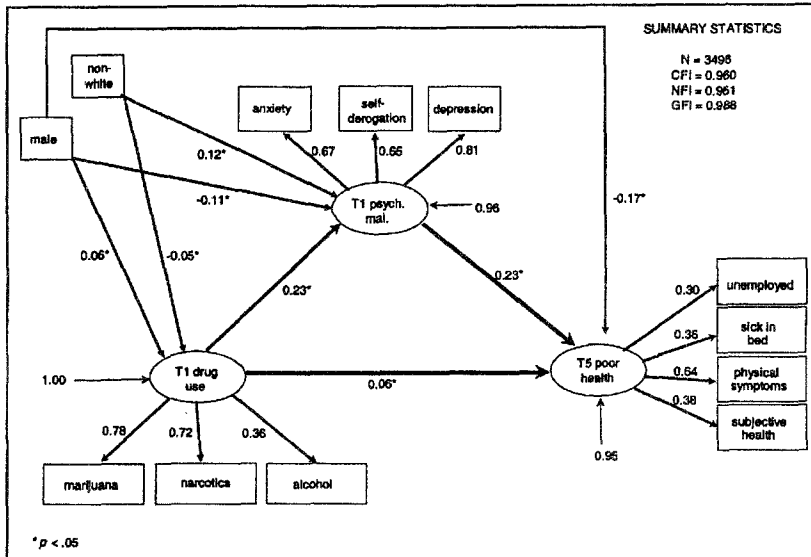


Figure 2. Psychological Maladjustment as a Mediating Variable in the Relationship between Adolescent Substance Use and Adult Poor Health

Antecedent/Mediating Variables

Psychological Maladjustment

The literature provides evidence of the interrelationships that exist between self-reported psychological health, physical health, and substance use. We believe that perceptions of poor psychological health account, in whole or in part, for the observed temporal relationship between substance use and reports of physical health symptoms. It is unclear, however, whether substance use increases perceptions of psychological maladjustment or if psychological maladjustment increases substance use as individuals attempt to cope with the disturbance. Due to this uncertainty, we model psychological maladjustment as both an intervening variable and a common antecedent.

The model presented in Figure 2 includes a latent construct for psychological maladjustment in adolescence as an intervening variable in the relationship between adolescent substance use and poor adult health. We assume that drug use impairs individuals' emotional well-being, which in turn influences perception of physical health. The fit statistics provide evidence that the model fits the data well (CFI = 0.960). Although the magnitude of the direct effect of drug use on health is attenuated as compared to the baseline model, a significant ($\beta = 0.06, p \leq .05$) direct relationship persists. Thus, controlling for psychological well-being, adolescent drug use has an independent, unique effect on adult health.

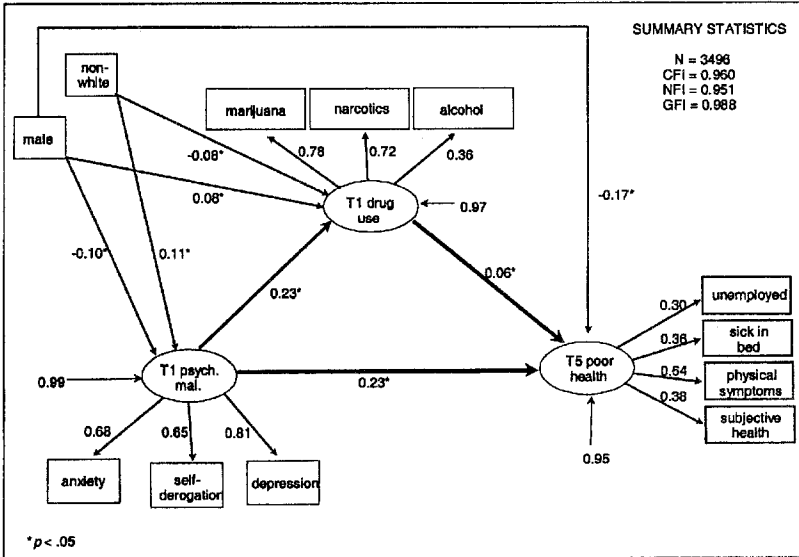


Figure 3. Psychological Maladjustment as a Common Antecedent in the Relationship between Adolescent Substance Use and Adult Poor Health

Adolescent drug use also has a significant indirect effect ($\beta = 0.05, p \leq .001$) on health through the effect of psychological maladjustment. Consistent with the literature, psychological maladjustment has a strong, positive association with reports of poor physical health ($\beta = 0.23, p \leq .001$). Thus, persons who report symptoms of depression, anxiety, and negative self-feelings in adolescence are more likely to report poor physical health in adulthood. Moreover, females and minorities were more likely to report symptoms of psychological maladjustment.

In Figure 3, we model adolescent psychological maladjustment as a common antecedent to substance use and adult health status. This model is based on the assumption that adolescents use illicit substances in an attempt to cope with the strains of psychological distress. Similar to the previous model, adolescent drug use has a unique, significant effect on poor adult health ($\beta = 0.06, p \leq .05$). Moreover, psychological maladjustment in adolescence has a strong effect on reports of physical health over 20 years later ($\beta = 0.23, p \leq .001$).

Deviance

Due to the associations between illicit substance use and other deviant behaviors, we have reason to believe that the observed temporal relationship between substance use and reports of physical health symptoms may be spurious. Rather

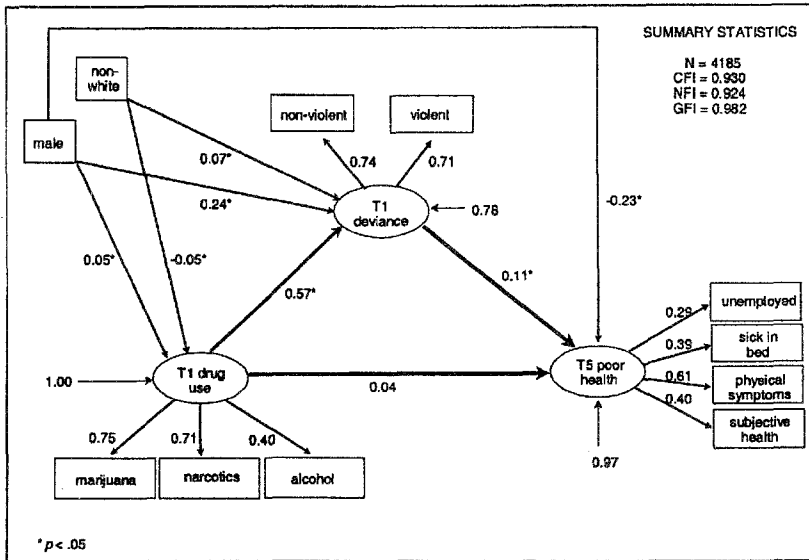


Figure 4. Adolescent Deviance as a Mediating Variable in the Relationship between Adolescent Substance Use and Adult Poor Health

than a unique effect of drug use, poor physical health may be a result of the general lifestyle of delinquents, including excessive risk-taking, the absence of preventative strategies to prevent illness and injury, and an inclination toward violent behaviors. Because of the lack of agreement in the literature as to the temporal relationship between drug use and other deviance, we model adolescent deviance as both a common antecedent and an intervening variable in the relationship between adolescent substance use and adult health.

The model presented in Figure 4 includes a latent construct for adolescent deviancy as an intervening variable in the relationship between adolescent substance use and poor adult health. With this specification, we assume that illicit substance use results in involvement in other deviant behaviors. The overall fit of the model is acceptable (CFI = 0.930). The specification of an effect of substance use on deviance attenuates the direct effect of illicit substance use on physical health status to nonsignificance ($\beta = 0.04$, n.s.). Any effect of drug use on health is indirect, via deviance. The latent construct reflecting adolescent deviance has a significant, positive effect on adult health status ($\beta = 0.11$, $p \leq .01$). Adolescents who engage in deviant behaviors are more likely to report poor physical health in adulthood. It appears that a general deviant lifestyle has a detrimental effect on adult health. With deviance modeled as an intervening variable, adolescent substance use does

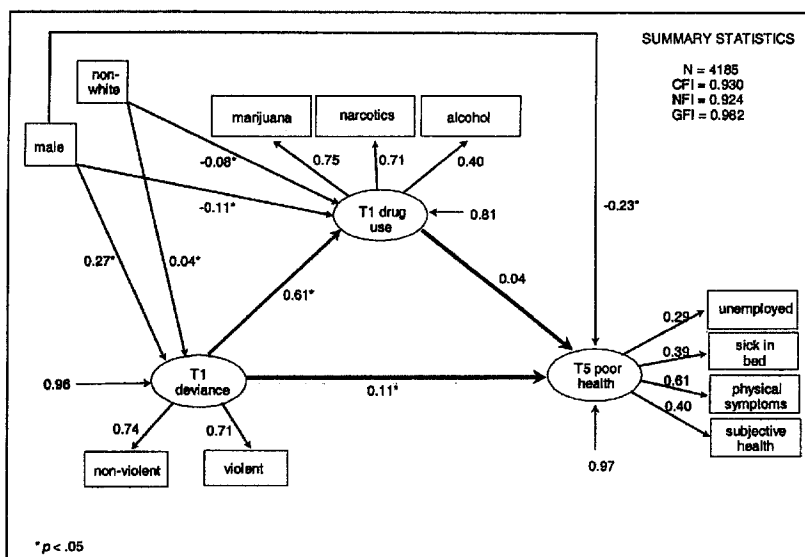


Figure 5. Adolescent Deviance as a Common Antecedent in the Relationship between Adolescent Substance Use and Adult Poor Health

have a significant *indirect* effect on adult physical health through adolescent deviance ($\beta = 0.07, p \leq .01$).

Examining the control variables, we find that males are much more likely to report deviant acts in adolescence. The variable representing nonwhites has a moderate positive effect on deviance.

In Figure 5, adolescent deviance is modeled as a common antecedent of substance use and adult poor health. This model is based on the more plausible assumption that engaging in other forms of deviant activity influences the adoption of illicit drug use. Similar to the previous model, the relationship between adolescent substance use and adult physical health is attenuated to nonsignificance. The latent construct representing violent and nonviolent deviance, however, has a significant direct effect on physical health outcomes over 20 years later ($\beta = 0.11, p \leq .01$).

DISCUSSION

Although a causal relationship between adolescent drug use and adult physical health status is intuitively appealing, much of the current research examining this relationship inadequately specifies the mediating mechanisms through which this

process occurs. Moreover, some studies fail to include appropriate control variables that are necessary to determine if the hypothesized relationship between drugs and physical health is “true” or spurious. Finally, the short time-at-risk of much of the current research creates doubts regarding the true longitudinal nature of the analyses.

This study addresses these concerns by providing a lengthy follow-up period and estimating numerous models to examine the various mechanisms that might account for the relationship between adolescent drug use and adult health. These theoretically developed models provide a detailed analysis of the impact of individual latent constructs that mediate the relationship between drugs and health. In contrast, many previous studies omitted relevant antecedent or intervening variables completely. Including psychological health status and deviance in separate models allows both an examination of the impact of each variable on adult health and an analysis of the mediating and/or common antecedent effect of each variable on the relationship between adolescent substance use and adult health status.

In the current study, we estimated a model that examined the relationship between adolescent substance use and self-reported physical health symptoms more than 20 years later. Although the existing literature has commonly found a relationship between drug use and physical health, this study extends our knowledge of the impact of adolescent behaviors over the life course. In the baseline model controlling for race and gender, adolescent substance use was found to have a significant, albeit modest, detrimental effect on adult health status. This relationship persisted when we controlled for the mediating effects of psychological maladjustment. Moreover, when psychological maladjustment was modeled as an intervening construct (see Figure 2), adolescent substance use had a significant, indirect effect (in addition to the direct effect) on adult health status through psychological maladjustment.

In contrast, including a latent construct reflecting adolescent deviance in the model attenuated the baseline relationship to nonsignificance. However, in a model presenting adolescent deviance as an intervening construct (see Figure 4), adolescent substance use had a significant, indirect effect on adult health through this construct. Thus, a “true” effect of drugs on health depends on assumptions about the causal relationship between drug use and other forms of deviance.

Because the incorporation of psychological maladjustment to the baseline model did not entirely mediate the effects of the risk factor, we might have concluded that substance use has a detrimental impact on physical health above and beyond its indirect effects through psychological health status. That is, subjects who used illicit substances in adolescence do not simply report adult physical health problems due to the existence of subsequent psychological distress. Using structural equation modeling, we are able to determine the unique relationships of adolescent substance use to both psychological and physical health. Our results provide partial support for Hansell and White’s (1991) assertion that adolescents may not be able to distinguish between psychological distress and physical symp-

toms as readily as adults (p. 298). Because our cohort had reached their middle thirties at the time adult health status was recorded, they may have reached an age at which they could more clearly distinguish between psychological and physical symptoms.

However, with the inclusion of deviance as a common antecedent and mediating variable, the current study provides support for the hypothesis that a general deviant lifestyle is detrimental to long-term health and casts doubt on the hypothesis that drug use has a unique effect on health, net of the association between drug use and deviant lifestyle. Substance users as delinquents may become victims of violence due to their interactions with deviant peers or through violence associated with the illicit drug trade. Persons leading a deviant lifestyle may be more prone to accidents due to excessive risk-taking behaviors. Moreover, such persons may neglect their physical health by failing to utilize medical services or by ingesting an unhealthy diet. Through these various processes, both delinquency and illicit drug use become inextricably linked to subsequent health problems. Bad health habits associated with a deviant lifestyle in adolescence may become learned and replicated throughout the lifecycle. Nevertheless, on the assumption that drug use influences subsequent deviance, adolescent drug use may be understood to have an indirect impact (via delinquent lifestyle) on subsequent health status.

New directions in research on the consequences of substance (ab)use should continue to critically reexamine the facile conclusions regarding such consequences by specifying common antecedents that might render such conclusions spurious. Frequently, such reexamination involves a determination of the true causal sequences between putative antecedents of these consequences. In the analysis reported above, the causal relationship between drug use and other forms of deviance is a case in point. Whether the adolescent drug use is thought to have an indirect effect on adult health status or the association between drug use and health is believed to be the spurious outcome of their common association with antecedent deviance depends on the determination of the temporal relationship between drug use and deviance. In any case, once it is determined that a causal relationship between drug use and a putative consequence exists, we may then examine the nature of the intervening processes and moderation circumstances that elaborate the theoretically informed relationship.

APPENDIX

DRUG USE, WAVE 1

Alcohol:

Within the last week have you used wine, beer, or liquor more than two times?

Marijuana:

Within the last month did you smoke marijuana (grass)?

Narcotic drugs:

Within the last month did you take narcotic drugs?

PSYCHOLOGICAL MALADJUSTMENT, WAVE 1

Depression (depressed affect and somatic symptoms of depression, $\alpha = 0.605$):

Do you wish you could be as happy as others seem to be?

Within the last year did you think about or threaten to take your own life?

Would you say that most of the time you feel in good spirits? (reverse code)

Within the last year did you attempt to take your own life?

Do you often feel downcast and dejected?

Do you often lose track of what you were thinking?

Do you get a lot of fun out of life? (reverse code)

On the whole, would you say you are a fairly happy person? (reverse code)

Anxiety (panic, phobic, and behavioral responses, $\alpha = 0.734$):

Are you often bothered by nervousness?

Are you often bothered by shortness of breath when not exercising or working hard?

Are you often bothered by bad dreams?

Do you often have trouble getting to sleep or staying asleep?

Do you often have difficulty keeping you mind on things?

Are you often bothered by your hands sweating so that they feel damp and clammy?

Do you often bite your fingernails?

Are you often bothered by pressures or pains in your head?

Do you often have trouble sitting still for a long time?

I worry a lot more now than I used to. (1 = true, 0 = false)

I get nervous when things aren't just right? (1 = true, 0 = false)

Self-derogation ($\alpha = 0.613$):

I wish I could have more respect for myself. (1 = true, 0 = false)

On the whole, I am satisfied with myself. (0 = true, 1 = false)

I feel I do not have much to be proud of. (1 = true, 0 = false)

All in all, I am inclined to feel that I am a failure. (1 = true, 0 = false)

I take a positive attitude towards myself? (0 = true, 1 = false)

At times I think that I am no good at all. (1 = true, 0 = false)

I certainly feel useless at times. (1 = true, 0 = false)

DEVIANCE, WAVE 1

Violent deviance ($\alpha = 0.464$):

Within the last year did you carry a razor, switch blade, or gun as a weapon?

Within the last year did you start a fist fight?

Within the last year did you take part in gang fights?

Within the last year did you use force to get money or valuables from another person?

Within the last year did you break into and enter a home, store or building?

Within the last year did you damage or destroy public or private property on purpose that didn't belong to you?

Within the last year did you beat up on someone who had not done anything to you?

Nonviolent deviance ($\alpha = 0.575$):

Within the last year did you take things worth between \$2 and \$50 that didn't belong to you?

Within the last year did you take little things (worth less than \$2) that didn't belong to you?

Within the last year did you skip school without an excuse?

Within the last year did you take things from someone else's desk or locker at school without permission?

Within the last year did you take a car for a ride without the owner's knowledge?

Within the last year did you take things worth \$50 or more that didn't belong to you?

POOR PHYSICAL HEALTH, WAVE 5

Unemployment:

Tell me if the following were reasons for your not working: A medical reason?

Sick in Bed:

Were there any days during the last 12 months when you stayed in bed all or most of the day because you weren't feeling well?

Recent Symptoms ($\alpha = 0.537$):

During the past 30 days, did you have:

A cough, without fever, which lasted at least three weeks?

A sore throat or cold, with fever, lasting more than three days?

Stiffness, pain or swelling of joints lasting more than two weeks?

Shortness of breath with light exercise or light work?

Chest pain when exercising?

Headaches almost every day?

Loss of consciousness, fainting, or passing out?

Acid indigestion or heartburn after eating many different types of foods?

Stomach flu or virus with vomiting or diarrhea?

Subjective Health:

Compared to most other people your age and sex, do you think your health is:

1. better,
2. about the same, or
3. worse?

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DEPRESSION, DRUG USE, AND HEALTH SERVICES NEED, UTILIZATION, AND COST

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ABSTRACT

The objective of this study is to examine the relationship between depression and drug use and potential ramifications of that relationship on the health services needs, utilization, and costs of chronic and injecting drug abusers. A network-based sample of 1,330 injecting and other chronic drug users, as well as non-drug using neighborhood controls, was obtained within Dade County, Florida. Using the Health Services Research Model as an analytical framework, results show that drug users had significantly higher levels of depression than non-drug users from similar neighborhoods. In addition, it was found that depression was significantly associated with perceptions of poor health, increased health problems, and perceived limitations on even light physical activity among both drug users and non-users. Among drug users, depression was also significantly related to not receiving needed care, lack of treatment adherence, use of the emergency room for primary care or any reason, hospital

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admissions, and any use of outpatient or private clinic services. Results from logistical regression analysis show that even when controlling for relevant issues such as sociodemographic, economic, and drug use variables, depression retains an independent and significant relationship with health services need and utilization. Differences in the cost of health care utilization between depressed and non-depressed samples are also estimated. Implications of this study point to the need to consider screening and treatment for depression within health system structures in order to improve cost-effective access to needed services among drug using populations.

INTRODUCTION AND PURPOSE

As managed care continues to restructure American health services, calls for increased efficiency and efficacy in the provision of such services require new approaches to the treatment and prevention of all medical conditions, including drug abuse. Drug abuse has been shown to correlate with high levels of need for health services (Chitwood et al. 1998). In addition, optimum treatment for drug abuse often calls for extended time in treatment (French and Martin 1996). Extended treatment times are costly, and minimizing cost is a prominent health care efficiency goal in both public and private health insurance markets (Sharpe 1998). Due to the high costs of drug abuse (both medical and other social costs), methods of improving drug abuse treatment outcomes and decreasing the health services utilization costs of the drug abusing population are needed (see Chitwood et al. 1998).

Using the Health Services Research Model as a guide, the purposes of this paper are to examine and discuss: (1) the relationship between drug use and depression, (2) the relationship between depression and health services need and utilization among both drug users and non-drug users, (3) the costs of health services utilization associated with depression among users compared with non-users, and (4) the resulting implications for the provision of health care services to drug users.

BACKGROUND

Drug Use and Health Services Utilization

Research has well documented the high price society pays for drug abuse. Such costs involve those relating directly to drug abuse (such as drug treatment and resources lost due to morbidity and mortality) as well as secondary, non-health cost consequences (such as law enforcement and crime; Rice et al. 1991). Sustained drug use is related to a higher incidence of a variety of physical illnesses that demand costly treatment in and of themselves, with additional costs due to alcohol, illicit drug, and mental health (ADM) comorbidity. The average per-case

additional cost (1994 dollars) for all health conditions from ADM comorbidity has been estimated at \$3,320 (French and Martin 1996).

In a review of research focusing on drug use-related health problems, Chitwood et al. (1998) report the following: (1) intravenous drug users (IDUs) have high risk for many infectious diseases, including HIV, bacterial endocarditis, pulmonary disease, hepatitis, tuberculosis, skin abscesses, and infections (Friedland et al. 1985; Nahass et al. 1990; Hind 1990; Schade and Komorwska 1988; Vlahov et al. 1992; Selwyn et al. 1989); (2) opiate use is related to high risk for pulmonary complications, hepatic dysfunction, endocrine abnormalities, duodenal ulcer, and cerebrovascular disease (Cherubin 1967; Louria et al. 1967), and (3) cocaine and crack use leads to high risk for seizures, myocardial infarction, stroke, neurologic disorders, psychiatric problems, sexually transmitted diseases, and other diseases of the nervous, circulatory, and respiratory systems (Myer and Earnest 1984; Kosowsky and Lyon 1984; Smith et al. 1987; Levine and Welch 1988; Brody et al. 1990; Satel and Edell 1991; Chirgwin et al. 1991; Edlin et al. 1992; Fullilove et al. 1990; Siegal et al. 1992; Isaacs et al. 1987). Such increased risk for illness results in drug users reporting a significantly higher need for health care than non-drug users: 1.99 times higher for sustained or chronic drug users, and 4.05 times higher for IDUs (Chitwood et al. 1998). Despite the higher need for health services by the drug using population, they are significantly less likely to receive medical care than are non-drug users (Chitwood et al. 1998). When care is obtained, it is likely to come from higher-priced care services such as emergency rooms (Chitwood et al. 1998).

Economically, decreasing drug use is an important component in fiscally prudent health services provision, but only if the cost of such a decrease is outweighed by the benefits. Drug treatment is often a cost-effective method to reduce drug use and its consequences. Abusers that receive treatment through a variety of methods (including methadone maintenance, residential treatment, therapeutic communities, and outpatient counseling) have been shown to have reduced drug use and criminal involvement (Hubbard et al. 1989). Such treatment methods have positive cost-benefit outcomes (Anglin et al. 1989; Harwood et al. 1988; French and Zarkin 1992), at times recovering costs during the time the client is in treatment (Hubbard et al. 1989). In addition, overall medical costs may decrease during treatment. Holder and Blose's 14-year longitudinal study (1992) shows that total health care costs of treated alcoholics decreased from pre-treatment levels by 23 to 55 percent even when including treatment cost; long-term post-treatment medical costs for alcoholics after treatment were 24 percent lower than for non-treated alcoholics.

Optimum health services utilization programming for the drug abusing population would seem to indicate inclusion of drug abuse treatment. As attempts to reduce the overall costs of drug abuse address the comorbidity issues of drug abuse and illness, they should also investigate other possible co-occurring, con-

founding issues (Sindelar 1991). One such possible factor is depression which has been found to be a consistent correlate of drug use (Markou et al. 1998).

Depression and Drug Use

The Depression-Health Connection

Depression may be one of the most undiagnosed and untreated mental health conditions in American society. According to Munoz and colleagues (1995), up to 26 percent of the adult U.S. population meet the criteria for being clinically depressed; only about 20 percent of these individuals actually seek treatment for their depression. Depression is multi-causal and has significant consequences to overall health.

The causes of depression range from the biological to psychological and socio-cultural. At the biological level, many researchers argue that depression emerges as a result of dis-regulation of multiple neurotransmitters such as serotonin and norepinephrine (Markou et al. 1998). At a psychological level, loneliness (Walters and Denton 1997), stressful life events, and individual and cultural interpretations of those events are related to depression levels (Bernstein 1992; Campbell et al. 1997). La Rochi and Turner (1997) suggest that primary stressors include the belief that one is not competent, is failing to achieve important life goals, or is unsuccessful in relationships. Munford (1994) proposes that a sense of failure or incompetency may be linked to being in lower socioeconomic classes, thus producing a low self-concept leading to depression. At the sociocultural level, feelings of isolation and depression may result from increased technology utilization, as well as a decrease in direct interpersonal communications (Yapko 1997). Current cultural expectations for immediate solutions to complex problems may further increase depression when individuals cannot deal with life problems as quickly as society seems to expect (Yapko 1997).

Depression appears to have major health and economic consequences. The literature suggests that it may be related to increased health services need and inappropriate and costly health services utilization (Buckner 1990; Johnson et al. 1992; Jackson et al. 1995, Simon et al. 1994). Howard and his colleagues (1996) have examined health services utilization by type of disorder and conclude that individuals with severe depression are more likely than others to receive health services. Katon and Sullivan (1990) state that depression is related to increased medical care utilization, morbidity, and mortality, as well as decreased self-care and medical regimen adherence. Treating high-service-use patients for depression has resulted in significant cost savings. Smith (1997) reports that one insurer experienced a \$2.1 million decrease in expenses one year after depression treatment was initiated. In addition, Revicki et al. (1998) have found that depressed patients who receive minimum recommended levels of antidepressant therapy

have significantly lower inpatient medical costs than those receiving less-than-recommended levels of antidepressant therapy.

Depression and Drug Abuse

This paper takes the position that the causal nature between depression and drug use is complex, and no definitive answer can be given to the question of precedence from existing research reports. Regardless of the direction of causality, research has shown that (1) a strong comorbidity does exist, and (2) treatment for depression may help improve drug abuse treatment outcomes in some cases. In reviewing the literature on depression and drug use, the focus is on the rates of depression among drug users relative to the general population and the impact of alleviating depression on drug treatment retention and outcome.

The rates of depression in drug using populations exceed those in the general population. Markou and associates (1998) report a range of depression from 38 to 54 percent in populations of drug users versus 26 percent within the general U.S. population. These same researchers, as well as Latkin and Mandell (1993), report that the use of drugs (particularly injection drug use) is higher in depressed populations than in the general population. Diagnosis of major depression is reported to be highest among opiate, prescription, and stimulant-dependent individuals (Gold et al. 1995).

Arguments supporting the theory that drug use may result from attempts by depressed individuals to self-medicate have been made (for example, see Markou et al. 1992). In support of this perspective, most studies find that high levels of depression predict both poor treatment outcomes and relapse to drug use after treatment (Westie, McBride, and Goldstein 1981; Latkin and Mandell 1993; Markou et al. 1998; Schonfeld et al. 1989; McLellan et al. 1983). Magura et al. (1991) identify pleasure, stimulation, stress relief, and self-medication for depression to be factors precipitating cocaine use among a methadone patient population. They conclude that psychotherapy and/or medication might aid certain patients, and also note the need to address goals such as productive employment in treatment programming in order to address the broader cultural causes of depression. Arguing against the self-medication perspective, however, heavy cocaine use and resultant "crashing" often leads to depression (Hunt et al. 1984). Interestingly, Latkin and Mandell (1993) observe that depression predicts IDU frequency, and such predictions hold even when controlling for unemployment, age, gender, and homelessness.

In their review of the literature, Markou et al. (1998) report that alleviating depression has been found to relate to treatment progress and positive treatment outcomes. In double-blind studies examining drug use and depression, three out of four studies show decreased drug use among participants taking antidepressants, as well as reduced levels of depression (Woody et al. 1975, 1982; Kleber et al. 1983; Batki 1988). Use of tricyclic antidepressants are associated with stronger

reductions in cocaine use among depressed users than non-depressed users (90 versus 50%; Ziedonis and Kosten 1991). Tricyclic antidepressant use also results in more consecutive weeks free of cocaine when compared with placebo (26% of depressed cocaine users achieving three cocaine-free weeks when treated with antidepressants, versus 5% treated with placebo; Nunes et al. 1995). Use of selective serotonergic re-uptake inhibitors (such as fluoxetine) has been found to improve retention in outpatient crack cocaine treatment (Batki et al. 1996). Markou et al. (1998) note some potential limitations to these findings, cautioning that antidepressant treatment success may be specific to (1) those individuals who use drugs for self-medication, and/or (2) those attempting to stop taking drugs known to have depressive symptomatology during the withdrawal phase (psycho stimulants, opiates, ethanol, and nicotine).

METHODOLOGY

This analysis was conducted as a part of the Epidemiology of Health Care Utilization Study (EHCUS), a research activity of the Health Services Research Center at the University of Miami. The center (funded by the National Institute on Drug Abuse) has three major research aims: (1) examine how a community health care delivery system is organized to identify, refer, and treat substance abusers (Rivers 1998), (2) examine the health services needs of substance abusers and determine if identified needs are being met (Chitwood et al. 1998), and (3) implement a community intervention program designed to increase cost effective health services utilization by substance abusers (for an overview of the center's findings, see McCoy et al. 2000, in this volume).

Throughout the project the Health Services Research (HSR) model developed by Aday et al. (1993) was utilized as a broad framework for suggesting and interpreting research variables. The HSR model considers the health services system to incorporate three interrelated components:

1. Structure: Health policy (federal, state, and local levels), delivery system characteristics (availability, organization, and financing), and at-risk population characteristics (predisposing, enabling, and need);
2. Process: Actual delivery of medical care, including transactions between patient and provider, and
3. Outcomes: (a) Effectiveness (contributions of medical care to population health and possible improvement in medical care clinical effectiveness); (b) efficiency (within a society's limited resources, the maximum value obtainable for consumer well-being through a combination of medical care goods and services), and (c) equity (fairly distributed benefits and burdens of medical care). These three outcome issues combine to contribute to the ultimate outcome issue: quality of life.

A core assumption of the model is that “equity of access to the system, reflected in who gains entry and how often patients use services, has a direct impact on the efficiency and effectiveness of the care that is delivered, as well as ultimately on the quality of life of the population it was intended to serve” (Aday et al. 1993, p. 8).

The University of Miami Health Services Research Center used the HSR model to examine local health care delivery system characteristics in relation to the at-risk population of substance abusers (Rivers 1998). The HSR model was then used to develop and implement a community intervention program designed to improve access to the health care system (McCoy et al. 1999). The focus of this paper is to examine the relationship of depression to drug use and to determine how that relationship effects the health care delivery system as seen through the HSR model.

From April 1996 through September 1997 the EHCUS used a network-based sample in Dade County, Florida, to recruit injection drug users (IDUs), other chronic drug users (OCDUs), and non-drug users (NDUs) from geographically varied neighborhoods with high drug use rates (based on treatment admission and arrest rates, as well as the experience of the study researchers). Specific inclusion criteria included those who (1) were and had been active IDUs for the last 12 months, (2) were and had been actively chronic but non-injecting cocaine and/or opiate users for the last 12 months, and (3) NDUs who had never used cocaine or opiates. The NDUs served as a neighborhood comparison group. That is, since they were from the same neighborhoods as the drug users, they could serve as a form of case control to examine the impact of injection and chronic drug use on health services need and utilization. Each of the three groups were recruited to include both genders, as well as non-Hispanic white, African American, and Hispanic individuals.

Potential participants were taken to the study’s assessment center for thorough eligibility screening. Interview and urine testing (using the Abuscreen ONTRAK Assay) were used to establish drug use, and a physical exam was used to verify injection status. The study purpose and confidentiality issues were explained to all eligible participants, and informed consent was obtained. Trained interviewers administered the research instrument (The University of Miami Health Services Research Instrument). Each interview took approximately one-and-a-half hours, and included health, drug use, and demographic items.

The 20-item Zung Self-Rating Depression Scale (SDS) was used to determine the level of depression among study subjects. The SDS was chosen because it is brief, reliable, and highly correlated with other depression scales (Bech 1996). It was also chosen because it uses simple language and spans a wider range of education levels than other scales. The SDS rates depression as a syndrome and documents its severity but does not differentiate DSM-IV classifications of depressive disorders (e.g., Major Depressive Disorder, Dysthymia, etc.). Nevertheless, it does provide a reasonable overview of

Table 1. Respondent Demographics

		% NDUs [†] N = 509	% IDUs/OCDUs [‡] N = 762
Gender	Female	46.0	41.1
	Male	54.0	58.9
Age***	18-29	27.7	16.1
	30-39	32.2	43.6
	40+	40.1	40.3
Race	Black	35.2	40.3
	White	31.8	31.5
	Hispanic/Latino	33.0	28.1
	Native American	0.0	0.1
Highest education level**	<12 th grade	40.9	49.9
	12 th grade	36.5	28.6
	Some College +	22.6	21.5
Employment***	Have HS diploma***	58.3	46.5
	Have GED***	13.7	26.5
	Regular full-time	15.7	6.7
	Regular part-time	11.6	7.2
	Occasional	19.3	19.9
	Not working seeking work	26.1	22.7
	Not working, not seeking work	8.6	28.5
Weeks worked last 12 months***	Other	18.7	15.0
	0	28.7	49.3
Source of income***	1-26	38.1	31.9
	27-52	33.2	18.8
	Legal source	54.2	26.4
	Unemployment	0.8	0.4
	Other government assistance	25.7	19.7
Total legal income***	Prostitution/Illegal	0.8	35.5
	Other	18.5	18.0
	\$0	1.2	9.3
	\$1-4,999	53.8	53.7
	\$5,000-14,999	32.6	28.5
Total illegal income***	\$15,000+	12.4	8.5
	\$0	96.9	40.8
	\$1-4,999	2.0	29.5
	\$5,000-14,999	0.4	15.7
	\$15,000+	0.8	14.1

Notes: [†]IDU = Non-drug user.

[‡]IDU = Injection drug users; OCDU = Other chronic drug users.

***p* < .01.

****p* < .001.

depression and provides appropriate data to examine the relationship between depression, health services utilization, and associated costs (Zung 1965; Bech 1996).

Table 2. Depression Level and Drug Use

Substance Use	IDUs (N=321)	OCDUs (N=441)	NDUs (N=509)
% Normal Depression (Non-Depressed)	25.5	33.6	63.7
% Minimal to Mild Depression	30.8	26.5	23.2
% Moderate to Marked Depression	27.7	23.6	9.8
% Severe Depression	15.9	16.3	3.3

Notes: $p < .001$.
rho = .36; $p < .001$.

Univariate and multivariate analysis of resulting data was conducted using SPSS, and included chi-square, independent sample *t*-tests of means, logistical and ordinary least squares (OLS) regression.

FINDINGS

A total of 1,330 completed SDS scales was obtained. This total was reduced by removing those participants whose scales included missing data and/or non-valid responses, as well as those without a completed University of Miami Health Services Research Instrument, leaving a final *N* of 1,271 for analysis. Table 1 shows general demographics of NDUs compared to IDUs/OCDUs. Both groups were predominately African American and male (differences were not significant). Significant differences existed, however, in age, education, employment, and income. The IDU/OCDU group was less likely to (a) be under 30 years of age ($p < .001$), (b) have more than 11 years of education ($p < .01$), (c) be regularly employed (either part or full time; $p < .001$), or (d) receive government assistance ($p < .001$). They were more likely to (a) have received a GED ($p < .001$), (b) not be seeking work ($p < .001$), and (c) receive a majority of their income from prostitution or other illegal sources ($p < .001$).

The first research objective was to compare the rates of depression for the three study groups: IDUs, OCDUs, and NDUs. The SDS categories presented are those suggested by the developers of the scale: normal (hereafter referred to as non-depressed), minimal to mild, moderate to marked, and severe. Pharmacological intervention would likely be considered for those who are within moderate and severe categories. The data in Table 2 show that there was a significant relationship between drug use and depression ($p < .001$). Only about 13 percent of the non-drug users could be considered depressed compared to 40 to 44 percent of those who were drug users. This difference was clearest for those with symptoms of severe depression: less than 4 percent of those who had not used drugs were classified as suffering from severe depression while the rate for substance users was nearly five times higher. An examination of the relationship between depres-

Table 3. Depression and Drug Use Frequency

	% Non-depressed	% Depressed
Alcohol—last 72 hours*	(N = 588)	(N = 269)
No	28.2	21.6
Yes	71.8	78.4
Crack—last 12 months*	(N = 386)	(N = 269)
1-51 times	10.6	16.7
52-199 times	17.4	11.5
200+ times	72.0	71.7
Crack—last 30 days**	(N = 378)	(N = 260)
1-15 times	20.1	20.4
16-30 times	23.5	12.3
31+ times	56.3	67.3
Crack—last 72 hours*	(N = 378)	(N = 260)
No	5.8	10.4
Yes	94.2	89.6

Notes: * $p < .05$.

** $p < .01$.

sion and drug use showed a positive correlation between depression and drug use of 0.36 ($p < .001$). Depression is generally seen by clinicians as a continuous variable; however, for the purposes of presentation, further data analysis was done using only two classifications of depression: those who might require pharmacological intervention (moderately to severely depressed, or hereafter referred to as depressed), and those not likely to require intervention (the non- to mildly depressed, hereafter referred to as non-depressed). As analysis showed no significant differences between IDU and OCDU depression levels, the two groups were combined to simplify further analyses.

In order to examine the data for patterns that might indicate depression as a variable affecting decisions to use drugs, analyses included exploring the relationships between depression level and frequency and recency of drug use (see Table 3). Drug use frequency was measured for last 12 months, last 30 days, and last 72 hours for the following: (a) injection of heroin and cocaine (speedballs), cocaine (other than crack), heroin, other opiates, amphetamines, barbiturates, and tranquilizers, and (b) use other than injection of cigarettes/tobacco, alcohol (only last 30 days and last 72 hours), marijuana, crack, speedballs, cocaine other than crack, heroin, other opiates, amphetamines, barbiturates, and tranquilizers. Depression was found to have a significant relationship with only two substances: alcohol and crack. Depression was significantly related to any use of alcohol in the last 72 hours (78% of the depressed had used, versus 72% of the non-depressed; $p < .05$). Depression had a complex relationship with crack use. Lower depression levels accompanied reporting higher past-12-month use of crack (among non-depressed

Table 4. Depression Level and Sociodemographic Characteristics^a

Substance Use Group	Characteristic	% Non-depressed	% Depressed
IDUs/OCDUs	Gender ^{***}		
	Female (N = 313)	49.8	50.2
	Male (N = 449)	64.6	35.4
	Ethnicity ^{***}		
	Black (N = 307)	70.4	29.6
	White (N = 240)	52.1	47.9
	Hispanic (N = 214)	49.1	50.9
	Education Level		
	<12 th grade (N = 380)	55.5	44.5
	12 th grade (N = 218)	58.3	41.7
	Some college+ (N = 164)	65.9	34.1
	Primary Source of Income ^{***}		
	Legal (N = 201)	75.6	24.4
	Illegal (N = 270)	43.3	56.7
	Employment ^{***}		
	Full-time (N = 51)	82.4	17.6
	Part-time (N = 55)	72.7	27.3
Occasional (N = 152)	71.7	28.3	
Seeking work (N = 173)	60.1	39.9	
Not seeking work (N = 217)	41.9	58.1	
Other (N = 114)	52.6	47.4	
NDUs	Gender ^{**\}		
	Female (N = 234)	81.6	18.4
	Male (N = 275)	91.3	8.7
	Ethnicity		
	Black (N = 179)	87.7	12.3
	White (N = 162)	85.2	14.8
	Hispanic (N = 168)	87.5	12.5
	Education Level ^{**}		
	<12 th grade (N = 208)	80.8	19.2
	12 th grade (N = 186)	90.3	9.7
	Some college+ (N = 115)	92.2	7.8
	Primary Source of Income		
	Legal (N = 272)	93.4	6.6
	Illegal (N = 4)	75.0	25.0
	Employment ^{***}		
	Full-time (N = 80)	92.5	7.5
	Part-time (N = 59)	89.8	10.2
Occasional (N = 98)	93.9	6.1	
Seeking work (N = 133)	88.7	11.3	
Not seeking work (N = 44)	68.2	31.8	
Other (N = 95)	78.9	21.1	

Notes: ^aFor analytic purposes, demographic variables are considered to be the independent variables in this table while drug use status is the dependent variable. However, for ease of data presentation the independent variables have been presented here within the table (as row variables) in the position usually assumed to be for dependent variables.

** $p < .01$.

*** $p < .001$.

users, 11% reported low use [1-52 times] compared to 17% among depressed users; $p < .05$). Depression had virtually no relationship with using crack one to fifteen times in the last 30 days. However, depression had an inverse relationship with use 16 to 30 times in the last month (24% of the non-depressed reported such use, versus 12% of the depressed), but a strong direct relationship with use of 31+ times per month. While 56 percent non-depressed users reported heavy use, 67 percent of depressed users reported such use ($p < .01$). Depression also had an inverse relationship with past 72-hour crack use: 94 percent of the non-depressed reported use, compared to 90 percent of the depressed ($p < .05$).

For most substances, drug use frequency was not related to depression level. The relationship between depression and recent alcohol use is somewhat understandable, as alcohol is a central nervous system depressant. The relationship between depression and crack use is more complex, and possibly involves a combination of psychopharmacological properties and cyclic interactions of "highs" and "withdrawals" of crack which are significantly stronger than those of the other substances examined. As noted previously, being a drug user may be the result of episodic situational depression related to the stresses of being on the street, or depression may lead to drug use. Acknowledging this complexity, it can be argued that depression is clearly a part of being a drug user among this population. It is therefore an important consideration for the structural aspects of the HSR model (which include predisposing characteristics of an at-risk population).

Sociodemographic Characteristics, Drug Use, and Depression

Table 4 further examines HSR-model structural issues of at-risk population characteristics. Specifically, the relationships between selected sociodemographic characteristics and depression were explored (gender, ethnicity, education, employment, and primary source of income). These variables were chosen to ascertain if this population exhibited depression patterns similar to those established in the literature. Such patterns include higher rates for women (Munford 1994; Campbell et al. 1997; Gleason 1993) and those with fewer economic resources (Byrne et al. 1998), as well as lower rates for African Americans (possibly related to cultural measurement discrepancies in diagnostic tools; see Jackson and Wolford 1992; Farran et al. 1997; Kosch 1996; Douki and Tabbane 1996).

Gender

Consistent with the research literature, the data show that females were significantly more likely to be depressed than males in both IDU/OCDU and NDU groups. Among IDU/OCDUs, about 50 percent of females were depressed, compared to only 35 percent of males ($p < .001$). Among NDUs, 18 percent of females were depressed, versus 9 percent of males ($p < .01$).

Ethnicity

The data show that there was a significant difference in depression by ethnic group among drug users, but not among NDUs. Among IDUs and OCDUs the rate of depression suggesting pharmacological intervention among African Americans was only two-thirds the rate among whites or Hispanics. About 51 percent of Hispanics and 48 percent of whites were depressed compared to only 30 percent of African Americans ($p < .001$).

Educational Level

A significant relationship exists between depression and having less than a twelfth-grade education only among NDUs. Of those who had less than a twelfth-grade education, 19 percent reported symptoms of depression compared to 10 percent of those with a twelfth-grade education, and only 8 percent for those with some level of college ($p < .01$).

Employment

A significant relationship also exists between depression and employment among both groups. Those who were not working and not seeking employment were significantly more likely to be depressed than those who were working full or part time. Of those who were not seeking work, 58 percent of IDUs/OCDUs and 32 percent of NDUs were experiencing significantly higher levels of depression. Of those who were working at least part time, the majority (at least 73%) were not depressed ($p < .001$).

Primary Source of Income

Among drug users, a significant relationship exists between depression and primary source of income. Fifty-seven percent of those whose primary source of income was illegal were classified as depressed compared to only 24 percent of those whose income was obtained primarily from legal sources ($p < .001$). While there were also differences in depression and primary source of income among non-drug users, those differences were not found to be significant (lack of significance was likely a result of the very small number of non-drug users who reported obtaining their income primarily from illegal sources).

Summary

Overall, the data in Table 4 suggest that within this population of IDUs and OCDUs, depression was more likely to occur among: females, whites, and Hispanics, the unemployed, those with less than a twelfth-grade education, and those

Table 5. Depression Levels and Health

<i>Substance Use Group</i>	<i>Characteristic</i>	<i>% Non-depressed</i>	<i>% Depressed</i>
IDUs/OCDUs	Health Perception ^{***}	(N = 446)	(N = 316)
	Good or better	73.8	40.8
	Fair or poor	26.2	59.2
	Number of health problems last 12 months ^{***}	(N = 446)	(N = 316)
	None	20.2	7.6
	1-6 problems	75.1	78.2
	7-13 problems	4.7	14.2
	Mean number of problems ^{***}	2.26	3.63
	Limitation on light physical activity ^{***}	(N = 446)	(N = 316)
	No	85.0	67.7
	Yes	15.0	32.3
NDUs	Health Perception ^{***}	(N = 442)	(N = 67)
	Good or better	86.4	44.8
	Fair or poor	13.6	55.2
	Number of health problems last 12 months ^{***}	(N = 442)	(N = 67)
	None	25.6	6.0
	1-6 problems	72.6	79.1
	7-13 problems	1.8	14.9
	Mean number of health problems ^{***}	1.88	3.64
	Limitation on light physical activity ^{**}	(N = 442)	(N = 67)
	No	90.5	77.6
	Yes	9.5	22.4

Notes: * $p < .05$.
 ** $p < .01$.
 *** $p < .001$.

who earned their primary income from illegal activities. Among the NDUs, high depression levels were found in the same groups, but without the ethnic relationship. These findings are consistent with the literature, and indicate that this population may be representative of depressed populations. This issue becomes important to the HSR model when examining the ability of current health care services structure to identify those at greatest risk within already at-risk populations. In addition, knowledge of sociodemographic influences on depression is a key factor in later multivariate analyses on discerning the independence of depression in explaining health services need and utilization issues.

Depression and Health Status

As noted earlier, Chitwood and his colleagues (1998) report that drug use is significantly related to poor health and increased health services need. The purpose

of the analysis presented in Table 5 is to examine the relationship between depression and health status and need among both drug users and non-drug users of the same communities.

Depression was significantly related to the number of health problems experienced by study participants. Respondents were asked whether or not they had experienced 13 specific health problems including trauma, sexually transmitted diseases, and problems in the following systems: female/male reproductive, respiratory, muscle/bone, liver, circulatory, stomach/digestive, nervous, skin, eye/ear/nose/throat, and dental. Alcohol, other drug use problems, and nervous/mental health problems were also included in the instrument, but not in this section of analysis to avoid a tautology of closely related variables. The data show that there was a significant relationship between depression and the number of health problems reported in the last year. Among drug users, only five percent of the non-depressed reported having seven or more health problems, compared with 14 percent of the depressed. The mean number of health problems for depressed IDUs/OCDUs was 3.63, versus 2.26 for the non-depressed ($p < .001$). Data for non-drug users also showed a significant relationship: two percent of the non-depressed reported seven or more health problems, versus 15 percent of the depressed. Comparing mean numbers of health problems, non-depressed NDUs had 1.88, compared with 3.64 for the depressed ($p < .001$).

Consistent with the previous findings, the data show a significant relationship between depression and perception of health status (measured by respondent self-report). Of those who were not experiencing depression, only 26 percent of IDUs/OCDUs, and 14 percent of NDUs, perceived themselves as being in only a fair or poor state of health. For those who were depressed, 59 percent of users and 55 percent of non-users perceived themselves in fair or poor health ($p < .001$ for both users and non-users). The relationship between depression and health problems, sickness, and perception of poor health was continued in the relationship between depression and self-reported limitations on even light physical activities. While only 15 percent of drug users who were not depressed experienced any limits on light activities, 32 percent of those who were depressed experienced these limitations ($p < .001$). Depressed non-users were also more likely to report limitation (22%) than the non-depressed (10%; $p < .01$).

Overall, the data in Table 5 show that depression was consistently and significantly related to health perceptions and health problems. Those who were experiencing depression were more likely to perceive themselves as in fair or poor health, to have limits on even light physical activity, and to have experienced a greater number of health problems in the last 12 months than those who were not depressed. These relationships held for both users and non-users.

As with depression and drug use, the causal direction of depression and health status is not clear from the data. Depression could be involved with causing perceptions of poor health, poor physical functioning, and increased health problems. However, actually having such problems could increase depression levels.

Table 6. Depression and Health Services Need and Utilization

Substance Use Group	Characteristic	%	
		Non-depressed	Depressed
IDUs/OCDUs	Needed any care in last 12 months ^{***}	79.8 (N = 446)	92.4 (N = 316)
	Did not receive needed care ^{***}	64.6 (N = 444)	83.9 (N = 316)
	Any health problems with lack of compliance ^{**}	5.4 (N = 446)	12.0 (N = 316)
	Use of ER as primary health care [*]	24.0 (N = 288)	33.5 (N = 188)
	Any use of ER in last 12 months ^{***}	28.7 (N = 446)	41.8 (N = 316)
	Used ER 2+ times in last 12 months ^{**}	13.2 (N = 446)	22.8 (N = 316)
	Any hospital admission, last 12 months ^{**}	14.1 (N = 446)	21.8 (N = 316)
	Any use of outpatient/private services, last 12 months [*]	53.4 (N = 446)	60.8 (N = 316)
	Have any unpaid care	12.6 (N = 446)	15.5 (N = 316)
NDUs	Needed any care in last 12 months ^{***}	74.4 (N = 442)	94.0 (N = 67)
	Did not receive needed care ^{***}	48.9 (N = 442)	79.1 (N = 67)
	Any health problems with lack of compliance	5.2 (N = 442)	10.4 (N = 67)
	Use of ER as primary health care	17.5 (N = 280)	16.7 (N = 54)
	Any use of ER in last 12 months	28.1 (N = 442)	37.3 (N = 67)
	Used ER 2+ times in last 12 months [*]	8.1 (N = 442)	17.9 (N = 67)
	Any hospital admission, last 12 months [*]	15.4 (N = 441)	25.4 (N = 67)
	Any use of outpatient/private services, last 12 months	70.8 (N = 442)	82.1 (N = 67)
	Have any unpaid care [*]	10.4 (N = 442)	20.9 (N = 67)

Notes: * $p < .05$.

** $p < .01$.

*** $p < .001$.

Regardless of the causal direction, these data show that there is a significant relationship between depression and health.

Depression, Health Services Need, and Utilization

Data are presented in Table 6 that show the relationship between depression and the need for health care, whether or not needed care was obtained, source of care, and payment for care.

Needing and Receiving Care, and Care Adherence

There was a significant relationship between depression and needing care in the last 12 months for both drug users and non-users. Eighty percent of non-depressed drug users reported needing care, compared with 92 percent of the depressed ($p < .001$). For non-users, 74 percent of the non-depressed needed care, while 94 percent of the depressed needed care ($p < .001$).

However, the data presented in Table 6 also show a consistent, significant relationship between depression and not receiving care. Of those who did not report depressive symptoms, 65 percent of users and 49 percent of non-users did not receive needed care. This percentage increased to 84 percent (users) and 79 percent (non-users) for those who were experiencing depression ($p < .001$). Among drug users who did receive care, adherence with treatment instructions was significantly effected by depression. Twelve percent of depressed drug users reported at least one health problem for which they did not adhere to treatment instructions compared to five percent of those who were non-depressed ($p < .01$).

Depression and Source of Health Care

Study participants were asked if they had a primary care facility: a “place that you usually go to if you are sick or need advice about your health.” Sixty-three percent of users and 67 percent of non-users reported having a primary care facility. Of the depressed drug users who reported having such a resource, 34 percent stated that the emergency room (ER) was their primary source, compared with 24 percent of non-depressed users ($p < .05$). No significant relationship existed for NDUs between depression and use of the ER (17% for the depressed, and 18% for non-depressed).

Regarding frequency of use of various care sources, the data show that depression was significantly related to both use of the emergency room and use of outpatient/private medical services for drug users. Use of the ER (for any reason) within the last 12 months was reported by 42 percent of depressed users, but only 29 percent of the non-depressed ($p < .001$; not significant for non-users). Use of the ER two or more times within the last 12 months was also significant: 23 percent of depressed users compared with 13 percent of the non-depressed used the ER multiple times ($p < .01$). For non-users, the ratio was 18 percent of the depressed versus eight percent of the non-depressed ($p < .05$). Both depressed users and non-users were more likely to have been admitted to the hospital over the previous 12 months: 22 percent of users versus 14 percent of non-depressed drug users ($p < .01$), and 25 percent of depressed non-users, versus 15 percent of the non-depressed drug users ($p < .05$). Depression was related to use of outpatient care only for drug users: 61 percent of the depressed reported use, compared with 53 percent of the non-depressed and those with minimal depression ($p < .05$).

Care Payment

Participants were asked if they had received bills for any care over the last 12 months which were never paid. Depression was related to increased unpaid bills only for the non-drug using group: 21 percent of the depressed reported having unpaid bills, compared with 10 percent of the non-depressed ($p < .05$).

Table 7. Logistical Regression Models of Effects on Health Variables

<i>Health Variable</i>	<i>OR (95% CI)</i>	<i>Sig.</i>	
Health perception ^a	Depression		
	Non-depressed	1	
	Depressed	4.41 (3.29,5.90)	***
	Drug use		
	NDU	1	
	IDU/OCDU	1.79 (1.26,2.54)	**
	Ethnicity		
	Black	1	
	White	1.06 (0.75,1.49)	
	Hispanic	1.55 (1.12,2.16)	**
	Number of months of insurance, last 12 months		
	0	1	
	1+	1.46 (1.10,1.94)	**
	Education		
	<12 th grade	1	
	12 th grade	0.74 (0.54,1.02)	
	Some college+	0.61 (0.42,0.88)	**
Number of weeks worked, last 12 months			
0	1		
1-26	0.68 (0.49,0.95)	*	
27-52	0.68 (0.45,1.02)		
Experienced 1+ health problems in last 12 months	Depression		
	Non-depressed	1	
	Depressed	2.93 (1.86,4.62)	***
	Number of months of insurance, last 12 months		
	0	1	
	1+	2.49 (1.79,3.47)	***
	Gender		
Male	1		
Female	1.76 (1.22,2.52)	**	

(continued)

Table 7. (Continued)

Health problems limit even light activity	Depression		
	Non-depressed	1	
	Depressed	2.31 (1.66,3.22)	***
	Number of weeks worked, last 12 months		
	0	1	
	1-26	0.59 (0.40,0.86)	**
	27-52	0.56 (0.34,0.90)	*
	Legal income		
	\$0	1	
	\$1-4,999	1.82 (0.93,3.56)	
	\$5,000-14,999	2.30 (1.15,4.60)	*
	\$15,000+	2.67 (1.16,6.13)	*
	Illegal income		
	\$0	1	
	\$1-4,999	1.27 (0.82,1.96)	
\$5,000-14,999	1.89 (1.13,3.17)		
\$15,000+	1.64 (0.94,2.85)		

Notes: ^aPerception of health as fair/poor vs. good/better.
 * $p < .05$.
 ** $p < .01$.
 *** $p < .001$.

Overall, the data in Table 6 show a consistent relationship between depression and the need for care, not receiving needed care, and frequency of use of a variety of health services, including the emergency room. These data suggest that depression may be significantly involved in unmet health care needs and the use of the most expensive forms of health care (such as the ER).

Independence of Depression in Relationship to Health Need and Utilization

Within the framework of the HSR model, the data suggest that depression has a considerable impact on the extent of access as well as point of entry into the health care system (ER, private clinic, etc.). However, it is important to examine the independence of depression in a multivariate analytical model including sociodemographic variables. Tables 7 and 8 examine various health status and service utilization variables for impact from the following: depression level, drug use status (user or non-user), gender, number of weeks worked in past 12 months, age, education, ethnicity, insurance coverage, total legal income, and total illegal income. The research literature indicates that each of these variables is related to health services need and utilization (Chitwood et al. 1998).

Table 8. Logistical Regression Models of Effects on Health Services Need and Utilization Variables

<i>Health Variable</i>		<i>OR (95% CI)</i>	<i>Sig.</i>
Needed care in last 12 months ^a	Depression		
	Non-depressed	1	
	Depressed	2.93 (1.86,4.62)	***
	Number of months of insurance, last 12 months		
	0	1	
	1+	2.49 (1.79,3.47)	***
	Gender		
Male	1		
Female	1.76 (1.22,2.52)	**	
Needed medical care, care not received	Depression		
	Non-depressed	1	
	Depressed	2.63 (1.90,3.64)	***
	Illegal income		
	\$0	1	
	\$1-4,999	2.32 (1.54,3.50)	***
	\$5,000-14,999	1.82 (1.10,3.01)	*
	\$15,000+	1.52 (0.89,2.60)	
	Ethnicity		
	Black	1	
	White	1.24 (0.91,1.69)	
	Hispanic	1.59 (1.16,2.17)	**
	Gender		
	Male	1	
	Female	1.48 (1.12,1.96)	**
	Legal income		
	\$0	1	
\$1-4,999	1.87 (1.02,3.44)	*	
\$5,000-14,999	1.67 (0.89,3.13)		
\$15,000+	2.40 (1.16,4.97)	*	
Drug use			
NDU	1		
IDU/OCDU	1.46 (1.08,1.98)	*	

(continued)

Table 8. (Continued)

Any health problems with lack of compliance	Number of months of insurance, last 12 months		
	0	1	
	1+	2.36 (1.44,3.88)	***
	Illegal income		**
	\$0	1	
	\$1-4,999	0.93 (0.46,1.89)	
	\$5,000-14,999	2.20 (1.05,4.60)	*
	\$15,000+	2.88 (1.35,6.18)	**
	Depression		
	Non-depressed	1	
Depressed	2.16 (1.32,3.54)	**	
Primary provider: Emergency Room	Ethnicity		
	Black	1	
	White	0.89 (0.57,1.38)	
	Hispanic	0.47 (0.31,0.71)	***
	Legal income		
	\$0	1	
	\$1-4,999	2.36 (1.13,4.92)	*
	\$5,000-14,999	3.61 (1.65,7.90)	**
\$15,000+	2.88 (1.08,7.65)	*	
Drug use	NDU	1	
	IDU/OCUDU	0.59 (0.38,0.92)	*
Any use of ER in last 12 months	Number of months of insurance, last 12 months		
	0	1	
	1+	3.47 (2.63,4.59)	***
	Depression		
	Non-depressed	1	
	Depressed	1.63 (1.22,2.17)	***
	Illegal income		
	\$0	1	
	\$1-4,999	1.10 (0.75,1.60)	
	\$5,000-14,999	1.21 (0.75,1.93)	
\$15,000+	1.77 (1.08,2.92)	*	

(continued)

Table 8. (Continued)

Any hospital admission in last 12 months	Number of months of insurance, last 12 months		
	0	1	
	1+	4.26 (2.93,6.20)	***
	Depression		
	Depressed	1.62 (1.14,2.31)	**
Any outpatient/private clinic use last 12 months	Number of months of insurance, last 12 months		
	0	1	
	1+	3.77 (2.89,4.92)	***
	Gender		
	Male	1	
	Female	2.17 (1.62,2.90)	***
	Drug use		
	NDU	1	
	IDU/OCU	0.58 (0.41,0.80)	***
	Legal income		
	\$0	1	
	\$1-4,999	2.16 (1.21,3.85)	**
	\$5,000-14,999	2.74 (1.50,5.03)	**
	\$15,000+	3.04 (1.48,6.22)	**
	Age		
	18-29	1	
	30-39	0.56 (0.39,0.80)	**
	40+	0.71 (0.49,1.02)	
	Depression		
	Nondepressed	1	
Depressed	1.44 (1.06,1.95)	*	

(continued)

Table 8. (Continued)

Have unpaid care ^b	Number of months of insurance, last 12 months		
	0	1	
	1+	2.04 (1.40,2.96)	***
	Legal income		
	\$0	1	
	\$1-4,999	2.01 (0.79,5.09)	
	\$5,000-14,999	1.83 (0.71,4.75)	
	\$15,000+	2.99 (1.05,8.53)	*
	Illegal income		
	\$0	1	
	\$1-4,999	1.62 (0.98,2.68)	
	\$5,000-14,999	2.10 (1.14,3.87)	*
	\$15,000+	2.01 (1.04,3.87)	*
	Ethnicity		
	Black	1	
	White	1.04 (0.66,1.62)	
	Hispanic	1.68 (1.11,2.54)	*
Gender			
Male	1		
Female	1.53 (1.05,2.23)	*	

Notes: ^aDefined as the number of health problems, 0 or 1+, in last 12 months.
^bCare received from ER, hospital admission and/or outpatient/private services.
 * $p < .05$.
 ** $p < .01$.
 *** $p \leq .001$.

Health Status

The data presented in Table 7 show the variables that remained in the logistic regression models examining health perception, experience of health problems in the last 12 months, and limitations on light physical activity (all variables based on self-reported data). The analysis shows that depression had an independent and highly significant relationship with perception of health as being only fair/poor. Those with depression were over four times (OR 4.41; $p < .001$) as likely to perceive themselves as in only poor/fair health compared to those who were not depressed. Depression was also significantly related to experiencing health problems in the last 12 months (OR 2.93; $p < .001$) and limitations on light physical activity (OR 2.31; $p < .001$). While the data analysis in Table 7 show the importance of sociodemographic and economic variables in understanding health status, these data also suggest that depression has an independent and highly significant relationship with health status even when other relevant variables are entered into the model.

Table 9. Total Costs[†] of Health Services Related to Depression and Drug Use

<i>Mean Cost Differences</i>		
Drug Use Status		Mean Cost
IDUs/OCUDs	Depressed	\$3,397
	Non-depressed	<u>\$2,169</u>
	Cost Difference	<u>\$1,228*</u>
NDUs	Depressed	<u>\$2,767</u>
	Non-depressed	<u>\$2,064</u>
	Cost Difference	<u>\$703</u>
<i>Multivariate Cost Analysis[‡]</i>		
Variable	Coefficient Estimates ^{††a}	
Drug Use	\$703	
Depression*	\$1,093	
Depression and Drug Use (Interaction Variable)**	\$1,282	

Notes: [†]Total costs for ER visits, hospital admissions (inpatient stay) and outpatient visits. All cost information taken from French and Martin (1999) and given using 1997 dollars.

[‡]Additional variables included in the OLS model aside from those listed: age, age squared, gender, ethnicity, highest grade in school completed, legal income, illegal income, number of weeks worked, last 12 months, and number of months with insurance, last 12 months.

^{††}Coefficient estimates for the variables listed below (drug use, depression and an interaction variable) are for models where each variable was entered into the model independently. A model was not estimated with all three variables entered simultaneously due to significant collinearity.

^aExpressed in 1997 dollars.

* $p < .05$.

** $p < .01$.

Health Services Utilization

The following eight health services utilization variables were examined in multivariate analysis: if care was needed in the last 12 months, if needed care was not received, if the ER was used as the primary health provider, if there was any use of the ER in the last 12 months, if respondents reported any hospital admissions, if any outpatient or private clinic use was employed, if respondents had received any care for which no payment had been made, and extent of adherence with medical instructions. Depression was independently and significantly related to six of the eight utilization variables: (1) any use of the ER in the last 12 months (OR 1.63; $p \leq .001$), (2) being admitted to the hospital in the last 12 months (OR 1.62; $p < .01$); (3) use of outpatient services in the last 12 months (OR 1.44; $p < .05$); (4) needing care in the last 12 months (OR 2.93; $p < .001$); (5) not receiving needed care (OR 2.63; $p < .001$), and (6) lack of adherence with treatment instructions (OR 2.16; $p < .01$). The only two health services utilization variables that

depression was not related to in the model were the ER as primary care and having unpaid for care. It is interesting to note that having insurance at least one of the last 12 months also remained in the model for six of the eight service utilization variables. Having even low levels of insurance coverage appears to have a significant independent relationship to needing care, use of the ER, hospital inpatient and outpatient services, as well as having unpaid bills.

Initial Investigation of the Health Costs of Depression

Depression is clearly an independent variable related to the need for and utilization patterns of health services among this population. The third primary analysis objective of this paper was to examine the association of depression with health care costs. Table 9 is an initial attempt to estimate the financial impact of depression on the costs of serving both drug users and non-users in Dade County, Florida (all estimates of financial cost were made using data obtained from French and Martin 1999, and reported using 1997 dollars). The data were examined for only core costs of three actual health services rendered: ER episodes (\$495 per episode), hospital admissions (estimating the cost for an average inpatient stay at \$6,929), and the cost of an outpatient doctor's visit (\$89 per visit). These variables were chosen for their relative clarity of definition from both a cost estimate perspective as well as available self-reported data. It is recognized that this is only a preliminary analysis; resulting data provide conservative estimates and do not include other relevant costs for medication, lack of compliance with medical care instructions, or costs associated with illness such as lost wages.

Utilization patterns of ER visits, hospital admissions, and use of outpatient services for both groups show increased use of high-cost services by drug users. Mean number of ER visits in the last 12 months for non-depressed drug users was 0.63 versus 1.03 for depressed users ($p < .05$); 0.49 versus 0.75 for NDUs (not significant). Mean number hospital admissions in the last 12 months was 0.25 for non-depressed drug users versus 0.40 for the depressed ($p < .05$); 0.24 versus 0.58 for NDUs (not significant). Finally, mean number of outpatient visits over the last 12 months was 1.29 for non-depressed drug users versus 1.41 (not significant) visits for depressed drug users; 1.75 versus 2.54 visits for NDUs ($p < .01$). In estimating increases in total mean health care costs associated with depression among both drug users and non-users, the data presented in Table 9 show that the majority of the increase is seen for drug users. Depressed users had a significantly higher cost of health services utilization during the past year than non-depressed users (\$3,397 versus \$2,169; $p < .05$). While depressed non-users also had higher costs than the non-depressed (\$2,767 versus \$2,064), differences were not significant.

The relationship between drug use, depression, and health services cost was also examined using multivariate regression analyses. In the regression models the same independent variables used in the previous logistical regression analyses

presented in Tables 7 and 8 were used to examine drug use and health care costs. The results are presented in Table 9, where coefficient estimates represent cost differentials measured in 1997 dollars. Entering drug use into the model (without depression) resulted in a nonsignificant estimated total cost differential (relative to NDUs) of \$703. Depression was associated with a differential in the annual cost of health care of \$1,093 ($p < .05$) when drug use was not entered into the model.

The analyses above consider drug use and depression independently. However, the comorbidity of drug use and depression can be examined through an interaction term for individuals with both conditions. Including the interaction term in the model resulted in a differential of \$1,282 ($p < .01$) for those who were both drug users and depressed. Because the implied comparison group for those who were both depressed and drug users was actually composed of combinations of those not depressed as well as drug users and non-drug users, the cost differentials represent an increase over the combined costs of those groups rather than a comparison to a specific group.

As noted previously, these figures do not include costs of nonadherence to treatment instructions that may be due to depression, costs from other comorbidity issues (e.g., alcohol and tobacco use), loss of income from sick days, or other variables that deserve further analysis. However, this brief examination suggests that depression may be significantly related to increases in health services costs, and such increases are most strongly apparent for depressed individuals who are also drug users in this population.

DISCUSSION AND RECOMMENDATIONS

As noted previously, the concepts and analyses presented in this paper arose within a University of Miami Health Services Research Center project examining the relationship between injection and chronic drug use and increased health services need and utilization. Chitwood and his colleagues (1998) have already reported on the impact of drug use on health services need. Within the framework of this study, the authors examined the relationship between depression and drug use to determine if increased depression levels were related to increased health services need, utilization, and cost.

As this research was guided by the Health Services Research (HSR) model developed by Aday and her colleagues (1993), the model will be used to organize the discussion and recommendations. The project and analysis reported is not in any way a test of the model. Rather, the model provides a reasonable sociological framework for examining how a psychological variable such as depression may interact with health system structures. Discussion of findings will be organized by the three primary aspects of the HSR model: structure, process, and outcomes.

Structure

Structure refers to national and local organization and funding policies that affect availability of care and relate to at-risk population characteristics. From such a perspective, depression is an at-risk population characteristic. The research literature already shows that drug use is significantly related to health care need (Chitwood et al. 1998). This analysis found that within the study population, injecting and chronic drug users are at least three times more likely to be depressed than are non-drug using neighborhood control participants. Depression, then, is an additional concern within a population already at risk. Data analysis indicated that depression was significantly related to health care needs and utilization among non-drug users as well as users. However, because of the much higher rates of depression among drug users, this discussion will primarily focus on IDUs and OCDUs.

The sociodemographic analyses help to further specify the population characteristics of depression among drug users. Data analysis showed that depression rates were significantly higher among female drug users, whites, and Hispanics, those with illegal sources of income, and those not seeking work. Analysis indicated that depressed drug users were much more likely to perceive themselves to be in poor health, have more health problems, more unmet need, and more limitations on even light activity. Building on the findings of Chitwood and his colleagues (1998), which identified drug use as a significant contributor to health care need, these findings show that if drug users are depressed, there will likely be a significant increase in health care problems and need for care. Multivariate logistic analysis further showed that depression maintained its independent and significant relationship to poor health perception, higher need for health services, and limitation on even light physical activity even when relevant sociodemographic and socioeconomic variables were entered into the analytical model. Depression appears to be a very important explanatory variable in understanding increased probability for needing health care.

These data may suggest a need to modify assessment and diagnostic processes when treating drug using populations. However, in this era of capitation and managed care, there are severe pressures to focus only on primary presenting characteristics, discouraging comprehensive forms of assessment. The data presented here suggest that because of the need and utilization correlates of depression, health care systems should consider incorporating screening, assessment and, when clinically indicated, treatment of depression among drug users. The data further suggest that such assessment and successful treatment may have important process and outcome consequences for the health care system.

Process

The process aspect of the HSR model examines the actual interaction between the health care system and patients and would logically include such things as point of entry into and extent of use of the health care system. In this study depression was related in univariate analyses to increased use of the ER, hospital admissions, and outpatient services. In the multivariate logistic regression model, depression retained an independent and significant relationship with both a higher probability of ER use as well as the use of inpatient and outpatient services. Perhaps the most interesting process relationship was between depression and the use of the emergency room where depression retained its independent significance in explaining any and multiple use of the ER in the last 12 months. These data suggest that for the depressed, the ER provides a major point of entry into the health care system. While ER use indicates that health care needs are, perhaps, being met, use of the ER for system entry is inefficient and costly.

Examining the data through the HSR process component again points to the importance of depression in structural organization of health services. The assessment and successful treatment of depression could play a significant role in moving an at-risk population away from the ER, one of the most costly points of entry into the health care system.

Outcomes

Outcomes refer to such issues as the effectiveness of treating health problems, system efficiency in delivery of care within increasingly limited resources, and issues of population and group equality of access to needed care. A number of the variables analyzed in this paper can be viewed from such a perspective.

Regarding effectiveness and efficiency, data analysis showed that depression was significantly related to lack of adherence with treatment instructions (effectiveness) in univariate and multivariate analysis. Analysis showed that depression was related to the cost of health care (one aspect of the efficiency component of the HSR model). Depression added significantly to the cost of health care for both non-drug users as well as drug users through increased use of inpatient hospitalization and the ER. The outcome variable of equity—equal access to needed care—was also effected by depression. Both drug users and non-users were less likely to receive needed care if classified as depressed. While improvements in equity may result in increased health care costs (as those not currently obtaining care enter the system), cost offsets may occur by changing the point of access for drug-users from the ER to a less-expensive care option such as outpatient clinics.

The costs of health care (defined as the use of the ER, inpatient, and outpatient services) associated with drug use and depression are also of significant note. Simple mean differences between the cost of health care services for depressed and non-depressed drug users showed a cost differential of \$1,228. Multivariate

regression analysis controlling for relevant sociodemographic and behavioral variables suggested that the combination of drug use and depression was associated with a significant cost differential of \$1,282.

The data suggest that all three issues in health services outcomes (effectiveness, efficiency, and equity) may be negatively associated with depression and the current structural system's lack of attention to this issue. Improving treatment adherence and rates of obtaining care, as well as reducing overall health services need (including expensive ER system access/utilization and inpatient care) among drug using populations may require treating depression.

In considering the discussion and recommendations of this analysis, it is important to recognize the study's limitations and the need for further research. The clear delineation of cause and effect between depression and its correlates, as well as sorting out the likely recursive nature of the relationship, is impossible in a cross-sectional study. It is, therefore, difficult to conclude with any precision what the effect of alleviating depression would be on related variables. Additionally, further research needs to be done on the effects of depression treatment on reducing health care need, unmet need and the use of the ER and inpatient services among populations of drug users before any wide spread system changes should be considered. However, the fact that depression retained an independent and significant relationship to important health services need, utilization and cost variables strongly suggests the importance of further study focusing on the effects of alleviating depression.

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THE MOTIVATION-READINESS FACTOR IN DRUG TREATMENT IMPLICATIONS FOR RESEARCH AND POLICY

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ABSTRACT

This chapter summarizes findings and conclusions from recent studies exploring the role of motivation-readiness factors in drug abuse treatment. The research focuses on populations entering drug treatment, particularly therapeutic community programs in community- and prison-based settings. However, findings from studies in other modalities and from samples not entering treatment are also discussed. Issues addressed include (1) the nature of the motivational concept in recovery, (2) motivation as a variable affecting treatment retention and outcomes, (3) motivation in the treatment process, (4) differences in motivation across treatment populations and modalities, (5) client correlates of motivation, and (6) motivational enhancement. Conclusions highlight the critical role of motivation-readiness factors in understanding treatment-seeking, retention, and outcomes. Key implications are discussed for research, theory, treatment practice, and health care policy. These implications underscore issues relating to the interaction of motivation and treatment processes,

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the interaction of motivation and treatment demands, differences in motivation among special populations, client correlates of motivation, and self-selection and study designs.

INTRODUCTION

The clinical and theoretical assumption that motivation and readiness are essential to the recovery process has received critical empirical support from several lines of inquiry. Empirical studies include research that examines the Stages of Change, motivational enhancement, and in the major federally funded treatment modalities (i.e., methadone maintenance, residential therapeutic communities, and drug-free outpatient settings).

Until recently, motivational research has been conducted mainly on smokers, the obese, and alcoholics. This research is comprehensively reviewed in the literature (e.g., Miller and Hester 1986; Miller and Rollnick 1991; Platt 1995; Prochaska, DiClemente, and Norcross 1992). Less information has been disseminated about the relevance of recovery stages in general, or motivation and readiness factors in particular, among abusers of illicit drugs. The developing literature in this area is illustrated in several recent publications (e.g., De Leon, Melnick, and Tims in press; Hiller, Knight, Broome, and Simpson 1998; Joe, Simpson, and Broome 1998.)

The present chapter extends these earlier reviews with respect to the implications of motivation and readiness for clinical practices, health care policy, and future research in the treatment of illicit drug abuse. Focus is on research efforts in methadone maintenance and therapeutic community treatment for abuse of illicit drugs, as well as the treatment of alcoholism. The material is organized into several areas of inquiry: the nature of the motivational construct; motivation, treatment retention, and outcomes; motivation and treatment process; differences in motivation among subgroups of drug abusers; demographic correlates of motivation; psychological correlates of motivation; and motivational enhancement.

THE MOTIVATIONAL CONSTRUCT IN RECOVERY

The research on external and internal motivation clarifies the motivational construct with respect to treatment and recovery. External pressure refers to decisions to change behaviors (e.g., seek treatment) based mainly on perceived fears of explicit, external consequences. The research on extrinsic motivation has been largely confined to studies of legal pressure. Generally, these studies bear out the importance of external motivation as a predictor of treatment retention and outcomes. Consistent findings support relationships between legal pressure on retention in the TC (therapeutic community) and methadone maintenance treatment

modalities (see reviews in Leukefeld and Tims 1988; Platt 1995; Anglin, Prendergast, and Farabee 1998). The research on family and employment pressures is less conclusive with respect to motivation. Although limited, the published and unpublished studies support the clinical conclusion that family and job pressures can effectively influence treatment-seeking and retention (e.g., Condelli 1986; Deitch and Zweben 1996; Biase, Sullivan, and Wheeler 1996).

Internal motivation refers to certain cognitions and perceptions expressed in self-statements concerning changing drug use behaviors. These cognitive/perceptual elements of motivation (e.g., "tired of the drug life") are separate from the behavioral elements of motivation (i.e., seeking treatment). This distinction underlies motivational and readiness components of the motivational construct which have been identified in the stage formulations (e.g., Prochaska, DiClemente, and Norcross 1992; De Leon 1997).

Studies of internal motivation have utilized various ways of assessing motivation, including unstructured interviews, questionnaires, and scales. Nevertheless, they reveal consistent findings with respect to the reasons for self-quitting drug use or seeking treatment. These reasons are broadly classified into the perceived negative consequences of drug use and fatigue with the drug abuse lifestyle (Cunningham, Sobell, Sobell, and Gaskin 1994; Joe, Chastain, and Simpson 1990). Typical examples of internal motivation include the realization of addiction, health fears related to drug use, the need to reduce a chaotic life style, "hitting bottom or wearing out," or simply the cumulation of negative experiences (e.g., Crawford, Washington, and Senay 1983; Mann and Murphy 1984; Murphy, Bentall, and Owens 1989; Varney et al. 1995).

With the exception of a few studies, the positive internal motivators for quitting drugs, such as the desire for better relationships, or other positive consequences of quitting drugs have not been similarly addressed (Hall, Havassy, and Wasserman 1990; Zimmer-Hoefler and Meyer-Fehr 1986).

Research has mainly addressed the separate effects of external and internal motivation. Only a few studies have examined the relative contributions of both external and internal motivation on treatment and recovery. These studies reveal that internal motivation is more important to recovery than external pressures in respect to smoking cessation (Curry, Wagner, and Grothaus 1990), response to alcohol treatment (Ryan, Plant, and O'Malley 1995), commitment to renounce drugs (Zimmer-Hoefler and Meyer-Fehr 1986), and retention in a TC (Siddiqui 1989).

Another recent study directly evaluated the relationship between external pressure and internal motivation in samples assessed in a drug treatment referral clinic (Melnick, De Leon, and Zingaro 1996). Utilizing the CMRS (discussed below), an instrument measuring circumstances, motivation, readiness, and suitability for treatment, the study found that scale scores increased significantly and linearly across three sources of referral: legal, important others, (relationships, employers)

and self-referred. This finding suggests that external pressure did not, at least initially, relate to high internal pressure for treatment.

Regardless of the initial source of motivation, stable recovery appears to depend on the sustaining influences of intrinsic motivational factors (e.g., Cunningham, Sobell, Sobell, and Gaskin 1994; Curry, Wagner, and Grothaus 1990; Deci and Ryan 1985; Zimmer-Hoefler and Meyer-Fehr 1986). External pressure may influence internal motivation, but cannot substitute for it in the recovery process.

MOTIVATION, TREATMENT RETENTION, AND OUTCOMES

Recent theoretical formulations have emphasized the role of motivation as a continuous variable (Bandura 1997). In substance abuse treatment, recovery theory (De Leon 1995), as well as studies of motivation in the major drug treatment modalities, has pointed to the importance of motivation as a continuous influence underlying the recovery process. The research on motivational factors in the treatment of alcoholism and the major federally funded research initiatives on treatment for the abuse of illegal drugs have demonstrated consistent relationships between motivation and measures of client retention and outcomes.

Instruments for measuring motivation have been developed in research on smoking and alcoholism, drug abusers in methadone maintenance, and therapeutic community programs. Each of the instruments has been shown to provide meaningful predictions based on the measurement of motivation as a multidimensional variable.

Measurement of motivation in treatment for smoking and alcoholism has focused on the Stages of Change. The University of Rhode Island Change Assessment scale (URICA) is the most widely used of the scales initially designed to measure the Stages of Change (Prochaska, DiClemente, and Norcross 1992). Project MATCH (1997) utilized an aggregated measure of motivation based on the URICA to demonstrate a linear relationship between client motivation and treatment outcome among outpatients in alcohol abuse treatment programs. The Stages of Change and Readiness for Treatment Scales, or SOCRATES (Miller and Tonigan 1996), initially developed to measure the Stages of Change among admissions to alcohol abuse treatment programs, yielded factors associated with underlying motivational constructs.

Considerable research on motivational factors among abusers of illicit substances in the federally funded treatment programs has also pointed to consistent relationships between motivation and measures of client retention, treatment process and outcomes. Studies at the Center for Therapeutic Community Research (CTCR) at NDRI represent a large federally funded systematic research program on the role of motivation in drug abuse treatment.

The CTCR research initiative has focused primarily on TCs and has provided a theoretical framework and several related instruments based on the Circumstances, Motivation, Readiness and Suitability scales (CMRS) to assess the components of the motivational construct. The psychometric properties of these instruments are elaborated in various publications (e.g., De Leon and Jainchill 1986; De Leon, Melnick, Kressel, and Jainchill 1994) and predictive validity is now well established. Confirmatory factor analysis on data from multiple samples of short- and long-term residential TC, drug-free outpatient, and methadone maintenance treatment settings, and on special populations of substance abusers (e.g., adolescents, mentally ill substance abusers, and criminal justice clients) produced an 18-item factored CMR version (see Appendix) of the original CMRS (Melnick 1999).

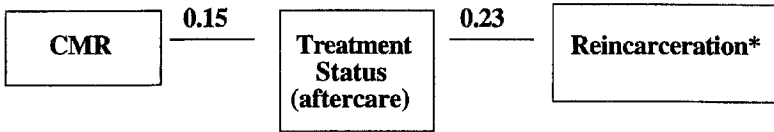
Briefly, confirmatory factor analyses show four CMR scales: *Circumstances 1 (pressure to enter treatment)* refers to extrinsic reasons to engage in treatment, such as fear of going to jail or family pressure. *Circumstances 2 (pressure to leave treatment)* refers to external pressure to leave treatment, such as financial problems or family obligations. *Motivation (internal pressures)* refers to intrinsic factors relating to the perceived need to change, including the sense that things are getting worse and/or that one's behaviors are hurting others. *Readiness (perceived need for treatment)* refers to an acknowledgment of the need for treatment in order to change. *Total CMR* score assesses the individual's overall potential or willingness to enter and stay in treatment.

Studies in TCs have demonstrated consistent linear relationships between CMRS/CMR scores and remaining in treatment, with high scoring clients twice as likely to remain in treatment for 30 days or more (De Leon, Melnick, Kressel, and Jainchill 1994). These prediction findings hold for adolescents and adults (Melnick et al. 1997), different primary drugs (De Leon, Melnick, and Kressel 1997) and substance abusers in criminal justice treatment programs (De Leon et al. 2000).

The TCU research program conducted by Dwayne Simpson and associates has focused on the role of *internal* motivation in treatment retention as a contributing factor to the treatment process. This research utilizes three factor scales: Drug Use Problems, Desire for Help, and Treatment Readiness. These scales reflect a multidimensional concept of motivation. Studies have found a relationship between high motivation and the number of sessions attended (Simpson and Joe 1993; Simpson, Joe, Rowan-Szal, and Greener 1995). Other TCU studies have shown the effect of motivation on treatment process and recidivism in prison TC samples (Broome et al. 1997).

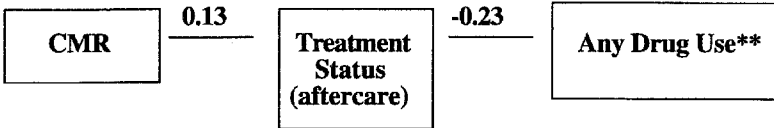
The TCU research team has also assessed motivational and readiness factors in the large-scale Drug Abuse Treatment Outcome Study (DATOS) of abusers of illicit drugs entering several treatment modalities (Fletcher, Tims, and Brown 1997; Flynn et al. 1997). Based on 20 items from the CMRS which were administered in DATOS, three factors were derived that were similar to the TCU scales

1) **Recidivism**



Chi-square=0.890 df=1 prob. level=0.346

2) **Relapse**



Chi-square=0.664 df=1 prob. level=0.415

Notes: *Number of days from prison release to first incarceration..

**Any drug use within 1 year of prison release.

Source: De Leon, Melnick, Thomas, Kressel, and Wexler (2000).

Figure 1. Amity TC Prison Program Path Analysis

(Problem Recognition, Desire for Help, and Treatment Readiness). These scales were significant predictors of retention in DATOS programs in all modalities (Joe, Simpson, and Broome 1998).

In summary, research findings from studies conducted by various research teams have identified motivational factors as consistent predictors of client retention and outcomes.

MOTIVATION IN THE TREATMENT PROCESS

The research programs at TCU and the CTCR have demonstrated the role of motivation in the treatment process in both methadone maintenance and TC samples. Consistent relationships have been obtained between internal motivation and measures of client change during and following treatment.

A recent theoretical formulation has been outlined for interpreting the motivational contribution to the treatment process in TCs (De Leon 1995, 1996, 1997). Briefly, all of the activities of the TC, both formal and informal, are viewed as interrelated *interventions*, which address the multidimensional disorder of the "whole person." Meeting community expectations for complete *participation* in all of the roles and activities of the community facilitates social and psychological changes in the individual.

Within this general theoretical framework a process formulation has been outlined which consists of a dynamic interaction between the individual and the TC community, its context and, expectations. Thus, treatment process can be indirectly investigated in relationships involving client motivation, changes in participation during treatment, and eventual outcomes.

Figure 1 illustrates recent findings supporting this formulation obtained on progress and outcome studies on samples of inmates in prison therapeutic community settings. Post-release outcomes, reincarcerations, and relapse were significantly lower in the clients who completed the prison TC and entered aftercare (Wexler et al. 1999). Motivation showed a direct effect on treatment status, which, in turn, demonstrated a direct effect on the outcome variables, reincarceration, and relapse. There were no direct effects of motivation on the outcome variables. Thus, motivation influenced treatment, which affected outcomes (De Leon et al. 2000).

The TCU studies have identified relationships between motivation and a number of treatment process variables. Client motivation at intake is associated with better therapeutic relationships (Simpson, Joe, Rowan-Szal, Greener 1997); more favorable perceptions of counselor competence and support from peers (Broome et al. 1997); and increased session attendance (Simpson, Joe, Rowan-Szal, Greener 1997).

Simpson and associates have proposed a general model for treatment process and have focused on measures of client engagement, including attendance, cooperation, dependability and motivation (Simpson, Joe, Rowan-Szal, and Greener 1997; Joe, Simpson, and Broome 1998). Cognitive strategies, such as node-link mapping (Dansereau, Joe, and Simpson 1993; Simpson, Joe, and Rowan-Szal 1997; Joe et al. 1997) have been found to strengthen the therapeutic relationship between counselor and patient and led to the attendance of a greater number of sessions. Node-link mapping consists of a visual technique for helping clients and counselors to portray core problems presented in counseling sessions by spatially representing the problem. It provides clients with a means of visualizing the linkage between specific problems and related feelings and issues, and to explore the relationship between thoughts, feelings and actions and potential problem solutions. Research has also identified the influences of motivation and the node-link cognitive mapping procedure on the therapeutic alliance, and the subsequent effect of the alliance on total number of sessions and outcome variables. The

investigators conclude that node-link cognitive strategies function as a motivational enhancement in the treatment process.

In summary, the models and results in the CTCR and TCU studies converge in illustrating the role of motivation-readiness factors in both retention in treatment and in the treatment process. Although significant, these factors alone do not fully explain the variance of retention or posttreatment status. Rather, the research indicates that motivational factors *interact* with treatment-related (and perhaps non-treatment-related) interventions which eventually leads to and sustains positive outcomes.

MOTIVATIONAL LEVELS AMONG SUBPOPULATIONS OF DRUG ABUSERS

The same research that demonstrates the relevance of motivation-readiness factors to drug treatment underscores general questions concerning motivational *differences* among substance abusers. This line of inquiry has been pursued in a program of research conducted at the CTCR. One set of studies (i.e., The Multiprogram Motivational Project) examined motivational levels in various special populations of substance abusers and in the admissions to different treatment modalities. Another set of studies has focused on identifying demographic, drug use, and psychological correlates of motivation. Findings from these and related studies are summarized from both published articles, technical reports, and papers in review (e.g., see De Leon, Melnick, Schoket, and Jainchill 1993; De Leon, Melnick, and Kressel 1997; Melnick 1999).

The Multiprogram Motivational Project involved a large secondary analysis of some 30 research studies by different investigative teams using the CMRS. Motivational levels in over 10,000 admissions to different drug treatment modalities and client populations were evaluated. Samples included community-based referral agencies, outpatient clinics, methadone maintenance clinics, and short- and long-term residential programs. Special populations included criminal justice system (CJS) clients in prison TCs and outpatient clinics, mentally ill chemical abusers (MICAs), homeless substance abusers in treatment shelters, and women's programs.

Differences in motivation among special populations are presented in Table 1. Modality was held constant with data presented for long-term residential treatment, the modality with the largest samples of the different populations. Criminal Justice residential programs demonstrated the lowest mean scores of any treatment population, followed by special programs serving MICA clients. The highest motivation scores were obtained by a program for homeless clients in a modified shelter-based TC. Some of the reasons for the lower scores among the CJS and MICA clients are discussed below (see the Implications and Correlates sections.)

Table 1. Differences in Motivation: Special Populations in Long-term Residential Treatment

Population	CMR Total Score*		
	X	SD	N
Criminal Justice	66.93	9.24	616
MICA	69.76	9.62	225
Standard TC	72.71	8.61	1760
Homeless TC	72.58	9.40	150

Note: *Anova $p < .000$.

Source: *From Melnick, (1998).

Table 2. Differences in Motivation by Treatment Modality Community-based Programs Serving General Populations

Modality	CMR Total Score*		
	X	SD	N
Referral Agency	64.36	14.25	884
Drug Free Outpatient	68.99	9.61	144
Short-term Residential	72.06	8.99	263
Long-term Residential	72.71	8.61	1760
Methadone Maintenance	72.80	7.28	464
Detox	73.71	7.65	98

Note: *Anova $p < .000$.

Source: *From Melnick, (1999).

Differences in motivation by treatment modality are summarized in Table 2. This table presents data on modality differences with population held constant. Admissions to referral agencies and drug-free outpatient programs showed the lowest motivation scores compared to admissions to short- and long-term residential programs. Admissions to a special detoxification program that served as a pathway to residential treatment, and a methadone maintenance program for HIV positive clients also showed high motivation scores.

Both special population and modality differences are seen in Table 3. This table shows differences between women entering special women’s programs and women admitted to standard treatment programs. Additionally, the table shows modality differences in motivation among women entering drug outpatient and

Table 3. Differences in Motivation: Women in Women's Programs Compared to Women in General Treatment

	Outpatient*			Residential TC**		
	X	SD	N	X	SD	N
Women in Women's Programs	46.30	5.93	737	48.88	9.37	127
Women in General Treatment	49.36	7.32	89	51.25	6.44	315

Notes: *ANOVA $p < .000$.

**ANOVA $p < .002$.

Source: *From Melnick, (1989).

residential treatment settings. Higher motivation scores in the general treatment settings were consistent with the clinical impression that many women found these programs less suitable to their needs and, therefore, required a higher level to enter motivation treatment.

Another secondary analysis was conducted on data from an evaluation of probationers in outpatient settings, the Focused Offender Disposition Program (Inciardi et al. 1997). The measurement of motivation was based on a brief 5-item version of the CMR. Probationer motivational scores were significantly lower than noncriminal justice referred samples. Probationer scores were also significantly lower than other, less coerced, criminal justice samples, such as those entering community-based and prison-based TC programs (Melnick 1999). This finding was consistent with studies reported above that show low internal motivation in samples involving a high degree of external pressure or coercion.

Additional studies with nontreatment samples have demonstrated the relationship between motivation and entry into treatment. For example, Lipton, Morales, and Goldsmith (1991) found lower CMR scores among drug abusers not seeking treatment compared to those on a TC waiting list. Studies involving homeless women found that higher CMRS scores predicted the choice to enter a women's TC (Erickson, Stevens, McKnight, and Figueredo 1995).

Overall, the findings from the Multiprogram Motivational Project and related secondary analyses conducted at the Center for Therapeutic Community Research revealed differences by subpopulation and by treatment setting. Motivational levels were lower among MICA and CJS samples compared to addicts in community-based treatments. Also, with population held constant, level of motivation was consistently associated with the demand characteristics of the treatment settings. Higher motivated clients entered residential and methadone treatment compared to those who entered outpatient drug-free settings and to those who did not enter treatment at all.

Table 4. Demographic Correlates of Motivation: CMR Total Score (Anova)

	Mean	Standard Deviation	N	Sig ^t
Age				
18-20	65.56	12.32	120	
21-26	68.29	11.64	720	
27+	69.80	10.30	2911	<i>p</i> < .000
Gender				
Men	68.77	10.85	2813	
Women	71.17	9.99	968	<i>p</i> < .000
Race/Ethnicity				
African-American	69.39	10.32	1878	
Latino	70.43	9.20	632	
White	69.07	11.78	1130	<i>p</i> < .03

Source: Melnick, (1999).

DEMOGRAPHIC AND DRUG USE CORRELATES OF MOTIVATION

This area of work is relatively new, consisting of only a few studies. Findings are summarized on relations between motivation-readiness and age, gender, race/ethnicity, and drug use variables.

Age

Research in TCs has demonstrated linear trends in motivation as age increases from adolescence to adulthood (Melnick et al. 1997). Moreover, motivation remained a predictor of retention in treatment within each of the age groups in this study. These age differences were confirmed in the other treatment samples in the secondary analysis in the Multiprogram Motivational Project (Table 4).

The age findings are in accord with long-standing clinical impressions and theoretical hypotheses concerning age-related changes with respect to drug use (and crime). Older clients are viewed as more likely to either “mature out” of their addictions without treatment (e.g., Winick 1962; Biernacki 1986) or to “bottom out” in their addiction and seek treatment. Thus, the research indicates that these familiar age-related effects appear to be mediated by motivational factors.

Gender and Race/Ethnicity

The results pertaining to gender and race/ethnicity correlates are mainly drawn from the multiprogram project described above. Table 4 shows women in community-based programs evidenced higher motivation scores than men. When the modalities were examined separately, women demonstrated significantly higher scores in the referral, long-term residential and methadone maintenance modalities. Women also exhibited nonsignificant trends toward higher scores in drug-free outpatient and short-term residential treatment. Men showed a trend toward higher scores in detox.

Race/ethnicity did not appear to be a consistent correlate of motivational scores. Table 4 shows that the Latino motivation scores were significantly higher than other race/ethnic groups. When the separate modalities were examined, however, Latinos scored higher than other groups in referral and detox, while whites scored higher in long-term residential and lowest in the referral group.

The race/ethnic results from the multiprogram project suggested an interaction between modality and client characteristics with respect to motivational levels. For example, it appeared that motivational levels of Latinos entering long-term residential treatment may have been lower than other race/ethnic groups. However, interpretations of race/ethnic differences in motivation were difficult because regional and individual programs varied in their demographic composition, as well as their cultural focus. An earlier study of admissions to a long-term traditional TC in New York City provides an example of how program differences may affect motivation. In this study, significantly lower retention, motivation, and suitability scores on the CMRS were reported for Latinos compared to other race/ethnic groups. The Latinos, however, were a numerical minority in the program suggesting causal relations between lower motivation levels, perceived suitability of the TC, and early dropout (De Leon, Melnick, Schocket, and Jainchill 1993). Thus, research on ethnic differences is needed to clarify the relationship between client motivation to enter and stay in treatment and their perceptions of the cultural suitability of treatment programs.

Primary Drug

There are few research findings on the relationship between motivation and drug of choice. Primary drug differences were obtained in the Multiprogram Motivational Project. Motivational scores were significantly higher for crack and cocaine abusers compared to marijuana and alcohol abusers, while opiate abusers were in the middle range.

The multiprogram findings were confirmed in a recently published study on motivational differences in a large sample of primary alcohol, marijuana, heroin, cocaine, and crack-cocaine abusers admitted to a long-term residential TC. CMRS scores were highest among primary cocaine abusers and lowest among

primary marijuana abusers (De Leon, Melnick, Schocket, and Jainchill 1993). In this study, multivariate analyses also examined motivation as a predictor of retention for each primary drug group. Results showed that CMRS scores were the most consistent predictors of retention in treatment for cocaine and opiate abusers, less consistent among marijuana abusers, and not apparent for primary alcohol abusers. Thus, across primary drug groups motivational levels varied and differentially predicted retention in treatment. Regardless of primary drug, however, motivation remained the largest predictor of retention in the total sample.

Drug Severity and Motivation

Severity of drug use appears to be more relevant to motivation than primary drug use. Data from several studies in the Multiprogram Motivational Project indicate that greater drug use severity was associated with higher CMR motivational scores (Melnick 1999). This finding accords with the clinical impression that intrinsic motivation to change is often influenced by persistent and severe drug use (Melnick 1998).

The association between drug use severity, motivation, and treatment variables has been explored in a recent study of prison inmates in a modified TC. Path-analytic findings indicated that severity of drug use in the year prior to incarceration predicted CMR motivation scores at admission to treatment, and that motivation predicted retention in treatment (De Leon 1997). A similar finding was obtained for the probationers in outpatient treatment in the Focused Offender Disposition Program study discussed above. Path analyses indicated that higher pretreatment drug severity related to higher readiness, which in turn predicted better outcomes (i.e., the number of negative urines) at three month follow-up. Simpson and associates (Simpson, Joe, and Rowan-Szal 1997) also found associations between drug severity, motivation, and treatment variables.

In summary, it appears that there are differences in motivation between drug abusers based on characteristics such as age, gender, and race/ethnicity, as well as the severity of drug use. It remains for future research to clarify and explain the relationship between motivation and group characteristics.

PSYCHOLOGICAL CORRELATES OF MOTIVATION

Studies at TCU and CTCR have initiated inquiry into relationships between psychological factors and motivation. A TCU study of probationers found that clients classified as co-morbid (i.e., had both serious psychological and drug abuse problems) had higher scores on the TCU readiness scale compared to those who were classified with psychopathology only, or with drug problems only (Hiller, Knight, and Simpson 1996).

These findings were partially supported in CTCR studies of substance abusers entering a standard community-based residential TC. Higher symptom scores on measures of depression and anxiety were positively correlated with higher scores on the CMR scales. However, high scores on scales of neuroses and psychoses were negatively related to motivation (Melnick 1999).

In another study of homeless MICA admissions to a TC program modified to treat this special population, motivational levels were moderately, but significantly lower when compared to non-MICA admissions to standard TCs. Comparisons across diagnostic groups (assessed with the DIS) within the MICA sample, however, revealed differences in motivational levels. More severe Axis I diagnoses (e.g., major depression or psychosis) correlated with lower motivational scores while a diagnosis of antisocial personality was related to higher motivation (De Leon, Sacks, Staines, and McKendrick forthcoming).

Thus, in these studies of admissions to drug treatment programs a relationship between motivation and psychopathology is complex, depending on the relative contribution of the drug and nondrug problems to the co-morbid disorder. Most admissions displayed psychological problems or symptoms in addition to their drug abuse. The severity of their drug abuse appears to relate to higher motivation, while the severity of their nondrug abuse disorder is associated with lower motivation. However, studies of co-morbid samples entering mental health treatment settings could further clarify the relations between motivation and psychopathology.

Psychological and motivational factors also relate to treatment-relevant variables. Findings in community-based TCs showed that initial psychological status is related to motivation which in turn predicts retention (Melnick 1999). For example, severe Axis I diagnosis was related to low motivation and low retention while measures of depression and anxiety were related to high motivation and retention. In the TCU studies motivation, personality variables, and psychological functioning were related to more positive outcomes (Broome et al. 1997; Hiller, Knight, Broome, and Simpson 1996). Path-analytic findings indicated that initial psychological scores exert both direct and indirect effects on retention and outcome.

Notwithstanding some differences with respect to prediction effects, the studies reviewed clearly underscore the dynamic properties of the motivational variable. Psychological status or change may affect motivational levels initially and throughout the treatment process.

MOTIVATIONAL ENHANCEMENT

The effect of motivation on treatment has been further demonstrated by clinical efforts to increase the likelihood that individuals will engage in treatment through activities designed to increase their level of motivation. Motivational interview-

ing developed by Miller and associates and grounded in the Stages of Change has produced positive motivational effects resulting in increased retention in treatment programs for alcohol abuse (Galbraith 1989; Bien, Miller, and Boroughs 1993; Miller 1983; Miller and Rollnick 1991; Miller and Hester 1986; Rollnick and Morgan 1995). Additional studies have reported the use of motivational interviewing with outpatient treatment for opiate abuse (Noonan and Moyers 1997; Saunders, Wilkinson, and Allsop 1991; Van Bilsen and Van Emst 1986). The interventions are designed to alter the client's decisions regarding drug abuse based on an increased commitment to change.

Other approaches to increasing retention, although not specifically targeted toward motivation, may be mediated by motivational influences. For example, behavioral conditioning techniques involving contingency management presumably affect client motivation. These techniques have been shown to increase retention in both outpatient (Higgins et al. 1993; Rowan-Szal, Joe, Chatham, and Simpson 1994) and residential settings (Kadden and Mauriello 1991).

Finally, a motivational enhancement intervention consisting of seminars by senior staff to new admissions to a residential TC resulted in significant increases in 30-day retention versus controls not exposed to the intervention (Hawke, De Leon, and Jainchill 1996). However, the increases in retention were virtually confined to clients with low initial motivation scores. The findings of this study further illuminated the role of motivation in the treatment process. Individual change (increased retention) resulted from an interaction between initial client motivation the enhancement intervention.

SOME IMPLICATIONS FOR RESEARCH AND TREATMENT

The developing research on motivation-readiness factors contains implications for further research, theory, and treatment policy. Some examples are highlighted from each of the areas of research reviewed above.

Motivation and Treatment Process

Relationships between motivation, treatment entry, retention, and outcomes have been demonstrated. How motivation operates throughout the treatment process remains to be more fully explored. One hypothesis based on a conceptual formulation of the TC process (De Leon 1995, 1996) is that initial motivation leads to treatment participation which results in clinical progress. Positive changes sustain motivation to continue to participate in treatment which leads to further clinical progress that sustains motivation and so on. Conversely, lack of positive change, or paradoxically, too rapid progress may weaken motivation to continue and lead to premature dropout (De Leon 1995, 1998).

Such hypotheses have not yet been empirically tested. The research studies at TCU and CTCR identify the direct and indirect influence of *initial* motivation on client engagement and participation in treatment activities, and on treatment outcomes. Subsequent research, however, must clarify the *changing* contribution of motivation throughout the course of treatment and document the relationship between motivation and client interest in modifying behaviors and making use of the treatment program. Moreover, the proposed model for the interaction between motivation and treatment process stresses the importance of motivation as an objective of treatment, as well as a means to the end of achieving positive outcomes. Programs must take explicit responsibility for increasing client motivation in order to facilitate the client's utilization of the treatment program. This point of view contrasts with the perspective that it is the responsibility of the client to show readiness for treatment.

Motivation and Treatment Modalities

The findings reviewed on modality differences show that motivation is higher among treatment seekers than among nontreatment seekers, or among individuals contacting a referral center. Furthermore, of the various treatment modalities, admissions to outpatient settings reveal lower motivation than admissions to residential, or methadone treatment.

It may be assumed that there are multiple factors which influence client choice of treatment modality that remain to be identified. Nevertheless, there appears to be a relationship between motivational levels and the different demand or intensity characteristics of the treatments clients enter; one which should be considered in maximizing substance abuse treatment resources. This point is illustrated in the following examples drawn from harm reduction, special programming, and client treatment matching strategies. Each addresses the issue of the motivational threshold for change.

Current harm reduction initiatives target substance users who may not be highly motivated to reduce their drug use, or ready to utilize treatment. Needle exchange programs, for example, have as their main objective reducing HIV risk associated with the use of infected needles rather than attempting to motivate active users to seek treatment for their substance abuse. These programs focus on motivating individuals to make small changes in their risk behaviors (Brown and Needle 1994). One assumption is that some proportion of the clients who reduce harmful needle sharing behavior will (or become motivated to) stop their use and/or accept the offer of treatment. Research indicates that needle exchange programs are effective for those individuals who utilize these resources (Brown and Needle 1994). Nevertheless, innovative motivational strategies are needed to increase the number of high-risk individuals using these programs.

Special programs for women, such as women's TCs, also represent a means of lowering the motivational threshold for entering treatment. The rationale behind

these programs is that standard TCs are not designed around the needs of women. Overcoming the difficulties of entering standard programs, such as leaving young children, would therefore require high levels of motivation. Evidence for this view can be seen in the higher motivation scores of women entering the standard TC programs, indicating a greater amount of motivation was necessary to overcome the obstacles to traditional TC treatment. Lower motivation among women entering women's programs indicates that obstacles to treatment have been reduced (see Tables 3 and 4).

The expansion of state correctional systems efforts to address substance use problems among inmates offers an additional example of lowering the motivational requirement for entering treatment to match the client population (as seen in Table 4). Some of these efforts are multicomponent initiatives targeted toward subgroups with different levels of problem severity. They offer intensive treatment programs, such as modified TCs followed by post-release aftercare treatment, and less intense services, such as 12-step and relapse prevention groups, and drug awareness/drug education programs. Assessment of motivational differences among inmates can guide enhancement strategies to improve utilization of these various strategies. Recent research, for example, documents the effectiveness of prison TC treatment plus aftercare in reducing recidivism to crime and relapse to drug use (e.g., Hiller, Knight, and Simpson 1999; Inciardi et al. 1997; Simpson, Joe, and Rowan-Szal 1997; Wexler et al. 1999). However, there is a need for motivational strategies to increase utilization of prison treatment, as well as post-release aftercare.

Motivation and Matching Clients to Treatment

The modality differences shown in Table 4 bear upon policy strategies that focus on lowering treatment demand to increase access to and utilization of treatment. The research suggests that client self-selection of treatment modality on the basis of motivation is the actual practice, with low motivated clients favoring treatments of lower intensity or demand characteristics. Residential treatment represents high demand characteristics in the amount of contact with the program. Methadone maintenance also represents a relative high demand by requiring daily attendance to receive methadone. Drug-free outpatient programs, on the hand, may involve contact only one or two days a week. The challenge to both policy makers and clinicians is to assess all treatment admissions and inform and motivate clients to undertake treatments which are commensurate with objective clinical criteria.

Differences in Motivation Among Special Populations

Although still developing, the research on motivational differences across special populations contains implications for research and policy. Examples are illustrated for those in the CJS and for MICAs.

The lower motivation scores among admissions to the prison-based treatment programs seen in Table 1 are consistent with other studies comparing criminal and noncriminal justice samples (Farabee, Nelson, and Spence 1993; De Leon et al. in press). Although the reasons are still speculative, lower motivation in the prison-based treatment population may reflect the contribution of non-recovery incentives for entering treatment that are more related to incarceration than to drug use. For example, inmates may be motivated to enter treatment by the general perception of a lower rate of violence in the treatment program compared to the prison at large, of a greater likelihood of avoiding transfer to another facility, and that treatment would increase the likelihood of parole. The hypothesis regarding the prevalence of non-recovery incentives for entering prison-based treatment receives indirect support from data showing that a relatively low percentage of prison-based treatment completers elect to continue in post-release aftercare (Wexler et al. 1999).

Among CJS samples which are not incarcerated, however, voluntary admissions to community-based drug treatment have higher motivation than nonvoluntary (e.g., mandated) admissions. Regardless of admission status, however, internal motivation remains a significant contributor to treatment-relevant variables. These conclusions underscore the distinction between external and internal motivational factors in treatment and recovery. They also stress the importance of assessing internal motivational differences even among nonvoluntary samples of substance abusers. Moreover, the prison TC studies demonstrate the need for research on motivational enhancement strategies to increase entry into aftercare settings.

The few studies focusing on MICA populations indicate that substance abusers with histories of serious psychiatric disorder have lower motivational levels than comparative groups of nonpsychiatric substance abusers. A clearer picture of the motivational and treatment relationships among MICA clients requires further research. For example, the findings reported were obtained on MICA samples who elected to enter drug treatment. As with all treatment seeking samples, their motivation to change is assumed to be higher than nontreatment seeking MICA clients, although data on the latter groups are not available. Nevertheless, the research indicates that within the population of MICA clients there are subgroups who are motivated to change and receptive to treatment for their substance abuse.

The Client Correlates of Motivation

Research on the client correlates of motivation is a new but potentially important line of inquiry. Although of documented importance, motivation alone accounts for a relatively small proportion of the variance of retention or outcomes. In part, this reflects the multivariate complexity of the change process which inherently limits the predictive power of particular variables. However, this complexity can be illuminated by descriptions of client differences defined by

combinations of client correlates. For example, age, drug severity, and motivation are intercorrelated variables in several research samples, particularly those in criminal justice (e.g., De Leon 1997; Simpson, Joe, and Rowan-Szal 1997; Melnick 1999). Larger samples are needed to assess the predictive power of these combined correlates (e.g., older clients with histories of severe drug use, who are highly motivated) with respect to treatment retention, progress, and outcomes.

The psychological correlates of motivation can illuminate the widely reported relationship between higher psychopathology and early dropout from substance abuse treatments. The studies reviewed suggest a complex relationship between motivation, psychopathology, and treatment relevant-variables. Among those with greater psychological dysfunction, higher risk for dropout may be mediated through lower motivation, rather than occurring as a direct effect of their psychopathology.

Motivation, Self-selection, and Treatment

The empirically documented importance of motivation-readiness factors bears significantly on issues of methodology and interpretation of treatment effectiveness. In particular, self-selection is conventionally viewed as a *problem* for research designs and for interpreting the effectiveness of treatment. For example, critiques of treatment evaluation studies conclude that the effectiveness of drug treatment remains unproven because of self-selection factors (Pelissier 1997).

The research on motivational and readiness factors supports an alternative perspective on the self-selection issue more fully discussed elsewhere (cf. De Leon 1998). Briefly, motivational and readiness factors may be considered measures or correlates of self-selection. As shown, these factors are critical to treatment seeking, retention, and the treatment process itself. In this perspective self-selection (i.e., motivation and readiness) is a *prerequisite* for treatment effectiveness. Thus, research designs must develop strategies for assessing the interaction between motivation and treatment interventions in producing treatment effects. Also, practitioners must develop strategies for *enhancing* self-selection, that is, motivational and readiness factors.

SUMMARY AND CONCLUSIONS

The present chapter examined findings from recent studies exploring the role of motivation-readiness factors in drug abuse treatment. The research examined focused on abusers of illicit drugs entering treatment in community-based and institutionally based programs, along with samples not entering treatment. The conclusions from this research are briefly summarized separately for several lines of inquiry.

Factor-based scales validated on samples of hard core substance abusers from different studies indicate that motivation is a multidimensional construct, consisting of three similar components. In the TCU studies these are labeled Drug Use Problems, Desire for Help, and Treatment Readiness. In the CTCR research these are labeled as Circumstances, or external pressures to change, Motivation or internal pressures to change, and Readiness, or willingness to enter treatment. These motivational maintenance factors are consistently related to treatment retention and outcomes and contribute to the treatment process.

Motivational levels vary across different subpopulations of substance abusers and across different treatment modalities. Comparatively lower motivational levels are obtained among criminal justice samples, younger aged substance abusers, those with lower drug use severity and those with severe psychopathology. Higher motivational levels are associated with admissions to residential TC and methadone maintenance compared to drug-free outpatient and referral settings.

The findings reviewed contain some broad implications for theory, research, and treatment policy. The role of motivation appears central to current stage formulations of the change or recovery process. For example, internal motivation and readiness to change may represent distinctive stages in the change process. These components reflect a multidimensional variable that can be viewed as the active element in the change process.

Of special theoretical significance is the role of motivation in the *treatment* process. Motivation alone does not account for the variance in retention or outcomes. However, it is a key client factor which facilitates initial engagement in treatment and which interacts with treatment interventions leading to positive outcomes. Thus motivation must be continually assessed throughout the client's treatment tenure and appropriate strategies must be introduced to enhance motivation to remain in treatment.

Although still developing, the research demonstrating motivational differences across subpopulations and treatment modalities bears upon several current treatment policy issues. For example, efforts at outreach for the under-treated, and at client-treatment matching for those who seek treatment, must be informed by the relations between motivational levels and treatment demands. Lower motivated individuals are less likely to seek treatment or to enter demanding treatments. Thus, efforts must be directed toward increasing motivational levels to seek treatment and reducing the demand characteristics of treatments to increase its acceptance among non-seekers. Among treatment seekers, educational and motivational enhancement efforts are needed to facilitate the acceptance of the appropriate level of treatment despite the demand characteristics.

The effect of a multidimensional motivational variable has now been well established. The understanding of the personal and social factors, such as the influence of past and present relationships that affect the development and maintenance of motivation and the utilization of the motivational variable to facilitate

entry into treatment, and the continuing influence of motivation on the treatment process remain the challenge for future research.

APPENDIX

Center for Therapeutic Community Research (CTCR)

Circumstances, Motivation, and Readiness Scales for Substance Abuse Treatment

CMR Factor Scales Intake Version

- Client ID Number (_ / _ / _ / _ / _ / _ / _ / _) (1_8)
- Client Gender (_) (9)
 1 = Male 2 = Female
- Client Ethnicity (_) (10)
 1 = African-American 2 = Hispanic 3 = White 4 = Other
- Client Age (_ / _) (11_12)
- Primary Drug (_ / _) (13_14)
 1 = Non-crack cocaine 5 = Alcohol
 2 = Crack 6 = Poly Drug
 3 = Opiates 8 = Other
 4 = Marijuana
- Treatment Modality (_ / _) (15_16)
 1 = Drug Free Outpatient 7 = No Treatment Entered
 2 = Day Treatment 8 = Detoxification Only
 3 = Methadone Maintenance 9 = Detoxification as Entry into Treatment
 4 = Brief Residential (0-3 months) 10 = Hospital Inpatient
 5 = Short Term Residential (4 to 6 months) 11 = Referral Center
 6 = Long Term Residential (More than 6 months) 12 = Other
- Date of Administration (_ / _ / _ / _ / _ / _) (17_22)

FOR CTCR USE ONLY. PLEASE LEAVE BLANK.

Instrument Version (_)	(23)
Program Number (_ / _)	(24_25)
October 26, 1998 Revision		

How you feel can have a powerful effect on treatment. These findings include your circumstances, the problems in your life, your feelings about yourself, and your feelings about treatment.

Carefully consider each of the questions below and indicate how closely they describe your own thoughts and feelings.

Circle the number that best describes your response.

- | 1 | 2 | 3 | 4 | 5 | 9 |
|------------------------------|--|--|---------------------|---------------------------|---------------------------|
| <i>Strongly
Disagree</i> | <i>Disagree</i> | <i>Neither
Agree or
Disagree</i> | <i>Agree</i> | <i>Strongly
Agree</i> | <i>Not
Applicable</i> |
| 1. | I am sure that I would go to jail if I didn't enter treatment. | 1---2---3---4---5---9 | ___ ⁽²⁶⁾ | | |
| 2. | I am sure that I would have come to treatment without the pressure of my legal involvement. | 1---2---3---4---5---9 | ___ ⁽²⁷⁾ | | |
| 3. | I am sure that my family will not let me live at home if I did not come to treatment. | 1---2---3---4---5---9 | ___ ⁽²⁸⁾ | | |
| 4. | I believe that my family/relationship will try to make me leave treatment after a few months. | 1---2---3---4---5---9 | ___ ⁽²⁹⁾ | | |
| 5. | I am worried that I will have serious money problems if I stay in treatment. | 1---2---3---4---5---9 | ___ ⁽³⁰⁾ | | |
| 6. | Basically, I feel I have too many outside problems that will prevent me from completing treatment (parents, spouse/relationship, children, loss of job, loss of income, loss of education, family problems, loss of home/place to live, etc.). | 1---2---3---4---5---9 | ___ ⁽³¹⁾ | | |
| 7. | Basically, I feel that my drug use is a very serious problem in my life. | 1---2---3---4---5---9 | ___ ⁽³²⁾ | | |
| 8. | Often I don't like myself because of my drug use. | 1---2---3---4---5---9 | ___ ⁽³³⁾ | | |
| 9. | Lately, I feel if I don't change, my life will keep getting worse. | 1---2---3---4---5---9 | ___ ⁽³⁴⁾ | | |

10. I really feel bad that my drug use and the way I've been living has hurt a lot of people. 1----2----3----4----5----9 ___⁽³⁵⁾
11. It is more important to me than anything else that I stop using drugs. 1----2----3----4----5----9 ___⁽³⁶⁾
12. I don't really believe that I have to be in treatment to stop using drugs, I can stop anytime I want. 1----2----3----4----5----9 ___⁽³⁷⁾
13. I came to this program because I really feel that I'm ready to deal with myself in treatment 1----2----3----4----5----9 ___⁽³⁸⁾
14. I'll do whatever I have to do to get my life straightened out. 1----2----3----4----5----9 ___⁽³⁹⁾
15. Basically, I don't see any other choice for help at this time except some kind of treatment 1----2----3----4----5----9 ___⁽⁴⁰⁾
16. I don't really think I can stop my drug use with the help of friends, family or religion, I really need some kind of treatment. 1----2----3----4----5----9 ___⁽⁴¹⁾
17. I am really tired of using drugs and want to change, but I know I can't do it on my own. 1----2----3----4----5----9 ___⁽⁴²⁾
18. I'm willing to center treatment as soon as possible. 1----2----3----4----5----9 ___⁽⁴³⁾

Note: Circumstances 1 (pressure into treatment) are represented by items 1-3, Circumstances 2 (pressure to leave treatment) by items 4-6, Motivation by items 7-11, and Readiness by items 12-18. Scoring involves reversing items 4, 5, 6 and 12 (i.e., 5 becomes 1, 1 becomes 5, etc.)

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THE IMPACT OF CENTRALIZED INTAKE ON ACCESS TO TREATMENT AND SATISFACTION WITH INTAKE PROCEDURES

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ABSTRACT

The substance abuse treatment system is currently confronted with not only more clients but also clients with a complex array of health and human service needs. Existing systems often lack both resources and the institutional structure needed to manage clients with multiple and often chronic needs. Presented in this chapter is a review of a federally funded demonstration project designed to address these client management requirements in the treatment system. The project, Target Cities, focused a variety of interventions designed to improve access to assessments and treatment, client-treatment matching procedures, linkages and referrals to other health and human service providers, and client tracking. Discussed are the history, rationale, implementation, and findings produced by these system changes in one

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main metropolitan area. The results indicated that centralized intake improved access to treatment while maintaining client satisfaction with the intake process.

INTRODUCTION

In the 1980s and 1990s, clients suffering from both addiction and emotional/psychiatric problems created new challenges for substance abuse treatment personnel. Professionals in the field dealt with these co-occurring conditions through training, specially designed programs, and collaboration with the mental health field. Nonetheless, it became increasingly clear that dual-diagnosis represented only one aspect of a more significant and pervasive shift in the profile of clients: the emergence of multiple-problem individuals and families (White 1998). Clients increasingly entered treatment with substance abuse-related issues such as criminality, gang involvement, severe physical health problems as well as problems relating to mental health, domestic violence, child neglect and abuse, housing, transportation, and unemployment.

To address their array of problems, many clients developed long histories of involvement with health and human service providers. Service patterns developed which were characterized by (a) periodic exclusion resulting from lack of access, (b) extrusions as a result of administrative discharges for failure to comply, (c) premature service termination, (d) inappropriate, ineffective, and sometimes harmful services, and (e) chronic relapse associated with nearly all problem areas (White 1998).

Retrospective analyses of the various critical service systems revealed multiple assessments that focused on a single narrow domain or problem area to the exclusion of other related problems. As noted by White (1998, p. 307), patterns were revealed in which "a single agency and a single professional discipline had intervened with limited resources, usually during a period of crisis in the life of the client."

This chapter focuses on a large, federally funded demonstration project designed, in part, to address some of these issues by promoting changes in the existing treatment system. Reviewed are the history and logic behind the project, how it was implemented, and results from one of the participating cities.

Shortly after its inception in 1989, the Office for Treatment Improvement (OTI) that became the Center for Substance Abuse Treatment (CSAT) in 1992, recognized the fragmented nature of the service system and the inability of many providers to assess and address adequately the needs of their clientele. Summarizing their position on the treatment field, CSAT stated that in major metropolitan areas "the need for treatment and related services had reached crisis proportions. Intervention, treatment, recovery, rehabilitation, health, and socioeconomic support services are often fragmented, uncoordinated, and inefficient" (DHHS 1996, p. 1). The gross mismatch between the changing profile of clients and the fragmented

service systems became the impetus behind one of OTI/CSAT's larger demonstration projects: Target Cities. The announcement for Target Cities applicants mandated four activities to address the problems that OTI/CSAT believed existed:

1. improve coordination among drug abuse, health, mental health, education, law enforcement, judicial, correctional and human services agencies;
2. establish or enhance a Central Intake Unit (CIU) and referral facilities, including automated patient tracking and referral systems, and develop appropriate computer and management information system capabilities;
3. implement measures to ensure the quality of services provided; and
4. improve treatment services for at least one population from a specified list (DHHS 1990).

Additionally, the announcement advised award recipients that a standardized assessment, protocol for matching clients to the most appropriate level of treatment, and a centralized unduplicated waiting list must be developed. Target Cities was a creative effort to build connective tissue between the elements of a categorically segregated human service system that were proving themselves incapable of addressing the needs of multiple-problem, substance-involved clients and families.

DEVELOPMENT OF THE TARGET CITIES MODEL

OTI/CSAT originally constructed the program to serve a limited number of cities that could serve as models for the rest of the nation (DHHS 1990). Eight Target Cities awards were issued in 1990, one in 1992, and an additional 10 in 1993. Ten Target Cities projects currently remain in operation (nine from 1993 and the lone project funded in 1992) and are in the process of transition to other funding sources and completing evaluation projects. OTI/CSAT believed, and it was supported in the applications, that the metropolitan areas suffered from a high prevalence of substance abuse concomitant with a demonstrated high incidence of addiction-related medical, psychological, and socioeconomic problems. At the same time, many community-based systems of substance abuse treatment were poorly equipped to deal with the complex, diverse, and changing needs of these individuals. "Business as usual" normally consisted of an individual contacting and receiving services from one treatment provider, with little regard to "matching" the individual's broader range of needs with the services most appropriate but available elsewhere.

OTI/CSAT also was concerned about the potential lack of treatment openings at the provider location. Lacking any centralized waiting list management (a core component of Target Cities), clients either waited and remained "ready" for treatment (hopefully at the provider site that served their needs best) or navigated the

substance abuse treatment system on their own to locate available treatment slots. This method created barriers for treatment when the individual had scant psychological, physical, and tangible resources. Furthermore, individuals who tried to independently navigate through the treatment system often found themselves waiting for slots to open on multiple independent waiting lists, while living in environments that potentially accepted or enabled continued substance abuse. Significant numbers of these clients were lost to recovery as a result of lack of immediate access and poor waiting list management. Through integration of the service delivery system and establishment of CIUs, Target Cities sought to quickly and efficiently assess the needs of individuals seeking treatment and refer them to the first available treatment slot at a provider site equipped to address their array of problems.

HISTORICAL ANTECEDENTS TO THE TARGET CITIES MODEL

During the 1970s, many cities opened a Central Intake Unit (CIU), and instituted other system changes like those prescribed by the Target Cities program (Massing 1998). Dr. Jerome Jaffe, a specialist in psychopharmacology, was the individual most instrumental in putting these systems in place during the early 1970s. In 1967, Jaffe was placed in charge of a pilot program in Chicago to deal with the spiraling problem of heroin addiction. By 1970, he had overseen the development of 15 drug treatment facilities in Chicago and established a CIU to make it easier for addicts to get into treatment.

The CIU that Jaffe developed was a single point of access model and included a physical examination as part of the assessment, consultation with a counselor, matching substance abusers with an appropriate treatment program, and maintaining a centralized waiting list for all publicly funded drug treatment services (Jaffe 1999; Massing 1998). Eventually, this pilot would be reborn in the Target Cities program.

In 1971, Jaffe was recruited by President Nixon to run the newly created Special Action Office for Drug Abuse Prevention (SAODAP) and implement the newly declared federal "war on drugs" (Massing 1998). To effectively engage the enemy, SAODAP was given unprecedented funding that was used to increase treatment capacity (some cities had excess capacity by 1973). Such as the one in Chicago, the proliferation of CIUs and systems of care was a result of SAODAP issuing contracts to cities to set up CIUs and Chicago-like systems.

Although Jaffe was instrumental in the establishment of CIUs, others also created systems similar to the one in Chicago. These systems emphasized multimodality treatment to provide the appropriate treatment services at the correct time. Dr. Effren Ramirez, an early pioneer in these efforts, brought a model she initially developed in Puerto Rico to New York City in 1996. The model was similar to the Chicago system in that multiple treatment modalities were linked to the client's

needs and maturational level. Based on Dr. Ramirez's work in New York, both Chicago and New Haven, Connecticut set up similar systems to deal with heroin addicts. The New Haven model was developed under the tutelage of Dr. Herbert Kleber and began operation in 1986. The Illinois program was initiated the same year as part of the Illinois Department of Mental Health.

In Illinois, the blending of federal (National Institute of Mental Health) and local funding (Illinois Drug Abuse Program [IDAP]) was instrumental in the initiation of a multimodality treatment system, as well as the source of the pilot funding for the overall system and CIU that were implemented (Senay et al. 1973). Many officials within IDAP, who are highly regarded in the treatment field, played a major role in this developmental process. Edward Senay, John Chappel, Patrick Hughes, and Pierre Renault were among this esteemed group of researchers (White 1998). The success that Jaffe enjoyed in Chicago could not have occurred without the support and leadership of these individuals and others within IDAP.

As part of the Reagan revolution, the pendulum of the federal drug focus swung away in the early 1980s from supporting treatment for the substance abuser to funding law enforcement and interdiction. As a result, the federal government increased drug enforcement budgets by 20 percent and decreased treatment funding by 25 percent (Besteman 1990). When inflation-driven cuts that occurred during the Carter administration are included in the calculation, drug treatment funding was reduced by approximately 43 percent. Adjusting for inflation, the federal budget for drug treatment was less than one-fourth of the 1974 level (Besteman 1990).

As the federal government moved away from funding health and human services programs at the local level, cities and their drug treatment programs faced difficult choices. Opposition to CIUs at the local level had always existed, mainly from providers. The opposition to CIUs for the Target Cities program, twenty years later, included all of the earlier concerns. (These objectives will be outlined later in the chapter from the experience of the Chicago Target Cities project.) Perhaps a statement by Jeffrey Donfeld, a domestic policy adviser during the Nixon era, succinctly summarizes why local programs, operating with limited resources, permitted or actively lobbied for the extinction of CIUs. Donfeld had visited numerous treatment programs and wrote, "personnel of each program had something disparaging to say of another program, ostensibly because they all are competing for the same dollar but probably because each is a very parochial zealot believing that his program is the true panacea" (Massing 1998, p. 103). Worse yet, modalities and particular programs within those modalities were organized into ideological camps that were openly hostile toward one another—even to the point of refusing to attend meetings at which opposing representatives would be present (White 1998). With the massive budgetary cuts for drug treatment, the competition among treatment programs escalated. Moreover, these cuts increased antagonism toward CIUs because they also competed for dollars from the same limited

pool and made decisions about which provider would receive referrals. Thus, CIUs all but disappeared from the national treatment service landscape.

From 1986 through 1990, the growing awareness of cocaine-generated crime and violence, the cocaine-involved deaths of prominent sports figures and celebrities and the explosion of drug-related HIV/AIDS culminated in an infusion of money for drug treatment services (White 1998). These additional funds made possible a reconsideration and possible rebirth of the CIU model.

DEVELOPMENT AND IMPLEMENTATION OF TARGET CITIES

Shortly after the creation of OTI in 1989, Dr. Jaffe joined the agency as a special assistant to the administrator. Perhaps not coincidentally, the arrival of Jaffe and a federal government refocusing on drug treatment, legislation was crafted that called for funding the Target Cities program. The creation of Target Cities was rooted in the successes during the early 1970s of similar models and was less dependent on a particular theoretical approach or body of scientific literature. Indeed, Jaffe, earlier in his career, made it very clear as to how he approached implementation of programs. One of the individuals who worked with Jaffe in the original Chicago model recalled that, "Jaffe's mind was not encumbered by the usual structures. As with the rats in his lab, he'd see the program in experimental terms. He'd say, 'Let's buy that building, set up a clinic, structure it this way, and if it doesn't work, we'll change it, and if it still doesn't work, we'll close it'" (Massing 1998, pp. 95-96). The creation of Target Cities was informed by lessons from the past—that is, by the Chicago model and the early SAODAP successes.

In the intervening years of limited funding for drug treatment, during which almost all of the CIUs were dismantled, changes had occurred that made it possible to increase the buy-in (albeit not fully embracing the entire package) of local officials and providers to apply for and institute the Target Cities project. The reasons were practical and had little to do with theory or scientific evidence that would support the broad system changes proposed. It was only in the late 1980s that affordable Management Information Systems (MIS) were capable of providing the type of support required by the Target Cities model. Development of these MISs ranged from approximately \$250,000 to \$1 million (DHHS 1996). Many jurisdictions openly welcomed the infusion of money to upgrade or build an MIS.

While MIS technology was improving and related costs were decreasing, the cost of health care was rising. Consequently, many governmental systems were moving toward some type of accountability and management in their health care systems. In the field of substance abuse treatment, many states and counties were looking at managing care in some sort of systematic and centralized fashion to improve client treatment matching procedures, better control costs, and embed outcome measures into their programs. Rohrer and colleagues (1996) and Wick-

izer and colleagues (1994) discussed using some version of a CIU model in this context.

The emergence of information technology, the desire to make their treatment systems more accountable, and the opportunity to tap into a large pot of funding (some of the early Target Cities received first-year funding in the neighborhood of \$3 to \$4 million) helped many jurisdictions overcome their inherent dislike of CIUs. Some of the recipients verbalized that they did not intend to follow the single site model explicitly and would adapt it to their own needs. The very differing types of CIUs that emerged corroborate these statements.

The extant literature on CIUs and their impact on the treatment system and individual outcomes is sparse and conflicting. Some researchers reported positive effects of a CIU on treatment outcomes (Wickizer et al. 1994) while others reported negative effects (Rohrer et al. 1996). To add to the confusion, what constituted a CIU varied greatly across these few studies. Therefore, it is imperative to develop a body of knowledge that can speak to this critical issue of managing the substance abuse treatment needs of the population accessing publicly funded services.

Early in the Target Cities experience, and to some extent following the projects funded in 1993, a general belief existed within CSAT that structuring the CIUs around the 1970s' model was the appropriate way to accomplish the goals of Target Cities and an appropriate national prototype. CIU was defined as a single point of entry to the treatment system. In a CIU system, all potential clients in a metropolitan area access screening, assessment, other ancillary services (e.g., physical health exams) and referral at a single location: no assessments are performed at the treatment provider sites, and the treatment providers have no control over the referrals to their program.

In Target Cities, even with the acceptance of large sums of money and written agreements to institute this type of CIU system, local officials and service providers were reluctant to adopt the single site model. To combat provider resistance to the model, and to implement a system that local jurisdictions deemed the most logical way to increase access and improve outcomes for clients, the Target Cities sites developed differing models for managing the intake process and access to treatment.

The single CIU model of 1970s Chicago turned out to be atypical, rather than the norm. What emerged as an alternative was something that came to be known as "Centralized Intake"—that is, systems that provided standardized assessment, physical health screening, matching of clients to appropriate treatment programs and other requirements for a CIU, but accomplished these tasks at two or more locations as opposed to a single site. Consequently, Target Cities mostly developed systems with Centralized Intake Units.

The prevalent tendency to speak of a CIU, central intake, or centralized intake as a unitary phenomenon or as identical models is misguided. Target Cities has developed a variety of ways to implement central/centralized intake systems. Dis-

cretely defining the important dimensions resident in the family of systems interventions can enhance the understanding and comparison of different models. Evaluations of the efficiency of central/centralized intake (Rohrer et al. 1996; Wickizer et al. 1994) suffer from a lack of explication of important characteristics of the intervention across sites and programs. This failure may lead to specious conclusions about what may or may not work due to a lack of clear understanding of the many varieties of centrally managed access to treatment. Target Cities has created an opportunity to push this dialogue forward and begin to define and measure the effectiveness of different ways of managing access to substance abuse treatment systems.

Target Cities models differed around key dimensions across the sites. Beyond the differences previously noted between CIU (single site) versus Centralized Intake Units (multiple sites), there was variability in where the individual could access assessment (even in a CIU model), where and how referral and matching were accomplished, and where authority resided to make decisions to change the modality or level of care the client received.

In some cities the CIU was the *only* point of access for assessment, in other cities with a single CIU, individuals could access an assessment from either the CIU or any treatment provider they chose. For sites using Centralized Intake (multiple CIUs), access to assessment was even more variable, ranging from individuals being required to access assessment services at a specific Centralized Intake Unit (based on rules, such as their geographic catchment area) to the individual having the freedom to go to any Centralized Intake Unit or any treatment provider for assessment. In general, the more restrictive the system, the easier it was to manage both personnel and tracking clients within the system. The exclusive use of one CIU for all assessments made tracking, follow-up, and information management the least difficult. However, to the extent a city did not have a good public transportation system and a relatively confined geographical area, the single-site model presented potential barriers to client access. Additionally, clients sometimes hesitated to travel to a particular site, because they often perceived risks in crossing ethnic/racial, and potentially gang boundaries. Obtaining treatment provider support for this type of model proved extremely difficult. Although the single-access CIU was the original model called for in the Target Cities project, it was the least utilized.

At the other end of the spectrum was the implementation of a system with multiple Centralized Intake Units and policies that allowed individuals to choose any Centralized Intake Unit or any treatment provider for assessment. Obtaining provider buy-in for this model was easier and also assured that individuals could access assessment services at the location of their choice. A disadvantage in this model is that information management, tracking, and follow-up are highly complex and cumbersome processes. Additionally, allowing the individual to choose their own point of assessment, and for providers to make independent referral and matching decisions makes an integrated system of care that includes standardized

assessment, matching, referral, and a centralized waiting list extremely difficult to implement and monitor.

In general, matching and referral across the cities occurred at the site where the assessment was performed. Variation existed within and across sites on how formalized this process was and what decision rules were utilized. Although some cities attempted to match and refer clients based on items such as service needs, gender and problem severity—to name a few—for most, service availability and client preference played a major role as to where the client was referred.

Changes in modality or level of care varied from being managed by the CIU, or lead Centralized Intake Unit, to providers making their own decisions based on their own protocols. Some CIUs and Centralized Intake Units required clients to return for a reassessment prior to adjusting to the modality or level of care. Once again, the more centrally managed systems yielded the best results in terms of information management, tracking and follow-up.

In addition to determining the impact on clients, a cost analysis comparing these various models of system changes would also be helpful. Although some programs attempted to provide such estimates, unfortunately no data exist at this time from any of the cities that reflect an accurate cost estimate for the operation of any type of a CIU or Centralized Intake Units.

When most Target Cities projects were being planned, the local provider community questioned whether a CIU or even Centralized Intake Units for publicly funded substance abuse treatment clients could improve upon the existing systems in which clients chose their own point of entry. One study conducted in Iowa (Rohrer et al. 1996) reported that system changes like Target Cities simply create another barrier to treatment by adding an additional step in the process. This added impediment resulted in reduced access, decreased client satisfaction, greater drop-out rates, and poorer outcomes. The results of the Iowa study contradicted, at least partially, findings from a Washington State study (Wickizer et al. 1994) that showed enhanced treatment completion rates for individuals who accessed treatment through Central Intake units. A reading of these two papers, in addition to the editorial rejoinder in *Psychiatric Services* (Hedquist 1997) regarding the Iowa study, clearly indicates that the assessment and referral systems being discussed (Iowa and Washington) are quite dissimilar. Arguably, the Iowa model lacked basic referral mechanisms, did not attempt to match clients to specific programs, did not forward assessments to programs where clients went for treatment, and did not operate a centralized unduplicated waiting list. Certainly the Target Cities model would view the lack of coordinated services, waiting list management, and active referral of the Iowa version of “centralized intake” as undesirable and fundamentally flawed. As such, it does not qualify as a Target Cities model as specified in the CSAT request for proposals from applicants. Unfortunately, based on misunderstandings about this one study, some providers contend that central or centralized intake systems lead to poorer treatment outcomes.

The data that will be presented from the Chicago Target Cities project addresses some issues related to centralizing access to substance abuse treatment and its impact on client satisfaction with the intake process. Treatment retention and client-level outcomes also are being measured in Chicago as well as other Target Cities programs, but only preliminary data are currently available. Nonetheless, these data are promising and appear to indicate that retention and outcomes are substantially the same, or in some cases better, when individuals access publicly funded treatment through CIU/Centralized Intake Units. The type of structure for centralizing intake may be an important covariate in answering the questions regarding retention and outcomes.

A variety of components impact the efficiency with which a central/centralized system operates. All Target Cities implemented not only different intake/assessment/referral processes, but also incorporated a range of different interventions designed to improve the system. As is clear from the Target Cities experience, operationalization of central or centralized intake may vary greatly depending on the underlying assumptions upon which the system is built and impacts how individuals access treatment and their respective outcomes. Furthermore, although beyond the scope of this chapter, the mix of linkages and support services connected with a central or centralized system needs to be understood if meaningful comparisons and judicious policy decisions are to be made. In the upcoming sections, an overview of the Target Chicago model is provided along with the results of the impact of this model on clients' access to treatment.

OVERVIEW OF THE TARGET CHICAGO MODEL

As discussed earlier in this chapter, each city proposed its own unique set of system interventions and sometimes their own names for their project. In the case of Chicago, what CSAT referred to as the Chicago Target Cities project became locally known as "Target Chicago." In Chicago, the primary intervention focused on centralizing intake and controlling access to substance abuse treatment. Prior to centralizing intake, individuals seeking substance abuse treatment presented at the treatment program of their choice. In 90 percent of the cases, clients were admitted to a level of care offered by the treatment agency to which they presented (Scott, Foss, and Weber 1998). This finding corroborated what was learned during the development phase of the model from focus groups consisting of clinical staff. Specifically, assessment counselors and clinical supervisors from programs across the city reported that the lack of information about other treatment programs often resulted in clients being placed on wait-lists at their respective agencies, as opposed to being referred to other treatment programs.

One of the underlying assumptions of the Central Intake model was that a single access point with real time knowledge of treatment availability across agencies would expedite access to treatment. Moreover, by managing a single wait-list, the

unmet need for treatment would be better monitored. Given these assumptions, the model implemented in Chicago required individuals to access treatment through a single access point referred to as a CIU or Access Point where they were assessed and referred to treatment. In addition to centralizing intake, the Target Chicago model incorporated a more comprehensive assessment and standardized client treatment matching criteria than existed in many single programs, a centralized unduplicated wait-list, and an MIS for tracking clients through the treatment system.

Although the original proposal identified the entire city as the service area for implementation of the model, during planning meetings major stakeholders recognized that a single access point for a large metropolitan area would be grossly insufficient. They later agreed that the model should be scaled down to serve smaller geographic regions represented by networks of providers enlisted to adhere to a single entry point for access to treatment.

Treatment providers that joined the network chose one organization that would operate as the CIU for client assessment and treatment referral. Unlike several other Target Cities models, the Chicago model was a closed network system in which a specific set of treatment providers defined the CIU catchment area. Treatment staff no longer conducted assessments with clients who presented at their agencies but, instead, referred them to the CIU. In some cities, the treatment providers could choose to keep the client rather than send them to the CIU. This system can result in “creaming” whereby the programs keep the less severe clients and the ones who provide more economic benefit. When committing to participate in the provider network, program representatives also understood that clients they refer to the CIU may not necessarily be referred back to the referring program for treatment and conversely, that the agency would likely receive referrals for clients who had not originally contacted them.

Treatment programs were motivated to join the network for a number of reasons. First, given that the CIU model was intended to improve access to treatment, it was predicted that the programs would serve a larger number of clients. Second, because CIU staff members conducted client assessments, treatment programs would ideally have more time to provide direct treatment services. Third, as part of the CIU experience, clients were screened for a variety of co-occurring problems and either linked or referred to other service systems to more effectively address their needs. Fourth, the promise of a comprehensive marketing plan for the network could provide individual agencies more exposure than they could accomplish on their own. Finally, the Target Cities model was designed to be a self-correcting system. Specifically, evaluation data was collected and feedback was given to providers and CIU staff members regarding CIU performance.

Ultimately, two CIUs were opened during the life of the project: the first served the north side of the city and the second served the west side. The combination of agencies in both networks provided a wide array of substance abuse services including: outpatient, intensive outpatient, short-term residential, long-term resi-

dential, halfway house availability, and methadone treatment. Economically disadvantaged adult Chicago residents who required publicly funded substance abuse treatment services were the target population in both networks.

GOALS AND OBJECTIVES

The Target Chicago model was designed primarily to improve access to treatment by decreasing the amount of time clients waited to access treatment. Specifically, it was predicted that adherence to and management of a centralized wait-list would improve the efficiency with which clients gained access to treatment and moved through the system. Daily monitoring of capacity in the Target Chicago network programs via the MIS was expected to decrease the amount of time clients waited to access treatment by allowing CIU staff to immediately identify and fill available slots. Given the magnitude of the proposed system changes on clients' intake and accessing treatment experience, another goal was to, at a minimum, maintain clients' level of satisfaction and optimally, increase satisfaction with the intake process.

Demonstration projects as complex as Target Cities can be particularly powerful because they are designed to improve functioning at a multitude of levels within the system (e.g., initial access, service coordination, treatment quality, and client outcomes). As with any demonstration program, prior to implementation it is unknown whether it will achieve its promised goals or whether the interventions will produce a negative effect. Consequently, during the development phase of Target Chicago, several staff members representing treatment programs across the city debated the potential advantages and disadvantages of centralizing access to treatment as well as the other proposed components of the model.

At the forefront of many of these debates were the potential negative impacts that a single access point could have on treatment providers and clients. It was argued that a *single* location would inconvenience clients, forcing them to learn and negotiate a new "system" for accessing treatment, which would result in increased no-show rates to *assessment* and ultimately lower the numbers of clients who successfully entered treatment. In addition, some believed that a single access point would create a bottleneck. Instead of decreasing the *amount of time* that a client waited to access treatment, the wait time would increase. It was unclear whether staff at a single site could efficiently handle the client flow that was currently managed across a dozen programs. Others expressed concerns about the length of the proposed "comprehensive" assessment which was designed for persons who could be suffering from substance abuse as well as co-occurring conditions. During the pre-CIU phase, in some treatment agencies the intake-assessment process required only 30 minutes to complete while the proposed CIU assessment required over two hours. Treatment staff also raised con-

cerns about the proposed assessment's sensitivity to gender, racial, and ethnic issues.

Given that the proposed system changes could negatively impact clients' experiences as well as create an economic burden for treatment providers, the evaluation focused not only on the ways in which the proposed system interventions were promised to positively impact, but also the ways in which they could potentially negatively impact the treatment programs and clients. Specifically, both positive and negative impacts of a single access point with new assessment, intake, and referral procedures were investigated. In the next section, the evaluation design, questions, and results are discussed.

EVALUATION DESIGN

The evaluation design for this project was a quasi-experimental design comparing two sequential groups of clients from the same geographic catchment area. The first group, *pre-CIU*, included individuals who accessed publicly funded treatment directly from designated treatment programs. These programs had agreed to join the network that was later served by the CIU on the north side. At the time data was collected from the pre-CIU clients, the CIU was not yet opened but the network of providers had been identified. The second group, *CIU*, included clients who accessed publicly funded treatment through the CIU. After the CIU opened, clients could no longer enter treatment directly through participating treatment programs.

In order to determine the amount of time clients in both conditions (pre-CIU, CIU) waited to access treatment the dates of critical events were documented, including the date clients made contact to schedule an assessment (initial contact), the date they completed their assessment, and the date of the first available treatment appointment. These data were collected during a fixed time period at all treatment programs and the CIU. Consequently, all three dates were available for only those clients who initially contacted the CIU and successfully showed for an assessment within the fixed time frame. However, for those who made their initial contact before the start date but were assessed during the time frame only their assessment date and date first available treatment are available.

Among those who showed for assessment, the majority of clients in this study described themselves as African-American (61% pre-CIU, 63% CIU), while the rest described themselves as either Hispanic (19% pre-CIU, 17% CIU), white (18% pre-CIU, 18% CIU) or other (2% pre-CIU, 2% CIU). Slightly less than one-half of all clients were female (48% pre-CIU, 46% CIU) with a median age of 35 for both pre-CIU and CIU clients. About 2 in 10 clients described themselves as homeless (20% pre-CIU, 18% CIU) and about one-half as unemployed (51% pre-CIU, 48% CIU). A little more than 1 in 10 (12% pre-CIU, 13% CIU) clients said they were referred to treatment by the criminal justice system. Many clients

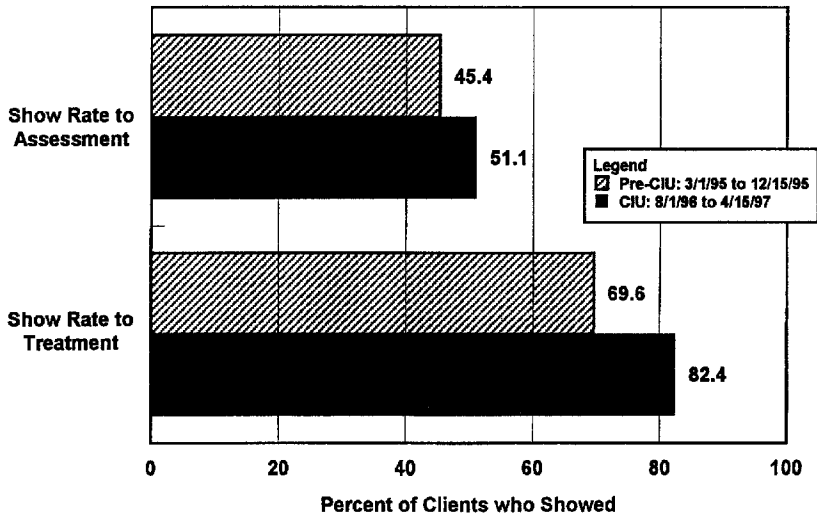


Figure 1. Show Rates: A Comparison Between Pre-CIU and the CIU

reported being hospitalized during the past six months (38% pre-CIU, 54% CIU). The most common major substance abuse problem for clients was described as alcohol use in conjunction with one or more drugs (48% pre-CIU, 32% CIU). Other clients were judged to have a major problem with alcohol (15% pre-CIU, 13% CIU), multiple drug use but no alcohol (13% pre-CIU, 16% CIU), heroin (12% pre-CIU, 14% CIU), cocaine (9% pre-CIU, 14% CIU), or some other single drug (3% pre-CIU, 11% CIU).

RESULTS

Did Centralized Intake Improve Access to Treatment?

In order to determine whether the CIU improved access to treatment, the evaluation team, in collaboration with the participating treatment staff, tracked the amount of time clients waited between their initial contact for an assessment appointment, completion of their assessment, and the first available treatment appointment. They also documented the no-show rates to both assessment and treatment in the decentralized (pre-CIU) and centralized intake system (CIU) to determine whether or not a single access point increased no show rates.

This information was tracked for approximately 2,000 clients during the pre-CIU phase, which served as a comparison or baseline for the CIU clients. During

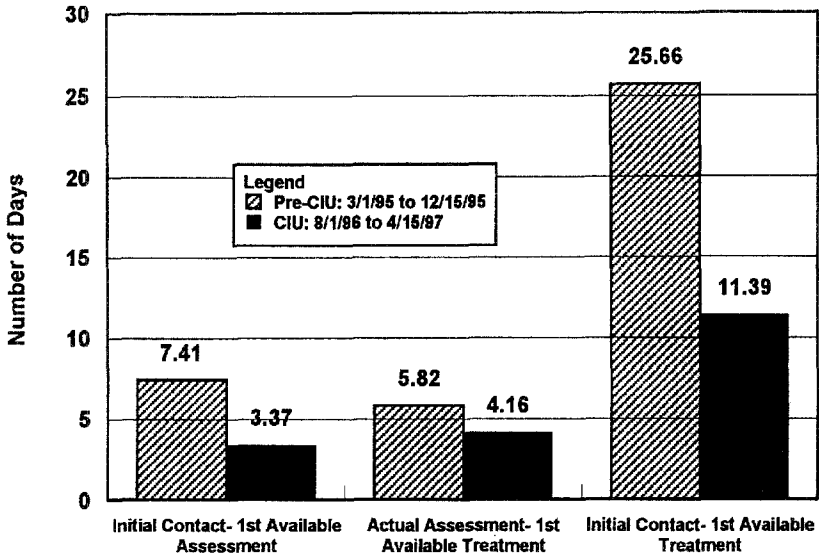


Figure 2. Time Between Intake Stages: A Comparison Between Pre-CIU and the CIU

the CIU phase, the evaluation team and CIU staff tracked the same variables for 3,200 individuals who contacted the CIU to access treatment. As shown in Figure 1, during the pre-CIU phase, 45 percent of the clients showed for their assessment whereas 51 percent of the clients who accessed treatment through the CIU showed for their assessment ($\chi^2 (1) = 15.4. p < .001$). Moreover, approximately 70 percent of the clients who accessed treatment directly at the treatment programs showed for the first treatment session (assessment does not qualify as a first treatment session in either condition) as compared to 82 percent of the clients who accessed treatment through the CIU ($\chi^2 (1) = 58.2. p < .001$). In both instances, a significantly higher percent of CIU clients showed for their assessment and/or the first treatment session than those clients who accessed treatment directly at the program sites.

As noted earlier, limiting access to treatment to a single site might increase rather than decrease the length of time clients actually wait before accessing treatment. This delay may occur at any one of a number of steps in the pretreatment process including the availability of an assessment appointment, completing the assessment, and the availability of a treatment slot. To determine whether a single access point for treatment decreased the wait time for clients as predicted, we measured (a) the number of days between the client’s initial contact for the assessment and the first available assessment appointment, (b) the number of days

between the assessment completion date and the first available treatment appointment, and (c) the number of days between the client's initial contact for an assessment appointment and the first available treatment appointment for both pre-CIU and CIU clients (see Figure 2).

Pre-CIU clients who contacted treatment programs to schedule an assessment waited an average of 7.4 days before an assessment appointment was available. In contrast, clients who contacted the CIU for an assessment waited an average of only 3.4 days ($t'(1402) = 9.6, p < .001$, the Satherwaite Approximation for degrees of freedom was used to correct for unequal variances). Clients in the CIU group also waited less time between their assessment and the first available treatment opening ($\bar{x} = 4.2$ days) than clients during the pre-CIU Phase ($\bar{x} = 5.8$ days; $t(1225) = 5.1, p < .001$).

The next analysis compared the average amount of time each group waited between the initial contact with the treatment agency for an assessment to the first available treatment opening. As shown in Figure 2, treatment slots were available in a significantly shorter amount of time for clients in the CIU condition than clients in the pre-CIU condition who tried to access treatment directly from the treatment program (11.4 days vs. 25.7 days; $t'(444) = 7.9, p < .001$).

Were Clients Less Satisfied with the Intake Process Once it Was Centralized than When it Was Decentralized?

At the same time the evaluation team also measured the amount of time clients waited to access treatment in the two conditions (pre-CIU vs. CIU), the impact of the system change on client satisfaction was also monitored. Specifically, the evaluation team asked clients from both groups (pre-CIU and CIU) who showed for their assessments several questions about their experience with the intake process including: (a) whether critical members of the program staff (phone personnel, front desk personnel, case managers, nurse, counselor) were friendly, helpful, and knowledgeable; (b) if the facility was easy to get to; (c) if the facility was clean; (d) whether the intake process was sensitive to gender, racial, and ethnic issues; (e) whether they would recommend the agency to friends in need of similar help; and (f) whether they were satisfied with the amount of time in which the intake process was completed.

During the pre-CIU phase ($N = 949$), when clients were accessing treatment directly at the treatment program sites, a high percentage felt that the telephone staff were friendly (96.3%), helpful (95.3%), and knowledgeable (93%). Clients who accessed treatment through the CIU ($N = 1,315$) reported similar results. They reported that the CIU telephone staff were friendly (97.2%), helpful (97.2%), and knowledgeable (94.5%).

However, a significantly higher proportion of CIU clients (an average of 97.5% across the six items) than pre-CIU clients (94.1%) rated the front desk staff and the counselors who conducted the assessments as friendly,

helpful, and knowledgeable (the χ^2 (2)s ranged from 7.3 to 30.1 and five of the six comparisons have a $p < .001$). A significantly higher proportion of CIU than pre-CIU clients also indicated that the facility was easy to get to (92.4% vs. 88.1%, χ^2 (2) = 12.0, $p = .002$) and was clean (98.7% vs. 95.5%, χ^2 (2) = 20.9, $p < .001$). Moreover, when compared to pre-CIU clients, a significantly higher proportion of CIU clients judged the assessment process as sensitive to gender, racial, and ethnic issues (91.2% vs. 85.0%, χ^2 (2) = 21.4, $p < .001$), and that they would recommend the agency to friends in need of similar help (96.9% vs. 93.4%, χ^2 (2) = 15.2, $p < .001$).

Finally, one issue that was frequently debated during the development stages of Target Chicago was the length of time the assessment would take at the CIU. There were no significant differences in the proportion of clients who indicated they were satisfied with the amount of time it took to complete the visit during the pre-CIU phase (87.6%) and after the CIU opened (85.6%; χ^2 (2) = 8.0, $p = .02$).

DISCUSSION

Severe funding cuts, coupled with the increased need for substance abuse treatment over the past several years, have forced the health care industry to critically review its operating practices. The results reported in this chapter were based on the combined experience of over 5,000 clients who attempted to access treatment directly either from treatment programs, through a Centralized Intake Unit, or in some cases, both. The results indicated that a CIU can improve the efficiency with which a system operates while not diminishing client satisfaction. However, as with any service delivery system, structure and access rules create certain biases that require ongoing monitoring and accountability. For example, it may have eased access for some individuals but made it more difficult for others.

Although the CIU's improvements were small, limited by a ceiling effect of already high positive ratings in the pre-CIU condition, all significant differences were in favor of the CIU. Moreover, the CIU managed not only to improve access to treatment but also to slightly improve clients' satisfaction with the intake process. Managing access is only one component in the ongoing saga of managed care. These findings indicate that centralized intake has improved access for a sample of clients, yet there are many other aspects of managed care that are and will continue to impact their recovery. A cost/benefit analysis of instituting a CIU must go beyond the benefits of improved access and client satisfaction to address issues such as increased treatment retention through improved client-treatment matching, improved long-term client functioning, and reduced ancillary costs (medical, legal, health, and human services). Such an analysis is the necessary next step in developing the central intake model as a viable means for improving

the current treatment system and the basis for establishing a managed care system for substance abuse treatment.

The willingness of many of the Target Cities projects to cooperate was enhanced as managed care arrived and private insurers began to scrutinize the private substance abuse treatment sector. Many of the current and some of the original cities used the demonstration project to experiment with, prepare for, or to implement their own system for managing the care of the publicly funded treatment of substance abuse clients. Many providers became convinced that if they did not work together and develop their own system for managing substance abuse treatment, they would ultimately be forced to use whatever their state might create, or worse (in their opinion), experience the state or locality contracting with a behavioral health firm and potentially be forced to close their doors. In a worst-case scenario, publicly funded clients would receive reduced, inappropriate, or no treatment services because the system would be run by organizations with little or no knowledge/expertise in working with the publicly funded population.

These concerns in the public sector substance abuse treatment field are not baseless. Those public sector providers who were savvy enough to pay attention to what has happened in the private sector understand what can occur when managed care asserts itself into the substance abuse treatment field. The late 1980s and early 1990s saw the approved reimbursement for substance abuse treatment in the private sector, driven by insurers and managed care, plummet from 28 days to, in some cases, a few days of detoxification (Miller and Hester 1986). Managed care led to the closing of an estimated 40 to 60 percent of the private programs that had operated during the mid-1980s. In 1990 alone, as many as 200 private programs closed and others significantly redesigned and downsized their programs (Gleick 1996), and many counselors lost their jobs during this period of downsizing and program closure (White 1998).

The question as to whether the public sector treatment field can make needed changes to rein in costs and effectively manage care has been partially answered in the Target Cities program. Although experimental or quasi-experimental designs to measure the impact of Target Cities systems were not a part of the first generation of funded sites, there is qualitative information that speaks to the success or failure of the approaches. Of the original eight cities, only one was terminated prior to the project's culmination due to lack of performance. Seven retain a continuum of Target Cities innovations from major components that were found useful (e.g., MIS) to the entire system being adopted and funded by other sources.

An analysis of the first wave of Target Cities (funded in 1990) was commissioned by CSAT in 1997. The report from this study concluded that: "The lessons learned from these and ongoing projects within this program can help communities and governments to develop improved systems to serve the myriad needs of substance abusers. Unless such systems improvements are achieved, the responsibility for critical aspects of care for the mentally ill and substance

abusers may be displaced onto families and overburdened community programs” (Rivers 1997, p. iv).

Of five sites visited by Rivers, three were still operating CIUs as developed in the Target Cities model. In one state, the Target Cities project informed the development of uniform placement criteria. Another Target Cities site provided the opportunity to retool the MIS for the entire state. In all sites, alliances among historically competitive and/or distrusting community providers occurred. Two sites, where there was a previous lockout for new providers, expanded their provider community to include a more racially/ethnically/culturally diverse array of treatment providers (Rivers 1997).

To date, much of the research focusing on the impact of managed care has not included clients who rely on publicly funded treatment. It is, therefore, critical as the field moves forward to pay special attention to the impact of the various proposed systems changes on the well-being and recovery of those individuals.

To further the field’s understanding of the impact of system interventions, clear and uniform language needs to be adopted. At a minimum, researchers need to clearly describe the elements and procedures employed within the system on which they are reporting. Only then can research proceed and findings be reported that provide meaningful data to other researchers and to those who make policy decisions; findings cannot be divorced from their context, particularly when complex system changes are being explored. Future efforts to add qualitative research to the intermediate and long-term quantitative outcomes (both for systems and individuals) will enrich the interpretation and usefulness of data. As governmental entities rush to control costs, there is peril in oversimplifying or failing to report on the ecology in which an intervention exists. Likewise, attention must be paid to the underlying assumptions on which a system is built, the business rules which are applied to its transactions, and the definitions that are employed in defining terms—such as “central” or “centralized intake.”

In summary, this chapter helps to demonstrate the feasibility of a CIU and alleviate some of the fears that many providers have had over the past three decades. Contrary to fears and in contrast to the Iowa findings (Rohrer et al. 1996), we found that the introduction of a CIU increased the percent of people showing up for assessment and treatment. Moreover, it simultaneously reduced the time to each of these events. With a much stronger evaluation design, Target Chicago and the other cities in the second wave of Target Cities should be able to go farther during the next few years in addressing other questions of placement and longer term outcomes.

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HEALTH SERVICES FOR CHRONIC DRUG
USERS IN AN ERA OF MANAGED CARE
THE UNIVERSITY OF MIAMI COMMUNITY-BASED
HEALTH SERVICES RESEARCH CENTER

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James E. Rivers, H. Virginia McCoy, and Sarah Messiah

ABSTRACT

This chapter reports findings on two studies that culminated in the development of a multilevel intervention to improve access to health care among chronic drug users. The first two studies began with an investigation of the health care delivery system serving chronic drug users in Miami-Dade County, Florida from the perspectives of both consumers and providers. These studies documented the health care needs and use patterns of chronic drug users as well as the practices and perspectives of the providers who served them. Findings indicated that (1) chronic drug users demonstrated greater health care needs than nondrug users; (2) chronic drug users were less likely to receive appropriate health care services; and (3) the gap between services needed and services actually provided can be ameliorated. By participating in our multilevel intervention, both health care providers and health care consumers

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changed attitudes and behaviors resulting in the provision of appropriate, accessible, and acceptable health care.

INTRODUCTION

The organization and delivery of medical care are undergoing major transformations in the United States from traditional fee-for-service scenarios to managed care arrangements. Established patterns of care and patient-provider relationships are thereby altered, and individuals who are financially disadvantaged or have special health care needs are particularly vulnerable. These changes in the nation's health care system and specifically the change to capitation financing are particularly important to understand the impact of health care systems on these groups (Alexander and Lemak 1997; Ma and McGuire 1998). One of the groups at highest risk are chronic users of illicit drugs.

Illicit opiate and cocaine users often experience a variety of both acute and chronic health problems, particularly if their use is long term (Brust 1998; Chen, Scheier, and Kandel 1996; Cornish and O'Brien 1996; Morrison, Elliot, and Gruer 1997; O'Connor, Selwyn, and Schottenfeld 1994; Trapido, Lewis, and Comerford 1990). For example, opiate users have been found to be at high risk for pulmonary complications, hepatic dysfunction, endocrine abnormalities, duodenal ulcers, and cerebrovascular disease (Bunn and Giannini 1992; Cherubin and Sapira 1993; Harkees, Gildon, and Istre 1989). Cocaine users are also at an increased risk for seizures (Meyer and Earnest 1984), myocardial infarction (Kosowsky and Lyon 1984; Smith, Liberman, and Brody 1987), and stroke (Levine and Welch 1988), in addition to neurological disorders and psychiatric problems (Dinwiddie, Reich, and Cloninger 1992; Grilo et al. 1997). Unsafe injection practices such as sharing nonsterile needles, cookers and cottons put those who inject drugs at particularly high risk for several infectious diseases including HIV (Friedland, Harris, and Butkus-Small 1985; Shah et al. 1996; McCoy et al. 1998), bacterial endocarditis (Nahass, Weinstein, and Bartels 1990), pulmonary disease (Hind 1990), hepatitis (Schade and Komorwska 1988), skin abscesses and infections (Vlahov, Sullivan, Astemborski, and Nelson 1992), and tuberculosis (Selwyn et al. 1989; Mitchison 1998). Infection from contaminated drug injection paraphernalia and risk of overdose often place injection drug users in the health care system more frequently than other chronic drug users (Beaufox 1993).

The crack-cocaine epidemic has further intensified health-related disorders due to its association with increased incidence of sexually transmitted diseases (Edlin, Irwin, and Ludwig 1992; Gunn et al. 1995), including HIV infection (Edlin et al. 1994; Kral et al. 1998). Crack use has also been found to affect the central nervous, circulatory, and respiratory systems (Boghdadi and Henning 1997; Brody, Slovis, and Wrenn 1990; Brown et al. 1992; Chakko et al. 1992).

The nature of illicit drug use further complicates the integration of chronic drug users (CDUs) into managed health care (Alexander and Lemak 1997; Ma and McGuire 1998). Drug treatment programs, the only traditional service available for the specific needs of drug users, often operate independently from mainstream health services (Wellisch, Pendergast, and Anglin 1995).

Generalizations about chronic drug users must be made cautiously; those not enrolled in drug treatment may be in poorer health than those who are as a result of differential access to health services (Padgett and Struening 1991; Struening, Padgett, Pittman et al. 1991). Furthermore, relatively little is known concerning the prevalence of drug use in the populations that are served by various community health and social service agencies, about which services hold the best prospects for early intervention and referral, or about the economic contributions to substance abuse treatment by specific types of agencies at the community level (Weisner and Schmidt 1995).

The continuing modification of the health services system does not necessarily have diminished care for chronic drug users as a consequence. However, improvements will require a better understanding of the predisposing and enabling factors in health care seeking, of the health care needs of drug users, and the practices and beliefs of service providers (Andersen 1995).

Recognition of this information need prompted the creation of the University of Miami Community Based Health Services Research Center. Its purpose is to advance this understanding with an investigation of the health care service delivery system of chronic drug users in Miami, Florida. Results from these investigations have informed the development of a systemic intervention to improve access to health care for this population. Specifically, we sought to answer three research questions.

1. What are the health service needs, utilization patterns, and barriers encountered in a multiethnic population of injection and non-injection chronic drug users in Miami-Dade County, Florida?
2. How does the current health and human service delivery system in the target community identify, assess and meet the needs of chronic drug users?
3. What intervention strategies are needed to improve effective linkages between the health service needs of chronic drug users and local health care and human service systems?

In this era of managed care, it is essential to examine need and utilization at the individual level and the systemic organizational level to identify service gaps and to address issues of cost effectiveness. These three research questions represent multiple perspectives required to understand the *gestalt* of the health services delivery system, the needs of chronic drug users who are potential or actual service consumers, and to develop, implement, and evaluate a multifaceted interven-

tion designed to improve service utilization by CDUs and provision by the system. Our Center research was guided by the theoretical framework of the Access to Health Care models (Aday and Andersen 1974, 1981; Andersen 1968; Aday 1993a, 1993b) as well as the Health Services Research Model (Aday, Begley, Lairson, and Slater 1993) which suggests that examinations of the health services system should focus on the three elements of structure, process, and outcomes. *Structure* is defined as how the health care system is organized to deliver care to both general and specific populations as well as the socio-demographic and health services need characteristics of various populations. *Process* is defined as the actual delivery of care and includes issues of how and where care is delivered to those in need. *Outcomes* focus on issues of effectiveness, efficiency and equity of services, including access, delivery and cost of services to specific populations. The ultimate goal of our study is to improve the outcome of access equity of primary care services among high risk drug users.

METHODS

Miami-Dade County, Florida provides an optimal environment to examine the interaction between injection and other chronic drug users and the health care delivery system for two important reasons. First, there has been continuous research on substance use in the community by the authors of this chapter for almost 25 years, during which time the authors accessed and maintained contact with a wide variety of drug using groups including an emphasis on both the health and human service needs of drug users and a focus on the organizational structures that provided services to drug users. Second, the community itself provides an excellent environment for the type of study described in this paper. Miami-Dade County, Florida is one of the major drug using areas of the United States, as recognized by the inclusion of Miami as one of the key cities in the NIDA Community Epidemiology Workgroup. The rate of AIDS in Miami has always been relatively high, indicating the extent of HIV risk behavior—including injection drug use and the high risk sexual behavior associated with drug use. Miami is also a cosmopolitan city with residents who were born throughout the United States as well as many Caribbean and Central American countries. Finally, Miami is a major center of international tourism and commerce. The demographic history and profile of the community, the experience of the authors in conducting drug use and organizational research in the community, Miami-Dade County, Florida provides an excellent environment to undertake a community sociology project on the interaction between individuals at high need for health and human services and how the community has organized to identify, assess, and meet the identified needs.

The University of Miami Community Based Health Services Research Center is comprised of two studies that culminated in the development of a multilevel

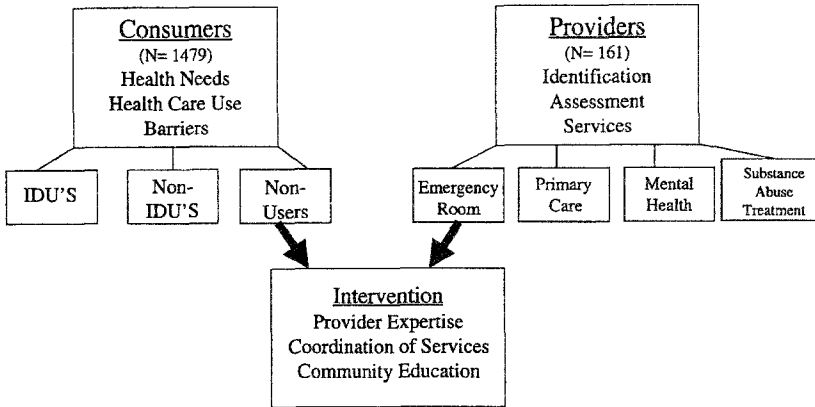


Figure 1. Development of the Health Services Integration Model

intervention to improve access to health care among chronic drug users. As shown in Figure 1, the first two studies began with an investigation of the health care delivery system serving chronic drug users in Miami-Dade County, Florida from the perspectives of both consumers and providers. These initial studies sought to document the health care needs and use patterns of chronic drug users as well as the practices and perspectives of the providers who serve them. These investigations were then used to inform the development of a multilevel intervention. Below, the methods and results of the first two studies are reported, followed by a description of the intervention development, implementation, and preliminary results.

Study #1: Epidemiology of Health Care Utilization Study

The perspectives of the consumer were investigated in our Epidemiology of Health Care Utilization Study (EHCUS). This study investigated the health service needs, barriers to meeting those needs, and use of health care services among chronic drug users (CDUs) and nondrug users (NDUs) in Miami-Dade County, Florida. The EHCUS had three specific aims: (1) to investigate the need for health care services by determining self-reported health status and morbidity among two samples of CDUs and among NDUs; (2) to investigate the barriers to health care utilization among these three samples in terms of perceived and systemic availability, accessibility, and acceptability; and (3) to investigate the perceived need and utilization of health care services.

A stratified two-stage, network-referred (snowball) street (i.e., nontreatment) sample was recruited from Miami-Dade County, Florida, between April 1996 and September 1997. Three subsamples were selected for inclusion in the

Table 1. Demographics by Drug Use

	All (n = 1,479)	IDU (n = 384)	OCDU (n = 542)	NDU (n = 553)	p*
Drug Use Group					
Injection Drug User	26.0				
Other Chronic Drug User	36.6				
Nondrug User	37.4				
Race/Ethnicity					
Black	37.6	42.5	36.5	35.3	
White	29.7	27.6	29.3	31.7	
Hispanic	32.6	30.0	34.0	33.1	
Native American	0.1	0.0	0.2	0.0	0.233 [†]
Gender					
Male	57.2	68.0	53.5	53.4	
Female	42.8	32.0	46.5	46.7	0.001
High School Education or Greater	52.6	56.5	43.9	58.4	0.001
Age 35 Years or Older	59.1	74.2	52.4	55.2	0.001
Legal Income ≥ \$5,000	40.1	40.6	33.8	45.9	0.001

Notes: *Pearson's chi-square test.

[†]Fisher's Exact Test.

study: (a) IDUs—individuals who had injected cocaine and/or opiates at least weekly for the previous 12 months, (b) OCDUs—other sustained or chronic drug users who never had injected illicit drugs but had used cocaine and/or opiates via other routes of ingestion at least weekly for the previous 12 months, and (c) NDUs—individuals who had never used cocaine and/or opiates. A tri-ethnic sample of non-Hispanic white, African-American, and Hispanic men and women was recruited for each of the three drug use subgroups.

After initial contact on the street and screening for eligibility requirements, the potential participants were transported to the University of Miami School of Medicine assessment center where a second level of screening was performed. Drug use status was established by interview and confirmatory urine screen using the Abuscreen ONTRAK assay. Injection status was verified by physical examination for scarring or tracks. The study was explained to the eligible participants and informed consent was obtained. The University of Miami Health Services Research Instrument (HSRI) was administered to each participant by a trained interviewer. This interview, which took approximately 1 to 1-1/2 hours to complete, included demographic information, a drug use history, and lifetime and 12-month health histories. Included in the health histories were questions on the need for health care and actual health care use. Strict confidentiality of all

Table 2. Health Problems in Past 12 Months by Drug Use

	All (n = 1,479)	IDU (n = 384)	OCDU (n = 542)	NDU (n = 553)	p*
Female Problems (e.g., menstrual problems, breast or cervical cancer, cysts, vaginal or urinary tract infections)	14.7	10.2	14.9	17.5	0.004
Male Problems (e.g., prostate, urinary tract infections, testicular cancer)	2.3	3.4	2.0	1.8	0.229
Respiratory Problems	24.1	25.0	27.7	19.9	0.001
Physical Injury	22.4	20.3	29.2	17.4	0.001
Muscular or Bone Problems	34.9	42.2	35.1	29.7	0.001
Liver Problems	4.2	7.8	4.1	1.8	0.001
Circulatory Problems (n = 1,478)	15.9	17.2	16.1	14.8	0.114
Digestive Problems	24.3	34.4	23.5	18.1	0.001
Nervous System Problems	17.6	16.7	20.7	15.4	0.071
Skin Problems	18.7	26.6	19.0	13.0	0.001
Eye, Ear, Nose, or Throat Problems	20.5	20.8	22.9	17.9	0.191
Sexually Transmitted Diseases (excluding HIV)	3.4	2.6	5.7	1.8	0.001
Dental Problems	40.2	47.4	43.4	32.0	0.001
Alcohol Problems	9.6	10.2	12.7	6.2	0.001
Drug Use Problems	33.7	64.8	45.9	0.2	0.001
Mental Health Problems	37.3	40.4	46.5	26.2	0.001
Other Health Problems	10.1	11.5	8.7	10.7	0.025
Any Health Problem in Past 12 Months	87.3	95.1	90.0	79.2	0.001

Note: *Pearson's chi-square test.

data was assured to study participants. Medical record abstracts were also obtained to confirm and expand upon the 12-month health histories.

Results

Demographics. A description of the 1,479 participants in the sample is presented in Table 1. The study sample of 1,479 respondents consisted of injection drug users (IDUs; 26%), other chronic drug users (OCDUs; 36.6%), and nondrug users (NDUs; 37.4%). The sample was designed to be distributed evenly among blacks (37.6%), whites (29.8%), and Hispanics (32.6%). These proportions did not differ significantly by drug use group. The majority of the sample was male (57%) and IDUs were more likely to be male (68%) whereas the gender distribution was more even among the OCDUs and the NDUs. The mean age was 37 years and varied only slightly by drug use group: IDUs had a mean age of 39, NDUs had a mean age of 37, and OCDUs had a mean age of 36 years.

One-half of the respondents had a high school diploma. NDUs were the most likely to have a high school education (57.0%), followed by IDUs (52.5%), and OCDUs (41.1%; $p \leq 0.001$). The median legal income for the sample in the past

Table 3. Determinants of Having Had One or More Health Problems in the Past 12 Months

	Odds Ratio	95% Confidence Interval	
		Lower	Upper
Age 35 Years or Older	1.187	0.851	1.654
High School Education or Greater	0.871	0.629	1.206
Legal Income \geq \$5,000/year	1.384	0.992	1.932
Male	0.372	0.259	0.533
Injection Drug User	4.472	2.576	7.764
Other Chronic Drug User	1.921	1.272	2.900
Frequency of Drug Use	1.167	1.039	1.310

12 months was less than \$5,000. The higher income reported by the drug users reflects the illegal income that was included in the total income variable.

Need. A description of the reported health problems by drug use group is shown in Table 2. Most respondents (87.3%) reported having at least one health problem in the past 12 months. The most commonly reported health problems were dental problems (40.2%), followed by mental health problems (37.3%), muscle/bone problems (34.9%), drug use problems (33.7%), digestive problems (24.3%), respiratory problems (24.1%), physical injury (22.4%), eyes, ears, nose, and throat (EENT) problems (20.5%), skin problems (18.7%), nervous system problems (17.6%), and circulatory problems (15.9%). Among the less frequently reported problems were those related to alcohol (9.6%), liver (4.2%), and STDs (3.4%). Only 4 percent of men reported male problems (e.g., prostate, urinary tract infections, testicular cancer) while 34 percent of women reported female problems (menstrual problems, breast or cervical cancer, cysts, vaginal or urinary tract infections).

IDUs were the most likely to report having health problems (95.1%), followed by OCDUs (90.0%) and NDUs (79.2%; $p \leq 0.001$). This was the pattern for most health problems with the exception of circulatory system, nervous system, EENT, and male problems where there were no significant differences. In the case of mental health problems, IDUs (28.1%) and NDUs (26.3%) were less likely to report problems than OCDUs (45.6%; $p \leq 0.001$). Self-perception of health ranged from 1 (excellent) to 5 (poor) with a mean of 2.9. NDUs had a better self-perception of health (2.4) than IDUs (3.3) and OCDUs (3.1).

Table 3 presents a multivariate analysis summarizing determinants of having had one or more health problems in the past 12 months. In this analysis, we included demographic, socioeconomic (age, gender, education, income) and drug use variables (drug use group and frequency of drug use). Results indicate that gender and both drug use variables remained as independent risk factors for needing health care. Males were less likely (OR = .37) than their female counterparts

Table 4. Utilization of Health Services by Drug Use

	All (n = 1,479)	IDU (n = 384)	OCDU (n = 542)	NDU (n = 553)	p*
Has a Usual Source of Care	63.8	58.1	64.8	66.9	0.018
Type of Primary Health Care Facility (n = 944)					
Outpatient Clinic/Facility	73.5	69.5	69.5	79.7	
Emergency Room	24.4	29.6	29.3	16.5	
Other	2.1	.9	1.1	3.8	0.001
Any Insurance in Past 12 Months	52.6	49.2	46.7	60.7	0.001
Physical/Eye/Dental Exam in Past 12 Months	51.7	43.5	47.1	62.0	0.001
Did Not Receive Care for at Least One Health Problem	84.0	91.2	90.2	71.2	0.001

Note: *Pearson's chi-square test.

to have needed care. IDUs were 4.5 times more likely than NDUs to have needed care; OCDUs also had an elevated likelihood (1.9) of needing care.

Utilization. A description of utilization of health services by drug use group is shown in Table 4. Overall, almost two-thirds of the respondents (63.8%) reported having a usual source of care with 73.5 percent of these reporting some type of outpatient care and 24.4 percent reporting emergency room care. Slightly over one-half of the respondents (52.6%) had insurance for at least one month during the past 12 months with a mean duration of coverage of 5 months. This coverage varied from 4.4 to 5.8 months among the drug use groups with NDUs having the longest coverage. Eighty-four percent reported not receiving care for at least one of their health problems in the past 12 months.

IDUs were less likely to have a usual source of care than OCDUs and NDUs (58.1% compared to 64.8% and 66.9%, respectively; $p = 0.018$). Among those with a regular source of care, IDUs and OCDUs were more likely to use the emergency room than NDUs. NDUs reported fewer emergency room visits and hospitalizations in the past 12 months than drug users. NDUs averaged 0.5 emergency room visits and 0.2 hospital admissions while both groups of drug users averaged 0.8 and 0.3, respectively. In contrast, NDUs averaged more outpatient visits (1.9) than IDUs (1.2) and OCDUs (1.4).

NDUs were more likely to have some insurance coverage (60.7%) than IDUs (49.2%) and OCDUs (46.75; $p \leq 0.001$). In the past 12 months, about one-half of the respondents (48.4%) had used preventive services (physical exam, eye exam, dental exam, breast exam, pelvic exam, pap smear, and/or mammogram). NDUs were most likely to use any preventive health services in the past 12 months (59.9%), followed by OCDUs (44.8%) and IDUs (37.0%; $p \leq 0.001$).

Table 5. Determinants of Not Having Received Care for at Least One Health Problem

	Odds Ratio	95% Confidence Interval	
		Lower	Upper
Age 35 Years or Older	0.968	0.688	1.360
High School Education or Greater	0.888	0.644	1.225
Legal Income \geq \$5,000/year	1.042	0.753	1.442
Male	0.734	0.521	1.032
Used Preventive Services in Past 12 Months	0.554	0.385	0.798
Any Insurance in Past 12 Months	0.738	0.508	1.072
ER as Primary Source of Care	0.961	0.619	1.493
No Regular Source of Care	1.678	1.088	2.586
Injection Drug User	3.446	2.149	5.526
Other Chronic Drug User	2.960	1.943	4.510
Frequency of Drug Use	1.066	0.949	1.198

Table 6. Barriers to Health Care Utilization by Drug Use

	All (n = 1,085)	IDU (n = 333)	OCDU (n = 440)	NDU (n = 312)	p*
Procrastinated	35.9	45.7	38.2	22.1	0.001
No Insurance	18.1	24.0	15.7	15.1	0.003
Care Not Available	6.0	7.8	6.8	2.9	0.020
Costs Too Much	25.9	30.6	24.3	23.1	0.056
Didn't Know Where to Go	4.7	3.0	5.5	5.5	0.213
Didn't Know Type Doctor	2.6	1.8	3.2	2.6	0.488
No Transport	2.6	2.1	3.0	2.6	0.760
Too Far to Go	1.0	0.6	1.1	1.3	0.695 ⁺
Inconvenient Hours	0.6	0.9	0.7	0.3	0.807 ⁺
Fear Rudeness	0.6	0.6	0.9	0.0	0.296 ⁺
No Appointment	1.5	1.5	1.1	1.9	0.663 ⁺
No Child Care	0.6	0.3	0.2	1.3	0.162 ⁺
No Time Off	1.4	0.0	1.6	2.6	0.006 ⁺
Too Embarrassed	2.7	2.1	4.6	0.6	0.004
Would Not Help	15.3	19.8	17.7	7.1	0.001
Feared Diagnosis	2.9	3.0	3.6	1.9	0.391
Treatment Painful	6.7	5.1	8.4	6.1	0.167
Not Want Treatment	61.8	63.4	71.4	46.5	0.001
Treated Self	48.4	47.8	48.9	48.4	0.954
Other Reason	25.6	29.4	21.1	27.9	0.018

Notes: * Pearson's chi-square test.

⁺ Fisher's Exact Test.

The majority of participants reported not receiving care for at least one of their health problems during the last 12 months. Nevertheless, drug users (both IDUs and OCDUs) compared to nondrug users (NDUs) were more likely to have not

received care for at least one health problem. A multivariate analysis summarizing determinants of not having received care for at least one health problem is shown in Table 5. In this analysis, we included demographic, socioeconomic (age, gender, education, income, health insurance), usual source of care and drug use variables (drug use group and frequency of drug use). Results indicate that not having a regular source of care and type of drug use were independent determinants of not receiving health care in the past 12 months. Persons who did not have a regular source of health care compared to those who did were 1.7 times more likely not to have received health care. IDUs were 3.4 times more likely than NDUs not to have received care, and OCDUs were 2.96 times more likely (than NDUs) not to have received care.

Barriers. Reported barriers to health care utilization by drug use group are shown in Table 6. Among those citing reasons for not receiving care, the most commonly cited reason was not wanting treatment (61.8%), followed by self-treatment (48.4%), and procrastination (35.9%). Other important reasons included cost (25.9%) and lack of insurance (18.1%). IDUs (45.7%) and OCDUs (38.2%) were more likely to cite procrastination than NDUs (22.1%). IDUs also were more likely to cite lack of insurance (24.0%) compared to OCDUs and NDUs (15.7% and 15.1%, respectively; $p = 0.003$). OCDUs were most likely not to want treatment (71.4%), followed by IDUs (63.4%) and NDUs (46.5%; $p \leq 0.001$). Self-treatment and cost of care did not vary by drug use group.

Study #2: Community Services

Our second project, "Community Services," gathered data on the perspectives of the providers focusing on the publicly funded tier of medical and behavioral health service providers and their prospects for serving chronic drug users in the context of funding and oversight changes. The major research question addressed in this project was whether the diverse community of health and human service programs is adequately organized to deliver coordinated services to chronic drug users (CDUs). Project goals were to understand how community providers identify, assess, and deliver services to chronic drug users.

To collect the data for this study, the community of Miami-Dade County, Florida, was stratified into three CDU prevalence areas using multiple data sets of "geo-coded" drug abuse indicator data and geographic information systems software. Nuclear primary, contiguous surrounding secondary, and the remaining tertiary target areas of the community were defined by decreasing levels of estimated CDU prevalence for purposes of stratifying and classifying a sample of service programs to be surveyed.

For study purposes, programs were defined as distinctly organized sets of services provided by organizations that may be independent or may be components of larger "parent" agencies. A computerized information and referral

Table 7. Type of Substance Abuse Training Received (%) by Surveyed Program Type

	Substance Abuse Program (n = 58)	Mental Health Program (n = 56)	Primary Care Program (n = 31)	Emergency Room (n = 16)
Any Training at All	100	61	42	31
Communications	98	54	29	13
Individual/Group Counseling	97	50	29	13
Relapse Counseling	97	50	26	6
Assertiveness	81	52	35	13
Family Counseling	79	39	26	6
Sexuality	79	43	32	13
Pharmacology/Physiology	78	45	26	25
Early Intervention	76	52	35	19

database containing information on more than 1,000 local agencies with more than 2,600 service programs was initially checked for comprehensiveness. Programs that were unlikely to serve drug users were eliminated such as those for juveniles or the elderly. A second screening process applied additional exclusion criteria (e.g., existing for less than one year, having a staff of three or fewer, lacking key organizational structural elements, no public funding or no insurance accepted).

This process produced a community-wide sampling universe of just over 500 programs. The programs were classified into five major categories: medical care, drug abuse treatment, mental health, vocational/educational, and social services. All of the medical care, drug abuse treatment, and mental health programs located in the primary and secondary target areas were included in the survey, and a sample of such programs was drawn from the tertiary target area. The result was a sample of 161 programs surveyed in four categories: 16 emergency rooms, 31 primary care programs, 56 mental health programs, and 58 substance abuse treatment programs. Another 75 social service programs were surveyed but are not included in this discussion. Program directors and MIS specialists were interviewed in each program and direct service workers in approximately one-half of the programs. Each interview lasted from 1 to 1-1/2 hours.

Results

Identification of Substance Abusers—Training for Professional Staff. Substance abusers often deny that they are addicted or have drug-related problems. Criminalization, social stigma, and reluctance to embark on typically long and difficult treatment and rehabilitation processes require that health and human service program staff receive specific training in substance abuse issues if they are to identify, engage, knowledgeably serve and/or refer drug abusers. Fewer than one-third

Table 8. Method of Assessment of Substance Abusers (%) by Surveyed Program Type

	Substance Abuse Program (n = 58)	Mental Health Program (n = 56)	Primary Care Program (n = 31)	Emergency Room (n = 16)
Self Identification	97	88	77	75
Self-designed Instrument	91	80	39	25
Others Identify and Refer to You	85	66	36	50
Urinalysis	79	66	52	50
Recognized Instrument	79	32	10	18
Staff Judgement	2	96	84	18
Do Not Assess	2	2	10	18

(31%) of the ER directors and fewer than one-half (42%) of the primary care program directors said “yes” when asked if their program staff receive training in substance abuse sensitivity and/or treatment issues (Table 7). As would be predicted, all of the substance abuse program directors said “yes,” but somewhat surprisingly, only 61 percent of the mental health program directors indicated that their staff receive such training. Table 7 represents the specific types of substance abuse training received by each program type, such as group and family counseling, early intervention, and communications.

Assessment of Substance Abusers. Even trained staff require tools to aid them in the identification and assessment of substance abusers among those who present themselves for services. Surveyed program directors were asked to check from a provided listing all methods used by their programs to assess for drug abuse among served clients (Table 8). Primary care programs seemed to rely heavily on staff judgement (84%), self-identification (77%), and urinalysis (52%). Emergency rooms also were reliant on self-identification (75%) and urinalysis (50%) but one-half also deferred to the judgment of referral sources as the basis for identifying substance abuse problems. Mental health programs tended to rely heavily (96%) on staff judgment and self-identification (88%), although 80 percent reported using program-designed evaluation instruments. A clear majority of substance abuse treatment programs tended to use multiple methods of the type already mentioned. An obvious difference between substance abuse treatment and the other types of programs surveyed was the use of standardized assessment instruments recognized by the field (79%).

Barriers to Serving Chronic Drug Users. Respondents were asked to take the perspective of a CDU approaching their own programs for services and to indicate which factors from a provided list might be perceived by that CDU as “access-limiting” (Table 9). As shown in Table 9, the most frequently chosen factor by

Table 9. Perception of Access-Limiting Barriers to Serving Chronic Drug Users (%) by Surveyed Program Type

	<i>Substance Abuse Program (n = 58)</i>	<i>Mental Health Program (n = 56)</i>	<i>Primary Care Program (n = 31)</i>	<i>Emergency Room (n = 16)</i>
Unavailable Child Care	46	43	46	39
Limited Capacity	53	30	29	25
Expect Treatment to Be Unpleasant	40	21	29	38
Embarrassing	19	27	19	25
Lack of Service Information	21	20	19	31
Insurance Requirements	14	43	16	19
Hours of Operation	5	29	13	—
Cost of Services	9	29	16	31
Distance from Public Transportation	9	9	13	—
Fear of Unkind Staff Treatment	10	7	10	31
Difficulty in Getting Appointment	5	14	16	13
Inconvenient Location	16	7	7	6

Table 10. Barriers to Improving Services to CDUs (%) by Program Type

	<i>Mental Health Program (n = 56)</i>	<i>Primary Care Program (n = 31)</i>	<i>Emergency Room (n = 16)</i>
Funding Restrictions	39	71	69
Direct Care Staff Opposition	11	23	31
Administrative Opposition	11	16	13
Board of Directors Opposition	7	26	19
Mission Statement	9	16	19
Neighborhood Opposition	9	7	31
Program Supporter Opposition	13	19	13

Note: Substance Abuse Services were not included due to the nature of the services provided in context to the barriers included.

primary care (46%), ER (39%), and mental health (43%) program directors was “unavailability of child care”; an even higher proportion of substance abuse program directors (46%) checked this response but this was their second most frequently cited barrier. Other frequently noted barriers included “limited capacity,” “expectation that treatment will be unpleasant,” “insurance requirements,” and “cost of services.” Respondents were also asked to identify from a provided list barriers they would need to overcome if they were to attempt to improve overall service levels to CDUs. As shown in Table 10, “Funding” was the most frequently chosen barrier by the respondents in each program group: primary care (71%), ER (69%), mental health (39%), and substance abuse (57%). Few (less than 13%) of the behavioral health program directors chose any other of the listed factors. A

Table 11. Willingness and Intent to Improve Services to CDUs (%) by Program Type

	Substance Abuse Program (n = 58)	Mental Health Program (n = 56)	Primary Care Program (n = 31)	Emergency Room (n = 16)
Interested in improvement	97	80	84	81
Currently provide CDU services	—	34	26	19
Plan to add CDU services	—	16	13	25

notable proportion (31%) of the ER directors believed that both “neighborhood” and “direct care staff” would represent barriers to expanded services for CDUs.

Willingness and Intent to Improve Services to CDUs. When asked whether their programs were interested in improving overall service access and availability for CDUs, virtually all respondents answered “yes” (Table 11). Earlier in the interview when asked if their programs currently have services that are designed specifically for CDUs, 26 percent of primary care, 19 percent of ER, and 34 percent of mental health program directors said “yes.” When asked elsewhere in the interview whether their programs planned to add any services designed specifically for CDUs in the future, only 16 percent of primary care program directors, 25 percent of ER directors, and 13 percent of mental health program directors said “yes.” In terms of programs that did not currently have CDU-specific services but planned to add them, the figures are: primary care (4%), ER (25%), and mental health (19%). Combining those who said they have CDU-specific services now and those who do not now but plan to add them, the proportions are: primary care (29%), ER (37%), and mental health (46%).

Study #3: Health Services Integration
Model Intervention—Intervention Study

Development of the Intervention

Based on both the consumer and provider studies, the Health Services Integration Model was developed to initiate systemic changes to improve primary health care for chronic drug users in the target community. More specifically, the model is a set of three interventions designed to: (1) improve provider competencies through training, (2) improve access through targeted outreach and education, and (3) enhance the continuity of care through case management training and technology. The project design included evaluating interventions for effectiveness and disseminating intervention protocols to facilitate technology transfer. The Health Services Integration Model design includes cultural relevance, convenience, and theoretical bases.

Using data collected from studies #1 and #2, three sites were selected to implement two model intervention components: (1) provider competency and (2) coordination of services. These sites represented three different types of health care environments—an emergency room, a primary health care center, and an inpatient drug treatment program. Five programs of each type were control sites. A sample of participants from Study #1 is currently being recontacted to determine their perspectives on possible intervention-based systemic changes.

Description of Specific Intervention Elements

Professional Competency. The professional competency element of the intervention was developed to motivate health services providers to be more committed to and educated about working with drug users. A provider expertise training program was developed to: (1) increase awareness of the complexities of the “drug culture” and their implications for health care needs, (2) increase nonjudgmental rapport with drug using patients, and (3) enhance skills in identifying, screening, assessing, diagnosing, and referring drug users to other programs’ services. Training manuals and materials for both participants and trainers/facilitators such as videos, interactive role plays, and open discussion periods were developed for each module. Each site received two 1- to 1-1/2-hour training sessions or modules. All training participants were given two contact hours of continuing medical education units for their participation. Incentives such as refreshments and university souvenirs were given to encourage participation. Training participants were given both a pretest and posttest, before and after training implementation as well as an evaluation of the overall effectiveness of the material.

Community Education. This element of the intervention was designed to improve access to health care; the foci are earlier treatment and the patient’s point of entry into the health care system. The community education intervention element guides drug users to appropriate sources of care and provides skills to utilize various systems of health care. Community Health Outreach Workers (CHOWs) and interviewers at the study assessment center participated in three training sessions: orientation, implementation, and review. An educational pamphlet entitled “Going to the Doctor” was developed as well as a “Self-Care Guide” to be handed out to subjects at pretest and follow-up, respectively. These materials supplement the CHOW’s efforts to facilitate the clients maneuvering within the health care system. After receiving the intervention, respondents agreed that the intervention was helpful and they would make more efficient use of the health care system as a result of the CHOWs’ efforts. Clients indicated that talking about health problems with the outreach workers was considered the most useful aspect of the intervention. The first six-month follow-up is presently ongoing.

Coordination of Services Element. To enhance continuity of care for chronic drug users, the coordination of services intervention element was designed to improve the technological capabilities of providers in the selected primary health, emergency room, and drug treatment sites. The goal was to enable staff to consistently utilize a comprehensive computerized system called IRIS (Information and Referral Information System) with associated referral procedures. The targeted community has over 3,000 services programs, documented in a book and service user computer software forms. The IRIS system allows service programs staff to identify appropriate referral programs for given problems and to track and verify referrals. It incorporates a special case management system which encourages staff to keep efficient computerized records for each case. A specialist in this proprietary software was used to train the service provider staff. The technical training was supplemented with concise project-developed training programs and materials specific to a coordination of care model.

Preliminary Results of the Evaluation of the Intervention

Preliminary process data from two of the sites in this ongoing project are presented to highlight both the challenges and opportunities of implementing a community-based systemic intervention. Data were collected from participants at the pre- and post-training events to determine the change in levels of knowledge, opinions about practice, and intended practice patterns. Primary health clinic staff have completed the provider expertise and coordination of services training. In addition, 76 clients completed the posttest evaluation of the health care system after community education intervention component counseling sessions, as well as the evaluation of the community education intervention itself.

Provider Expertise. All participants obtained significantly higher posttest than pretest scores on knowledge about health care for drug users ($p < .001$), more positive opinions about their practice ($p < .001$), and stronger motivation to serve drug users ($p < .05$). Preliminary results from the evaluation of the Provider Expertise Modules training sessions indicate that participants agreed that the training sessions were of good quality. They also were willing to play a more active role in helping drug-using patients in their practice. Knowledge about signs and symptoms of drug use and a standardized brief screening tool (DAST-10) were considered the most useful and policy/agreement with drug users and diagnostic criteria the least useful.

Coordination of Services. Significant change in scores from pre- to posttest was obtained on knowledge questions ($p < .001$) and on the question about the formality of referral process ($p < .05$). Participants agreed that the training session was of good quality, and they were willing to be more actively involved in facilitating and following up the referral process. Information about referral resources

was considered the most useful aspect of the training session, and the reason for referral the least useful.

Community Education. Clients generally agreed that the intervention was of good quality, and they were willing to make more efficient use of health care. Talking about health problems with the outreach workers was considered the most useful aspect of the intervention, and getting signed up for insurance coverage the least useful.

Clients generally agreed that they had sufficient access to medical care and were satisfied with their doctors, although about one-third of the clients were uncertain or disagreed with this. Clients typically also understood how to appropriately use health care services, although about 10 percent were uncertain about this.

Preliminary Evaluation Summary. All three intervention components have been initially successful in accomplishing their outcome goals. The provider expertise and coordination of services intervention components have been well accepted by health care providers, which has resulted in motivation to change current practice patterns to be more accommodating to drug users. Providers are now inspired to identify, screen, and assess drug users in a sensitive manner in their daily practice. Additionally, providers are now more aware of referral resources available in the community and the appropriate referral process for drug using clients.

It is too soon to draw definitive conclusions concerning drug users' acceptance of the Community Education intervention component. Preliminary results indicate favorable intentions to use primary health centers more and emergency rooms less for primary care purposes. One more year of data collection is planned which will enable more definitive conclusions concerning drug users acceptance of the intervention and changes in utilization of services.

DISCUSSION

The studies presented above represent some of the first scientific attempts to understand the *gestalt* of the health services delivery system, the needs of high risk chronic drug users who attempt to access and use that system, and the development, implementation, and evaluation of intervention components designed to bridge the gaps between CDUs and the system. These studies were facilitated by the University of Miami interdisciplinary research team's long-term interactions with the study population in the local community, including health care providers and drug treatment providers, as well as the drug-using community.

Collectively, these studies provide a unique opportunity to investigate the multiple dimensions of health care delivery for chronic drug users in a local community. The design is strengthened by the inclusion of a nondrug using control group

that is representative of the same neighborhoods and socio-demographic populations as the CDUs. Therefore, our study will be able to distinguish the health care need and use patterns of CDUs compared to their nondrug-using counterparts. Similarly, our study design sampled a representative array of health care providers from emergency rooms, primary care, mental health, and substance abuse treatment agencies.

The two initial studies of consumers and providers not only informed one another, but shared similar concepts and instrumentation and provided the empirical basis for the development of a multilevel intervention. The intervention took advantage of knowledge from both consumers and providers to develop intervention components which sought to connect and integrate these two entities.

Several findings have emerged from our first two studies and the preliminary experiences and analyses of our intervention. First, our consumer study clearly shows that drug users have greater health care needs than nondrug users. Specifically, 95 percent of IDUs and 90 percent of OCDUs compared to 79 percent of NDUs reported having at least one health problem in the past 12 months. Further examination of this relationship showed that even after controlling for additional demographic and socioeconomic variables, IDUs and OCDUs had an increased need for health care compared to NDUs. There may be several reasons for explaining health problems that increase the need for care among drug users such as pharmacologic, direct results from the misuse of drugs (e.g., overdose), relationships of administration of the drugs (e.g., HIV infection and Hepatitis infections from contaminated injection use), lifestyle related (e.g., violence), or an unwanted byproduct of what Stephens (1991) calls the master role of the addict, in which the quest for drugs and the means to obtain drugs is given priority to the detriment of important healthy behaviors such as good nutrition, hygiene, and health care. Some problems such as overdose can be the result of pharmacology, route of administration, and lifestyle. Health problems are frequently exacerbated and thus increase the subsequent demand for care when needed health care-seeking behavior is postponed because of the priority of or the difficulty of "taking care of business" (Chitwood et al. 1998; Preble and Casey 1969; Rosenbaum 1979; Stephens 1991).

Second, our results show that CDUs were more likely to receive no care for at least one of their health problems in the past 12 months, less likely to have a usual source of care, more likely to use the emergency room, less likely to have health insurance, and less likely to use preventive services. Collectively these findings suggest a dismal situation where drug users are underusing or not receiving health care in the same manner as their nondrug using counterparts.

Why is this so? According to our clients, the most frequently reported barriers included not wanting treatment, self-treating, procrastination, and some financial barriers such as insurance and cost of treatment. It is important to note that from the client's perspective, the most salient barriers were those associated with procrastination or delaying treatment or not wanting treatment at all. This is not

inconsistent with the lifestyle of addiction on the street. This lifestyle centers around drug-seeking and drug-taking with other priorities taking a distant secondary position within their lives. These drug-related activities take control and, therefore, allow little time and effort for activities, even those (such as health care) that are deemed very important by predominant values and society (Chitwood et al. 1998).

On the other hand, our providers' study paints a different picture. According to our providers, the most frequently reported barrier was the unavailability of child care. Other barriers reported by the providers include limited capacity, the thought that treatment will be unpleasant, insurance requirements, and costs of services. Unlike our clients, the barriers raised by our providers focus more on systemic issues rather than the addicts' lifestyle and the individual priorities of that lifestyle.

These two perspectives certainly present a disconnection of perspectives. Providers may have an insufficient understanding of the lifestyle of drug users, resulting in misidentification. For example, results from our provider survey indicate that the large majority of emergency room and primary care providers have no training in substance abuse and little planning is in evidence for providing substance abuse services for the future. Furthermore, very few health providers use standardized assessments to identify drug users (Rivers 1998). This lack of training and knowledge may, in part, explain this disconnection between the perspectives of the CDUs and providers relative to their use of health care. However, the perspectives offered by the CDUs may hide some of the systemic barriers identified by the providers. For example, drug users may avoid treatment after they experience what they perceive to be rudeness or indifference to their health problems from health care personnel. In one instance reported to us in Miami, an IDU who presented to a clinic sat in the waiting room for a "long time" while clinic staff, according to his report, "peeked around the corner to see if he still was there." He finally left. The clinic staff reported that he was high on drugs and left before they could treat him. The would-be patient subsequently collapsed on the street and was rushed to an emergency room, where he was admitted to the hospital for several days and treated for bacterial endocarditis. This long-term injector of drugs felt he was rejected by the system, whereas the health care provider viewed him both as an inappropriate patient because he was a drug user and a non-compliant patient because he left before treatment could be provided. Postponed treatment that might have been a relatively inexpensive outpatient care event subsequently became a very expensive inpatient episode. Another reason why drug users underuse care is related to the interplay that occurs between drug user's procrastination to seek treatment and the health care system's propensity to treat the acute presenting problem. It is not unusual for a health care system to fail to recognize that a patient is a drug user who may be presenting with multiple health care needs in addition to the one for which the patient seeks care. If these additional needs are not identified and treated at that time, the drug-using patient may

not return for additional care until one or more of those existing problems have become serious (Chitwood et al. 1998).

It is important to point out that the lack of training and knowledge of substance abuse by health care providers is based on historical roots as well as more recent developments of managed care. Substance abuse services have been separated and fragmented since the early decades of the twentieth century. The current changes in the health care system might offer opportunities to correct this historical course for providing greater attention to including CDUs within the mainstream health care system. For example, barriers such as having to identify drug users with a dual diagnosis to receive proper medical treatment must be overcome. It is with this in mind and based on sound empirical data from our consumer and provider studies that we developed, implemented, and have begun to evaluate our Health Services Integration Model.

Third, our Health Services Integration Model Intervention provides strategies to intervene with both providers and consumers with the aim of closing the gap between providers' and consumers' perspectives. The initial results of the intervention are promising. In summary, providers demonstrated increased knowledge about substance abuse and referral resources. Our clients liked the intervention and appeared to be making strides to improving their use of health care. Possibly one of the most significant accomplishments of the intervention and the center as a whole is the development of products that will sustain the intervention beyond the life of this project, including a computerized referral system, a self-care guide, and numerous intervention manuals.

CONCLUSION

Perhaps the most important findings of these studies can be summarized as follows: (1) chronic drug users demonstrate greater health care needs than nondrug users; (2) chronic drug users are also less likely to receive appropriate health care services; and (3) the gap between services needed and services actually provided can be ameliorated. Both health care providers and health care consumers can change attitudes and behaviors resulting in the provision of appropriate, accessible, and acceptable health care.

Collectively, our studies provide insight and understanding into why the health care needs of chronic drugs users are not currently institutionalized in our health care system. Continuing ignorance about and resistance to chronic drug users among health care professionals must be addressed within the complex milieu surrounding rapid changes in our health care system. Finally, efficacious interventions must be continuously developed and implemented to address drug users' access to the most appropriate caring and health care system possible.

It is also important to recognize both the challenges and opportunities in conducting this type of community-based intervention. The challenges are to connect

the true health care needs of CDUs with the availability, accessibility, and acceptability of appropriate health care services. Recent developments in restructuring the health care system provide researchers the opportunities to provide sound empirical studies upon which to base health care decision making and planning.

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MORAL BELIEF AND DRUG PROBLEM RECOGNITION IN THREE ETHNIC GROUPS

Douglas Longshore and Kathy Sanders-Phillips

ABSTRACT

This study examines the relationship between conventional moral belief and drug problem recognition in African-American, Hispanic-American, and non-Hispanic white drug users. After adjustment for demographic, psychosocial, and drug use severity factors that might have confounded this relationship, conventional moral belief was significantly associated with drug problem recognition among African-Americans and Hispanic-Americans but not among whites. The particular relevance of conventional moral belief among nonwhites may reflect cultural values emphasizing collective identity and/or religiosity. Nonwhites may be more inclined than whites to view recovery as a process of claiming or reclaiming moral standing in a community of conventional others.

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INTRODUCTION

Recognition of problems arising from one's drug use is a key antecedent of the decision to abstain from further use or to seek drug treatment (e.g., Carroll and Rounsaville 1992; Simpson and Joe 1993). Research on factors associated with drug problem recognition might, therefore, help to improve our understanding of the recovery process, bring drug users into treatment, and increase retention time.

Conventional moral belief, or the degree to which a person endorses law abidance and social conformity, is one potentially important correlate of drug problem recognition. Conventional moral belief is inversely associated with adolescent drug use (e.g., Catalano, Kosterman, Hawkins, Newcomb, and Abbott 1996). Moreover, recovery from drug problems among adults seems motivated in part by the person's wish to claim or reclaim "moral standing" in a community of conventional others (e.g., Biernacki 1986). Endorsement of conventional morality is stronger among nonwhite adults who report more severe problems arising from their drug use than among those reporting less severe problems; it is also stronger among nonwhite adults reporting a greater desire for help with their drug problems than among those reporting a weaker desire for such help (e.g., Longshore 1998a).

The role of conventional moral belief in the recovery process may have crucial conceptual and treatment implications. First, if reclaiming "moral standing" is a primary motive for recovery, it is important to develop a well-rounded and nuanced understanding how drug users conceive of "moral standing," why it is important to them, and how they go about trying to reclaim it. Such knowledge could then be applied at the point of treatment induction (i.e., encouraging people to accept treatment) and in counseling protocols (e.g., working on issues that affect the user's self-perceived "moral standing" and identifying strategies for reclaiming it). Knowledge of the role of conventional moral belief may also suggest ways in which the delivery of drug treatment might be improved (e.g., adding adjunct services and linking clients with community institutions).

This study tests conventional moral belief as a correlate of drug problem recognition in three ethnic groups: African-Americans, Hispanic-Americans, and non-Hispanic whites. The study's purpose was twofold. First, we wished to determine whether findings on moral belief and problem recognition among African-American and Hispanic-American users would replicate in a new sample including these two ethnic groups and/or would emerge among non-Hispanic whites as well. Second, we sought to test the robustness of the relationship between moral belief and drug problem recognition by adjusting for other factors—demographics, psychosocial status, and drug use severity indicators—that might account for this relationship. After presenting our findings, we discuss implications for refining the conceptualization of moral belief, understanding its role in the recovery process, and delivering drug use treatment.

BACKGROUND

Moral Belief and Drug Use

Research grounded in conceptual frameworks known as control theory and social development theory shows that drug use is less likely or less serious among adolescents who more strongly endorse conventional moral belief than among those whose endorsement of conventional morality is weaker. When tested in multistage etiological models, moral belief partially mediates the effects of prosocial and antisocial bonds on drug use (Catalano et al. 1996). Moral belief appears to be a crucial "internal constraint" acquired during conventional socialization and representing the combined effects of one's commitment to conventional social goals, emotional attachment to conventional others, and involvement in conventional activities (Burkett and Warren 1987; Elliott and Menard 1996; Marcos, Bahr, and Johnson 1986). In addition, qualitative studies of adult drug users suggest that recovery entails a reversal of the causal sequence in control and social development theories. Deciding to quit drug use and/or to seek treatment depends in part on whether the user wishes to claim or reclaim moral standing in a community of conventional others (Biemacki 1986; Shaffer and Jones 1989; Waldorf, Reinerman, and Murphy 1991; Weisz 1996).

Drug Problem Recognition

What is the cognitive process by which a person's moral belief might bear upon his/her decision to stop using drugs? Research suggests that one link between these two cognitions may be drug problem recognition, that is, the perception of problems arising from one's drug use. Attributing any of a broad range of life problems (e.g., conflict with family or friends and impending loss of a job) to drug/alcohol use is an important antecedent of treatment seeking and retention (Carroll and Rounsaville 1992; Jordan and Oei 1989; Simpson and Joe 1993; Simpson, Joe, Dansereau, and Chatham 1997; Tucker and Gladsojo 1993). In a series of analyses by Longshore and colleagues, drug problem recognition emerged as a strong and consistent predictor of motivation to enter drug use treatment and desire for help (not necessarily in the form of treatment) among African-American and Mexican-American drug-using arrestees in Los Angeles (Longshore 1997, 1998a; Longshore, Grills, Anglin, and Annon 1997, 1998). Conventional moral belief was, in addition, a significant correlate of drug problem recognition in both groups (Longshore 1998b, 1998c).

STUDY DESIGN

In a secondary analysis of data collected for the Treatment Alternatives to Street Crime evaluation (Anglin, Longshore, Turner, McBride, Inciardi, and Prendergast 1996), we tested conventional moral belief as a correlate of drug problem recognition in three ethnic groups: African-Americans, Hispanic-Americans, and non-Hispanic whites. The analysis served two purposes. First, we wished to determine whether findings on the relationship between moral belief and problem recognition in two nonwhite ethnic groups, as reported above, would replicate in a new sample including African-American and Hispanic-American drug users and/or emerge among non-Hispanic white users as well. Second, we sought to test the robustness of this relationship by adjusting for demographic, psychosocial, and drug-use severity indicators that might account for it.

Sample

Anglin et al. (1996) conducted an evaluation of Treatment Alternatives to Street Crime (TASC) programs in five U.S. cities between 1991 and 1995 (see also Turner and Longshore 1998). TASC programs assess the drug treatment needs of adult and juvenile offenders in the criminal justice system, refer offenders to treatment and other services, and monitor their progress. Treatment may be in lieu of, or an adjunct to, routine criminal justice processing.

The design was experimental at two of the five sites and quasi-experimental at the other three. Offenders at each experimental site were randomly assigned to the TASC program or to a community-based treatment program that did not conduct TASC program functions. Offenders at each quasi-experimental site had been referred by a judge, probation officer, or other criminal justice official either to the local TASC program or to routine probation. At each quasi-experimental site, the evaluation staff used TASC eligibility criteria to screen offenders into a comparison group. Participation in the study entailed one interview at intake and a follow-up interview six months thereafter. Anglin et al. (1996) and Turner and Longshore (1998) offer a full account of the evaluation design and findings.

Data required for this analysis are from the intake interview and are complete for a sample of 1,077 offenders, including 705 African-Americans, 57 Hispanic-Americans, and 315 non-Hispanic whites. Table 1 provides additional information on these three subsamples.

Measures

The evaluation data set includes measures of drug problem recognition and conventional moral belief. It also includes demographic, psychosocial, and drug use severity indicators, any of which might influence drug problem recognition and ought to be taken into account as covariates. In selecting the covari-

Table 1. Measures

	African-Americans Mean S.D. Range	Hispanic-Americans Mean S.D. Range	Non-Hispanic Whites Mean S.D. Range
Drug problem recognition	25.0 14.4 0-45	22.4 13.7 0-45	23.7 13.8 0-45
Alpha	.94	.93	.94
Conventional moral belief	19.8 2.7 11-25	19.4 2.6 10-25	19.4 2.7 9-25
Alpha	.55	.56	.54
Age	28.2 9.6 12-67	21.8 8.2 12-53	27.5 9.3 13-64
Percent women	22.2	19.0	40.5
Percent married	17.9	16.0	18.8
Percent employed	26.3	25.0	42.8
Religious involvement	3.9 1.6 0-6	3.8 1.8 0-6	3.0 1.7 0-6
Alpha	.44	.51	.58
Lifetime polydrug use	1.1 0.9 1-4	1.0 0.7 1-3	0.9 0.8 1-4
Recent drug use	49.6 59.0 0-180	45.8 57.6 0-180	38.8 52.7 0-180
Percent marijuana	4.5	6.4	8.1
Percent heroin	41.8	71.8	68.3
Percent crack cocaine	18.0	10.3	5.4
Percent other cocaine	35.7	11.5	18.2

ates to include, we followed Andersen's (1968, 1995) help-seeking model, in which problem recognition is a central factor, and our own previous research, cited above, on correlates of drug problem recognition. We included age and gender as demographic covariates. Psychosocial covariates in the analysis were marital status, employment status, and religious involvement. Covariates pertaining to drug-use severity were lifetime polydrug use, frequency of recent drug use, and dummy variables for primary drug (marijuana, heroin, crack cocaine, or other cocaine). For each ethnic group, we report means, standard deviations, and ranges for continuous measures and percentages for dichotomous measures in Table 1. To indicate the internal consistency of multi-item indices, we report alpha coefficients.

Drug Problem Recognition

Our measure of recognition of interpersonal problems arising from one's drug use is an additive index of five Likert-type items in Simpson and Joe (1993). People reported the extent to which their drug use was causing problems "with the law," "in finding or keeping a job," "with your health," "in thinking or doing your work," and "with your family and friends." Response options were (1) strongly disagree, (2) disagree, (3) undecided, (4) agree, and (5) strongly agree.

Conventional Moral Belief

The measure of endorsement of conventional moral belief is an index of five items, such as “Even though it is against the law, it is okay to sell alcohol to minors” and “Many things called ‘crime’ do not really hurt anyone” (reverse scored). These items are from Krohn, Massey, Skinner, and Lauer (1983), Marcos, Bahr, and Johnson (1986), and Massey and Krohn (1986). Response options were (1) strongly disagree, (2) disagree, (3) undecided, (4) agree, and (5) strongly agree.

Age

We calculated each person’s age by subtracting the year of the interview from his/her self-reported year of birth.

Gender

Gender was recorded on the basis of interviewer’s observation.

Marital Status

People who reported being married or living with a primary partner were scored 1; others were scored 0.

Employment Status

People who reported being employed full- or part-time were scored 1; others were scored 0.

Religious Involvement

We measured religious involvement with a two-item index. One item asked “how important is religion in your life?” Response options were (0) not important, (1) a little, (2) important, or (3) very important. The second item asked “how often do you go to religious services currently?” Response options were (0) never, (1) seldom, (2) monthly, or (3) weekly.

Lifetime Polydrug Use

People were asked whether they had ever used marijuana, heroin, crack-cocaine, cocaine in forms other than crack, or any other drug. For a measure of lifetime polydrug use, we counted the number of drugs reported.

Table 2. Regression of Drug Problem Recognition on Conventional Moral Belief and Covariates

	Equation 1 African-Americans		Equation 2 Hispanic-Americans		Equation 3 Non-Hispanic Whites	
	b	t	b	t	b	t
Conventional moral belief	.64***	4.63	1.35*	2.16	.38	1.66
Age	.13**	2.69	.62**	3.00	.14	1.84
Gender (1 = women)	1.33	1.46	-.38	-.12	-2.65	-1.83
Married	.22	.24	-3.72	-.94	-.15	-.10
Employed	-2.81***	-3.42	-3.20	-.87	-1.03	-.84
Religious involvement	.301	.27	.70	.83	.30	.88
Lifetime polydrug use	.00	.66	.00	-.95	.00	-.18
Recent drug use	.02***	3.31	.04	1.63	.05***	4.23
Primary drug heroin	5.83**	3.28	3.34	.51	4.13	1.96
Primary drug crack	11.68***	5.87	8.03	.97	9.96**	3.29
Primary drug cocaine (not crack)	13.3***	7.42	7.23	.93	12.69***	5.63
<i>F</i>	26.18***		3.23**		7.99***	
<i>R</i> ²	.29		.31		.20	
<i>N</i>	705		57		315	

Notes: **p* < .05.
 ***p* < .01.
 ****p* < .001.

Frequency of Recent Drug Use

People estimated the number of days on which they had used any illegal drug in each of the past six months. For this analysis, we aggregated the monthly subtotals to arrive at the total number of drug use days during the six months preceding the baseline interview.

Primary Drug

We defined primary drug as the drug used most often (i.e., on the greatest number of days) during the six-month recall period. For this analysis we created a series of dummy variables to tag cases whose primary drug was marijuana, heroin, crack, or noncrack-cocaine. (Reference cases were primary marijuana users.)

FINDINGS

Table 2 shows findings from a series of three multivariate linear regression analyses in which we tested conventional moral belief and covariates as predic-

tors of drug problem recognition within each ethnic group. Among African-Americans (equation 1), endorsement of conventional moral belief was significantly and positively related to drug problem recognition ($b = .64$). The same relationship ($b = 1.35$) emerged among Hispanic-Americans (equation 2). However, conventional moral belief was unrelated to drug problem recognition ($b = .38$) among non-Hispanic whites (equation 3). A *t*-test confirmed that the unstandardized regression coefficients for African-Americans and whites are significantly different ($t = 2.64, p = .008$). The coefficients are not significantly different ($b = .80, p = .42$) between Hispanic-Americans and whites. The Hispanic subsample is small, and the standard error of the coefficient for moral belief is comparatively large. These methodological limitations may explain why the difference-of-slopes test did not reach statistical significance in the Hispanic/white comparison. Sample size was not a limiting factor in the comparison of African-Americans and whites.

DISCUSSION

Findings for the covariates are of secondary interest, so we review them here only briefly. Compared to African-Americans and Hispanics who were younger, those who were older said their drug-related problems were more severe. African-Americans who held jobs reported lower drug problem severity than those who were unemployed. Because the prediction equations included objective drug use severity indicators such as frequency of recent use and primary drug, we do not believe that objective differences in drug use severity underlie the relationship between perceived drug-related problems, on one hand, and either age or employment on the other. Instead, we believe older users may be more inclined to recognize their drug-related problems because it becomes increasingly difficult for older users to meet the demands of a drug user's lifestyle. Users who were employed may perceive less severe drug-related problems because their lives are more stable than the lives of unemployed users—even when actual frequency of drug use and other objective indicators of severity are held constant. We have no explanation for the lack of association between problem recognition and either age or employment among whites. We note, however, that whites were more likely than African-Americans or Hispanic-Americans to be employed (see Table 1). Thus, having a job may be a more sensitive proxy for personal stability among nonwhites in this sample than among whites.

The objective indicators of drug use severity associated with drug problem recognition among African-Americans and whites were frequency of recent use and cocaine as primary drug (in the form of either crack- or noncrack-cocaine). Prior research has not consistently found a link between objective severity of drug or alcohol use and treatment entry (Carroll and Rounsaville 1992; Tucker and Glad-*sjo* 1993). Our findings suggest, however, that drug use severity may influence

treatment entry indirectly by raising the probability that users will recognize problems arising from their drug habit. Problem recognition was associated with none of the severity indicators among Hispanics. This may reflect an actual difference in the correlates of problem recognition across ethnic groups but could also be a consequence of the relatively small number of Hispanics in the sample.

Returning to the central focus of this paper, we note that conventional moral belief was significantly associated with drug problem recognition among African-Americans and Hispanic-Americans even after we took drug use indicators and other potential confounds into account. This finding is consistent with previous studies in which people who report more severe problems arising from their drug use also endorse conventional moral belief more strongly (Longshore 1998b; Longshore, Grills, and Annon 1999). Those studies were based on African-American and Hispanic drug users in Los Angeles. Replication among nonwhite users in five U.S. cities other than Los Angeles suggests that the earlier findings are not a fluke of the data set on which they were based and are not specific to locale. Instead, we may be seeing evidence of a general pattern of association between these two cognitions—at least among drug users whose ethnic background is African-American or Hispanic-American.

How can we understand the particular relevance of moral belief among nonwhite drug users? The motive to claim or reclaim “moral standing” in a community of conventional others may loom large for many nonwhites because collective identity, kinship, and interdependence are highly valued in nonwhite cultures (Crocker, Luhtanen, Blaine, and Broadnax 1994; Kim, Triandis, Kagitcibasi, Choi, and Yoon 1994; Kline 1996; Marin and Marin 1991; McCombs 1985). Among people for whom such values are salient, normative behavior is strongly prosocial and includes development and maintenance of common beliefs, attitudes, and practices, as well as responsiveness to and cooperation with one’s ethnic, social, or family group (Oyserman 1993). In addition, self-perception among members of nonwhite cultures tends to be collective in origin (McCombs 1985; Oyserman, Gant, and Ager 1995). Kagan and Knight (1979) found that self-esteem in African-Americans depends partly on whether they see their behavior as congruent with cultural norms. Markus and Kitayama (1991, p. 242) have highlighted the importance of “occupying one’s proper place” and “maintaining harmony” to self-conception in groups, including African and Hispanic, where the “healthy self” is based on interdependence with others rather than independence from others. Finally, collective identity and interdependence may be more highly valued by Americans of African or Hispanic origin because of a traditional reliance on one’s ethnic group for survival and well-being (Oyserman 1993; Rowe and Grills 1993). Historical experiences of oppression and powerlessness (Oyserman et al. 1995; Myers et al. 1991; Rowe and Grills 1993) may have fostered this reliance. In short, the association between endorsement of conventional morality and drug problem recognition

among nonwhites may reflect a culturally derived stake in being viewed, and in viewing oneself, as a valued member of a culturally defined community.

In contrast, values such as reclaiming membership in one's community or maintaining harmony with others may be less likely to influence perceptions and motivate behavior change for whites. Unlike African-Americans and Hispanics, whites in the United States tend to develop individualistic identities emphasizing autonomy, independence, and the priority of personal goals over group goals (Ma and Schoeneman 1997). There is less emphasis on affiliative relationships. Thus, drug problem recognition (and other perceptions) may, among whites, be less closely tied to values that stress conformity to collective norms, expectations, and goals. Indeed, the self-perceived ability to overcome drug problems on one's own, rather than adherence to cultural norms and expectations of moral behavior, may be a more potent predictor of drug problem recognition for whites.

Four of the five items comprising our measure of moral belief pertain to social connectedness and responsibility (e.g., "many things called 'crime' do not really hurt anyone"). While obligation to others is an aspect of most moral belief systems, other aspects are less explicitly social. These include conceptions of moral conduct that are based on obedience to higher authority; "creedal assent," or congruence with abstract principles of right and wrong; devotionism; spirituality; and mystical experience (Johnstone 1975; King and Hunt 1990; Van Wicklin 1990). A measure based on items that capture these less social aspects of moral belief might have generated different results. In particular, an alternative measure of moral belief might have emerged as a significant correlate of problem recognition among whites.

The nonrelationship between moral belief and problem recognition in nonwhites may, alternatively, be an artifact of measurement problems. We saw no hint of such problems in the data set, however. The mean, standard deviation, and range of scores on conventional moral belief were very similar across groups (see Table 1). The same was true for our measure of drug problem recognition. The groups differed only in the degree to which moral belief was associated with drug problem recognition.

Compared to non-Hispanic whites, African-Americans and Hispanic-Americans are generally found to be more involved in religious activity (e.g., church attendance) and to ascribe more importance to religion in their lives (Levin, Taylor, and Chatters 1994; Nelsen, Yokley, and Nelsen 1971). Ethnic group means on our measure of religious involvement are consistent with this general pattern (see Table 1). In addition, several studies indicate that religiosity is more closely related to well-being, mental health, and prosocial behavior among African-Americans than among whites (Arp and Boeckelman 1997; Blaine and Crocker 1995; Bourjolly 1998; Woods, Lentz, Mitchell, and Oakley 1994). Our measure of religious involvement was unrelated to drug problem recognition among nonwhites as well as whites in this sample. However, religiosity is multidimensional, and scores on our moral belief measure may reflect an underlying dimension of

religiosity distinct from religious involvement. If so, the relationship between moral belief and drug problem recognition, certainly among the African-Americans in our sample and perhaps among Hispanics as well, could be a manifestation of the particular relevance of religion for mental health and prosocial behavior among nonwhites.

It is nevertheless surprising that the religious involvement measure was unrelated to drug problem recognition, especially among nonwhites but among the whites as well. Perhaps involvement, defined on the basis of attendance at religious services and the importance of religion in one's life, is simply not important to drug problem recognition, while other dimensions of religiosity are. We have already noted that moral belief might be construed as a distinct dimension of religiosity. Another dimension that might bear upon problem recognition is spirituality, or a belief in things metaphysical or unexplainable (Christo and Franey 1995). Unfortunately, we had no measure of spirituality in our data set.

We note three implications of our findings for drug treatment. First, if recovery for nonwhites is motivated by the desire to rejoin a moral community with culturally defined principles of conduct, this may explain why treatment outcomes appear more favorable among African-Americans enrolled in programs with a greater percentage of African-Americans in the client population (Brown, Joe, and Thompson 1985). When the population is more heavily African-American, perceived pressure to conform to group norms, the importance ascribed to social harmony, and the salience of one's "moral standing" may increase.

Second, one's standing as a member of a moral community may be a valuable but underutilized source of leverage in treatment induction and counseling. For example, nonwhites may overcome their ambivalence toward treatment more readily if the initial focus is on prosocial reasons for drug abstinence rather than on forcing clients to self-label as addicts, breaking down defense mechanisms, and emphasizing the "cons" of continued use (Miller 1995). It may be important that these prosocial reasons be expressed in culturally relevant terms such as those implied above: entry or reentry into a community built on trust and reciprocity or assuming a conventional role in one's family. Similarly, as people move through treatment, cultural values may be useful as a source of motivation to maintain and consolidate therapeutic gains. Among African-Americans, for example, keeping sober might entail active engagement in a conventional community, attention to spiritual issues, focusing on feelings of collective self-esteem and efficacy, and assuming conventional social roles. Evidence for the motivational aspects of these values is found in recent research on culture-based interventions, which appear to be more effective than standard interventions in promoting recovery and other healthy behavior (e.g., Kalichman, Kelly, Hunter, Murphy, and Tyler 1993; Kalichman and Coley 1995; Longshore et al. 1999; Longshore and Grills forthcoming; O'Donnell, San Doval, Duran, and O'Donnell 1995; Sussman, Parker, Lopes, Crippens, Elder, and Scholl 1995; Woolredge, Hartman, Latessa, and Holmes 1994).

Third, given the apparent importance of moral belief among African-American and Hispanic drug users, treatment may be more effective for such users if religious institutions and/or religious leaders are more involved. For example, attendance at religious services, involvement in religious-based community services and activities, and spiritual counseling may be useful adjuncts to treatment. Previous findings in the area of cancer control strongly suggest that church-based models of social influence can be effective in increasing the participation of nonwhites in health promotion and disease prevention programs (Davis et al. 1994).

Finally, in health research it is common practice to treat ethnicity as a dummy variable in order to see whether ethnic group membership explains any variance in health-related outcomes after other factors are taken into account (LaVeist 1994; White-Means 1995). Ethnic group membership is a crude proxy for the factors that may actually matter, such as cultural values and norms, socioeconomic status, community context, experience or expectation of discrimination, ethnicity-related attitudes and perceptions, and social and personal resources (Collins 1995; LaVeist 1994; White-Means 1995; Yee et al. 1993). We sought to move beyond the "ethnic gloss" (Trimble 1995) of prior research by examining correlates of drug problem recognition in three ethnic groups taken separately. In doing so, we found wide variability in endorsement of moral belief within each group and between group differences in the relevance of moral belief for the outcome of interest, namely drug problem recognition. These differences notwithstanding, we caution against reading our findings as a crude reification. The content and salience of cultural values such as those cited above vary widely within as well as across ethnic groups. This variability need not be obscured in the search for group differences, ethnic and otherwise, in processes leading to cognitive or behavioral change.

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THE TRAJECTORY OF RECOVERY AMONG DRUG-DEPENDENT PUERTO RICAN MOTHERS

Timothy Black and Monica Hardesty

ABSTRACT

Much of the literature on drug treatment for women demonstrates a need for gender-oriented, family-centered treatment. Based on observations of a treatment program for Latina women and life histories of female Puerto Rican substance abusers, we expand this argument by describing a trajectory of recovery for female Puerto Rican drug abusers that emphasizes their relationships with children, family, kin and treatment staff. We also identify dilemmas that arise when incorporating these trajectories of recovery into treatment programs. They include (1) the need to balance the interests of mothers with the interests of children; (2) the need to mediate kin and family dynamics that may be counter-productive to recovery, and (3) the importance of establishing treatment contexts that facilitate trust and personal connections without compromising professional distance.

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Traditional drug treatment protocols almost exclusively have been organized around an individual-centered medical model of treatment (VanBremen and Chasnoff 1994). When treatment regimes ignore the social pathways of drug abuse and recovery, they become less effective for women (Finkelstein 1993; Sullivan 1994; Van Bremen and Chasnoff 1994). Women are less likely to define self in individualistic ways and more likely in terms of their relationships with children, partners, or friends (Gilligan 1982). The same is true in recovery; the process of recovery for women is highly social in nature and shaped by their caregiving roles in the family (King 1991). Treatment interventions should address the familial nature of women's lives. In overlooking the familial aspects of recovery, an individualistic model does not meet the needs of female substance abusers to initiate and maintain their recoveries (Beckman 1984; Reed 1987; Woodhouse 1990; Maher 1992; Dvorchak et al. 1995; Azzi-Lessing and Olsen 1996).

The lives of some women are embedded in an extended family system. Among urban ethnic populations where resources are limited, women build extended social networks of kin to support and assist in times of need (Stack 1972, 1974; Chatters, Taylor, and Jayakody 1994). Recovery from a drug problem takes place within this network of kin relations. Kin not only provide internal resources to those in need, but also play an important part in the search for outside resources, such as health and social services (Schensul and Schensul 1982). Treatment interventions must take into account and include the extended family system in the provision of services (Mizio 1974; Northey, Primer, and Christensen 1997).

In this paper, we examine a specific population of substance-abusing women, namely Puerto Rican mothers living in the Hartford, Connecticut area.¹ Our research with drug-dependent Puerto Rican females demonstrates that drug recovery is not separate from familial relationships and the cultural expectations that define these relationships. Kin relations are vital in the lives of Puerto Rican women and essential in the recovery process. We show how Latinas experience and organize their recoveries with family and kin and expose the programmatic dilemmas that can arise when service providers respond to the family dynamics.

RESEARCH METHODS

Using a qualitative inquiry, we explore the linkages between the Puerto Rican kin relations, the female substance abuser, and program services. Because drug programs typically ignore localized cultures (Gubrium 1989), qualitative research can expose how programs can become more effective in the lives of drug-dependent Puerto Rican women. Using qualitative methods allowed us to understand the lives of female addicts, the social and cultural contexts of drug dependency, and their roads to recovery (Woodhouse 1990; Hardesty and Black 1999).

We took the concerns of Puerto Rican women in recovery seriously and listened to what they told us about their needs and their experiences, *as they define them*.

Their accounts allowed us to explore their total lives, and to see their recovery from drug abuse within the larger fabric of their family and kin relations. Their stories also served as an evaluative tool because they reveal the connections and disjunctures between agencies and ordinary people (Cain 1990), or in our study, between substance abuse programs and Puerto Rican mothers. These stories articulate gaps between women's lives and treatment programs and expose professional dispositions that both facilitate and impede the women's essential connections with kin.

Our perspective on the centrality of family and kin in the treatment of drug-dependent women arose from our evaluation of a local substance abuse program for Latinas (Black and Hardesty 1996). In the course of our five-year evaluation project, we compiled a number of qualitative sources of data. We gathered data through interviews with program staff, observations of weekly support group meetings, bi-annual focus groups with program participants, and in-depth interviews with twenty program participants in the final year of the study. We then triangulated these sources of information to ascertain the dilemmas of recovery and the fit between program services and recovering Latinas.

The bulk of our interpretations comes from the life history interviews. We recorded the life histories of twenty Latina heroin or cocaine abusers from the local community who were in various stages of recovery at a local treatment program.² Interviews were conducted by Latina women who had worked on the evaluation study and had some prior contact with the women. This familiarity, we believe, was important for acquiring honest and open responses to our questions. Each woman was guaranteed confidentiality and interviewed for a total of 3–4 hours in Spanish. The interviews were taped, transcribed, and then translated.

Because our interest primarily focused on recording a range of experiences in life and recovery, we interviewed a varied sample of women. All had some contact with the treatment program for Latina addicts, but were in varying stages of recovery and commitment to their recoveries. Some were still very active in drug use, while others had been in the process of recovery for several years and were "clean." All of the women were Puerto Rican, except for one Dominican. Fourteen of the women were born in Puerto Rico, although the majority had spent most of their lives on the mainland. The women varied in age from 23 to 48, with a median age of 29. One-half of the women began using drugs as teenagers, while the remainder began using in their early 20s. All were mothers except for one, who had miscarried and subsequently been unable to conceive. The ages of their children varied considerably from newborns to grown children.

The life histories revealed that drug recovery for Puerto Rican women is much more than recovery from addiction; it involves a process of recovering one's place as mother and kin. Our data demonstrate that the identity as mother and kin is a lifeline for Puerto Rican addicts through addiction and into recovery. The desire to reconnect with children motivated their recovery from drug abuse. Moreover, reclaiming one's place as mother was more than a motivation for recovery; it was

a central organizing feature of the recovery process. The Latina users' goal of reclaiming their places as mother and kin raises important challenges for substance abuse treatment professionals. Prudent decision-making needs to consider these motives and goals to encourage recovery, but without causing unnecessary harm or burden.

THE PUERTO RICAN WOMAN AMONG HER FAMILY AND KIN

In the Puerto Rican culture, the identity of woman and mother are interwoven (Sanchez-Ayendez 1986). A woman's life revolves around the family and home (Canino and Canino 1980; Segura and Pierce 1993; Julian, McKenry, and McKelvey 1994). Many Puerto Ricans believe that a woman's reproductive role naturally fosters a greater commitment to and a better understanding of children (Sanchez-Ayendez 1986). Her primary responsibility is rearing children, often valued above her responsibility as wife (Christensen 1979).

Puerto Ricans stress the importance of mothers in the parent-child relationship. Women provide the day-to-day care and transmit the cultural values to their children (Segura and Pierce 1993). Mothers also occupy a special place within the Latina family and community. Cultural activities such as Mother's Day in Puerto Rico, a holiday only exceeded by Three Kings Day in gift giving and celebration,³ reinforce the normative standards surrounding the importance of motherhood for Latinas (Christensen 1979). Frequent contact and strong ties among family members, even into adulthood, are expected (Espin 1984) and strengthened through the celebration of holidays and special occasions (Sanchez-Ayendez 1986). Women are expected to build the social networks that bring disparate family members together in these times of celebration (Alicea 1997).

Networks of kin are activated not only for celebrations of family life, but also for support in times of need, providing assistance that entails both material and emotional resources (Schensul and Schensul 1982; Lazarus 1984; Stack 1972; Alicea 1997). The most fundamental type of assistance among kin is child care (Chatters et al. 1994). "Puerto Rican women recognize vesting one person with full responsibility for mothering may not be wise or possible" (Alicea 1997, p. 620). Given the lack of resources in these communities, mutual assistance in child rearing enhances family stability.

Kin networks extend beyond the immediate family and local communities. Puerto Rican families are transnational (Mattei 1989); consequently, women carry the additional responsibility of maintaining links with relatives and sharing resources across households spanning large geographical distances (Alicea 1997; Hondagneu-Sotelo and Avila 1997). Children who are brought to the United States may not reside in their mother's household and siblings may live apart. In the Puerto Rican community in Hartford, children are dispersed across numerous

households—mother's, grandmother's and aunt's homes—and in numerous locations—Hartford, New York City, and Puerto Rico.

Kin networks also extend beyond blood kin to include fictive kin.⁴ Fictive kin, such as *madrinos* (or godmothers) and *amigos de la familia* (friends of the family), participate in the cultural practice of raising children (*hijos de crianza*) who are not blood kin (Sanchez-Ayendez 1986). Blood and fictive kin ties involve mutual obligations of economic and emotional support to the parent, where companion parents "raise the child as if it were one's own" (Mizio 1974, p. 77). Networks of multiple mothers are formed and actively involve sisters, aunts, godmothers, grandmothers, and close female friends in the child-rearing process (Mizio 1974; Segura and Pierce 1993; Morales 1995).

Participation in the kin network involves a set of mutual, although not always equitable, obligations. Women share a disproportionate burden of kin work (Alicia 1997), particularly mothers of adult daughters (Espin 1984). Mothers and adult daughters share strong parenting bonds (Segura and Pierce 1993). Grandmothers in Puerto Rican families often rear their daughters' children at one time or another (Lazarus 1984). Help to one's adult children and grandchildren is given freely, even when not explicitly requested.

Family members who rely on other family members, no matter how old, are not judged as dependent or failures (Sanchez-Ayendez 1986). The strength and vitality of the grandmother–mother–child triad help Puerto Rican women feel connected to one another and empowered within their communities and families (Hernandez 1988). That is, their shared parenting bonds affirm their place as Latinas—women with a unique way of relating to one another through close interaction with other women in their kin networks.

For Puerto Rican women, the family responsibilities that begin young and extend into old age typically involve placing others' needs above one's own, especially the needs of children and one's female kin. Many women resolve the competing responsibilities of caring for oneself and others by defining caring for others *as* caring for self (Margarida Julia 1989). Hence, definitions of self are inextricably linked to one's place in the family and kin network.

In sum, family and kin relations are resources Puerto Rican women call upon in times of need. Puerto Rican women provide support for each other in difficult times through their shared parenting bonds. Through women-centered, kin networks they organize family life; they care for children, connect mainland households to ones in Puerto Rico, connect these households to social service agencies, and derive a sense of self. Just as in other times of their lives, family and kin can become valuable resources for drug recovery.

THE TRAJECTORY OF RECOVERY

For Puerto Rican women, recovery from drug addiction is organized within a network of human connections or, more specifically, networks of family and kin relations. Reclaiming one's place as mother and kin is the central act of recovery. In other words, recovery involves a social trajectory in which the anticipated and planned acts of drug recovery are undertaken to re-situate the mother with her children and network of kin. The overall process for achieving sobriety is imagined, experienced, and evaluated within the context of these relationships. Recovering mothers progress, stall, and relapse based on their feelings about family and their experiences of reclaiming their identities as mother and kin. In our analysis of recovering Latinas, we identify three kinship activities in their trajectories of recovery: reclaiming the bond with children, strengthening kin networks, and enlarging networks of kin to include members of the therapeutic community.

These recovery acts are shaped by the gender and cultural expectations of Puerto Rican women in the Hartford community. The centrality of motherhood in the Puerto Rican culture underscores the importance of organizing treatment around connections with children, while kin networks are an integral part of the daily lives of Puerto Rican women that cannot be ignored in recovery. Furthermore, Puerto Ricans highly value trust (*confianza*) and personal connection (*personalismo*) in their significant familial and nonfamilial relationships. Engaging service professionals and support group members in the kin-like behaviors of *personalismo* and *confianza* facilitates their commitments to the recovery program and provides opportunities to prepare themselves for remedying estranged relations with children and kin.

Reclaiming Children

First and foremost, Puerto Rican women built their recovery plans on repairing their relationships with their children. The cultural expectations of motherhood did not disappear when Puerto Rican women became drug dependent. Rather, mothering continued to provide a sense of purpose and importance in defining oneself in the recovery process (Hardesty and Black 1999). The need to restore the mother-child bond in recovery was rooted in the centrality of motherhood in Latinas' overall lives. In talking about her recovery plans, one Puerto Rican drug abuser explained the importance of her children: "I would do anything for them, I wouldn't allow anyone to harm them. It is as I told you, *I am mother before woman.*"

Despite the enormous challenges, many put faith in their abilities to repair their relationships with their children. The connection between a Puerto Rican mother and her child is deep and permanent, they insisted, not one easily torn by drug abuse. Even when children were no longer present in the home, many women continued some of the responsibilities of motherhood, such as giving children

money, providing moral guidance, or talking over problems. Others who had lost contact with their children performed a deep emotional labor (Hochschild 1983) of keeping alive the memories and dreams of their closeness to their children. In recovery, they planned to amend the loss no matter how long it would take. Longing for their children, fantasizing about them, and dreaming about their return home kept their recovery plans alive.

Reclaiming one's children was a primary motive for recovery, regardless of whether a child had been given away voluntarily, removed by a state agency, or abandoned. As one woman explained, "I have enough reasons to get into treatment—these are my children. I was in addiction and my children pushed me into treatment. What thing could [give me more strength] than my children?" Puerto Rican women who participated in recovery confronted their self-doubts, repaired the damage inflicted on their children, and renegotiated their place in their children's lives. This monumental task was fraught with anxiety and guilt:

In the beginning it was very difficult for me to explain all this [drug dependency] to my children, especially the oldest one. He is the one I offended the most. Now I feel better because he understands that I have that disease. [Interviewer: Why did you say that you offended him?] Because many times I spoke ill to him and he answered me in the same way. He was mad at me. He probably noticed my problem and did not say anything to me. I offended him a lot. Not long ago I asked him for his forgiveness.

Just as women went into treatment for their children, children became a reason for sustaining recovery as well. Commitment to recovery was understood as commitment to one's children. Drug abstinence was secondary to the difficult work of reclaiming the trust and care of their children.

[Interviewer: How is the boy with you? Does he trust you?] Now he does. He has been living with my daughter for a year. The first year, that was a war, war over power, you know, "I am the boss, you are not." I think his fears of me going back to drugs were great, but not now. Since we are in therapy, he has been able to bring out all of his rage against me. There is more communication and trust between he and I.

This mother and many others counted on their children to notice their improvements and to encourage their rehabilitation efforts.

Women desired children's active participation in the recovery process and used them as mirrors of success. "They [used to] cry, 'Mommy, get out of that...look how ugly you are.' When I finished the program, they said, 'Oh mom, how beautiful you look!' They said this to my face, and they kissed me." Another commented, "They wanted me to quit. They knew when I was 'enferma de droga' (in need of a fix). (Now) they ask me every day 'Have you gone to get your methadone treatment today?'" Recovery was understood and achieved, not in counting the days of sobriety, but rather in the loving responses of children. The validation

from children of their “new life” moved them further along their trajectory of recovery.

Their success in achieving this goal in the recovery process was largely dependent on their children’s willingness to participate in the process of “creating a new life” (Pursley-Crotteau and Stern 1996). The women made numerous efforts to reach their children and to include them in recovery, even at great distances. One mother with terminated parental rights maintained the plan to reclaim her children as part of her recovery:

Social services in Puerto Rico have two of my children. I have lost all of my parental rights, so far. [Interviewer: Is that for good?] At least it will be this way until my kids grow up and become aware that I am a different mother now. Then they will have to decide if they want to come to live with me. That will be the only way. In court, there is nothing I can do to get my children back. Still I call my children. I look for them. On June 16, I sent a present for one of the kids. I called him up and I asked him, “Sammy, would you like to come with mama just for vacation,” and he said, “No mama, I don’t want to go with you.” I can’t force them, see. It has been three years since they were taken away. So many things can happen in three years. I did many wrong things. I was wrong. I regret that, and I begged for his forgiveness. It hurts, you know, because I see that my child doesn’t want to stay with me. It is not easy. Maybe I want to see the result of my recovery too soon. But I am going to continue my struggle. I am going to keep trying. I know that one day my son is going to realize that his mother was sick, but at least she went ahead. It would be bad if they had to say, “My mother was an addict and never changed.”

To reconnect with children reaffirmed one’s position in the family. To female Puerto Rican substance abusers, relationships with children were extremely important. Their drug recovery cannot be separated from the recovery of their children.

Maintaining Kin as a Helping Resource

Material and emotional support from kin provide Puerto Ricans with a problem-solving resource (Schensul and Schensul 1982). Kin assistance was relied on when our participants felt overwhelmed by the responsibilities of motherhood. For example, one mother of five sent her children to live with her mother in Puerto Rico so that she could prepare for the birth of her sixth child. Another mother of five children sent her troubled older child to live temporarily with an aunt so the child could get the attention she needed.

As in other times of need, kin were fundamental resources during drug use and recovery. Companion parents often were asked to care for the addict’s children when drug use escalated:

[Interviewer: How long did your girl live with you?] Until she was eleven years old. [Interviewer: How old is she now?] Fifteen. [Interviewer: She decided to go with her aunt?] No, as I began to use drugs when she was eleven and I could not take care of them, I gave one of them to my sister and the other one to my mother.

Another Latina placed her children with her mother when DCF (Department of Children and Families) discovered her drug addiction: "When I could no longer take care of them, I gave them to my mother. DCF didn't take my children away. I voluntarily gave them to my family." In another case, a mother left her daughter with a female cousin when she lost her home and sought housing in a shelter. Kin were relied on to care for children when the women were arrested and sent to jail or when women entered an inpatient treatment program.

What these episodes of kin assistance revealed was the normative reliance on companion parenting. Most of our participants had children residing outside of their homes. Of the mothers who had dependent children, only 30 percent had all of their children living with them. Thirty-five percent had some of their children living with them and 35 percent had none of their children living with them at the time of the interview. Most children (75%) residing outside the home lived with a close female relative, someone regarded as a companion parent.⁵

Because an extended family is the foundation for child rearing, kin can assist mothers who wish to reconnect with their children, a crucial step in the recovery process. Companion parents facilitated the women's pathways to recovery in several respects: they enabled them to use a non-stigmatizing resource in the community; they provided assurance that their children were being properly taken care of; they allowed them time to attend support group meetings or seek inpatient treatment; and they enabled them to avoid the difficulties of the child welfare bureaucracy.

Regardless of the child's place of residence, our participants tried to maintain contact with their children. The decision to rely on kin for child rearing provided the opportunity for mothers to stay in touch with their children, a vital step in reclaiming them. Mothers whose children were in the custody of companion parents found it easy to keep in touch with their children. Some visited on weekends; some every day. Others whose children lived out of town visited monthly or phoned frequently.

The case of Sonia demonstrates how companion parents can facilitate the reunification of mother and child. When Sonia's drug use escalated, she voluntarily placed her two children with female relatives. Her mother took responsibility for her son and her sister took her daughter. In the long-term process of her recovery, Sonia reclaimed her son and continued to work toward getting her daughter home:

I visit her every weekend. But it (the ability to reconcile) is not the same as if she were here with me every day to see the person that I am now.... My son is here, but my

daughter has not given me the opportunity. You have to give them time so that the trust comes back.

Mothers whose children were in foster care lacked the benefits of the kin network—knowing where one's children were and the kind of care they were receiving. The co-parenting obligations to raise another's children as one's own gave relief to these mothers. Not having to go through a child welfare worker to gain access to children was another advantage for mothers who relied on kin.

For women not adept at dealing with bureaucratic agents, the child welfare system became another hurdle to recovery. One mother described the negative consequences of foster placement upon her recovery efforts:

The last time I saw the children was Good Friday, (by accident buying a pack of cigarettes, she saw them on their way to a local church service, but was unable to speak to them). I haven't seen them since Good Friday. [Interviewer: Why? Don't you go there? Don't they come here?] No, I don't know the address. That lady (foster mother) does not want to give me her address or telephone number. Nothing. She has my telephone number and address. How come she can have mine and I don't have her address and number so that I can see my son? I call my social worker and say, "What's going on with my children? Why don't you give me the telephone number so that at least I can call?" The social worker tells me that he is going to call the lady (foster mother), but he never calls back. Never!

Being unable to contact her children, she stalled in her plans for recovery.

This example also reveals Latinas' typical mistrust of bureaucratic control; she suspected the social worker was deliberately keeping her in the dark about her child. The suspicious relation with her child welfare worker became an obstacle to recovery. This obstacle meant that greater efforts had to be taken to repair her relations with the social worker (a step she may not have realized she needed to take) before the real work of repairing relations with her child could begin. In her mind, the struggle between herself, the social worker, and foster mother inhibited her recovery efforts. Mothers who were unable to contact and reconnect with their children perceived themselves as unable to complete their recovery, because relations with children were the central test of progress.

Latinas were far more confident of the care their children received within the kin network than in foster care. They believed strongly in keeping child-rearing responsibilities within the family and the community of kin. Some women expressed concern about their children being raised outside the culture, where standards of discipline and expectations may differ. Several feared the maltreatment of their children in foster care: "I fear that DCF would take my two children out of their grandmother's house and put them in a foster home. In foster homes, children are abused and you do not know what is going on."

Puerto Rican women actively constructed and relied on kin before and during addiction. Their sense of self was created and maintained through these family

ties. Support for the addict in recovery, likewise, should include kin members. Owing to the cultural notions of family interdependence, Puerto Rican women do not recover as autonomous beings, but rather as members of a kin network. Our data suggest that the use of kin networks advanced rehabilitation and reunification efforts.

Engaging Others in Kin-like Relations

As we have noted, recovering Latina substance abusers struggled to reclaim their connections with children and relied extensively on kin, particularly companion parents, to do so. In addition to the physical care of children, kin provided emotional support networks for Puerto Rican mothers. Further, fictive kin are frequently called upon to repair estranged family relationships, such as when they help to reunite blood kin (Woodrick 1995). When female Puerto Rican drug abusers did finally turn to service professionals for help with drug use and their estranged relations with kin, they sought to reproduce these kin-like relations with professional staff.

While Puerto Ricans typically turn first to family and kin to resolve problems, kin often make referrals to health and social service providers where culturally appropriate services exist (Schensul and Schensul 1982). In our study, when the cultural patterns of relating found in blood and fictive kin networks were reproduced in the treatment setting, Puerto Rican substance abusers were more likely to sustain recovery. Puerto Rican women looked to treatment staff as fictive kin members to help repair damaged relations with children, family, and kin. Engaging in kin-like relations provided the opportunity to rehearse the connections they wished to make with family and kin members. These kin-like relations placed a high premium on trust (*confianza*) and personal connection (*personalismo*) between treatment staff and the recovering drug user.

While personalized care is likely to be welcomed by most clients in human service programs, high levels of trust and personal connection are central to Puerto Ricans. Morales (1995, p. 81) explains:

Establishing trust, an essential component of social work practice with Puerto Ricans and others, requires approaches that may be new to social workers who have never worked with this population.... Personalismo is a culturally supported expectation of "personalizing" individual contact in important relationships. For example, Puerto Rican children complain that their teachers, guidance counselors, and social workers do not seem to care about them as individuals. In frustration these children often say such things as, "They are just doing their job. They don't really care." No matter how much a social service system says it is concerned about people, Puerto Ricans may need to feel the caring personally.

This perspective coincides with our observations of the treatment program attended by our participants. They organized their experiences and expectations within the therapeutic settings through an extended family perspective. They used

the language of family; support groups members were called “family,” and “companions” (*compañeras*), while parent aids and case managers were referred to as “mothers,” “sisters,” or “godmothers.” As one woman described the relations among program participants and staff: “We are more than a group, we are a family.... We learn how to support each other, to help each other, and we go beyond any barriers.”

Personalized forms of care that approximated kin relations were required for many Latinas to participate in or to follow through with treatment. Caseworkers were expected to go beyond their professional role and show *personalismo*. Participants vigilantly monitored these relations for indicators of *personalismo*. One woman commented on the little things that demonstrated the case manager cared for her as a person:

Here I can call my casemanager anytime. The casemanagers are like our sisters. They help me because they talk to me. Sometimes they take me out for a walk, or buy me ice cream, and make me feel that they are there for me.

For most, *personalismo* was a basis for their continued participation in the program:

Here we hear the *compañeras*' experiences and find the kind of friends that we do not find out there. All the employees are so good that they bend over backwards for you. I stayed clean for 11 months. But you know we never get cured. I started to use again. Then she (a case manager) found me on the street and asked me to come back, and the next day she went to my house and took me to a detox (center). All the employees of the program are like that.

Recovery faltered and women failed to move forward in their trajectories of recovery when *personalismo* was absent: “I like everything (about the program), especially that my worker calls me. If she would not call me, I would not come to the meetings.”

While the success of the program largely stemmed from the personalized nature and the familial character of the program, staff members became increasingly concerned about participants becoming too dependent upon them. As a result, in the latter part of the program, staff increased the professional distance between themselves and their clients. Staff recognized that these changes violated cultural sensibilities and undermined the personalized care that Latina clients demanded, but at the same time they felt it was important to promote independence and self-sufficiency. As the program shifted more toward individual responsibility and less personalized care, some women's commitments to recovery waned and complaints escalated. Complaints about case managers, never mentioned in the earlier years, emerged:

My caseworker has not done anything for me the few times I have requested her help. As I told you I have missed group (support group meetings). I did it on purpose to see if she was going to show concern for me. She has my phone number in the records. She knows where I live. No visit. Not even a phone call. That told me how much she cares. I am her client, but she is not concerned about me as a person. If I go to the meetings. If I don't go. It's all the same.

Another noted how meaningful personal connections were missing: "I know they are busy. I know they have many things to do. But I would like them to give me a call once in awhile. I want them to show me they care about us."

Two specific program episodes demonstrate the significance of personalismo and confianza in sustaining the trajectories of recovery among female Puerto Rican substance abusers. In the final year of the program, as case managers increasingly withdrew from participation in support groups, problems and conflicts erupted. Women complained about a lack of guidance and violation of confidentiality among program participants.

The program staff responded by hiring Damari, a recovering substance abuser and a graduate of the program. Damari provided the women with the personalized care they sought. They began to attribute their progress largely to Damari: "The one that is always there, available 24 hours a day is Damari, we can call her anytime," and "Damari comes to our homes." She became their confidant:

[Interviewer: When you have a serious problem who do you go to?] First I call Damari. I consider her my mother. I go to her and I tell her my problems, what bothers me, and she talks back and I take her advice. I like this. She is the only one I ask for a favor outside my family, that's Damari.

A second episode occurred in the more intensive day treatment component of the program. In the earlier stages of the day treatment program, the women complained bitterly about the woman who ran the program. This woman was white and spoke fluent Spanish, but did not share the Puerto Rican culture. It was difficult for her to legitimate strenuous program demands—such as weekly urine samples, participation in groups, and honest disclosures. She was replaced by Iris, a Latina woman who was skilled at transgressing professional-client boundaries by communicating culturally coded personal interests in the lives of the women. Clients appreciated her communication style:

Just by looking at us she knows when something is going on. I tell her that she has a magic ball on her desk, because as soon as we come in she knows if something is going on with us, that we have a problem.

And:

We don't have to hide anything. I feel that to her I am important, and not just in the group, but also outside. Iris works in a radio station and she sends her greetings to us (on the radio). So she thinks about us even outside of the hospital. To her, we are more than clients and that gives you a good feeling.

As a result of Iris, women returned to the program, new women became interested, and many exhibited renewed commitments to their recoveries.

Personalismo and confianza were necessary for female Puerto Rican substance abusers to proceed along their trajectories of recovery. They sought kin-like relations with treatment staff. When it was absent, they often stalled in their recoveries. Drug recovery in our study involved a reorientation of self that occurred in a context of human connectedness with children, kin, and treatment professionals. These lessons, learned from recovering substance abusers, do not, however, easily translate into treatment policies and practices. The trajectory is a point of departure that can help to inform treatment strategies, still prudent decisions need to be made by treatment professionals.

PROGRAMMATIC DILEMMAS UNDERLYING LATINAS' TRAJECTORIES OF RECOVERY

Learning from the experiences of female Puerto Rican heroin and cocaine users in different stages of recovery enables us to better understand their particular paths of recovery. We have learned about the vital processes of reclaiming motherhood, reestablishing blood and fictive kin networks, and making personal connections with treatment staff in the trajectory of recovery.

These lessons are not easily translated into program policies and treatment practices. Understanding a Latina's pathway to recovery, and the human connections that facilitate or stall her recovery, can inform treatment protocols, but should not determine them. Pathways to recovery include setbacks, pitfalls, and unforeseen changes in life circumstances. Providing a profile for successful recovery should not overshadow the realities of recovery and the profound difficulties that treatment programs face in facilitating the reintegration of substance abusers into healthy, meaningful networks of support.

The lessons we have learned from our study raise very important dilemmas for treatment professionals. These dilemmas include (1) balancing the needs and interests of substance abusers with the needs and interests of their children, (2) assessing and utilizing family and kin dynamics that are supportive of recovery without ignoring the destructive patterns that may underlie drug abuse, and (3) developing personal connections between Puerto Rican sub-

stance abusers and service providers without compromising the therapeutic intentions of program professionals and the practical needs of staff.

Our data reinforce the notion that the mother–child bond is the primary motive for recovery among female substance abusers (Grant et al. 1996; Pursley-Crotteau and Stern 1996; Rosenbaum 1998). This is profoundly true among Puerto Rican women for whom motherhood is a coveted and revered practice in their culture. For treatment practices to be successful in reaching women, retaining them, and facilitating paths to recovery, children clearly should be included in treatment practices. Women whose lives have been affected by heavy substance abuse indeed yearn for their children and wish to reclaim their mother identity. Such desires, fantasies, or wishes are important starting points that should be taken seriously and nurtured by program staff. Nevertheless, potential pitfalls exist. The desire to mother is tested continually as the realities of guilt, relapse, poor self-esteem, fears of failing, limited parenting skills, or the debilitating contexts of poverty are woven through the daily lives of recovering females.

The potential for relapse and despair creates an important dilemma for treatment programs, namely, how to nurture the motives that make recovery possible without compromising the emotional and cognitive development and the personal safety of children. This quandary is not easily resolved and has fueled a contentious debate between family preservationists and foster care/adoption advocates, leaving a trail through case law that delineates the rights of adoptive and biological parents. Balancing the needs of recovering mothers and their children raises important questions that are extremely difficult for treatment professionals and policy makers to answer. Under what circumstances should mothers be reunited with their children? What types of supports for both mothers and children are necessary to provide the best context for recovery and the most enriching environment for child development? Are there circumstances in which parental rights should be temporarily or permanently terminated? How often should children see their parents in the early stages of drug recovery and under what conditions? Careful empirical research should inform these critical questions. If reclaiming one's children is the strongest motive for entering and sustaining recovery, then treatment needs to be organized around this motive in a mutually beneficial way for both mothers and their children.

We have identified the importance of blood and fictive kin networks in facilitating a trajectory of recovery. If recovery occurs within kin networks as our life histories suggest, then utilizing and strengthening preexisting kin networks in the context of recovery is an important objective. This goal, however, may be detrimental in cases where relationships with kin include histories of destructive dynamics within the family or the kin network. Many of the women in our study, as widely noted in other studies, have troubled pasts that include being the victims of sexual abuse, parental neglect, incest, partner abuse, family members' alcohol and drug addiction, sexually transmitted diseases—including HIV infection—depression and homelessness

(Eldred and Washington 1976; Rosenbaum 1981; Amaro, Fried, and Cabral 1990; Haller 1991; Tracy and Williams 1991; Smith et al. 1992; Dvorchak et al. 1995). Reclaiming one's place within their networks of kin may be little more than a return to the circumstances in which drug abuse occurred, increasing the probabilities for relapse.

The dilemmas of including kin in the recovery process are complicated by the larger social dynamics within which they occur. Puerto Rican communities on the mainland tend to be economically and culturally isolated, suffering from high rates of poverty, unemployment and underemployment, and poor educational opportunities. The family-centered disposition of the culture and the extended nature of kin provide essential resources for mitigating these conditions, but family breakdown is likely to occur more in resource-deprived areas where daily tensions and stresses are high. Family and kin may provide a shelter from the socioeconomic storm, but they are not spared its troubling effects.

Treatment professionals make clinical decisions about treatment based on their clients' lives. These judgments include whether to and how to involve family and kin in the treatment process. Such decisions prove difficult when family and kin are viewed as potentially detrimental to recovery. In the face of such uncertainty, few guidelines exist for determining the extent to which family and kin should be involved. The challenge for treatment professionals lies in distinguishing the strengths of familial or kin networks from dynamics that are counterproductive.

While the trajectory of recovery is woven through networks of human relations, substance abuse treatment professionals cannot simply plug people back into these systems of support. Prudent decisions must be made about when and how to do so. Family and kin may indeed be a resource. Yet, when family and kin relations are chaotic, more extensive forms of treatment that involve learning about and intervening in family and kin dynamics are necessary to facilitate recovery.

The final dilemma for treatment professionals involves the treatment *process* itself. A crucial turning point in recovery occurs when the substance abuser comes into contact with treatment professionals. The initial series of interactions are important to sustaining the woman's involvement in treatment; thus, the treatment context must be organized to meet the cultural expectations and dispositions of participants.

We found that recovering Puerto Rican substance abusers attempted to reproduce the loose kin networks common in their culture. Clients have an opportunity in their temporary relationships with treatment professionals to rehearse, examine, and plan their transitions in reclaiming their permanent places within networks of family and kin.⁶ Organizing treatment programs around the cultural values of trust and personal connection can provide a therapeutic basis for reentering and renegotiating family and kin relations. It can also enhance commitment to the treatment program itself.

Culturally competent staff recognize the importance of developing trusting and personal relationships with participants. Nonetheless, a dilemma emerges

as staff attempt to create social distance between themselves and program participants—distance that is both practical and therapeutic. Despite the willingness of culturally competent staff to cross what might be considered strict boundaries in most treatment programs, lines still must be drawn. Expecting staff to become part of participants' kin networks is impractical. Professional distance also must be maintained so clients can become self-sufficient, more reliant on themselves and their networks of support and care.

Managing personal distance while assisting substance abusers in reparations of familial and kin relationships requires professional expertise. This demand creates yet another dilemma for treatment programs. In our study, as well as others (Grant et al. 1996), paraprofessional staff were found to be effective in working with a substance abusing population. The personal connections paraprofessional staff made with recovering Puerto Rican women were vital to initiating and sustaining participation. Paraprofessional staff, however, are not trained therapists who can utilize their relationships with substance abusers to accomplish therapeutic goals leading to a healthy reintegration of recovering users into their networks of family and kin. Thus, for the paraprofessional model to be successful in managing personal and therapeutic relations with recovering substance abusers, the role of supervision needs to be particularly effective. In short, organizing treatment to recruit and sustain the participation of female Puerto Rican substance abusers requires that treatment professionals foster an atmosphere of trust and personal connection that resembles an extended kin network without sacrificing the professional distance necessary to accomplishing therapeutic goals.

CONCLUSION

Designing effective intervention models is not easy. Foremost, it involves understanding the problem, which always rests on debatable interpretive ground. Furthermore, if drug abuse is embedded in patterns of social life which are shaped by economic, political, and cultural structures, then how much can we expect a program to alter the social dynamics that foster drug abuse? Our research is intended to help inform intervention strategies, which requires that we recognize the complexities, possibilities, and limitations that are involved.

Based on in-depth interviews with female Puerto Rican cocaine and heroin users in varying stages of recovery, we have learned what they consider to be essential to their recoveries. For these women, recovery is shaped by the meaningful human connections that they establish with children, kin, and helping professionals in their struggles toward abstinence. While we do not discount the possibility that women from other ethnic cultures may have similar needs in drug recovery, we found that motherhood, blood and fictive kin relations, *personalismo* and *confianza* were critical culturally shaped needs in the recoveries of Puerto

Rican women. But how can treatment professionals design programs for Puerto Rican women to accommodate these particular needs?

For one, gender and culturally appropriate treatment programs are imperative for eliciting and sustaining participation in drug treatment programs. Treatment should be located in the social lives of women where meaningful constructions of self and identity are rooted, rather than within the rigid articulations of addiction and abstinence. The objectives and methods of drug treatment, as well as the criteria for determining success, must interface with the daily lives of substance abusers in order to provide a meaningful alternative to a life of drugs and appropriate feedback about the ongoing status of their recoveries. In our study, abstinence was only one marker of a successful recovery, but so was repairing damaged relationships with children and reclaiming one's responsibilities within a network of family and kin. When these markers of success become an integral part of treatment protocols, the therapeutic intentions of treatment staff merge more meaningfully with the familial intentions of substance abusers.

Treatment programs are more effective when they take into account the social nature of recovery. However, this task is complex—the social world is messy and there are no easy formulas to follow. When treatment programs are tailored for populations that are likely to live in areas of concentrated urban poverty, the complexities are greatly compounded. Substance abuse in areas of concentrated poverty is often inextricably related to other poverty-related problems—limited job opportunities, poor housing, crime and neighborhood disorder, low self-esteem, family violence and abuse. In these circumstances, treatment programs must confront difficult dilemmas and acknowledge their limitations. Questions arise as to how substance abusers can recover if they have no stable or safe place to retreat, if they cannot find self-value in their lives, or if they are constantly tormented by the vestiges of their biographies.

In our research, we suggest that one approach to this morass is to take seriously what recovering substance abusers consider most important to their recoveries. Gender-oriented, culturally appropriate programs are essential. But we also believe it is important to identify and address the dilemmas that occur when attempting to organize programs around the motives, interests, and needs of recovering substance abusers. Program professionals must vigilantly monitor and manage the recovery processes of substance abusers within sociohistorical contexts that have contributed to drug abuse. This will require efforts to protect the vulnerable and to repair the damage of structural marginalization, while facilitating the meaningful familial and nonfamilial kin connections that Latina substance abusers so deeply desire and need.

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NOTES

1. While drug abuse is not restricted to poor ethnic communities, our research involves such a community, namely Puerto Ricans in Hartford, Connecticut. In Hartford, Puerto Ricans comprise over 30 percent of the population, where they have suffered the devastating effects of deindustrialization, racial segregation, and concentrated poverty. Having lost a larger proportion of its population than any other city in the 1990s, Hartford's neighborhoods have become strewn with abandoned buildings, while poverty in many of its neighborhoods have become seemingly intractable. Frog Hollow, which has the largest Puerto Rican population in the city, is one such neighborhood. In 1990, 46 percent of families in Frog Hollow lived below the poverty line, almost one-half of families were female headed, per capita income was \$7,500, the unemployment rate was 18 percent, and less than one-half of adults had a high school education (City of Hartford 1995). In these conditions of concentrated poverty, the likelihood for drug abuse increases considerably.

2. To preserve confidentiality the names of all participants and family members are fictitious.

3. Three Kings Day is a religious holiday that celebrates the visitation of the three Wise Men after the birth of Jesus.

4. Fictive kin are persons who "are unrelated by either blood or marriage, but regard one another in kinship terms" (Chatters et al. 1994, p. 297).

5. Seventeen percent of the arrangements were with unrelated foster care families and 8 percent were with a distant and unfamiliar relative.

6. This process is similar to what psychotherapists refer to as transference, where patterns of interaction with primary others are reproduced in interactions between the patient and therapist and then analyzed as means for acquiring self-understanding.

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MODELS OF ADAPTATION TO TERMINATION OF THE SSI/SSDI ADDICTION DISABILITY HUSTLERS, GOOD CITIZENS, AND LOST SOULS

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ABSTRACT

On December 31, 1996, the U.S. Congress officially ended its funding of the Social Security Administration's program of supplemental security income (SSI) and social security disability income (SSDI) cash and Medicaid benefits for drug addiction and alcoholism (DA&A). This social policy change is part of the U.S. Congress welfare reform, which will impact more than 26,000 Illinois residents, thousands in Cook County alone. Our study seeks to illuminate the meaning of these benefits to a group of approximately 40 former Cook County recipients. We explored the utility and meaning of the cash and Medicaid benefits to at least three types of recipients (Good Citizens, Hustlers, and Lost Souls) that emerged from a series of focus

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groups. Our paper studies the differences between the three types of recipients in their use of cash (e.g., from paying for housing and living essentials to purchasing drugs) and Medicaid (e.g., medications and drug treatment) benefits. Findings and conclusions also generate important insights into how recent social policy changes impact the drug-using community and produce new health and social problems for both the former recipients and society-at-large.

INTRODUCTION

The federal SSI (Supplemental Security Income) and SSDI (Social Security Disability Income) programs are administered by the Social Security Administration.¹ These programs provide cash benefits and Medicaid eligibility to those deemed disabled and, as a result of their disability (either physical or mental disorder), unable to work. Welfare restructuring is in the process of substantially reducing the number of persons who are eligible for these benefits. Endangered groups include children, legal immigrants, and drug addicts.

Drug addiction and alcoholism (DA&A) had been considered a form of mental disorder entitling an afflicted person to SSI or SSDI benefits since the 1970s. However, as a result of congressional legislation (the Contract with America Advancement Act of 1996), the DA&A disability ceased to exist on December 31, 1996. This social policy change affected about 250,000 persons nationwide, including about 24,000 Illinois DA&A recipients. Because persons receiving benefits under the DA&A disability had the opportunity to appeal their termination, generally claiming some other form of physical or mental disability, and because certain other policy issues are still in flux, and because the official data sets are murky at best, it is difficult to conclude at this point in time how many people have lost, or will lose their benefits entirely.

The loss of SSI/SSDI DA&A benefits may affect recipients' ability or desire to access substance abuse treatment or other medical services, as well as their housing, nutritional status, criminality, and so on. Additional impacts might be expected on these persons' families and communities. Funded by the Robert Wood Johnson Foundation, our two-year study examines the impact of this policy change on both former beneficiaries and the service provider system (including drug treatment programs, hospitals, social service agencies, prisons). Data collection consists of focus groups, in-depth interviews, experience surveys, and large statewide database merges. The present paper seeks to elaborate on the meaning of SSI/SSDI DA&A benefits to former recipients from Chicago who participated in a series of focus groups.

It became immediately apparent to the research team when we began to do our focus groups that DA&A beneficiaries were not all alike. In fact, they were remarkably diverse. As a result of this diversity, any impacts of the policy change would be likely to affect former recipients quite differently. This simple truth

seems to have eluded many commentators and elected officials who tend to characterize DA&A recipients as either “lying, swindling, drug addicts who were squandering tax-payers money on dope,” or as “poor, severely physically and/or mentally impaired persons who may not be able to survive the loss of benefits.”

A significant example of conveying the former image occurred in May 1994, when Leslie Stahl of CBS’ *60 Minutes* television program ran a story titled “Fast Money.” The *60 Minutes* story focused on SSI checks being used to perpetuate addictive lifestyles. Senator William Cohen of Maine, in a 1994 *Washington Post* article titled “Playing Social Security for a Sucker,” is quoted as saying “[t]he benefits are often used to perpetuate the addictions, rather than cure them, and the addicts and alcoholics ride along on a drug-laden train fueled by their continuing disabilities.” Senator Cohen was also quoted in a *USA Today* article titled “The SSI Program: The Welfare State’s Black Hole,” as referring to “a case in Denver where a liquor store owner is getting \$160,000 a year to, in effect, run a tab for [DA&A] recipients.” In an article titled “Addicts Found to Use Federal Cash for Drugs” (*New York Times*, February 7, 1994), Senator Cohen was quoted as follows: “Hundreds of millions of scarce Federal dollars are flowing directly to drug addicts who are turning around and buying heroin, cocaine and other illegal drugs on the street.” Other media articles in this vein include “SSI Checks Often Used For Drink, Drugs” (Sennot and Murphy 1994); “Stopping an Abuse” (*Houston Chronicle* 1994); “Few Addicts on Disability Ever Get Jobs, Treatment” (*Chicago Tribune* 1994); “When Disability Payments Make Patients Sicker” (Satel 1995); “SSI Changes Urged to End Fraud, Abuse” (*Chicago Tribune* 1997).

Alternative views of the SSI program, and its beneficiaries, began to appear as the program’s termination date neared. Examples include “Thousands of Addicts, Alcoholics to Lose Aid” (Ellis 1996); “Welfare Reform’s Creative Solution on SSI: Death” (Salter 1996); “Addicts, Alcoholics Call End of Aid Unfair, Scary” (Tobar 1996); “Project Hope’s Safety Net” *St. Louis Post-Dispatch* 1997); “Out in the Cold” (Conklin 1997).

This variance in points of view about the nature of DA&A recipients recalls the old adage about blind persons touching different parts of an elephant, and making assertions as to the essential nature of the elephant on the basis of partial sensory knowledge. The person who felt the tusk developed a very different image of the elephant than the person who had felt the rump. As our focus groups progressed, and the diversity of participants became clearer to the research team, a more elaborate and generalizable picture of DA&A recipients began to emerge.

Sample

In July 1996, the Illinois Social Security Administration Office sent to Treatment Alternatives for Safer Communities (TASC, Inc.), the Illinois Referral and Monitoring Agency, an electronic file of all Illinois cases active under both the SSI and SSDI programs as of June 30, 1996. The file consisted of 26,299 records

with the following information: name, social security number, address, date of birth, and benefit program (i.e., SSI or SSDI). In November 1996, this file was used to define the universe of all active SSI/SSDI DA&A cases in Illinois. Review of the 26,299 cases revealed some duplicate records because some recipients were receiving benefits under both SSI and SSDI programs. Reanalysis of the original data set revealed 23,949 unduplicated recipients, 19,260 of which resided in Chicago. Actually, about 5,000 of these persons had no permanent address, but were classified as Chicago residents because their representative payee had a Chicago address.

Letters were sent to the 19,260 Chicago recipients (and/or their representative payees) telling them about our study and asking them if they wished us to delete their names from our files. Although not requested to do so, more than 200 of them telephoned us about their desire to learn more about the project and to participate in it. We constructed a list of these names and used it to elicit participation in focus groups. Three of our five focus groups consisted of former recipients from this "contact" list.

So as not to populate focus groups solely with the most eager participants from our subject pool, and given the transience of this population, we used a different sampling method to secure participants for the remaining two focus groups. Fieldwork prior to doing the focus groups involved frequent contact with various social service agencies that served the DA&A population. During these visits, locations to contact former recipients about study participation were identified. Participants in two focus groups were volunteers from a local facility providing Single Room Occupancy (SRO) dwelling units. These participants were current residents of the SRO and all had previously received SSI or SSDI for DA&A.

Respondents

A total of 40 respondents participated in the 5 focus groups. Their mean age was 46. The mean length of time that they had received DA&A benefits was 5.3 years.² Thirty-five (88%) were black; three were white (7%); two were Hispanic (5%). Twenty-four participants (60%) were males while 16 (40%) were females. Four (10%) received SSDI only; 35 (88%) received SSI only; and one participant (2%) reported receiving both SSI and SSDI.

The demographics of focus group participants were similar to the population of Chicago residents who were recipients of DA&A benefits in March 1996. In this larger population, about 90 percent were between the ages of 30–59; 58 percent were between the ages of 40–59. About 80 percent were black; 7 percent were white; 13 percent were other or unreported. Seventy-two percent were male. Eighty-nine percent received SSI only.

Focus Group Methodology

The five focus groups proceeded as follows. The principal investigator moderated all focus groups and began each with the general question, "What did SSI mean to you?" The moderator obtained input from nearly all subjects on this question. From this general question, key points for further exploration emerged from the respondents. Many of the key points or themes in their answers corresponded to questions that the research team had previously identified as relevant. Examples included the respondents' experiences with their representative payees,³ the relative importance of the cash versus Medicaid benefits, drug use and drug treatment experiences, feelings toward government agencies, and so on. After the opening general question, the moderator built upon themes in participants' responses to elicit discussion of issues relevant to research objectives.

There were no electronic recordings made of focus groups. It was felt that videotaping this population to talk about drug abuse, crime, welfare fraud, and so on, might compromise confidentiality and hinder the free expression of ideas. Furthermore, the moderator's experience was that audio-only tapes frequently produced garbled or unusable data due to the nature of conversation in focus group settings (e.g., more than one person talking at once). Three staff members were assigned to take detailed notes in each focus group. Two of the three note takers were solely responsible for taking notes. The third note taker was the moderator. The same three note takers participated in each of the focus groups.

Each staff person kept a field journal and, after the focus group, immediately typed up handwritten notes in their field journal. Project staff shared field journals regularly and met shortly after each focus group to discuss the one just completed. Presentation of focus group data, presented as direct quotations, have, in fact, been filtered through note-taking and recording processes. They, therefore, lack the full flavor of street argot. Expletives were deleted. Analysis of focus group data included triangulation, in which all three field journals were consulted. All quotes that follow represent agreement between staff that particular statements were, in fact, what was said.

The original intent of the focus groups had been to clarify issues and jargon so that the most effective in-depth interviews could be designed and administered. The data that emerged from the focus groups appeared so rich, however, and so germane to contemporary debates on welfare restructuring, that it argued for independent analysis. As noted above, the research team was immediately struck by profound differences between focus group participants. A typology of adaptive styles was developed to reflect this diversity. The typology emerged, and was further refined, in discussions between project staff after completing each focus group. The three modes of adaptation classified by the typology were *Hustlers*, *Good Citizens*, and *Lost Souls*.⁴ Roughly equal numbers of participants exhibited each of the three modes of adaptation, although sampling techniques employed

for filling the focus groups do not permit generalizing these modes of adaptation to all former DA&A recipients.

TYPOLOGY OF MODES OF ADAPTATION

Hustlers

Hustlers are the sorts of people that politicians point to when making the case for terminating the DA&A disability. They are heavily involved in crime, as well as drug use and trafficking. They are active people. Hustlers tend to be smart, but they direct their activities into illicit or quasi-legal areas. They wish to avoid regular work, though they could probably do regular work if they so desired. They convey images of autonomy, adventure, toughness, and roguishness. Hustlers portray themselves as independent, resilient, and willing and able to survive by any means possible. They live outside the boundaries of middle-class norms and have little desire to be part of middle-class society. They express no shame or remorse about their drug use or criminal activity:

Hustlers tend to have a certain amount of charisma. They appear opportunistic and predatory, but have decent social skills and communication abilities. They report using relationships for material gain, rather than for intimacy. Psychologists might see them as having internal locus of control, narcissism, and underdeveloped conscience. They do little planning for the future. A 59-year-old male, whose appeal had just been denied, stated the following: "I don't know how I will live. I guess I'll have to find a rich sweetheart." Much of Hustlers' past and present drug and alcohol use is probably recreational:

I kept using [drugs] all through my SSI. I could stop for awhile. I was on a lucky streak with women. In order to keep them, I had to keep using, They were using too. I thought about getting straight, but my life was too exciting (43-year-old male).

Hustlers are streetwise and know how to manipulate both people and social institutions for financial benefit (for examples of Hustlers in other contexts, see Goldstein 1981; Johnson et al. 1985; Stephens 1991). While Hustlers appreciate the money they obtain through SSI, they are not terribly upset about the loss of benefits. For example, a 41-year-old male laughed and said that he:

would just have to sell a little more drugs now that the SSI checks are no longer coming in. SSI meant paying my bills. I used heroin and alcohol. I got on SSI for addiction. Since getting cut off ... I went back to hustling.

Hustlers report little interest in entering into drug treatment. Their attitude toward having representative payees combines mild anger, exasperation, and amusement:

My ex-wife worked out OK [as my payee], but she's always drunk and for her to have responsibility over me is just ridiculous (42-year-old male Hustler).

The rep payee requirement, for most Hustlers, was just another hoop to jump through to obtain the benefit check.

Lost Souls

Lost Souls are the sorts of people that SSI advocates point to when making the case to save the DA&A benefit. Lost Souls are seriously physically or mentally impaired. They tend to be passive. In conversation, they appear absorbed in their impairments. They tend to have multiple impairments, both physical and psychological:

TASC told me to go out to work. I have 2 plates in my feet. I can't stand on my feet. I hurt my head, and eye, when I slipped and fell because of my feet. I used to drink. When I went on disability, my drinking was not that bad. But, because of my feet, I can't even cook for myself.... I live in Robert Taylor [Note: a public housing project in Chicago]. On the 12th floor. I have bad feet. I don't want to live so high up. I have high blood pressure. Sometimes I have to walk up and down the steps (50-year-old female).

I got on SSI for doing heroin. Then I was doing cocaine. I got real bad kidneys. Had 3 surgeries. I got real depressed. I tried to commit suicide several times. Just got out of the hospital yesterday. I was depressed again. I get so tired and depressed. I know that it is a sin to kill yourself. But I've been beaten, raped, beaten by the police. I'm just so tired (40-year-old female).

A 41-year-old female stated that she had arthritis and asthma. Her appeal for reinstatement of SSI benefits has been denied twice. She currently cannot pay for her medication. She reported taking a number of different prescribed medications (including steroids and antibiotics) for her conditions, but she was confused about the reason for their use. She appeared very angry. Some of her anger was directed at the system that had terminated her benefits. Other anger was directed at fellow SSI recipients whom she felt had lied about having something wrong with them, thus giving a bad name to all "legitimate" SSI recipients. Finally, some of her anger appeared to be inner-directed because she felt unable to support or otherwise take care of herself.

Lost Souls tend to have a dull demeanor. Basic life management skills seem largely absent. Lost Souls need economic, psychological, social, and physical supports on a daily basis. They tend to have few assets in terms of education or work experience.

I have a little daughter. I can't even spell the words that she uses (40-year-old male).

The issue of age, which emerged as a factor in all three groups, was especially important to Lost Souls. Many participants felt that they were just too old to start over. They felt that when jobs were available, employers would favor younger applicants. Many were ashamed that they might have to compete with youth for very low level entry jobs:

Who's going to hire you at age 60? Does Macdonald's want to hire a 60-year-old man to flip burgers? By the time I go back to school ... who's going to want me? (52-year-old male).

Lost Souls frequently expressed the need that somebody has to take care of them. They were generally content with having a representative payee. Lost Souls were unable to visualize themselves as living independently. For these persons, it was a question of upon whom or what they would be dependent. Frequently, they seemed to feel that receiving a government check was a lesser, or at least a more palatable form of dependency, than relying on family:

Cash benefits were the most important. I didn't want to have to ask my kids for money. You shouldn't have to ask your kids for food. I didn't want to be dependent (48-year-old female).

People can be cruel. I didn't want to have to go to my family for money.... My family really needed their money. I felt very guilty asking them for money (36-year-old female).

I have 3 daughters and 18 grandchildren. The only way I could get money from my daughters was to do babysitting (48-year-old female who implied by body language that babysitting her grandchildren was not her favorite thing to do).

Actually, many Lost Souls indicated that they did not regard receiving SSI as even being a form of dependency. These persons felt that they were receiving a check, paying their bills, taking care of themselves without having to burden friends or family. In this way, they experienced SSI as a form of independence rather than dependence:

Being on SSI meant that I was independent. I could pay my own rent. Buy my own food. It kept me from being homeless (45-year-old male).

SSI meant survival and independence. I was living with my mother and father. Then I was able to get out on my own. I used heroin, cocaine, alcohol, marijuana. I heard about SSI from a friend, and went on pretty quick at Social Security for DA&A (37-year-old female).

I felt more dependent by being cut off (48-year-old male).

[For me, SSI meant] ... survival. It helped me pay rent and buy food (42-year-old male).

All of the comments about substituting dependence on family for dependence on government were made by female Lost Souls. Perhaps, dependence on family just did not exist as a realistic option for older men. When asked for his reaction to notification that his benefits were being terminated, a 45-year-old male lost soul replied as follows:

I was depressed. Couldn't pay my bills. Can't work due to my leg. I don't like jail. I guess that I'll just have to be broke.

Dependency on family seemed to be a more available option for women, although this option was not always viewed in a very positive light by the women to whom the option was available.

The most desperate lost soul cases appeared to be those that had no alternatives to dependency on government; they had no family to turn to, but felt unable of taking care of themselves. Lost Souls want, and may have tried, to requalify for another disability. They are extremely anxious if they have not yet achieved success in this regard. They have no "back-up" plan if they are unsuccessful. These Lost Souls live in a constant state of worry, and look to the future with pessimism and terror.

Lost Souls convey a sense of powerlessness and victimhood. Psychologists might assert that they exhibited an external locus of control. They indicated that everything bad seems to happen to them, and that they can do nothing about it. Lost Souls present no willingness to change, nor did research team members perceive that they could change, even if they so wished. Much of their past and current drug and alcohol use may reflect self-medication. Lost Souls were the most likely of the three types of DA&A recipients to show up for focus groups in an inebriated state. Many appeared to combine alcohol with prescription drugs.

Good Citizens

The third and final category of former DA&A recipient are the "Good Citizens." These persons have middle-class values. They have a strong work ethic. They may be smart, but not necessarily so. They tend to have strong religious values and strong family orientation. Good Citizens are active people. They value autonomy, and strive to be in control of their lives (although they do not always succeed). They are not adventurous. Their aspiration is to fit into middle-class society. They frequently express shame and remorse for both having used drugs, and for having received SSI benefits. A 36-year-old female expressed typical Good Citizen adaptive sentiments:

I got a job and my children. I didn't want to continue to be the person that I was. If you are able bodied, you should be able to do something.

Actually, Hustlers and Good Citizens appear so different in their presentation of self that a Hustler in one focus group felt compelled to ask a Good Citizen, "What made a person like you take drugs?" The Good Citizen replied quietly, "I had things that I didn't want to deal with." Her tone discouraged further questions.

Typically, Good Citizens are clean cut, dressed neatly, sober, active, motivated toward self-improvement, and articulate. They are happy to be off SSI or SSDI, which they regarded as making them feel unpleasantly dependent. They tend to see their time on SSI as time lost from the real business of life:

Being on SSI was degrading. It makes you dependent, waiting for that check every month (48-year-old male).

I had to go back to work. Being on SSI made me not self-sufficient. Having to go back to work gave me a structure in my life. I work at ____ Hospital.... I review medical records. I had worked there before going on the SSI. I left before my drug use became known (47-year-old female).

The check made me lazy. I knew that every first of the month I would get a check. When they took the check away, I said "What are you going to do now?" I didn't want to be a statistic anymore. So I got my life in order.... I feel for those people [those who were truly sick or disabled]. You have to be half dead to get SSI. I appreciated the money when it came. It was "free money." But then I started to go to job fairs. I got a job... (36-year-old female).

It was good for me to be cut off. It was making me lazy. Now I think about my future, to be independent not dependent. I can now be independent. The cut-off was a wake-up call. I got me a job, part-time. It's a start. I want to be a nurse. I think about my future (39-year-old female).

The latter participant cited above proudly told the group that she was planning to take her GED. She declared her desire to be completely independent of government aid.

Good Citizens generally voiced negative sentiments about having rep payees because it made them feel childishly dependent. One respondent saw it as a character issue. This 53-year-old male stated that character was related to discipline, and the ability to manage one's own life. He felt that the rep payee requirement was an aspersion on his character. He resented being told that he could not manage his own life. He admitted that he might have needed a rep payee when he was "doping," but that period of his life was over. A 42-year-old male likened having a rep payee to being treated as a child:

I had to have a payee, my daughter. I have a college education. I don't need a payee (52-year-old female).

Social Security controlled my life. They gave me a rep payee agency, and I think they embezzled \$3,000 from me. They treat you like a kid. I once ran out of medicine and

went to the rep office and grabbed and shook my payee. She filed a complaint with the SSA, and I had to stay away for a week. When I go to the doctor, Social Security wants reports without my permission (40-year-old female).

Some Good Citizens were upset and depressed when they participated in focus groups. They spoke emphatically about their needs for employment, job training, and education. Some were afraid of becoming homeless. But most of the Good Citizens seemed to have their lives in order, were working, or otherwise feeling productive and reconnected to society.

Theoretical Aspects of the Typology

The categories of Hustler, Lost Soul, and Good Citizen represent three distinct types of adaptation to loss of DA&A benefits. These “types” have some correspondence to Merton’s (1968, p. 194) typology of modes of individual adaptation in his classic chapter on “social structure and anomie.” Actually, the modes of individual adaptation expressed by former DA&A recipients span the entire range of Merton’s typology.

Hustlers correspond to Merton’s “innovators,” persons who accept cultural goals (such as achieving wealth, autonomy and power), but who have not internalized institutional norms governing means for attaining those goals. In his discussion of innovators, Merton (1968, p. 197) cites Ambrose Bierce as follows:

The good American is, as a rule, pretty hard on roguery, but he atones for his austerity by an amiable toleration of rogues. His only requirement is that he must personally know the rogues. We all “denounce” thieves loudly enough if we have not the honor of their acquaintance. If we have, why, that is different—unless they have the actual odor of the slum or the prison about them.

Certainly, all of the Hustlers that participated in focus groups had the “odor of the slum or prison about them.” In that way, they differed from the higher class swindlers and knaves that Merton and Bierce were primarily writing about.

Good Citizens correspond to Merton’s “conformists.” These are people who have internalized both cultural goals (such as wealth, power, independence) and institutionalized means of achieving those goals (e.g., employment). Good Citizens also incorporate many of the qualities of Merton’s “ritualists.” Ritualism is defined by Merton (1968, pp. 203-204) as:

the abandoning or scaling down of lofty cultural goals of great pecuniary success and rapid social mobility to the point where one’s aspirations can be satisfied...But though one rejects the cultural obligation to attempt to get ahead in the world, though one draws in one’s horizons, one continues to abide almost compulsively by institutional norms.

Many Good Citizens, having experienced the stigma of being a substance user, welfare recipient, and perhaps a convicted criminal, seem to experience positive gains, in terms of self-esteem, in living a “respectable” life. This is true even for those whose lives are focused on simple survival.

Lost Souls correspond to Merton’s category of retreatists. These maladaptees, whom Merton (1968) refers to as “true aliens” in society, are in rejection of both cultural goals and institutional means of achieving those goals.

In this category fall some of the adaptive activities of psychotics, autists, pariahs, outcasts, vagrants, vagabonds, tramps, chronic drunkards and drug addicts. They have relinquished culturally prescribed goals and their behavior does not accord with institutional norms.... The competitive order is maintained but the frustrated and handicapped individual who cannot cope with this order drops out. Defeatism, quietism, and resignation are manifested in escape mechanisms which ultimately lead him to ‘escape’ from the requirements of the society.... The escape is complete, the conflict is eliminated, and the individual is asocialized (pp. 207-208).

Some former DA&A recipients talked about their lives prior to getting onto SSI very much in “retreatist” terms. They experienced the SSI program as a “life-line” back into society, a resocializing experience. A 41-year-old male stated the following:

[SSI] helped me get back into the reality of life ... I was homeless at the time. Had low morale. Low self-esteem. SSI was a means to get off the street, to get clothed, to get a roof over my head. SSI enabled me to test my ability to work. It was a way back to society for me. Before the SSI I didn’t care nothing about nothing. It brought me back to the realities of life. The cash wasn’t that important.”

Another participant voiced similar sentiments. This participant stated that he was a patient in a residential drug treatment program when he was receiving SSI addiction disability benefits:

My check was for \$600. \$400 went to... [the program]. I was OK with that. I got three meals a day. It helped me to get back into society (42-year-old male).

This participant went on to work for the program that had treated him.

Thus, benefit checks and necessary personal contacts with agency staff made recipients feel connected, part of society. Without the benefit checks, some recipients felt they would be homeless, on the streets, hungry, without a feeling that anybody cared about them, “society’s junk,” living in a separate reality. Some terminated DA&As experienced on a “gut level” Merton’s comments about retreatists: “Not sharing the common frame of values, they can be included as members of the society (in distinction from the population) only in a fictional sense” (p. 207).

One might, therefore, anticipate that the termination of the DA&A benefit will, for some beneficiaries, undue positive resocializing effects of having received SSI. The termination of the benefit will also preclude the resocialization experience for at least some who no longer have the opportunity to begin to receive the benefit. However, it must also be noted that termination of the benefit seemed to be the motivation that spurred many of the Good Citizens onto a different path of resocialization.

In his discussion of the fifth and final mode of individual adaptation, "rebellion," Merton (1968) introduces the concept of "ressentiment" (borrowed from Scheler), as a counterpoint to rebellion. Ressentiment, which involves a "sour grapes" pattern, is seen as having three interlocking elements.

First, diffuse feelings of hate, envy, and hostility; second, a sense of being powerless to express these feelings actively against the person or social stratum evoking them; and third, a continual re-experiencing of this impotent hostility (p. 210).

Expressions of resentment occurred in all of the focus groups that were done, and were voiced to some extent by Hustlers, Good Citizens, and Lost Souls. For some participants, feelings of lack of control over their own lives engendered by the SSI program, and/or its termination, were seen as typifying the way that government treated the poor, and especially minorities. These participants were angry. They argued that the government just did not care about the poor. They said that when rich people learn how to "work the system" to generate income (note: like Merton's "innovators"), that's fine. But whenever poor people learn how to work the system, then the government changes the rules. They saw the termination of the DA&A disability in very political terms, rooted in class and race conflict. For some participants, class conflict appeared most salient:

There is the needy and there is the greedy. There are the haves and the have-nots. This whole thing, the cuts, is all a scheme to help the rich (45-year-old male).

The Social Security said, "If you do this, then we'll do this." It gave you a chance. Then the system got lazy. It didn't produce what it said it would. It didn't produce the job training. There wasn't enough treatment. They gave you expectations, then they pulled out the money. They're just stripping us and throwing us out. Just like the overseer. You revert to what you were. They lied. ... We get tired of the stick. It's like the overseer. It's like the parole officers. I'm tired of it. Whenever the poor people finally figure out how to make the system work for them, then they cut us off. There are ex-addicts here that got their own sticks (52-year-old male).

When I got my letter, it was a statement that the system didn't care about me. They will build more prisons and give people jobs there, rather than train me for a job (60-year-old male).

They take the money from us so that we can't afford housing. Then they give it to the shelters (41-year-old male).

We are throwaways. Addicts have so many things wrong with their health. They had this great experiment. Now they tell us good-bye. We are society's throwaways (52-year-old male).

A participant made the following comments when discussing the appeal and recertification process:

Then you get back on the SSI, so they'll come up with some new egotistical idea to throw everybody off who's on for depression (44-year-old female).

For other participants, race conflict appeared most salient:

Cutting this program is black genocide (45-year-old male).

The government just wants to snatch it back. They don't want to help the black man (37-year-old male).

I could have resentments, about how it [terminating the DA&A disability] was done. There were no jobs. It took its toll on the minorities (48-year-old female).

IMPLICATIONS OF BENEFIT TERMINATION

The research literature on addiction provides limited guidance for studying the impact of terminating the DA&A benefit. Our DA&A focus group participants, with a mean age of 46, are older than subjects in most addiction studies. There are further difficulties stemming from the manner in which many persons seem to have entered onto the DA&A disability program. Respondents claimed that it was more difficult to qualify for disability benefits for most other physical or mental health conditions than for addiction. They claimed that applicants could become eligible for DA&A benefits more quickly and more easily than for other conditions. This prompted some applicants, frequently with advice from others, including lawyers, to claim that they were addicts even though their actual substance use may not have met most standards of "addiction." Thus, when the DA&A program was canceled, many persons with serious physical or mental health disorders other than addiction were terminated from the SSI rolls. Participants in one of our focus groups were asked how many had originally applied for SSI for reasons other than drug or alcohol addiction. About 50 percent said that they had applied for other health reasons:

If you were an addict you could get money real quick with the addiction disability. If you had breast cancer, you had to fight like hell to get any benefits. My cousin had cancer. She couldn't get on the SSI. So I told her, "you smoke marijuana. You drink beer. Tell them that you are an addict." She got on real quick as an addict. My husband was a steelworker and he got real sick. He was laid off. But he couldn't get SSI. Then he said

that he drank. And he got SSI. It's cruel and harsh to end the program like they did (44-year-old female).

Same with me. I told them that I was sick. But I had to tell them about drugs to get the benefits (48-year-old female).

When I got on SSI I had already established sobriety.... I went through a lot because I couldn't take care of myself because of my health problems. So I wanted to be on SSI for the health problems, but Social Security put me on the DA&A. So I said, "OK, whatever." Because I needed the money (41-year-old female).

I didn't want to go on SSI. My doctor wanted me to. I worked at Dominick's [note: a supermarket] and went to nursing school. I was an alcoholic and I blacked out at work. I didn't like SSI. I always worked. They had me down for alcoholism and mental illness. They put stuff down that they want to. SSI helped me. In 1995, I was diagnosed with colon cancer. My doctor says that I am totally disabled (52-year-old female).

I worked all my life. I'm a Registered Nurse...I worked 16 hours three times a week, I started taking pills to go to sleep. I'm married almost 40 years and have six children...family members started dying. From people dying all around me, I burned out. I didn't want to do nursing anymore. I had diabetes, so I went to Social Security and was told to get unemployment first. Had household bills to take care of, my husband paid most. After a year and a half of unemployment I went to a lawyer and a doctor. I told the lawyer I didn't want SSI for drug addiction, so he sent me to someone who gave me a mental illness diagnosis. Then I went to an SSI hearing and the first time they gave me SSI for DA&A...You see a psychiatrist for five minutes and they label you. They put me in restraints and into a psycho ward for a week. I gotta' be labeled to get what I paid into Social Security for 26 years?! ... Social Security sent me a letter with an appointment to see a psychiatrist on Michigan Avenue. They don't ask you. They tell you (55-year-old female).

I have HIV. It's been ten years now. When I applied for SSI, I did it for DA&A. But now that I have HIV progressing it limits me from doing certain things. Because I have a job with the CHA and with the long hours I couldn't do, now I'm limited. People should get SSI if they need it. I'm sort of like in the middle. Right now I need some kind of support. HIV should guarantee that. I'm still able to work. My problem is I can only do limited work and won't make enough to support myself. Given the choice, I'd rather work than get SSI (41-year-old male).

In one focus group, participants were asked if they considered their drug use to have really been a disability when they first got on SSI. Only about one-third of the participants said yes to this question:

The only way that drugs or alcohol was a problem to me was the time it took to get it (44-year-old female).

With some participants, it was difficult to ascertain in focus groups whether they truly belonged on the addiction disability or not. Some appeared to be "hustling" when they claimed to have experienced a variety of other health conditions

and symptoms. Perhaps, in proclaiming a wide range of illnesses when applying for benefits, they were trying to avoid the requirement to be in substance abuse treatment. This requirement was part of the DA&A disability, but was not required of SSI clients receiving benefits for any other form of disability. Perhaps they were aware that the DA&A benefit could only be obtained for 36 months, while other forms of disability provided lifetime benefits. Some possible “Hustler” remarks in this regard follow:

I always did work, but I suffered from schizophrenia. I had a crack habit, then depression set in. I wanted SSI for a bad heart. I was put on for DA&A (40-year-old female).

I was injured. I wanted SSI for medical reasons, not drugs. I always worked and drank some (39-year-old male).

From the accounts given by focus group participants, at least some recipients of DA&A benefits would not satisfy rigorous scientific criteria insofar as being addicted to drugs or alcohol. There may have been other compelling reasons why some state, local, and private programs and agencies collaborated in enlisting many clients whose addiction status was dubious into a benefit program designed for addicts. Such reasons may have included state budget crises, the desire to get additional federal dollars to pay for drug treatment, altruistic desires to see persons with drug problems (but problems that fell short of “addiction”) get some kind of treatment, and so on. One focus group participant, in the spirit of *ressentiment*, suggested that the government knew that it was going to terminate the addiction disability so it enrolled as many SSI applicants as possible in the DA&A program, just so it could throw them off the program a few years later. This subject felt that there would have been a public outcry if the blind or crippled were terminated from benefits, but that nobody really cared about addicts.

Within the focus group context, there were no rigorously collected data on participants’ substance use. However, participants offered a variety of comments about their drug use careers, and insights into how those careers were influenced, both by receiving SSI benefits and by the termination of the DA&A benefit. Some participants expressed anger at the government for the way the SSI program had functioned. They felt that the government had dangled irresistible bait in front of them, and when they bit they had been truly hooked, on both drugs and dependency on government. For these respondents, Good Citizens for the most part, SSI and drug use went together. A 36-year-old male Good Citizen put it this way:

Being on SSI made me a madman. I was depending on SSI. When I got my check on the first of the month, I would use it up right away. I would buy drugs. I got used to buying a lot of drugs. Then the check would be gone. So I would go do other things to make money. Terrible things. Then I got caught and went to prison. I found Jesus there. With the SSI, they gave us a bag of goodies and we went for it. Only Jesus could save me

from my addiction. They get you all stressed out over getting that check every month. So people went out and did drugs.

SSI really enabled my drug use (47-year-old female).

Congress knew that we were going to use the SSI money for drugs. People are so blind in the darkness.... They got people dependent, then they pulled out the rug (36-year-old male).

For me, being on SSI meant] ... thinking about getting high all the time and where I could get an abundance of drugs. I used the money to get high. I'd get the money and think of drugs. That's what I did. I took the opportunity to lay back and get high. I used the money for drugs and never went to treatment (39-year-old female who reported that she was cut off from benefits because of her failure to attend treatment).

When they told me that I was going to get cut off, I went into treatment. I knew that I wouldn't be able to keep using [drugs] (38-year-old male).

SSI helped me to use for three years (50-year-old male).

I went to treatment after I knew that I'd be cut off. My life changed after treatment. I wanted to change. This was not the way that I wanted to live anymore (39-year-old female).

However, some other participants disagreed. These subjects, Lost Souls for the most part, found that receiving SSI benefits helped them to reduce their drug intake. Drug treatment generally, but not always, figured prominently in their accounts:

I stopped using drugs when I went on SSI. I didn't want to get cut off (59-year-old male).

Since they cut me off [SSI] I went back to drugs. I reapplied for depression (34-year-old male).

I got 14 days of drug treatment, and I stayed clean for eight months. I relapsed after getting cut off. Now I'm using heroin (37-year-old female).

[SSI] ... helped me out. I am an alcoholic and a drug addict. I would take anything.... A friend told me about the SSI. I went to TASC and then to a treatment program. But I mainly kicked drugs by myself. SSI did help me. I got checks, went to my program, paid for rent, clothes. I was supposed to get checks for 36 months, but I only got one year (59-year-old male).

A 41-year-old female had a history of drug use, but was drug free when she went on SSI. She wanted to get on SSI because of her health problems (asthma and arthritis), and because she wanted to take care of her kids and get her own place to live:

I never thought about using the money for drinking or getting high. I thought about presents I could buy my kids at Christmas, and paying the rent.

At the time that she began receiving SSI benefits, she was homeless, in a drug treatment program, and seeing a counselor on a weekly basis. She used her cash benefits to obtain shelter. She claims that she never used any of her SSI money for drugs. She had a single relapse to drug use when she was notified that her benefits would be terminated. She reported being very depressed by the prospect of losing her benefits, and then even more depressed about throwing away her years of sobriety:

When they cut the SSI money, I started using again, heroin and coke. I speedball. And I sell drugs. My people all turned their backs on me (43-year-old male).

I got on [SSI] because I was using PCP. I drink too. I went to treatment ... in order to keep my children. I have three children, 13, 9, and 8 years old. Treatment really helped me a lot. I stayed sober. I learned to take care of myself and my children. I volunteer in school. My children are doing good (42-year-old female).

[SSI]... was good for me. I'm going past my SSI treatment requirements so I won't relapse (40-year-old female).

Some clients felt that their greatest gain from SSI-mandated treatment was increased employability. The following comments were made by Good Citizens:

[SSI] helped. It paid my bills. I was able to get into treatment. Getting clean in treatment helped me to find a job (38-year-old male).

I didn't get no job training. But I did get off drugs, so at least now I can give a clean urine (45-year-old male).

While some participants saw a clear relationship between receiving SSI benefits, or losing SSI benefits, and either drug use or drug abstinence, others claimed that there was no direct connection. For example, a 47-year-old female Good Citizen stated the following:

I don't see any correlation between using drugs and being on SSI. If you're a user, you will use. It doesn't matter whether you are getting a check or not. Working is the key thing. I don't use when I work. Apathy is the thing. That's when you use drugs.

However, a 59-year-old male in the same focus group disagreed.

After I got on SSI, I never used any drugs. When I was working, I spent all my money on drugs. I want that money back now!

A series of interviews with treatment providers revealed a range of opinions about the addiction disability benefit, and whether or not it should have been terminated. However, there was a clear consensus among providers that the SSI addiction disability facilitated the provision of treatment by requiring benefit recipients to be in drug treatment, and by allowing providers to threaten clients with suspension of benefits if they were noncompliant with the treatment regimen. Providers felt that this “leverage” helped them keep clients in treatment and, thereby, facilitated treatment success. Clients who participated in focus groups had a range of opinions about this also:

Leverage? You want to talk about leverage? You beat me with a stick, then I get used to the stick. You better watch out.... You can help people the most by getting the stick off of them. You cannot belittle a person and have that person grow (52-year-old male).

Some participants indicated that the substance abuse treatment that they were assigned to was not helpful to them. The following exchange occurred between two female participants:

I went through TASC. And then they cut me off. But going to treatment got me very depressed. I didn't like having to talk about my life (40-year-old female).

Sure, the most depressing thing is putting a bunch of drug addicts in one room (44-year-old female).

There were certain recurrent themes in focus groups. In part, this was because the leader probed in these directions. In part, it was because focus group participants brought them up. Themes thus far discussed include how participants first got into DA&A benefit status, impact of SSI status on patterns of drug use and drug treatment, attitudes toward government, and so on. One additional theme will now be introduced.

Health Issues

SSI entitled recipients to Medicaid benefits. This not only allowed basic health care needs to be met, but also allowed recipients to pay for drug treatment. Respondents agreed that Medicaid was a very important benefit for them. A 52-year-old male stated that he had diabetes and that “I would be dead by now without the SSI and the Medicaid.” A 53-year-old male, who was in a wheel chair, and claimed that he had a lung removed due to cancer, recently had knee replacement surgery. He claimed that he had been working as a security guard, that he was attacked by gang members, and that his knee had been shattered with a baseball bat.

Medicaid helped me get my knee surgery. It would have cost me more than \$130,000.

I got on for a hurt leg. I was a school custodian. Fell off of a ladder. Really fucked up my leg. I was denied for disability. They told me there were other jobs, like a ticket taker, that I could do. The only way for me to get on was through the addiction disability.... The majority of people needed SSI for the medical insurance. Medicaid was more important than the cash. My leg hurt. I needed medication (45-year-old male).

I have high blood pressure. Bad back. I thought I was disabled. It went wrong. I had no help on the appeal (54-year-old male).

I'm still on appeal. Had a fractured hip and collarbone. I was shot 6 times in the stomach. I should hear in about a month on my appeal (48-year-old male).

With the medicaid card I could go to the doctor anytime. I could use any doctor that I wanted (36-year-old female).

A number of respondents talked about the impact of losing medicaid benefits, and especially their inability to afford medication that they had been taking:

I need Zantac for my ulcer. Can't get it since losing the SSI (38-year-old male).

I still need my Dilantin. But I can't get it anymore. No insurance to pay for it (50-year-old male).

I have high blood pressure, cirrhosis, some kind of virus, a spot on my lung—TB. I can't get medication any more. It's been 8 months. They can keep the cash, or the food stamps. Just give me the medical card (48-year-old female).

I have a medical card. But it doesn't cover my medication (40-year-old male).

The medical card helped me more than anything. I could get treatment. They discovered that I was severely depressed. I got medicine. I saw a psychiatrist. Then I was terminated. I appealed. I needed my medicine. But the [new]medical card doesn't pay for my medicine. I didn't qualify for Public Aid for medicine.... I have to accumulate medical bills of \$397/month before I can get a medical card (40-year-old male).

Another client echoed the latter point that the nature of the medical coverage that former DA&A recipients could obtain, even if they requalified under another disability, was rather problematic:

You have to run up bills before you can get help (48-year-old female).

Many participants reported having experienced discrimination from health care providers because they were drug users receiving public aid:

You get that prejudice for SSI and drugs. They feel you're useless (41-year-old male).

I was thrown out of a window and ended up in the emergency room. When they found out I was on methadone they were rude and wouldn't give me a pain shot (42-year-old male).

I couldn't get my medication (40-year-old female).

I experienced discrimination in the hospital. I was treated badly when I went in for asthma. The doctor yelled at me. He said, "You just want drugs. You just want me to give you drugs." I wasn't treated professionally. The doctor said, "We don't want you here. Go to your own hospital." I told them at admission that I was an addict. I was being honest (41-year-old female).

Johnson et al. (1988) found that having resources decreases one's role strain. In our focus groups, there were comments, especially by Lost Souls, about how stress was reduced knowing that SSI checks would come in every month, and that medical care and medication could be obtained. Stress has now increased for Lost Souls with termination of these resources. Role strain increases when resources vanish and the resultant stress is likely to exacerbate symptoms of ill health. The greater the role strain, the more likely one is to adopt the "sick role" and to report symptoms. Johnson et al. (1988) found that people adopt the sick role in order to avoid engaging in roles they perceive as stressful. Adoption of the sick role is motivated to avoid stress and strain and may be independent of actual physical symptoms. We may expect Lost Souls to report that their health, both mental and physical, has worsened since the termination of their benefits.

However, it is important to note that the *overall* health status of former DA&A's may undergo little change. The health of Lost Souls may be expected to deteriorate, due to increased stress, inability to pay for medication, inability to afford physician treatment, nutritional and housing deficits, and so on. The health of Good Citizens may improve due to their now living a healthier lifestyle, with employment providing greater resources (including cash and medical insurance) than was provided by SSI, and so on. The health of Hustlers should probably show the least change. Any change that occurs would probably be in the direction of poorer health caused by the ravages of the hustling lifestyle. Thus, even though aggregate data analyses may show that the overall health of former DA&As is undergoing little change, it is important to realize that a subgroup of DA&As, the Lost Souls, may be experiencing health crises for which they have little hope of obtaining effective attention.

CONCLUSIONS

Welfare restructuring is a broad term, and involves a variety of different policies that impact on different segments of American society. Even among a rather narrow segment of the population, those who had been receiving SSI or SSDI benefits for an addiction disability, the impact of policy changes may be differentially

experienced. Individuals may manifest a variety of modes of adaptation to the policy changes.

Analysis of focus group data presented herein suggested a typology of three modes of adaptation to the loss of SSI/SSDI DA&A benefits. The categories in this typology were classified Hustler, Lost Soul, Good Citizen. Accounts of the experience of receiving SSI benefits, and of losing them, varied substantially between the three posited modes of adaptation.

For some, receiving SSI provided a boost to self-esteem. To others, being on SSI involved a loss of self-esteem. For some, receiving SSI created a negative sense of dependency. For others, receiving SSI created a positive sense of independence. For some, receiving SSI was a pathway into employment. For others, receiving SSI was a pathway out of employment. For some, SSI enabled a maximization of drug use. For others, SSI facilitated entrance into drug treatment and reduction of drug use.

There were some areas where focus group participants achieved more consensus. Most agreed that the DA&A benefit program failed to meet the expectations that were generated. In this regard, respondents frequently expressed their disappointment that job training and employment expectations were not met. There was also a general consensus that the termination of the benefit had been done too abruptly, and that there were too few supports in place to assist former beneficiaries to adjust to the loss of benefits.

Most participants were angry with the government, although for different reasons. Some were angry that the DA&A program had been ever started. They felt that the government had lured them away from a more productive life. Others were angry that the DA&A program had been terminated. They were not sure that they would be able to survive.

The classification of three modes of adaptation to the loss of DA&A benefits enabled one type of former beneficiary, the Lost Souls, to be identified as being the most traumatized by the policy change, and the type most in need of additional services. Research efforts which focus on *all* former recipients of the DA&A benefit, should be able to point to some success stories (i.e., employed "Good Citizens") and some failures (i.e., arrested "Hustlers"). However, in one way or another, both the Good Citizens and the Hustlers are focused on taking care of themselves.

Lost Souls lack the will, and a wide range of resources, needed to take care of themselves. They have multiple needs that a humane society must try to address. There is a danger that this subgroup of former SSI/SSDI recipients will get lost in aggregate data analyses that include Good Citizens and Hustlers. Hopefully, the Lost Souls will not be forgotten by policy advocates. Additional research is needed to begin to specify with some precision the actual numbers of Hustlers, Good Citizens, and, most importantly, Lost Souls, that now exist in the wake of the termination of SSI/SSDI DA&A benefits.

Nonetheless, the utility of this research may be problematic for the same reason that so many focus group participants felt bitter, and so lacking in control over their own lives. This reason was succinctly expressed by a 52-year-old male.

Next round of elections, it could all change.

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NOTES

1. These two programs differ mainly in that SSDI (Title II) recipients have substantial work histories, have paid into the Social Security system, and have an entitlement to receive disability benefits. SSI (Title XVI) recipients do not have substantial work histories, and their disability benefits fall more into the category of public aid. Addiction is no longer a valid category of disability for either SSI or SSDI.

2. Congressional legislation passed in 1994 provided a 36-month limit to the receipt of DA&A benefits. Prior to this legislation the DA&A disability was treated similar to other disabilities in that there was no specific time limit set for duration of the benefit.

3. Representative payees were persons or agencies designated to receive DA&A recipients' cash benefits on their behalf. Rep payees were expected to assist recipients in money management and to prevent them from purchasing drugs and alcohol with their cash benefits. Respondents reported diverse experiences with representative payees that are described below.

4. Because the typology was developed in a focus group context, the categories are based on presentations of self, rather than behavior. At this time, we have no observational data to confirm that participants in fact acted the way they claimed to have done. Nor can we say that the presentations of self that were evidenced in the focus groups would be similar to presentations of self in other sorts of social contexts. The three categories in the typology are "ideal type" formulations. Most participants were not "pure" examples of these categories. Any "Good Citizen," for example, may have a bit of a "Hustler" in his or her adaptive repertoire. This is as true for federal agency employees or university professors as for SSI recipients. The categories are not meant to suggest unchangeable characteristics or long-term identities of participants. For example, persons may have been "Hustlers" while receiving DA&A benefits, but then manifested a "Good Citizen" mode of adaptation to the loss of benefits.

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THE IMPACT OF THE NIDA COOPERATIVE AGREEMENT PROGRAMS ON HIV RISK AMONG CRACK AND INJECTION DRUG USERS

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ABSTRACT

This chapter explores the impact of the National Institute on Drug Abuse (NIDA) funded by Cooperative Agreement AIDS education and prevention program on crack users and drug injectors. Data on the 5,789 participants were drawn from eight cities throughout the United States. Subjects were classified into three user groups: injectors only, crack smokers only, and crack-smoking injectors. They were interviewed at baseline and six months later at follow-up about their HIV risk behaviors which included needle-related behaviors, drug use patterns, and sexual behaviors. At baseline, subjects were assigned either to a two-session NIDA developed standard intervention or to a more elaborate and prolonged enhanced intervention which was independently developed in each of the sites. Analyses were conducted for the

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data as a whole, for each of the user types, and for each of the cities individually. Three major findings emerged from the analyses: (1) there is a relative lack of post intervention differences between the standard and enhanced interventions; (2) statistically significant and substantively meaningful changes occurred between pretest and posttest; and (3) despite meaningful reductions in risk behaviors among some users, a large percentage of these drug users continue to engage in all types of risky behaviors. Implications of these findings are discussed in the chapter.

INTRODUCTION

Epidemiological evidence continues to accumulate documenting that use of psychoactive drugs is a major risk category for HIV infection in this country and elsewhere (Centers for Disease Control 1996; Holmberg 1996; Des Jarlais et al. 1992, 1996). Drug use translates into risk factors in several ways. First, HIV infection can directly result from injection with needles contaminated with the virus. Infection has been associated with injection frequency, number of needle-sharing partners, frequency of needle sharing, and injection in "shooting galleries," among other factors (Curran et al. 1988; Marmor et al. 1987; Schoenbaum et al. 1989.) Second, the problem of HIV transmission is increasing among intravenous drug users. Through December 1997, 633,000 AIDS cases among persons aged 13 or older had been reported to the Centers for Disease Control and Prevention (CDC) by state and territorial health departments (CDC 1996) Injection drug users (IDUs) accounted for 41 percent of AIDS cases with a known exposure category. This statistic represents an increase of nearly 2 percent since June of 1995 (CDC 1995). Third, injection drug users (IDUs) are the leading source for HIV infection to heterosexual non-injection drug users in the United States (Alcabes and Friedland 1995; Guinan and Hardy 1987; Vermund 1997).

Concern also exists about other drug users who, although they may not inject drugs, nevertheless are at high risk of contracting HIV. Chief among these are crack cocaine users who may themselves be sexual partners of IDUs or may exchange sex for drugs or money to support their crack habits. Crack-cocaine has been associated with the sexual transmission of HIV and other sexually transmitted diseases (Chaisson et al. 1991; Chirgwin et al. 1991; Sterk 1988; Fullilove et al. 1992). During 1987 and 1988 the syphilis epidemic in New York City was, in fact, linked to the epidemic of crack-cocaine (New York City Dept of Health 1989; Schultz et al. 1989). Crack smoking has been associated with increased numbers of sex partners (Weatherby et al. 1992; Longshore and Anglin 1995), exchanging sex for drugs or money (Fullilove, Lown and Fullilove 1992; Irwin et al. 1991), and unprotected sex (Inciardi, Chitwood and McCoy 1992; Booth, Waters, Chitwood 1993). Women who smoke crack and exchange sex for money or drugs have rates of HIV infection comparable to that of men having unprotected anal intercourse with other men (Edlin et al. 1994.)

By the middle of the 1980s it became clear that HIV was beginning to be seen in larger and larger numbers of injection drug users. Accordingly, the National Institute on Drug Abuse (NIDA) took a leadership role in addressing the threat of AIDS among drug users by sponsoring two large-scale AIDS education programs: The National AIDS Demonstration Research program (NADR) and the Cooperative Agreement for AIDS Community-based Outreach/Intervention (CA). The NADR program began in 1987 and by 1988 involved 41 projects in nearly 50 cities (Brown and Beschner 1993). The targeted populations for the NADR project were IDUs not in treatment and their sexual partners. The NADR project contrasted two interventions: a standard intervention and a typically longer and more intensive enhanced intervention. Each of these types of interventions were developed in each individual site. Most standard interventions were brief and consisted of providing minimal information about HIV and routes of transmission. Clients also were offered HIV testing. The enhanced interventions typically consisted of multiple sessions that taught clients to clean their needles with bleach and to properly use condoms. Enhanced sessions also often included group sessions where clients were taught to influence partners to wear condoms and how to avoid sharing dirty needles with others.

Evaluation of the NADR experience indicated that a second round of studies was needed to address some of its shortcomings. Among these were the exclusive focus of NADR on injection drug users and their sexual partners, the lack of a standard intervention across all sites, the absence of detailed information on what was provided in the enhanced interventions, and the measurement of the extent of information provided to clients. The Cooperative Agreements (CA), which began in 1990 and included 23 projects (NIDA 1989), addressed the NADR problems by targeting both injection drug users and crack users who were not in treatment, by mandating a standard intervention to be used in all sites and by developing national data collection forms that would provide greater detail on the content and amount of what was provided to each of the clients in each of the interventions.

The NADR projects have been extensively evaluated, both in single-site studies (see, e.g., Siegal et al. 1991; McCoy and Khoury 1990; Humfleet 1991) and across all sites (Brown and Beschner 1993; Stephens et al. 1993). Yet, while a number of CA site investigators have evaluated their own projects (e.g., Trotter et al. 1996; Stevens and Estrada 1996; Weeks et al. 1996; He et al. 1996), relatively little has been published on an overall evaluation of the interventions implemented in the CA. One exception is a recent article by Booth et al. (1998) focusing on change in needle-risk behaviors. The study found that while IDUs significantly reduced their needle-related risks over time, no significant differences were discerned between different levels of intervention. The present study extends this work by exploring other risk behaviors collected in the national CA database and by including crack smokers in the evaluation. Similar to the national level NADR analysis (Stephens et al. 1993), this study will: (1) assess the extent of change in needle-related drug use and sexual HIV risky behaviors from base-

line to six month follow-up; and (2) determine if there are differences at follow-up between those exposed to a relatively abbreviated standard intervention and those exposed to a more comprehensive enhanced intervention. Because the CA included crack users as well as injection drug users, the present analysis will explore behaviors in the above domains for three groups: (1) those who were crack users but did not inject drugs (crack smokers only), (2) those who injected drugs but did not smoke crack (injectors only), and (3) those who both smoked crack and injected drugs (smoking injectors).

COOPERATIVE AGREEMENT INTERVENTIONS

All sites randomly assigned subjects to one of two interventions, either a NIDA/CA developed Standard Intervention (SI; Coyle 1993), or the SI plus a site-specific Enhanced Intervention (EI). The SI, a manual-driven intervention utilized at all sites, consisted of HIV pretest counseling, optional HIV testing, posttest counseling approximately 14 days after the HIV test, and provision of test results. In the pretest counseling session, nine cue cards describing basic information about AIDS and how to reduce risk of HIV infection were discussed with the respondent. Respondents rehearsed how to clean injection equipment and properly use a condom, utilizing an anatomical model. At the posttest counseling session, test results were provided and the six original cue cards that addressed risk behaviors and the benefits of drug treatment were shown, along with one of two sets of three new cards, depending on whether or not the respondent was HIV infected. If either session was missed, subjects were excluded from the national assessment and, thus, are not included here. Those who declined to have their blood drawn could remain in the study if they attended both counseling sessions. At both counseling sessions, respondents were provided written materials, including a description of the study, a list of drug treatment agencies in the area, a list of HIV prevention and testing agencies, and if requested, a list of non-HIV related social or economic services.

EIs were developed individually at each site by the specific investigative team. In most locations the enhancement to the SI consisted of one to three additional educational and counseling sessions, personalized to the individual's specific risk behaviors. These addressed drug and sex risk behaviors associated with HIV infection, barriers to behavior change, support for risk reduction, and ways to avoid situations where risk activities were likely to occur. Most of the sites employed health educators to present the intervention, while in some sites, nurses, health psychologists, or social workers served as interventionists. In seven of the eight sites, planned EI sessions were conducted in project offices, while in one location the EI was community-based using indigenous outreach workers.

METHODS

Prior to data collection, each site developed a sampling plan in which neighborhoods with high concentrations of IDUs, determined through an analysis of indicator data (e.g., arrest data, drug treatment admissions, direct observations of drug trade and/or use), were selected for recruitment activities. In all sites, respondents were recruited by community outreach workers who explained the study and arranged for interviews. Typically, outreach staff were recovering drug users from the communities targeted for intervention. Thus, they had relatively easy access to the drug-using population. Outreach workers were responsible for penetrating social circles of IDUs and crack smokers (developing a relationship with them, and recruiting study participants). Informed consent was obtained prior to participating in the research and respondents were compensated for their participation.

General eligibility criteria for the CA included: (a) age over 17 years, (b) self-reported use of injected drugs in the 30 days before the interview and/or use of crack-cocaine in the previous 48 hours, (c) no treatment for substance abuse in the prior 30 days, and (d) not too intoxicated or otherwise dysfunctional to give informed consent and respond to questions. Verification of drug use included urinalysis and, for IDUs, visual inspection for recent venipuncture. In most cities, Abuscreen ONTRAK (Roche Diagnostic Systems) was used for urinalysis. The 48-hour time frame for reported crack use was necessary due to the relatively brief period following drug ingestion that the metabolite of cocaine can be detected in urine.

Baseline data were collected between January 1992 and December 1995, with 6-month follow-up data obtained between May 1992 and June 1996. Respondents were interviewed using NIDA developed structured questionnaires, the Risk Behavior Assessment (RBA), and the Risk Behavior Follow-up Assessment (RBFA). The RBA and RBFA assessed demographics, drug use, sex behaviors, medical history, and HIV/AIDS risk behaviors. The RBA collected these data for lifetime and the prior 30 days; the RBFA, administered approximately six months after the RBA, focused on behavior in the prior 30 days. Reliability and validity assessments of the RBA support its adequacy as a research tool for this population (Weatherby et al. 1994; Dowling et al. 1994).

The chief dependent variables studied were: needle-related behaviors (whether injected drugs and mean number of times injected drugs); drug-related behaviors (whether smoked crack, mean number of days used crack, and whether entered drug treatment); sex-related behaviors (whether had sex, percentage of times used condoms, whether used condoms all of the time one had sex, whether had two or more sexual partners, whether exchanged sex for money or drugs, and whether had sex with an injection drug user). The risk period for both baseline and follow-up assessments for all of these variables was the 30 days prior to the interview.

Table 1. Comparison of Demographics and Risk Behaviors of Subjects Who Returned for Follow-up Interviews with Those Who Did Not

Variable ¹	Did Not Return for Follow-up Interview (n = 2463)	Returned for Follow-up Interview (n = 5789)
Demographics		
Age (\bar{x})	36	38***
Female (%)	27	34***
Ethnicity		
Black (%)	42	49***
White (%)	34	27
Hispanic (%)	17	18
Native American (%)	6	6
Married (%)	16	19***
High school graduate (%)	64	62
Unemployed (%)	62	58**
Ever arrested (%)	84	81**
Positive HIV status (%)	5	4
Needle-related behaviors		
Injected drugs ² (%)	66	65
Times injected drugs ² (\bar{x})	58	49***
Drug-related behaviors		
Smoked crack ² (%)	68	67
Days used crack ² (\bar{x})	10	11
Ever in drug treatment (%)	48	47
Sex-related behaviors		
Had sex ² (%)	76	77
% times used condoms ^{2,3} (\bar{x})	20	18
Always used condoms ^{2,3} (%)	11	10
Two or more sex partners ^{2,3} (%)	37	35
Exchanged sex ^{2,3} (%)	29	27
Sex with an IDU ^{2,3} (%)	39	39

Notes: ¹Chi-square tests (for percents) and one-way ANOVA (for means) were run for comparisons between the two groups.

²Behavior in the 30 days prior to the interview.

³Includes only subjects who reported having sex in the prior 30 days.

*Significant difference ($p < .05$) between groups.

**Significant difference ($p < .01$) between groups.

***Significant difference ($p < .001$) between groups.

Although, as stated, a total of 23 cities participated in the CA, we eliminated sites in this analysis based on two criteria: first, at the time of this analysis six sites were still collecting data and were thus excluded. Second, those cities that did not have at least a 60 percent successful follow-up rate also were excluded. The final sample for the present study is composed of subjects chosen from eight cities in the CA study: Houston, Philadelphia, Anchorage, Denver, Detroit, Tucson, Portland, and Long Beach.

Table 2. Comparison of Demographics and Risk Behaviors Among the Three Drug Using Groups

Variable ¹	Injectors (n = 1887)	Smokers (n = 2046)	Smoking Injectors (n = 1852)
Demographics			
Age (\bar{x})	39	36	39***
Female (%)	27	42	30***
Ethnicity			
Black (%)	20	70	55***
White (%)	41	13	26
Hispanic (%)	31	10	15
Native American (%)	8	6	5
Married (%)	24	15	17***
High school graduate (%)	60	65	60**
Unemployed (%)	56	59	60*
Ever arrested (%)	86	73	85***
Positive HIV status (%)	4	4	6**
Needle-related behaviors²			
Times injected drugs (\bar{x})	74	0	63***
Drug-related behaviors			
Days used crack ² (\bar{x})	0	17	14***
Ever in drug treatment (%)	51	39	52***
Sex-related behaviors²			
Had sex (%)	71	82	78***
% times used condoms ³ (\bar{x})	15	21	18***
Always used condoms ³ (%)	8	12	9***
Two or more sex partners ³ (%)	22	39	42***
Exchanged sex ³ (%)	13	31	36***
Sex with an IDU ³ (%)	56	16	48***

Notes: ¹Chi-square tests (for percents) and one-way ANOVA (for means) were run for comparisons among the three drug using groups.

²Behavior in the 30 days prior to the interview.

³Includes only subjects who reported having sex in the prior 30 days.

* $p < .05$; ** $p < .01$; *** $p < .001$.

For those included in this study, Table 1 depicts statistically significant differences in demographic characteristics between those who returned for their post-intervention interviews (5,789) and those who did not return (2,463). Those who were interviewed at follow-up were older, more likely to be female, African-American, or married. They were also less likely to be unemployed or to have been arrested. In terms of all the risk variables analyzed in this study only "number of times injected drugs" was significantly different (49% for those who returned for the follow-up interview vs. 58% of those interviewed at baseline only.) Thus, while some differences were noted, overall it generally appears that the follow-up sample was not that dissimilar to the baseline sample, especially in terms of the dependent variables.

CHARACTERISTICS OF THE SAMPLE

For the 5,789 participants included in the ensuing analyses (those who returned for their follow-up interview) the mean age was about 38 years, the majority were male, about one-half were African-American, about one-fifth were married, close to two-thirds graduated from high school, over one-half were unemployed, most had a history of previous arrests, and about 4 percent were HIV positive. Two-thirds of the subjects injected drugs with needles and the same proportion smoked crack. The mean number of times injecting drugs was 49 in the previous 30 days. The mean number of days of crack use in the previous month was 11. Nearly one-half of the sample reported having been in drug treatment. Over three-fourths of the sample reported having sex in the prior 30 days. Those who reported having sex used condoms an average of 18 percent of the time they had sex. Only one-tenth reported using condoms all of the time. One-third reported having two or more sexual partners in the prior month, over one-quarter reported exchanging sex or money for drugs, and over one-third reported having sex with an IDU in that time period. Thus, it is clear that this sample of drug users are at extremely high risk for contracting HIV through their drug use and sexual behaviors.

Table 2 presents a comparison of the three drug user groups on all variables studied. By definition there are noteworthy differences among the three user groups on needle-related behaviors (only those who injected could report these behaviors) and drug use patterns (injectors only did not use crack). Those who only injected drugs were most likely to be either white or Hispanic, most likely to be married, and the least likely to be unemployed. They also used condoms the least and were the least likely to have multiple sex partners or to exchange sex for drugs or money. Subjects who smoked crack but did not inject drugs were the youngest and the most likely to be female and/or black. They were the least likely to have been arrested or to have ever been in drug treatment. With regards to sex-related variables, they were the most likely to have had sex in the prior 30 days. They used condoms the most, and they were the least likely to have had sex with an IDU. Those who injected drugs and smoked crack were in between the other two groups on most variables. They did stand out, however, as being the most likely to be HIV positive.

RESULTS

Table 3 presents data for the three categories of behavioral dependent variables: needle-related, drug use, and sex-related variables for the entire sample. Data are presented in the table in such a way that a number of comparisons can be made: standard vs. enhanced interventions at both pretest and post-intervention, and pre-intervention vs. post-intervention within each type of intervention. Because the table contains a wealth of data, we shall guide the reader through its interpretation

Table 3. Comparison of Risk Behaviors Between SI and EI Interventions and Pre/Post Intervention for the Entire Sample

Behavior in Last 30 Days ¹	Standard Intervention		Enhanced Intervention	
	Pre	Post	Pre	Post
Needle-related behaviors				
Injected drugs (%)	64	44*	65	42*
Times injected drugs (\bar{x})	50	25*	48	24*
Drug-related behaviors				
Smoked crack (%)	68	53*	67	49*†
Days used crack (\bar{x})	11	6*	11	5.5*†
Entered drug treatment ² (%)	0	16*	0	18*†
Sex-related behaviors				
Had sex (%)	76	66*	78	66*
% times used condoms ³ (\bar{x})	18	26*	18	25*
Always used condoms ³ (%)	10	18*	9	15*†
Two or more sex partners ³ (%)	35	26*	35	26*
Exchanged sex ³ (%)	27	15*	27	17*
Sex with an IDU ³ (%)	39	29*	38	29*

Notes: ¹For percents (%) in pre/post comparisons, McNemar tests were used, in SI v. EI comparisons they were chi-square tests; for means (\bar{x}) in pre/post comparisons paired-sample t-tests were used, in SI v. EI comparisons they were independent sample t-tests.

²Clients in treatment in the 30 days prior to baseline were not eligible for inclusion in the study. Post-intervention values reflect the percent who entered treatment in the six months prior to follow-up. The pre/post comparison of clients who entered treatment was a single sample t-test.

³Includes only subjects who reported having sex in the prior 30 days.

*Significant ($p < .05$) pre/post difference within an intervention.

†Significant ($p < .05$) post-intervention difference between SI and EI.

by examining the variable “percentage who injected drugs.” First is the comparison of pretest scores for each of the intervention types. The table shows that 64 percent of those in the standard intervention vs. 65 percent of those in the enhanced intervention reported injecting drugs at pretest and that this difference was not statistically significant. Second, comparison of posttest scores between the two modalities tests the potentially differential effects of the two interventions. In all cases, the hypothesized direction is that change toward less risky behavior should occur more frequently in the enhanced than standard intervention conditions. Results show that at posttest 44 percent of those in the standard intervention and 42 percent of those in the enhanced intervention reported injecting drugs in the prior 30 days. While the finding is in the predicted direction, it is not statistically significant. Two additional comparisons can be made. The first of these examines pre/post change within those assigned to the standard intervention. The percentage of persons reporting injecting drugs in the prior 30 days drops rather dramatically from 64 percent at baseline to 44 percent at post-intervention. Similarly, the percentage of persons in the enhanced condition who injected drugs falls from 65 percent to 42 percent. Both findings are statistically significant.

Table 4. Injectors Only: Comparison of 11 Risk Behaviors Between SI and EI Interventions and Pre/Post Intervention

<i>Behavior in Last 30 Days</i> ¹	<i>Standard Intervention</i>		<i>Enhanced Intervention</i>	
	<i>Pre</i>	<i>Post</i>	<i>Pre</i>	<i>Post</i>
Needle-related behaviors				
Injected drugs ⁴ (%)	100	75*	100	72*
Times injected drugs (\bar{x})	76	48*	71	42*
Drug-related behaviors				
Smoked crack ⁴ (%)	0	12*	0	12*
Days used crack (\bar{x})	0	1*	0	1*
Entered drug treatment ² (%)	0	21*	0	23*
Sex-related behaviors				
Had sex (%)	70	58*	71	62*
% times used condoms ³ (\bar{x})	15	22*	14	22*
Always used condoms ³ (%)	9	16*	7	13*
Two or more sex partners ³ (%)	23	18*	21	17
Exchanged sex ³ (%)	13	9*	13	10
Sex with an IDU ³ (%)	59	48*	53	44*

Notes: ¹For percents (%) in pre/post comparisons, McNemar tests were used, in SI v. EI comparisons they were chi-square tests; for means (\bar{x}) in pre/post comparisons paired-sample *t*-tests were used, in SI v. EI comparisons they were independent sample *t*-tests.

²Clients in treatment in the 30 days prior to baseline were not eligible for inclusion in the study. Post-intervention values reflect the percent who entered treatment in the six months prior to follow-up. The pre/post comparison of clients who entered treatment was a single sample *t*-test.

³Includes only subjects who reported having sex in the prior 30 days.

⁴The pre/post comparison was a single sample *t*-test.

*Significant ($p < .05$) pre/post difference within an intervention.

Examining the table as a whole, no significant differences exist between those assigned to the standard vs. enhanced intervention. This finding suggests that the random assignment of subjects was successful and the two groups were equivalent at baseline. This finding of equivalence at baseline also holds for analysis of each of the three drug user groups separately (as seen in Tables 4 through 6). Four of the posttest comparisons between the standard and enhanced interventions are statistically significant. Three of these (“smoked crack,” “days used crack,” and “entered drug treatment”) were in the predicted direction. The finding for the fourth variable, “always used condoms,” was opposite to the hypothesized direction. Although these differences are statistically significant, given the large sample size, whether they have “clinical” or “substantive” importance is somewhat questionable. Only a four-point spread exists in the percentage who used crack and the difference in mean number of days of crack use is 0.5. The percentage difference between those who entered treatment is two, while the percentage difference in “always using condoms” is three.

Clearly, the most salient finding from this table is that *all* of the pre/post differences within each of the interventions are significantly different. This finding

Table 5. Crack Smokers Only: Comparison of 11 Risk Behaviors Between SI and EI Interventions and Pre/Post Intervention

Behavior in Last 30 Days ¹	Standard Intervention		Enhanced Intervention	
	Pre	Post	Pre	Post
Needle-related behaviors				
Injected drugs ⁴ (%)	0	3*	0	3*
Times injected drugs (\bar{x})	0	.3*	0	1*
Drug-related behaviors				
Smoked crack ⁴ (%)	100	78*	100	73*†
Days used crack (\bar{x})	17	9*	17	9*
Entered drug treatment ² (%)	0	13*	0	13*
Sex-related behaviors				
Had sex (%)	82	74*	82	70*
% times used condoms ³ (\bar{x})	20	27*	23	29*
Always used condoms ³ (%)	12	19*	13	17*
Two or more sex partners ³ (%)	39	29*	39	28*
Exchanged sex ³ (%)	31	15*	31	18*
Sex with an IDU ³ (%)	16	9*	17	11*

Notes: ¹For percents (%) in pre/post comparisons, McNemar tests were used, in SI v. EI comparisons they were chi-square tests; for means (\bar{x}) in pre/post comparisons paired-sample *t*-tests were used, in SI v. EI comparisons they were independent sample *t*-tests.

²Clients in treatment in the 30 days prior to baseline were not eligible for inclusion in the study. Post-intervention values reflect the percent who entered treatment in the six months prior to follow-up. The pre/post comparison of clients who entered treatment was a single sample *t*-test.

³Includes only subjects who reported having sex in the prior 30 days.

⁴The pre/post comparison was a single sample *t*-test.

*Significant ($p < .05$) pre/post difference within an intervention.

†Significant ($p < .05$) post-intervention difference between SI and EI.

becomes even more important when noted that the sample sizes are smaller than for the overall comparisons between the two intervention types. Furthermore, the magnitude of the pre/post changes within the two modalities is much greater than observed between the two interventions at posttest. Thus, the pre/post differences are not only statistically significant but, because of their absolute size, have greater substantive importance. Finally, *all* of the changes are in the hypothesized direction. That is, each of the interventions “produced” change in the direction of less risky behaviors.

The next three tables lay out the analysis for each of the user types: injectors only, crack smokers only, and smoking injectors, in a format identical to that of Table 3. Table 4 presents the analyses for the injectors only. Note that there are *no* significant differences between standard and enhanced subjects at posttest. For all but two variables (“two or more sex partners” and “exchanged sex for drugs”) in the enhanced condition, the pre/post differences *within* each condition are statistically significant. Two significant changes in the drug related behaviors are opposite to the hypothesized direction. The percentage of those who smoked crack and

Table 6. Smoking Injectors: Comparison of 11 Risk Behaviors Between SI and EI Interventions and Pre/Post Intervention

Behavior in Last 30 Days ¹	Standard Intervention		Enhanced Intervention	
	Pre	Post	Pre	Post
Needle-related behaviors				
Injected drugs ⁴ (%)	100	58*	100	54*
Times injected drugs (\bar{x})	64	29*	61	31*
Drug-related behaviors				
Smoked crack ⁴ (%)	100	65*	100	61*
Days used crack (\bar{x})	14	8*	14	7*†
Entered drug treatment ² (%)	0	14*	0	20*†
Sex-related behaviors				
Had sex (%)	77	67*	79	67*
% times used condoms ³ (\bar{x})	19	28*	17	24*†
Always used condoms ³ (%)	10	19*	8	13*†
Two or more sex partners ³ (%)	42	30*	42	31*
Exchanged sex ³ (%)	35	20*	36	23*
Sex with an IDU ³ (%)	50	37*	47	35*

Notes: ¹For percents (%) in pre/post comparisons, McNemar tests were used, in SI v. EI comparisons they were chi-square tests; for means (x) in pre/post comparisons paired-sample t-tests were used, in SI v. EI comparisons they were independent sample t-tests.

²Clients in treatment in the 30 days prior to baseline were not eligible for inclusion in the study. Post-intervention values reflect the percent who entered treatment in the six months prior to follow-up. The pre/post comparison of clients who entered treatment was a single sample t-test.

³Includes only subjects who reported having sex in the prior 30 days.

⁴The pre/post comparison was a single sample t-test.

*Significant ($p < .05$) pre/post difference within an intervention.

†Significant ($p < .05$) post-intervention difference between SI and EI.

number of days crack was used increased. This is somewhat artifactual because this table contains only those who did not smoke crack at baseline. Finally, all of the changes within each of the conditions are in the predicted direction and often are large in terms of absolute numbers.

Table 5 contains data for crack smokers only. As in previous tables, differences in pre/post changes in all behaviors within the two conditions were statistically significant. The finding that a small percentage (3%) of crack smokers in both conditions began to inject drugs is similar to Table 4, partly due to the fact that those who did not inject drugs at baseline were not included in this table. All other changes were in the hypothesized direction. There was only one significant difference at posttest between the two interventions; fewer subjects in the EI than in the SI reported smoking crack in the prior 30 days.

In examining Table 6, we also find many similar conclusions as those reported earlier: statistically significant and relatively large pre/post changes within the intervention groups. Four statistically significant post-test differences were also observed between the two intervention groups.

Table 7. Comparison of Risk Behaviors Between SI and EI Interventions and Pre/Post Intervention for Each Study Site (City)

Behavior in the Last 30 Days	City							
	1	2	3	4	5	6	7	8
Needle-related behaviors								
Injected drugs (%)	SE	SE ^{#†}	SE	SE [#]	SE	SE	SE	SE [†]
Times injected drugs (\bar{x})	SE [#]	SE [†]	SE	SE	SE ^{#†}	SE	SE	SE
Drug-related behaviors								
Smoked crack (%)	SE	SE [#]	SE	SE	SE	SE	SE	SE
Days used crack (\bar{x})	SE	SE [#]	SE	SE	SE	SE	SE	SE
Entered drug treatment (%)	SE	SE [†]	SE	SE	SE	SE	SE	SE [†]
Sex-related behaviors								
Had sex (%)	SE	SE	SE	E	SE	SE	SE	SE
% times used condoms (\bar{x})		SE [†]	S	S [#]	E	SE	E	SE
Always used condoms (%)		SE [†]	‡	#	S	S		SE
Two+ sex partners (%)	SE	SE [#]		S	SE	E	#	SE
Exchanged sex (%)	S	SE		SE	SE	SE	S	SE [†]
Sex with an IDU (%)	SE		S	SE [#]	E	S	S [†]	SE

Notes: S = Significant ($p < .05$) pre/post intervention difference in SI.
 E = Significant ($p < .05$) pre/post intervention difference in EI.
 #Significant pre-intervention difference between EI and SI.
 †Significant post-intervention difference between EI and SI in the expected direction.
 ‡Significant post-intervention difference between EI and SI not in the expected direction.

“Days used crack” and “entered drug treatment” were in the hypothesized direction and “% times used condoms” and “always used condoms” were not.

The analyses above combines data from all eight cities. It is likely that cities differed substantially in terms of their demographics, the drug use patterns of their subjects, and the nature of the enhanced interventions. Table 7 addresses these issues specifically by presenting results separately for each city. In Table 7 the terms “S” and “E” in the table refer to statistically significant pre/post differences within each of the intervention types (standard and enhanced), respectively. Thus, findings for City 1 indicate statistically significant differences for “injected drugs” in both interventions but not for “% times used condoms.” The # indicates a statistically significant pretest difference between the two interventions. Thus, the percentage of persons who injected drugs in City 2 was significantly different at pretest between the two modalities. The † sign indicates a significant posttest difference between the two interventions in the predicted direction. Thus, in City 8 there was a significant posttest difference between the two interventions for the variable “% injected drugs,” with significantly fewer of those in the enhanced intervention injecting drugs at follow-up. The ‡ sign indicates a significant post-intervention difference between the two modalities which was not in the predicted direction. Thus, in City 2 there was a significant posttest difference between the

two interventions, with more of those in the enhanced intervention injecting at posttest.

Analysis of Table 7 generally supports the findings stated for Tables 3 through 6. For the vast majority (73%) of the comparisons, significant pre/post differences are observed within both of the modalities. For another 17 percent of the comparisons, a change occurs in either the standard or enhanced group with two-thirds of these changes occurring in the standard group. All of these changes, whether in both groups or one group only were in the predicted direction. Thus, no pre/post change within both or either of the groups was observed for only 10 percent of the comparisons on these variables across all of the selected cities.

Eleven instances (or 12.5% of the possible comparisons) in Table 7 indicate differences in pretest scores between the two modalities. These were clustered primarily in Cities 2 and 4. Eleven instances (12.5%) of posttest differences were observed between the two modalities and the majority of these (six of the eleven differences) were *not* in the predicted direction. Four of the differences not in the hypothesized direction were found in City 2. City 8 reported three differences, two of which were in the hypothesized direction. Three other cities reported only one difference and for two of these cities, the difference was in the hypothesized direction. Three cities reported no posttest differences between the two modalities. Differences between posttest scores in the predicted direction occurred for no more than two cities on any single variable. Thus, as in the previous tables, for each city individually the greatest change is found pre/post within each of the groups, with little change that can be attributed solely to the enhanced intervention.

Furthermore, as noted earlier, it appears that in all comparisons, needle-related and drug use behaviors indicated significant pre/post differences for both the standard and enhanced groups. Fewer pre/post and posttest differences are found for sexual behaviors. Despite their differences, the cities are amazingly similar (except for City 2) in that their data support these conclusions. In summary, the general conclusions drawn for the data collapsed across all of the cities are largely supported when the same analyses are applied to each of the cities.

DISCUSSION

Three major findings emerge from this analysis. First, the relative lack of post-intervention difference between the standard and enhanced interventions is extremely important. Indeed, in some cases where significant differences were observed, they were opposite to the hypothesized relationship. That is, the less extensive intervention (SI) was associated with more positive outcomes. In short, few differences existed between the two groups and the observed differences among the variables were inconsistent. Studies of in-treatment populations of IDUs also have reported statistical insignificance between minimal and enhanced interventions (Hartgers et al. 1992; Baker et al. 1993), even including those on

wait lists who were not exposed to any intervention (Calsyn et al. 1992), although some have found enhanced interventions associated with greater reductions in risk behaviors (McCusker et al. 1992). Studies of out-of-treatment IDUs also tend not to support enhanced over standard interventions in accounting for behavior changes (Colon et al. 1993; McCoy et al. 1993; Simpson et al. 1994; Stephens et al. 1991, 1993). At least two recent studies from CA sites, however, reported greater change among respondents assigned to their EI than the NIDA SI. In Flagstaff, IDUs receiving either an outreach EI or an office-based EI reduced their drug risks more than IDUs receiving the SI, although only the office-based intervention was statistically significant (Trotter et al. 1996). In Detroit, Anderson et al. (1996) reported greater reductions in drug use among respondents receiving an enhanced nursing intervention than among those in the SI in year two of the study, when programmatic conditions were at their maximum. In putting these findings into context, it should be noted that our site-by-site analyses did reveal some SI vs. EI differences on some variables. But as reported earlier, these neither consistently held for any one variable or set of variables nor were the differences always in the predicted direction.

The lack of meaningful differences between standard and enhanced interventions first found in the NADR studies (see Stephens et al. 1993) has now largely been replicated in the Cooperative Agreement across at least eight separate and distinct enhanced interventions. This finding begs close scrutiny by the field of AIDS education. Given the great costs of engaging persons in long-term interventions coupled with little evidence of much return on the dollars and effort spent, the NIDA standard intervention should be seriously considered as an effective alternative to more extensive interventions.

Second, statistically significant and substantively meaningful changes occurred between pretest and posttest for each of the three groups of users and for the combined sample overall. When examining the magnitude of the changes it appears that the behaviors most impacted are the needle-related behaviors, followed by the drug use behaviors, and to a lesser extent, the sexual behaviors. This finding supports the work of Colon et al. (1993), Watters et al. (1990) and others, as well as our own studies (Booth and Wiebel 1992; Booth et al. 1998; Stephens et al. 1991, 1993) and offers encouragement that drug users, of all three types studied, can change the behaviors that place them at risk for HIV infection. Especially important is the reduction in needle-related behaviors as these risk behaviors place the users at most risk of contracting HIV.

A third major conclusion, supported equally by findings from the NADR studies, is that despite meaningful reductions in risk behaviors among some users, a large percentage of the drug users continue to engage in all types of risky behaviors. Thus, while the percentages of persons injecting at follow-up decreased by 20 percent from baseline figures, over 40 percent of the respondents were still injecting at follow-up. Clearly, the dangers of contracting HIV do not deter many street drug users. Additional research is needed on the dynamics of change or lack

of change in risky behaviors. Both the NADR and Cooperative Agreement databases can be used to answer such questions as: what kinds of persons are most likely to change, what elements of the intervention appear to be most effective, why do people resist change, and a multitude of other questions.

Some important cautionary notes must be appended to this analysis. First, the results reported herein are based on respondent self-reports which may be affected both by recall and social desirability. The short time period (previous 30 days) respondents were asked to recall, however, may have minimized recall error. In addition, analyses of the RBA data show that it is highly valid and reliable (see Needle et al. 1995; Watters et al. 1992). Meanwhile, the impact of social desirability is more difficult to assess. Nonetheless, the consistency of the findings across sites and between NADR and the Cooperative Agreement data powerfully argues that social desirability is likely minimal. That many persons do admit to devalued risky behaviors at follow-up also challenges social desirability as an alternative explanation. When comparing urine results with self-report in the NADR context, Simpson et al. (1994) report high levels of concordance between the two data sources. Finally, that the changes in the SI (where subjects had a much briefer encounter with staff) were as dramatic as those in the EI (where contact with intervention staff was much more extensive) is noteworthy. Presumably, if those in the EI had developed a closer relationship with staff and thus were more likely to tell researchers what they wanted to hear, one would expect more pronounced changes in the EI. Second, as noted earlier, the findings reported here were based on only those CA sites with a sufficient follow-up rate (i.e., 60% or greater) to offer some confidence in the representativeness of those successfully re-interviewed. While we feel this added to the validity of the study, it must be emphasized that even these results are biased in favor of drug users that were able to be relocated in those cities. It should also be noted that these particular cities all had HIV positive rates that were less than 10 percent. Therefore, results may not generalize to cities with higher rates of HIV positive drug users. Third, ethical considerations around withholding interventions prevented the use of a true control group. The lack of such a control group that received no intervention prevents strong inferences of causality, attributable to the effects of the intervention, to be made. Although the consistency and magnitude of the pre/post changes support such a conclusion, regression to the mean and changes due to history and other threats to internal validity are also possible.

In conclusion, the findings in this study support the now widely documented finding that crack users, injectors, and individuals who use all report dramatic decreases in HIV risky behaviors following interventions. Interventions which are much more time consuming, expensive, and extensive do not appear in general to produce greater change than a two-session briefer intervention. Finally, while many persons do change their behaviors, a large percentage of drug users do not modify either needle or drug-related behaviors and sexual behavior seems particularly resistant to change. Further research on why some people change and oth-

ers do not and additional investigation of how to motivate the intransigent group is needed.

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NEW DIRECTIONS IN HIV
PREVENTION AMONG
DRUG USERS
SETTINGS, NORMS, AND
NETWORK APPROACHES TO
AIDS PREVENTION (SNNAAP):
A SOCIAL INFLUENCE APPROACH

Carl A. Latkin and Amy R. Knowlton

ABSTRACT

HIV prevention among drug users continues to be a daunting challenge. Previous efforts have shown limited success. A major research question for the next generation of HIV prevention interventions for drug users is how do we design, implement, and evaluate harm reduction interventions that reach the appropriate audiences, are programmatically sustainable, maintain behavior change, and lead to meaningful changes in participants' lives. The goal of this chapter is to critique the current state of HIV prevention research and to propose using additional social science theories

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and methods in future approaches to behavior change. The first section of this chapter examines some of the historical and psychological factors that may have hindered progress in the field of behavioral HIV prevention. The next section presents a theoretical foundation for a social influence approach to HIV prevention interventions for drug users that considers opportunity structures within an individual's social environment. This approach emphasizes behavioral Settings, Norms, and Network Approaches to AIDS Prevention (SNNAAP). By capitalizing on naturally occurring social influence processes, promoting HIV-related behavior change among drug users may be possible. The section discusses social behavioral theories, social-oriented research methods, and individual-level factors that have been inadequately pursued in the field of HIV prevention. Examples of interventions that have incorporated social behavioral theory are presented. Next, several approaches to improving HIV prevention research methods are discussed. Finally, future directions of HIV prevention research are proposed.

INTRODUCTION: CURRENT MODELS OF HIV PREVENTION

A major challenge of the AIDS epidemic is to enhance social science theories of behavior and theory-based strategies of behavior change. Most current HIV prevention interventions are individually focused and psychologically oriented. Whereas social influence processes may occur without actors consciously working to change their behavior, most individually focused prevention interventions assume planned and motivated behavior change. Leading models of behavior change used in interventions include the Health Belief Model, Theory of Reasoned Action, and Social Cognitive Theory (Ajzen and Fishbein 1980; Bandura 1994; Becker and Joseph 1988). The interventions typically aim to motivate individuals to adopt protective behaviors by heightening perceived risk of infection and improving decision making and safer sex negotiation skills through progressively structured exercises.

Notwithstanding critiques of such individually focused approaches (Auerbach et al. 1994; Bourgois et al. 1997; Cochran and Mays 1993; Gillies, Tolley, and Wolstenholme 1996; Worth 1989), individualist models of behavior change continue to dominate HIV prevention research despite the social nature of most HIV risk behaviors. "Functional fixity," the phenomenon of prior problem solving experiences determining the approach to solve future problems, may explain this persistence (Duncker 1945). In the advent of the HIV epidemic, researchers, under pressure to respond, inappropriately adopted models of behavior change previously developed for modifying other behaviors in other contexts and applied them to HIV risk. Perhaps unknowingly researchers often relied on meta-models of behavior based on classical learning theory that views behavior change as involving universal learning processes applicable to any behavior in any social environment (Gergen 1994). The ideology of individualism, historically strong in

America (Alonzo 1993), may have averted researchers' attention from considering social and contextual influences on risk behaviors. Predominant scientific methods and laboratory-based practice reinforce this individualist orientation.

Several reasons explain why individually focused approaches to HIV prevention have limited effectiveness: (1) they do not change social structures and group norms that maintain given behavior; (2) they fail to reach a sufficient number of people at risk in adequate time; and (3) the cognitions, emotions, and motivations that arise when enacting risk behaviors in natural settings may differ greatly from those experienced in clinic settings, thus limiting the successful transfer of HIV prevention from the one social context to the other.

In this chapter we propose a social influence approach to HIV prevention interventions for drug users that emphasizes opportunity structures and social environment: Settings, Norms, and Network Approaches to AIDS Prevention (SNNAAP). The SNNAAP approach utilizes ongoing social influence processes to promote behavior change among drug users. The chapter also examines individual-level factors that have been inadequately pursued in the field of HIV prevention. Finally, several strategies to improving HIV prevention research methods are presented.

MACROSOCIAL FACTORS AND HIV

Some researchers, particularly in Europe, have proposed social-oriented models of HIV prevention as an alternative to individualistic approaches. Unfortunately, few empirical evaluations of these programs exist. Many of these alternative models emphasize the role in HIV transmission of macro-social factors such as poverty and social marginalization, and the need for political and social structural change (Mann 1991). Research has found that dynamics of HIV transmission are linked to social conditions worldwide such as limited access to drug treatment, sterile syringes, housing, employment, and other pro-social opportunities (Bourgois 1998; Friedman et al. 1992; Mann 1991; Shayne and Kaplan 1991). Sharing of injection equipment, a major route of HIV transmission, is associated with having limited economic resources (Vlahov et al. 1989; Bourgois 1998), which itself is associated with engaging in unsafe sex for money or drugs (Elwood et al. 1997).

To address such issues, Wallace and colleagues (1993, 1996) propose a theoretical model that considers the influences of social networks, neighborhoods, and macrosocial factors on poverty and HIV transmission. Although promising, such an approach does not address behavior change, and implementation of such macro-social interventions has been problematic. Altering conditions of impoverishment related to HIV behaviors would require dramatic shifts in public policy that are unlikely to happen in the immediate future. Moreover, the political will to enact such changes often is lacking. Specific legislative changes and financial support for needle exchange and drug treatment also are critical, but not all

municipalities support such programs. Furthermore, these strategies alone are insufficient to stop the spread of HIV among drug users.

SOCIAL INFLUENCE PROCESSES AND OPPORTUNITY STRUCTURES

To prove effective, behavior change models for HIV prevention intervention must incorporate both individual-level and social-level factors along with social-oriented research methodologies. Key social factors often overlooked in individualistic models of behavior change include the influences of other people on one's behavior, structural and situational opportunities to engage in a particular act, and the effects of microsocial structures in attenuating, amplifying, and perpetuating behaviors. Behavior change models also must acknowledge that behavioral alterations can occur passively and without intention, processes of which individuals may be unaware (Wilson 1979). Furthermore, a person's social environment can enable or restrain opportunities for both high risk behavior and risk reduction. In this regard, social networks and behavioral settings exert structural and normative pressures that shape and modify individual behavior. Such opportunity structures include access to materials (e.g., sterile needles and condoms), network affiliations (e.g., drug or sex partners), and behavioral settings (e.g., shooting galleries and bars).

Social Influence Processes

Social influence processes can powerfully affect behavior and offer an important avenue for HIV prevention research. An extensive literature on social influences on behavior and behavior change (Edwards et al. 1990) exists, including research in social psychology that consistently demonstrates that social-situational factors more strongly influence behavior than individual personality variables (Myers 1987). Some extant models of HIV behavior change include social influence components (Fisher and Fisher 1992; Fisher and Miscovich 1990; Winett et al. 1995). For example, a community-wide HIV risk-reduction effort aimed at gay men in San Francisco demonstrates that social influence can be an important approach in behavioral risk reduction (Dowsett 1993). While European HIV prevention researchers pay more attention to social influence factors when compared to their counterparts in the United States, few utilize experimental techniques of random assignment and pre- and post-intervention assessment (Rhodes and Hartnoll 1996). Consequently, assessing programmatic effectiveness is difficult.

In research on drug use, ample evidence shows that HIV risk behaviors in injection drug users are influenced by social factors. Most such studies focus on family and peer influences. For example, an early empirical study of injection drug users found that perception of friends' HIV-related behaviors more strongly determined

risk reduction than knowledge about AIDS, education level, or knowing someone with HIV/AIDS (Friedman et al. 1987). In a study of behavior change among injection drug users in four countries (Brazil, Thailand, Scotland, and the United States), Des Jarlais and colleagues (1995) found that talking about AIDS with drug-using friends consistently was associated with reduction in self-reported risk behaviors.

To capitalize on social influence processes with networks, we conducted HIV prevention interventions with drug sharing networks in a clinic and in natural settings and found significant self-reported reductions in needle sharing (Latkin et al. 1996, 1998). Similarly, Kelly's seminal study identified opinion leaders in bars, then trained them to influence their peers regarding HIV-related behaviors (Kelly et al. 1992). When analyzed from a network and setting perspective, bars represent a behavior setting that attract risk networks that are potentially amenable to social influence. Other researchers have also advocated similar network approaches to HIV prevention (Power et al. 1995; Stimson et al. 1994).

Norms

Norms are a key component of most social influence models of HIV-related behavior change, and many researchers propose that modifying social norms be the primary goal of HIV prevention efforts (Feldman et al. 1997; Fisher and Fisher 1992; Gwydish and Sanstad 1992). Laboratory studies demonstrate that group norms strongly influence members' behaviors (Bettenhausen and Murnighan 1991; Myers and Bishop 1970; Newcomb 1958). For example, Tittle (1977) reports that deviance-conformity behavior is strongly associated with fear of social sanction, while legal sanctions are of minor importance.

Norms have been characterized as conservative factors, working against the initiation of new behaviors. The resistance of many injection drug users to adopting new HIV protective behaviors has been attributed partly to countervailing norms that mitigate against change. Groups that do adopt new norms, however, tend to maintain them (Latkin et al. 1996) and reward those members who comply (Zucker 1977).

Unfortunately, in HIV prevention research, the construct of social norm is often not clearly defined and the complex social processes of norm formation and change are seldom clearly delineated (Rhodes, Stimson, and Quirk 1996). Most HIV research on norms focuses on those related to reducing risk behaviors and promoting safer behaviors. For community-wide behavior change, altering communication norms, that is the expectations, rewards, and sanctions for discussing the topic of HIV, is important. Many drug users view HIV as a stigmatized disease, the discussion of which also is stigmatized (Brown 1990). Thus, redefining HIV as an acceptable topic of conversation may help to enhance discussion about HIV prevention and produce changes in behavioral norms among drug users and their wider community. Of course, norms of risk behaviors can be changed with-

out discussion. Still, for social behaviors, particularly those imbued with strong meanings (e.g., using a condom means that you don't trust me), changing communication norms may encourage and reinforce the development of HIV protective behavior norms. The effectiveness of individuals' HIV protective negotiation likely depends on the social acceptability of such discussion.

Network Influences

Network methodology is one approach to assessing social influence and the effects of social environments. It offers a promising approach to HIV prevention. Personal or egocentric networks can be defined as the aggregate of individuals who know and interact in a specific way with a single index individual. In public health research, risk networks are conceived as individuals linked by a common interactive behavior, such as drug sharing, that puts them at risk for infection. Social networks consist of linked personal networks. Network analysis has been used to examine how social and economic resources are distributed and transferred, and how information and behavior changes are amplified and modified as they flow through networks.

Networks appear to influence individuals' behavior and group norms through social comparison processes, fear of social sanctions, information and material exchange, and socialization of new members (Hall and Wellman 1985). For example, drug network members can influence each other's behaviors by supplying members with hygienic injection equipment, refusing to share unhygienic equipment, providing risk-reduction information or opinions about needle sharing, or by threatening to exclude individuals from the network if they engage in high risk behaviors. Network members also may influence each other by modeling of risk-reduction practices and rewarding those who reduce their risk. When drug users react negatively to other network members' requests to share needles or other drug paraphernalia, the offending members may alter their needle sharing behaviors to avoid censure. Through the social control processes of self-regulation in conformity to network norms, networks may regulate and discourage members' HIV-related behaviors (Umberson 1987). Significant others may be an important source of social control for HIV-related behaviors (Latkin et al. 1995). Zinberg (1984) found that group sanctions helped to regulate drug use among individuals who maintained moderate use of heroin.

Personal Networks

A personal network consists of an index individual and those with whom s/he interacts in a specific way. Most of the personal network literature has focused on social support exchange and its health promotive effects. Empirical studies suggest that social support may increase condom use (Catania 1991) and buffer the influence of drug networks on needle sharing and injecting in shooting galleries

(Suh et al. 1997). Conversely, research also has been conducted on the potential negative impact of social relations on mental health. Conflictual ties and unreciprocated support have been found to be associated with distress (Rook 1984) that can potentially undermine risk-reduction efforts.

Structures of personal networks have implications for risk behavior and HIV prevention. Structural characteristics of personal networks include the index's number of sex and drug partners, functional overlaps among partners (e.g., both sex and drugs), size, and density. In this regard, ample evidence demonstrates that factors of personal network structure and role function are associated with HIV risk behaviors among injection drug users, and that network measures have predictive validity. Needle sharing, cessation of drug use, and relapse have been found to be correlated with personal network characteristics (Goehl et al. 1993; Latkin et al. 1996; Trotter et al. 1995). When compared to men, women injection drug users have been found to have a greater overlap between drug and sex partners (Latkin 1998; Pivnick et al. 1994). Personal network density also has been found to be associated with HIV-related behaviors (Latkin et al. 1994; Trotter et al. 1995), and lack of closeness in relationships is correlated with safer sex (Malloy et al. 1997).

Research is needed on the dynamics of microsocial influence processes within personal networks and their relationship to HIV prevention. Network turnover, a measure of network stability, has been found to be associated with HIV status (Friedman et al. 1993) and merits further attention. Network stability also may have implications for drug cessation and relapse and for availability of social and economic resources (Hoffmann, Su, and Pach 1997). Research also is needed on the emergent properties of networks or groups in relation to HIV risk. For the most part, networks have been studied using cross-sectional research designs. Longitudinal network studies allow for the examination of changes in networks over time and their possible effects on HIV transmission.

Social Networks

Social networks are constellations of linked personal networks. Empirical studies of influence processes in social networks have focused on opinion formation (Freeman, Roeder, and Mulholland 1980; Friedkin 1986; Marsden 1990), decision making (Laumann and Franz 1976), and social diffusion (Dearing, Meyer, and Rogers 1994; Rogers 1979). Within the substantive areas of research on AIDS and other sexually transmitted diseases, structural characteristics of social networks (e.g., density, centrality, homophily, and partner overlap) have been found to be associated with both risk behaviors and disease transmission (Friedman et al. 1997; Klovdahl 1985; Klovdahl et al. 1994; Morris 1993; Neaigus et al. 1994; Rothman et al. 1998a). In Atlanta, Georgia, Rothenburg and colleagues (1998b) found that peers in networks with a known case of syphilis had similarly high rates of syphilis as compared to the patients' sex partners. In addition to pro-

viding information about disease transmission, social network methodology also has been used to recruit injection drug users and other hidden populations for HIV research (Carlson et al. 1994; Griffiths et al. 1993; Stimson et al. 1994; Broadhead and Heckathorn 1994).

Behavioral Settings

Settings are another component of a person's social environment that influence behavior. Settings can be examined on several levels: from the specific site of the risk behavior, such as a house or shooting gallery, to larger geographic regions, such as neighborhoods, communities, and countries. Methods of examining behavioral settings and their power to predict behavior have been developed by Barker and his colleagues (Barker 1978; Barker and Wright 1955). Several authors have elaborated and expanded on Barker's original framework (Kaminski 1983; Moos 1983; Wicker 1979, 1987). Barker's definition of a behavioral setting includes its temporal boundaries of operation, hierarchy of position, and substitutability of people. Such components of a setting can be reliably measured. Previous studies have found relationships between settings and quality of life, drug treatment outcome, psychiatric symptoms in mental hospitals, and quantity of alcohol consumed (Klassen 1977; Perkins and Baker 1991; Schoggen 1989; Wigmore and Hinson 1991). The most detailed critique and revision of behavior settings is that of Wicker (1987). Wicker's expanded framework emphasizes the social construction (Berger and Luckmann 1967) of social interactions and the importance of motives and social cognitions, such as scripts (Abelson 1981) and social episodes (Forgas 1979).

Research suggests that certain observable characteristics of behavioral settings may be associated with HIV-related injection behaviors. For example, changing norms regarding needle hygiene may prove easiest in newly created settings, or in settings with newer inhabitants, where unhygienic practices have not become firmly entrenched. On the other hand, in settings that have stabler membership with little turnover, once new behavioral norms are adopted they appear more likely to be sustained due to social controls. Safer behavior also may be more likely to occur if the setting promotes it. For instance, injecting in shooting galleries is associated with higher rates of HIV infection and needle sharing (Celentano et al. 1991), perhaps because of the demonstrated high risk of HIV contamination in needles from shooting galleries (Chitwood et al. 1990). In addition, injecting in semi-public settings correlates with increased needle sharing without prior disinfecting (Latkin et al. 1994). In such settings, drug users' sense of urgency to inject may be heightened by fear of a police raid. Time pressures can increase an injector's likelihood of needle sharing to avoid delays related to cleaning equipment prior to use.

Leadership structure, and actors' position within that structure, also may also vary by setting and, in turn, affect HIV prevention. Certain settings, such as

churches and classrooms, have formal leaders. Other settings, such as prisons and neighborhood hang-outs, have informal leadership structures. Settings often have formal and informal behavioral rules. Status hierarchies within settings often influence the ability to enforce rules. For example, the proprietor of a shooting gallery located in a private residence may be able to positively control attendees' behaviors by authority of his ownership and presence in the space. Such controls are absent in a shooting gallery located in an abandoned building where proprietary claims on the space do not exist (Oulett et al. 1991).

Opportunities for HIV prevention depend partly on the availability of HIV prevention materials and sexual and drug-sharing partners. Differences across social environments exist. A residential setting may be supplied with both bleach and water; a public bathroom may have soap and water but not bleach, and an abandoned building may have no materials for disinfecting syringes. Supplying shooting galleries with an ample supply of clean needles and needle disposal containers may reduce needle sharing due to the availability of HIV prevention materials rather than as a result of conscious motivation and advanced planning. Some settings attract more homogenous groups, whereas other settings attract more heterogenous groups. These characteristics, along with the number of potential risk partners in a setting, affect sexual mixing patterns and disease transmission.

Networks and Settings

While network analysis and behavioral setting research differ in important ways, they can be combined using network methodology to examine the role of settings in disease transmission. Name elicitation techniques can be used to identify risk behavior settings and to delineate the linkages between individuals within them. For example, in a study of tuberculosis transmission, Klovdahl (1998) was able to identify attendance at particular bars as the likely point of transmission of a tuberculosis strain among individuals who did not know each other. In another study in Colorado Springs, Potterat and colleagues (1985) found that 529 individuals with gonorrhea listed 1,009 night-time socializing establishments. Six of these bars, however, accounted for 51 percent of these citations. These bars would be a prime target for a setting-based HIV intervention.

Linking Macrosocial Factors to Microsocial Environment

Network methodology and settings may be useful for linking micro- and macro-social influences on behavior. Opportunities for sex and drug partner selection may be limited by economic status. This limitation may be geographic or network-based and lead to increased risk of HIV infection (Wallace 1991). For example, in areas with high drug use, nonusers may have limited opportunities to link with sexual partners who are not drug users. Meanwhile, individuals who live in impoverished urban areas are at greater risk of infection from each instance of

HIV-related behavior due to a higher proportion of individuals infected with HIV. Not only does the probability of having an infected sex or drug partner increase, but so does the likelihood of future exposure through contact with a currently uninfected drug or sex partner who later seroconverts. Drug use also is associated with high crime neighborhoods (Nurco 1972) that add to HIV risk. If drug users are fearful of being robbed, they may be less likely to carry their drugs to a safer injection setting. In a factor analysis of urban environments, Bell and colleagues (1998) found that areas of high drug use were associated with social disorganization, chronic disease, and violence. Opportunities for reducing risk by moving from neighborhoods or entering a new network are not available to many impoverished individuals.

INDIVIDUAL-LEVEL FACTORS RELEVANT TO HIV PREVENTION

Many models of behavior change focus on changing individual-level attitudes. Attitudes, however, do not always predict behaviors; indeed, they typically account for only 9 to 16 percent of the variance of behaviors (Wicker 1969). Moreover, empirical research consistently finds that behavior change can lead to changes in attitudes (Festinger 1957). Other factors seldom examined in the research on HIV prevention may play important roles in behavior change of drug users. These include factors of social identity, physiological and psychological aspects of drug craving and withdrawal, mental models of risk, social roles, and drug relapse and recovery.

Social Identity

An individual's behavior may acquire symbolic meaning that affects both self-concept and social identity (Tajfel 1981; Turner 1978). Social identity theory states that when individuals identify with a group, the group becomes part of their self-concept. A link between the self and the group arises and a redefinition of self emerges with group goals and actions becoming congruent with the individual's behavior. Individuals' drug and sexual behaviors may affect such meanings. When an individual's social identity largely is based on drug use and the activities surrounding it, stopping drug use may prove difficult. For example, research on high school students suggests that students affiliate in distinct cliques, groups, and crowds (Brown et al. 1986). At least one such crowd typically uses drugs. Not only can persuading individuals in the group to cease drug use prove difficult, but peers who are not in that crowd may have little credibility with insiders.

Many behavior change programs provide participants with information on what not to do and how not to act. Proscriptions include telling them not to share needles or have unprotected sex, and stop using drugs. Such messages are unlikely to

work when participants perceive that the social rewards of risk behaviors outweigh those of HIV preventive behaviors. Thus, attention should be given to providing participants attractive and feasible alternatives. For HIV prevention, integrating new identities with new behaviors may be critical to sustained behavior change.

State-related Cognitions and Emotions of Withdrawal and Cravings

Few interventions acknowledge the well-documented physiological effects of drug use. Implicit in many models of behavior change is the assumption that if the perceived consequences of engaging in HIV risk behaviors are sufficiently severe, drug users will be motivated to curtail their risk behaviors. Yet, motivation is not a fixed state. Withdrawal symptoms, fear of withdrawal symptoms, and drug cravings may decrease users' motivation to avoid HIV-related behaviors. Behavior change theories that emphasize motivations to change need to take into consideration the role of physiological states that compete with other motivations and compromise decision-making abilities.

Severity of withdrawal symptoms has been found to be associated with needle sharing (Conners 1994; Gossop et al. 1993). For example, a drug user experiencing withdrawal symptoms may perceive the time required to disinfect a needle to be impossibly long. Cravings may become so intense that other needs and risks become irrelevant. Some settings exacerbate these feelings (Kirby et al. 1995). Visual cues, such as needles or cookers, may trigger or heighten cravings. The type of drug used (e.g. heroin, cocaine, methamphetamine) and route of administration (e.g. injecting, sniffing, smoking) also may affect cravings and withdrawal symptoms. The traditional approach to drug treatment has been to advise clients to avoid people and places that may trigger such effects. For many inner-city drug users, this admonition is difficult if not impossible to follow because they are likely to have family members who use drugs (Latkin et al. 1995) and few non-drug using friends.

Research on memory and cognition suggests that settings and mood states may facilitate recall of information that is consonant with the state (Fiske and Taylor 1991). Behavioral settings have been found to facilitate recall of information learned or associated with the setting (Radvansky and Zacks 1997). In most behavioral HIV prevention training, skill development occurs in a setting outside the context of the actual risk behavior. In clinic-based HIV prevention programs, practicing HIV prevention skills such as proper methods of disinfecting syringes may be easy. But, information learned in the clinic may be difficult to remember elsewhere. Little is known about the process and impediments of replicating such skills in the settings where the risk behaviors are most likely to occur.

Mental Models of Risk

In HIV prevention research, acknowledging that individuals' mental models do not always correspond to biomedical models of risk and safer behaviors is important (Williams et al. 1992; Malloy et al. 1997). Interventions that are designed to increase perceived risk of becoming HIV infected need to be especially sensitive to this possibility. Malloy and colleagues (1997) found that HIV risk perception is based both on perceivers' and partners' characteristics, but tends to be based on interpersonal inferences rather than objective methods of HIV prevention. In Offir and colleagues' (1993) study of perceived HIV risk, most focus group participants reported that they perceived themselves as "safe" from HIV infection, but admitted to behaviors that may place them at substantial risk. For example, one participant felt "safe" because he had never engaged in unprotected sex unless on vacation. Another judged himself to be at low risk for HIV because he used condoms with casual partners but not with steady partners. Page (1990) found that individuals who reported in clinic-based interviews that they did not share needles were observed in a shooting gallery taking needles out of a bag of used needles. These needle users did not define their behavior as needle sharing because they did not have direct contact with or knowledge about the previous users. The differences between these individuals' perceptions of risk and actual behavior exemplify the complexity of the concept of risk perception.

Role Analysis

Social role analysis has been used to understand the life circumstance and behaviors of individuals over the life course of drug use (Stephens 1991). Qualitative and quantitative role analysis can be applied to examining individuals within settings and networks to assess risk and potential for intervention. Settings and networks can be examined for actors' role types, status, interpersonal behavior, and potential influence on others within the setting or network. Many social roles hold potential for HIV prevention intervention. In some developing countries, for instance, traditional healers have been effectively enlisted to provide HIV intervention. Similarly, "street doctors," whom some drug users pay to inject them with drugs, are a prime target for HIV prevention efforts in North America. Other roles for potential intervention include drug dealers, proprietors of shooting galleries, and touters (Bourgois 1995; Friedman et al. 1998).

Relapse and Recovery

The construct of relapse has been applied to HIV-related sexual behaviors. Several studies have examined factors associated with relapse into unsafe sex (Kelly et al. 1991; Blower et al. 1995). Little research has been conducted on relapse to injection-related risk behaviors. The concept of ceasing drug use without the help

of treatment, which has been called “natural recovery,” also can be applied to risk behaviors and may prove a fruitful line of future inquiry (Waldorf 1983). Some strategies that individuals use to cease drug use may place them at increased risk for acquiring and transmitting HIV. For example, individuals attempting to cease drug use may choose not to carry needles to avoid temptation. Later, when finding themselves in situations where they do decide to inject, they are forced by circumstance to share needles (Latkin et al. 1995).

IMPROVING RESEARCH METHODOLOGY

Validating Self-report Data

Collecting valid data on potentially stigmatizing and, in some cases, private behaviors is a major methodological challenge of HIV prevention research. Most behavioral HIV prevention research studies rely on self-report data. Obtaining measures other than self-report is not always possible or desirable. For example, self-report generally has been found to be the best measure of drug use (Darke 1998). Yet measures of sex and drug behaviors can be highly reactive, introducing the potential of systematic response bias. Many intervention studies find that participants in no-treatment control groups report statistically significant reduction in risk behaviors (Gibson et al. 1998). Interventions that heighten perceived HIV risk may also heighten social desirability response bias, making it difficult to disentangle reporting bias from self-reported behavior change attributable to the intervention. In most prevention programs, participants are discouraged from practicing HIV risk behaviors. Later as part of program evaluation they are asked if they are doing what they were told. In such instances, those who engaged in HIV risk behaviors can choose to respond candidly and risk disappointing program staff and diminishing their self-image or they can falsely report having reduced their HIV risk behaviors to please staff and garner possible approval. In addition to wording questions to reduce potential response bias, measuring and adjusting social desirability bias also is possible using appropriate scales (Latkin et al. 1993). A need exists for developing and validating more culturally appropriate social desirability response bias scales for drug-using populations. Development of these scales assumes that such biases are systematic and latent constructs, and that significant individual differences in levels of biases exist.

Alternatives to Self-reports

Several alternatives to self-report data exist. Such alternatives include use of biological markers, peer reports, and ethnographic methods. Hair and urine analyses are useful screening tools to verify that participants are active drug users. A major mode of transmission of HIV among injection drug users is through con-

taminated needles. Unfortunately, no biological marker for needle sharing currently exists, although assessment of other related blood-borne infections such as hepatitis offer clues to nonhygienic needle use. Many subgroups of drug users also are at high risk for sexually transmitted diseases (Aral and Wasserheit 1995; van den Hoek 1997). Noninvasive, urine-based test kits are available for detecting gonorrhea, chlamydia, and trichomonas (Marrazzo et al. 1997). As HIV preventive programs usually target sexual behaviors as well as injection behaviors, these biological markers can serve as outcomes as well as methods of verifying self-reported behavior. As injection drug use is often a social behavior, assessing injection behaviors through peer reports is possible. Network name elicitation techniques permit researchers and clinicians to identify network members who inject drugs and with whom they have sex. Self-reports can be verified through cross-validating information gained from other network members.

Although the field of illicit drug research has a laudable history of ethnographic research, ethnographic methods have seldom been used in experimental HIV prevention interventions (Carlson et al. 1994; Koester 1994; Wiebel 1993). Researchers have proposed integration of quantitative and qualitative methods (Agar 1996; Booth et al. 1993; Carlson et al. 1996). Information gleaned from ethnographic studies often can be incorporated into quantitative survey questions (Carlson et al. 1996). The greater utility of qualitative methods in research on drug use and HIV, however, is to elicit information on the broader social, economic, and political context of drug users' lives that pertains to their risk behaviors.

CURRENT APPROACHES TO INTERVENTION WITH DRUG USERS

Street Outreach

Street outreach has been widely applied to HIV prevention among injection drug users (Booth and Koester 1996). In San Francisco, Watters (1994) found that injection drug users reported that outreach workers were their most frequent source of information on bleach for disinfecting needles. Other studies confirm that street outreach is effective in reducing risk behaviors (Levy et al. 1995; Needle et al. 1994; McCoy et al. 1993; Booth and Wiebel 1992). Some researchers, however, empirically argue that outreach is more effective for individuals who are at lower risk for HIV (Neaigus et al. 1990). Traditional street outreach strategies may not be effective in reaching all drug users. For example, most outreach workers target public settings, although these locales do not attract all types of drug users. Most appeal to older male injectors rather than newer injectors and females (Latkin et al. 1994). In reviewing studies of community-oriented HIV outreach among injection drug users, Stimson and colleagues (1994) argue that despite the

development of innovative outreach strategies, the full potential of outreach programs has not been realized. They suggest four roles for indigenous field workers: (1) interviewers who collect data from network members, (2) contact tracers who contact hard-to-reach groups, (3) community guides who orient researchers and others to settings and networks, and (4) indigenous observers who provide information on the dynamics and changes in drug-related behaviors within the community. Freudenberg and Zimmerman (1995) also point out that street outreach projects need to include rigorous evaluation components such as randomized experimental design.

Needle Exchange Programs

Although mounting evidence demonstrates that needle exchange programs can effectively reduce HIV infection, a paucity of needle exchange programs exist in the United States (Normand, Vlahov, and Moses 1995; Vlahov and Junge 1998). Most injection drug users lack access to syringe exchange programs. From a social policy perspective, important research questions include how to increase the number of syringe exchange programs, provide sufficient funding for syringe exchange programs, and enact legal reforms of syringe prescription and paraphernalia laws. Even in states without legal restrictions on selling syringes, impediments to syringe acquisition continue and beg further study (Singer et al. 1998). Devising and testing methods to increase the effectiveness of needle exchange programs also is critical. Information is needed on what can be done to increase the number and frequency of drug users' use of needle exchange programs. Basic research is needed on the effects of hours of operation, location, method of distribution (e.g., vans, pharmacies, vending machines, and one-for-one exchanges versus more flexible approaches). Little also is known about how and for whom the stigma of being identified as a drug user influences participation in needle exchange programs. In addition to operational research, research is needed to link operational and organizational factors to social behavioral theory.

Although not based on empirical evidence, needle exchange programs have been opposed on the grounds that they condone and somehow might increase drug use. Empirical evidence suggests that, to the contrary, needle exchange programs actually reduce drug use by providing drug treatment referrals and thereby increase access to treatment (Brooner et al. 1998). Not all injection drug users, of course, use syringe exchange programs as a strategy to cease drug use. One of the arguments for promoting needle exchange programs is that they also can be used to increase access and adherence to other needed services, including HIV medical treatment. An important policy and research question is how to develop programs that increase effective utilization of social and medical service among current and recovering drug users, and help them maintain drug abstinence. As injection drug users have little political clout on their own behalf and are often portrayed as the cause of social problems, rigorous research on the effectiveness of needle

exchange programs in reducing the spread of HIV is one of the few methods of influencing public health policy on syringe exchange programs.

FUTURE INTERVENTIONS

Interventions for Specific Populations

Behavioral interventions are needed for individuals who are already HIV infected. Many injection drug users who are HIV seropositive continue to practice high risk behaviors (Metsch, McCoy, and Miles 1998). For individuals who are already HIV infected, interventions that heighten the perceived negative consequences of becoming infected with HIV may prove ineffective in promoting safer behaviors and even counterproductive. Developing risk-reduction strategies for HIV seropositive individuals is complex. Enhancing adherence to antiviral treatments is one HIV prevention strategy for HIV seropositive individuals, but due to incidence rates for HIV, assessing the effectiveness of this approach among injection drug users is difficult. Another approach is to engage HIV seropositive individuals by providing them with prosocial roles and identities such as that of health educators (Latkin 1998). This strategy may allow HIV seropositive individuals to discuss the topic of HIV without being labeled HIV-infected. This approach to HIV prevention also has been successfully used with the stigmatized population of mentally ill (Kelly et al. 1997).

Most studies of injection drug users focus on those in drug treatment and living in inner cities. Less is known about the social organization of users' suburban and rural areas where networks may be smaller and less dense. Other special populations include new or sporadic users, and individuals with physical impairments such as visual or auditory loss who may not have been exposed to traditional prevention messages. Few interventions address the unique needs of women unknowingly at risk for acquiring HIV from a sex partner who injects. For many of these women, caregiving and other responsibilities hinder their ability to attend HIV prevention programs (Elwood et al. 1997; Gillespie 1997; Wingood and DiClemente 1996). Moreover, for participants of either sex enrolled in HIV prevention programs, avoidance of HIV infection may not be of primary concern. Nor is it likely that agreement exists among participants about their priorities and values. HIV-related attitudes may differ by gender, drug use status, age, education level, or ethnicity (Cochran and Mays 1993; Gillespie 1997; Longshore, Stein, and Anglin 1996; Weeks et al. 1998).

Drug Treatment

Numerous studies show drug treatment to be associated with reduced HIV infection. Many treatment programs include HIV prevention activities (De Leon

1996). In studies of methadone maintenance, higher doses and longer treatment duration have been found to reduce the risk of HIV infection (Hartel and Schoenbaum 1998; Metzger et al. 1998). A major issue is how to remove barriers to drug treatment and provide treatment to the vast majority of injection drug users who want but cannot get into treatment (Greenberg et al. 1998). Rapid intake, reducing financial impediments, and follow-up contacts have all been found effective (Booth et al. 1998).

Many drug users turn to Narcotics Anonymous and Alcoholics Anonymous (Peyrot 1985; Wells 1987). Although these programs demonstrate success, there are many scientific questions that remain about them (Barrows 1998). Some of the potential research questions for Narcotics Anonymous and Alcoholics Anonymous programs include: What type of individuals are most successful in these programs? How well do they work in conjunction with other forms of treatment? How can communities best foster these and other types of self-help treatment groups? Almost all drug treatment programs advocate abstinence. Yet for treatment of alcohol abuse, controlled drinking programs are well established (Sobell and Sobell 1995) and may provide a model for alternative harm reduction approaches to HIV prevention among heroin users.

Public Policy Toward HIV Prevention

With high rates of drug relapse and lack of opportunities for treatment, providing numerous avenues for harm reduction is essential (De Leon 1996; Des Jarlais 1995; Peterson et al. 1998). Nonetheless, science-based harm reduction approaches to HIV prevention have met with political resistance in the United States. Resistance typically reflects philosophical objections rather than arguments based on empirical data. Consequently, debate over adopting harm reduction as a strategy in HIV prevention becomes an opportunity for political posturing, an outcome that prevents the treatment of HIV prevention as rightfully a health issue.

HIV prevention programming has been profoundly affected by such factors as legal restrictions, such as ordinances on carrying drug paraphernalia and the operation of needle exchange programs; policing policies, such as arrest for possession of small amounts of drugs; and the availability of health services, such as funding of drug treatment. Changes in public policy greatly are needed to ensure success and sustainability of HIV prevention programs. As drug users often are vilified in American society and drug use policy often is punitive, promoting the well-being of drug users through policy changes can prove formidable. Although an abundance of drug policy research exists, few investigators have considered means to educate policy makers and public health officials to enact ordinances and initiate programs that promote HIV prevention among drug users. Promoting funding of drug treatment programs and other health services also is critical. Research on legislative and political approaches to promote tobacco control may

provide some insight; the effectiveness of these approaches to promoting policy changes that would lead to greater HIV prevention among drug users is unknown.

Program Sustainability

Generalizability and sustainability are important goals in the development of public health interventions. In some cities significant reductions in HIV-related drug and sexual behaviors have occurred (Des Jarlais et al. 1995; Longshore and Anglin 1995; Peters, Reid, and Griffin 1994). Nonetheless, little information exists to suggest that individually focused HIV behavioral interventions have long-term effects. Most studies only assess behavior within the year after the intervention and some studies merely examine behavioral intentions. Such a lack of demonstrable long-term effects on behavior is not limited to interventions with drug users. The follow-up period for most HIV prevention studies targeted at any high risk populations tends to be one year or less. To date, many experimental HIV prevention interventions have been federal demonstration projects. Their ability to be adopted by local communities and generalize to diverse geographic and social settings is unknown. While technology transfer should be a goal of prevention efforts, the cost of evaluating the effectiveness and generalizability of prevention programs remains a barrier.

In developing an HIV prevention program for drug users, it is critical to consider how to structure program activities that are sustainable. Arguably, personal empowerment is essential for sustainability of any successful community HIV prevention program (Mondanaro 1990). Empowerment has been conceptualized as a process whereby people create or are given opportunities to control their own destiny and influence decisions that affect their lives (Zimmerman 1995). In theory, empowerment is deemed important because it ensures that those who benefit from a program value it and are committed to its goals. Although many investigators and activists promote the idea of empowerment as a means of HIV prevention, few studies contain an empowerment component (Parker 1996; Beeker et al. 1998). Tension between control of the design of an experimental study by the researchers and the needs and interests of the participants is an obstacle to inclusion. The tendency to design interventions that assume that drug users are passive social actors is another (Henman et al. 1998). Nonetheless, developing interventions that emphasize empowerment and focusing on naturally occurring social influence processes may be a promising avenue for behavior change and sustainability.

Another strategy for program sustainability links prevention activities to existing organizations that involve drug users such as drug users' organizations and needle exchange. In Europe and Australia, injection drug users have formed users' organizations (Crofts and Herkt 1995; Friedman et al. 1994; Wodak and Lurie 1997). In the United States, however, few such organizations exist, with the noted exceptions of the loosely organized North American Users Union and Street

Voice, a Baltimore newsletter by and for street injection drug users (Sufian et al. 1991). Due to the greater poverty among inner-city users in the United States as compared to Europe, transferring this organizational strategy to the United States may be difficult. Drug treatment and needle exchange programs are two types of existing organizations directly involved in HIV prevention. Some needle exchange programs involve active users as do some organizations such as the Harm Reduction Coalition. However, few published reports on the objectives, feasibility, and effectiveness of such organizations exist. Possibly for such organizations to survive, they need to include both users and nonusers.

In addition to drug user organizations, community-based institutions may provide support to sustain HIV prevention activities with drug users. Also, expanding the services offered by drug treatment programs may be feasible. Another strategy is to link prevention activities with church-based organizations. The church is an important, stable, and respected institution in many African-American communities (Baer and Singer 1992). A drawback of linkages to these institutions would be a potential conflict between empowerment models and services/client models of service delivery. That drug users might not identify with the goals and mission of the organizations is a second. Moreover, some of these institutions and organizations are philosophically opposed to harm reduction and public health approaches to HIV prevention. Attitudes toward drug use may also be a major obstacle for integrating active drug users into these organizations. Yet even if community institutions are able to serve as vehicles for HIV prevention activities, expecting them to address all of the overwhelming needs of residents of poverty-stricken inner cities is unrealistic.

CONCLUSION

Novel interventions are needed to identify and change agents in the drug-using community and to train them to introduce HIV protective behavioral norms to networks and settings. The focus on the individual level of analysis independent of social context perpetuates the belief that individuals' motives, cognitions, and attitudes are the most important behavior determinants. This perspective can lead to blaming individuals who do not change their behavior. Although not a precondition, many therapeutic models of behavior change assume a certain level of social and economic resources and social stability. Most people would find something disconcerting about treating homelessness merely with psychotherapy; yet these models are often applied to drug users, many of whom are homeless or have few social and economic resources. Understanding the social, economic, and pharmacologic influences on risk behaviors is important for improving social and health policy, and invaluable for designing preventive interventions. Without addressing these issues, HIV preventive interventions for injection drug users are unlikely to fully realize their potential.

Developing innovative HIV prevention research for drug users is difficult and time consuming. The SNNAAP model of HIV/AIDS prevention is an oxymoron in that no quick and simple solution exists. Many behaviors, especially sexual and drug-related behaviors, appear exceedingly difficult to change. To fully realize the potential we must utilize concepts, theories, and methods from a diversity of academic fields, including anthropology, economics, political science, social psychology, sociology, public health, and communications. Drug users, as well as children, partners, families, and communities continue to be affected by HIV. Until our prevention efforts are successful, many more will continue to suffer.

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THE ROLE OF EMPLOYMENT CYCLES AND INCENTIVES IN THE RECRUITMENT OF DRUG USERS

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ABSTRACT

This study evaluates the role of monetary incentives in the recruitment of crack-cocaine and injection drug users into an AIDS prevention program in Anchorage, Alaska. The study also looks at how seasonality impacted recruitment of this population. Data from interviews with 1,427 out-of-treatment drug users were aggregated to monthly levels. Forty-seven months of data were used in the analysis. Independent variables included monthly income, source of income, employment status, self-reported homelessness, incentive paid at intake, potential incentive at follow-up, and data on the local unemployment rate. A dummy coded variable for seasonality also was included. Regression analysis was used to develop a model using number of individuals recruited each month as the dependent variable. Only one variable, the incentive paid at intake, was significant at $p < .05$. A strong interaction effect was found between the amount of the incentive paid at intake and seasonality. The chap-

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ter concludes that the use of monetary incentives has a positive effect on the recruitment of hidden populations.

INTRODUCTION

Recruitment of hidden populations, such as illicit drug users, involves special problems (Watters 1993). That little is known about what factors affect recruitment from such populations and the necessity, in many cases, of relying on secondary indicator data rather than on more direct sources of information exacerbates the problems (Wiebel 1990). In addition, membership in a hidden population may involve stigmatized or illegal behavior (Heckathorn 1997).

This study determines what role, if any, monetary incentives play in recruiting out-of-treatment drug users into an AIDS prevention program. Additionally, this study assesses seasonality as it relates to the recruitment of this same population. Anchorage, Alaska is a high latitude region, experiencing extremes of climate and temperature. No previous study has addressed the extent to which recruitment of drug users in Alaska may be affected by either incentive payments or seasonal trends.

HIV/AIDS prevalence is increasing rapidly among drug users (CDC 1995), but accurate estimates of current and future rates of HIV/AIDS depend on understanding the size and demographics of the drug-using population. Current knowledge of this population, until very recently, came largely from institutional populations such as in-patient drug treatment programs and correctional institutions. Such public health surveillance systems overlook the many drug users who are not in treatment, not in prison, or who live in geographic areas of the country outside the Center for Disease Control's Family of Surveys (Watters 1993).

To address this problem, Watters and Biernacki (1989) developed a method of "targeted sampling" for use with difficult-to-reach, hidden populations. Targeted sampling involves using existing secondary data on indicators of drug use (i.e., data from police departments on census tracts that have high levels of arrests for drug-related offenses or prostitution, data on prevalence of sexually transmitted diseases from municipal health departments) to build a sampling frame of geographic areas that may yield large numbers of drug users for recruitment.

Ethnography also has been used to document drug use in areas frequented by users (Shick et al. 1978; Shick and Weibel 1981). Observation by trained researchers can yield information on which areas of town are frequented by drug users for purchasing and using drugs, and also the times of the day or night such activities take place. This information can then be used for recruitment and outreach into the drug-using population. Outreach workers, usually either current or former members of the drug-using network, also have been used to facilitate recruitment of study populations. As current or former users, outreach workers

often are able to gain the trust of other drug users. This ability, in turn, can facilitate recruitment efforts and lend legitimacy to the research effort.

Recently, drug users themselves have facilitated research through respondent and peer-driven sampling methods (Heckathorn 1997). In respondent-driven sampling, a chain referral method of recruitment is used. Drug users initially recruited into a study are provided with coupons that they can give to others known to them to be members of a drug-using network. The original referring drug user receives an incentive if the coupons are redeemed by any other drug users by entry into the research project. The drug users who enter the project by redeeming one of the coupons are themselves given coupons to give to others, facilitating expanded access to the drug-using networks.

Many researchers have attempted to elicit responses from the general population on mail-in surveys or direct interviews (Biner and Heath-Kidd 1994; Tomporowski et al. 1993). Some reported positive results (Brennan 1992; James and Bolstein 1992) and others were mixed (Spry et al. 1989).

MONETARY INCENTIVES FOR PARTICIPATION

While sampling strategies described above can yield access to drug users, eliciting their cooperation and participation remains necessary. Only recently has the use of incentives with hidden populations been examined.

In a recent study of incentives (Deren et al. 1994), drug users in two locations, New York City and Cleveland, Ohio, were offered either a monetary or nonmonetary incentive for participation in an AIDS prevention program. Results indicate that significantly more subjects were recruited when paid to participate, indicating that monetary payment simply works better as a recruitment tool than nonmonetary payment.

Use of subject fees in studies of illicit drug use raises critics' fear that drug users will use payments received for participation in research to buy drugs. Conversely, proponents such as Desmond, Maddux, Johnson, and Confer (1995, p. 96) attribute their successful follow-up rate with drug users in methadone maintenance to the use of an "adequate incentive." They observe that the use of cash payments, generally about \$20, is a standard procedure for biomedical research. They argue that drug users should not be singled out for different treatment than other research participants.

A common suggestion of substituting other types of gifts for monetary incentives carries drawbacks. In working with hidden populations, Cottler and her colleagues (1995) point out that "[m]any participants view gift certificates as comparable to food stamps and feel stigmatized to receive them." They advocate the use of monetary incentives, especially for those drug users without standard forms of identification and for whom cash is more convenient.

In addition to concerns over how drug users may spend their subject fees, concern also exists that paying cash incentives for participation may introduce recruitment bias into a study. Watter and Biernacki (1989) have worried that targeted sampling may lead to recruitment of only the most impoverished drug users. Because most research projects pay relatively small incentives in terms of absolute dollars, danger exists that drug users who are better off financially will not participate at a rate equal to their poorer counterparts because the money is relatively less important to them.

Offering subject fees also may lead to recruitment bias related to temporary shifts in income level rather than actual level of income itself. Individuals may participate in research studies when times are financially hard, then drop out as the need for money decreases with a positive change in fortune. Temporary shifts in income relevant to recruitment also may occur due to monthly disbursements of Supplemental Security Income (SSI) and other entitlement programs. In addition to introducing recruitment bias, such income fluctuations also may affect rates of return for test results and follow-up interviews.

Seasonal employment is another type of income shift that potentially affects recruitment of difficult to reach populations. In the circumpolar regions of Alaska, for example, extremes of temperature and daylight impact some economic sectors (e.g., Anchorage, Alaska). As a consequence, the state experiences extremes of unemployment and employment directly related to the seasons (Alaska Department of Labor 1991-1996). Highway and road construction cannot occur during the winter months due to frozen ground conditions. Fishing and logging activities also are confined to the summer months, with a few exceptions. Thus the winter months are characterized by high seasonal unemployment rates that may result in more favorable conditions for subject recruitment and retention than the summer.

The current study evaluated factors that affected recruitment into a National Institute on Drug Abuse (1991) sponsored research project designed to assess two different approaches to HIV prevention among out-of-treatment drug users. Using a targeted sampling plan (Fisher 1991) based on Watters and Biernacki's (1989) work, this study used cash incentives for recruitment purposes. The effects of varying levels of incentive payments and seasonal employment on recruitment rates are of particular interest as Alaska has seasonal employment fluctuations that affect drug users' income and free time. Within the framework of the NIDA Cooperative Agreement, incentive payments were varied over the course of a multiyear, longitudinal study, providing an unintentional but valuable opportunity to examine how this variation affected recruitment.

This study tests three specific hypotheses. First, individuals with incomes below \$500 per month and who were unemployed were hypothesized to be more likely to be recruited as a sample than their employed, higher income counterparts. Second, we also expected that recruitment rates would rise with an increase in the unemployment rate. Finally, larger incentive payments were expected to produce a higher participation rate.

METHODS

Data were gathered from computerized records maintained by the Anchorage site of the National Institute on Drug Abuse Cooperative Agreement on Community-Based AIDS Intervention/Outreach Program from September 1991 through July 1995 (see Stephens et al. in this volume for an overview of this initiative). Subjects were recruited by fliers posted on bulletin boards at homeless shelters and soup kitchens, through outreach workers trained in street-recruitment techniques, and through word of mouth.

A targeted sampling plan based on Watters and Biernacki's (1989) methods was developed for Anchorage (Fisher 1991). This sampling frame identified specific census tracts within the Municipality of Anchorage as potential areas where drug users could be recruited. Secondary data used in producing the targeted sampling plan included health department data on STDs, data from the local Stop AIDS Project on outreach worker contacts, and community service patrol pickups (a service that provided transportation to inebriated individuals to go to alcohol detoxification so that they would not freeze to death). Recruitment activities described above were targeted to these census tracts.

Data were gathered on research participants who met the following criteria for admission into the study: (1) at least 18 years of age, (2) had not been in drug treatment in the past 30 days, and (3) tested positive on urinalysis for cocaine metabolites, morphine or amphetamine, or reported recent injection drug use and had visible track marks. All participant interviews were conducted at the Drug Abuse Research Field Station, an office-based setting located within a targeted recruitment area. Participants provided informed consent and were paid from \$15 to \$40 for their time. Urinalysis was performed using the Roche Diagnostics ONTRAK system. Data were obtained on demographics, drug use behavior, sexual risk behavior, and health-related issues using the Risk Behavior Assessment (RBA), a structured face-to-face interview. The RBA (1991) has high reliability and validity (Dowling-Guyer et al. 1994; Fisher et al. 1993; Needle et al. 1995; Weatherby et al. 1994). The sample contained 1,427 non-duplicated individuals interviewed at baseline and monitored for return one week after baseline to receive serological test results. All interviews occurred during the 47-month period.

Recruitment and RBA data were aggregated to monthly levels and included questions related to income level, including whether income was less than \$500 per month; income sources, including earned income from a job, income from welfare or other social benefit programs such as unemployment, and illegal income; employment status and current work situation; and current homelessness as self-reported. Because the data were aggregated to monthly levels, variables were checked for high correlation with each other using correlation coefficients. Those variables found to be highly correlated with each other were eliminated to partially control for possible multicollinearity.

Table 1. Incentive Payments Across the Five-year Project

Start Date	End Date	Session 1 Payment	Session 2 Payment
09/09/91	03/01/92	35	0*
03/02/92	03/25/92	35	35
05/01/92	11/30/92	15	20*
08/10/92	10/05/92	20	30
11/23/92	01/22/93	15	35
02/18/93	05/01/93	20	35
04/02/93	06/01/93	30	35
06/01/93	08/25/93	25	30
09/01/93	07/30/95	20	25*
05/16/95	06/15/95	40	25

Note: *Denotes basic payment schedule.

Monthly statistics on the local unemployment rate were obtained from the State of Alaska Department of Labor and included in the analysis with data on subject payments distributed over time from the Drug Abuse Research Field Station. The unemployment rate expressed as a percentage for each month of the study was used as an independent variable in the regression analysis. Employment peaks in the summer months as temporary seasonal jobs in tourism, fishing, and construction become available and are filled. In addition to providing seasonal employment, these sectors of the economy also provide jobs for unskilled or semi-skilled individuals. Employment rates begin decreasing by the end of the summer, as seasonal employment tapers off. Corresponding to this is an increase in the unemployment rate that begins in the fall and peaks mid-winter.

Participants could receive payment at four points in time: at the initial intake interview (Time One, Session 1), when results of HIV and other serological tests were given after seven days (Time One, Session 2), at six-month follow-up (Time Two, Session 1), and seven days after six-month interview (Time Two, Session 2; see Table 1 for incentive payments). The basic payments for Session 1 and Session 2 were modified twice during the course of the research period. In addition, payment changes were initiated for periods of from one to two months for special studies. Any changes in incentive payment were initiated on the first day of the month and payment was consistent for the full month (see Table 1). When no special study was underway at the time of recruitment, the basic payment schedule applied. Overall, incentives for Time One, Session 1 ranged from \$15 to \$40, and for Session 2 ranged from \$0 to \$40. The basic payment schedule was \$15 at Time One, Session 1 and \$20 at Session 2. This was in effect, except as noted, from May through November of 1992. The basic payment schedule was modified in January 1993 to \$20 for Session 1 and \$25 for Session 2. Payments for Time Two, Sessions 1 and 2 mirrored those for Sessions 1 and 2.

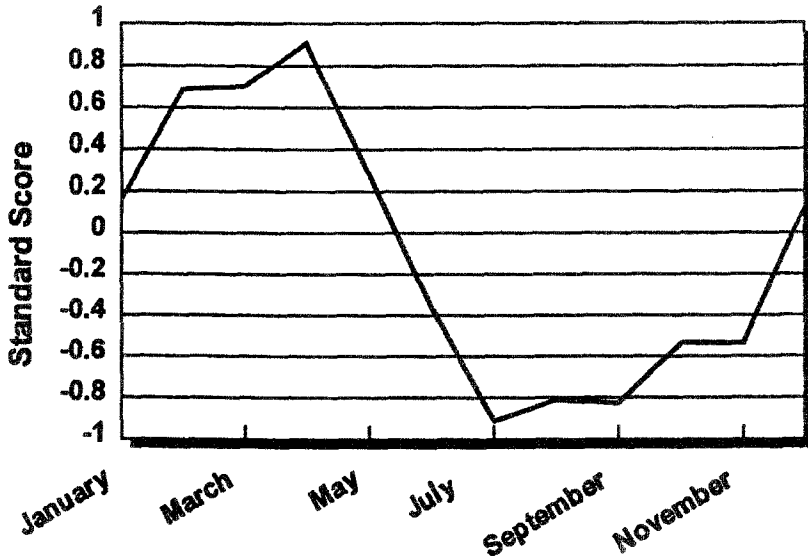


Figure 1. Mean Standard Scores of Recruitment

For this study, test–retest reliability was assessed for the income questions of the RBA. As stated previously, the RBA has been found to have good test–retest reliability on the drug use and sex risk items and validity on the drug use items. Responses to the item asking for the amount of income received during the last 30 days (How much money did you get altogether in the last 30 days?) were recoded to indicate consistent, increased, or decreased reported income. Most participants (80%) were consistent in their reporting of income amount from initial intake session to six-month follow-up. For the participants who were inconsistent, the McNemar change test (Siegal 1956), corrected for continuity, revealed no significant bias to either over- or underreport at follow-up. Agreement between initial intake and six-month follow-up responses to sources of income (In the last 30 days, what were your sources of income?) ranged from 83.5 percent to 99.5 percent. Kappa coefficients for the 10 possible choices for sources of income that could be identified by participants ranged from .38 to .93, with an average coefficient of .74. When asked to identify what best described their current work situation, 85.6 percent of the respondents gave the same response at both interview sessions. We have recently published a more in-depth discussion of the reliability and validity of the RBA economics and income variables (Johnson, Fisher, and Reynolds 1999).

Using aggregated mean numbers of those recruited for each calendar month of the year, a transformed *z* score was obtained and mean monthly *z*

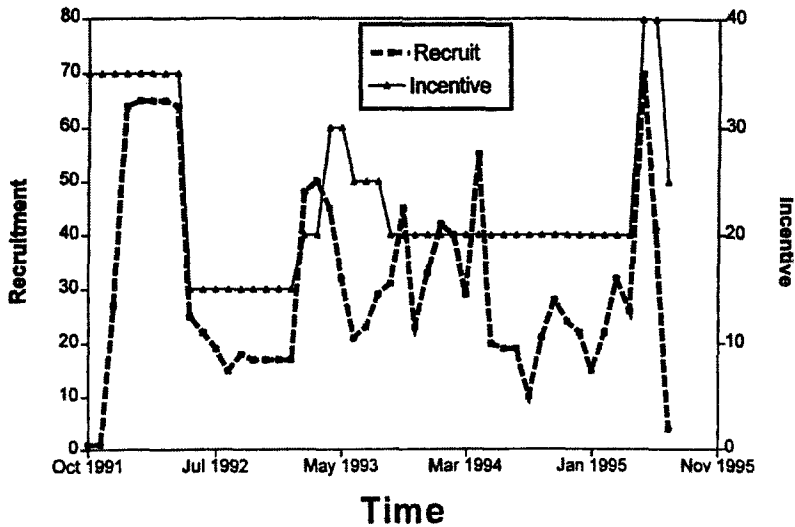


Figure 2. Recruitment by Incentive Over Time

scores were plotted (see Figure 1). Based on the visual pattern of the plots of the z scores, December through May were grouped conceptually together as winter months. June through November were grouped as non-winter months. Monthly data were then recoded as either winter or non-winter for the analyses.

Using the PROC AUTOREG procedure (SAS Institute Inc. 1991), regression analysis was performed on the aggregated monthly data using the number of recruits as the dependent variable. This procedure provides maximum likelihood estimates for time series data in addition to ordinary least squares estimates, so that serial correlation may be controlled. Aggregated independent variables obtained from the RBA were *income* (the percentage of recruits in each month whose monthly income was less than \$500), *job* (the percentage of recruits each month who had no income from a job), *pubassist* (the percentage of recruits each month receiving public assistance), *unemcomp* (the percentage who received unemployment compensation), *illegal* (the percentage who had income from illegal sources each month), *full-time* (the percentage of recruits who were employed full-time), and *homeless* (the percentage of recruits each month who considered themselves to be homeless). Macro-variables on incentive payments and local unemployment rates, and a dummy coded seasonality variable were also used in the analyses as independent variables. One-variable models were estimated for each of the variables, and model building continued based on empirical results.

Table 2. Results of Regression Analysis

Variables	Coefficient	Standard Error	t value
One Variable Model			
Intercept	0.21	7.37	.03
Incentive 1	1.32	.33	4.24*
Main Effects Model			
Intercept	-4.17	7.27	.57
Incentive 1	1.24	.29	4.20*
Seasonality	11.63	4.28	2.72*

Note: * $p < .001$.

Table 3. Results of Regression Analysis—Model with Interaction

Variables	Coefficient	Standard Error	t value
Intercept	14.52	8.06	1.61
Incentive 1	0.33	0.34	.85
Seasonality	21.15	10.80	-1.88
Incentive 1 × Seasonality	1.54	0.45	3.24*

Notes: * $p < .0026$.
 $R^2 = .70$.

Akaikes’s (1974) Information Criterion (AIC) statistics were examined in order to obtain a parsimonious model.

RESULTS

Incentive payment at initial intake (Incentive One) had some predictive value in a single variable model (see Table 2) where total monthly recruitment was the dependent variable. Total monthly recruitment was plotted against the rates of Incentive One over time and a correlation between the two can be seen in Figure 2. However, the inclusion of the seasonality variable and an interaction term comprised of incentive at intake and seasonality produced the best fitting model (see Table 3). This model indicates no significant main effects when both seasonality and Incentive One are present in the model, but a very strong interaction effect exists between the two variables. This model is preferred to a model with only main effects terms (Table 2). The Durbin-Watson (DW) statistic (Durbin and Watson 1951) was examined for correlation of the residuals. For the interaction model the DW is 1.79, indicating that correlation of the residuals has been adequately controlled for ($df = 47$, $k = 4$, $d_L = 1.38$, $d_U = 1.72$). No other variables were significant at the $p < .05$ level.

CONCLUSION

The current results support the findings of Deren et al. (1994) that the use of monetary incentives effectively enhances recruiting difficult-to-reach drug users and that rates of recruitment are related to the amount of the incentive. All other variables, such as level of income, source of income, or current work situation were not associated with recruitment.

Our findings disconfirm the premise that targeted sampling as a recruitment strategy produces a bias toward "unemployed and under-class injecting drug users" (Watters and Biernacki 1989). That is, as the percentage of respondents per month whose income was less than \$500 was included in the analysis and found to be nonsignificant, the cash incentive appeared to have value to all participants, not just to those with low monthly incomes. Restriction in the range of the income variable, however, raises one caveat. While subjects indicated incomes ranging from less than \$500 per month to over \$4,000 per month, and the variable dichotomizes to a natural break at less than \$500 or greater than \$500, overall numbers indicating income in the higher ranges are fewer than those in the lower range.

Incentive Two (the incentive offered at Time One, Session 2) was larger than Incentive One. While Incentive Two did not predict recruitment, it did make a difference in the number of individuals returning at Session 2 for test results. This implies that a monetary incentive is also important for follow-up activities, but the promise of future payments is not predictive of initial participation in research. Desmond et al. (1995) have noted that having good, accurate locator information on subjects once they have been recruited is the best way to maintain follow-up compliance.

Consistent with our hypothesis, we found strong seasonal differences in participant recruitment which may be the result of unemployment trends. Higher numbers of individuals were recruited in the winter and spring months (November, December, January, February, March, and April) than during the summer months. The differences were most likely due to the seasonal nature of the Alaskan economy. Specifically, a distinct decline in mean recruitment beginning in May and continuing through the summer months, as illustrated by Figure 1, mirrors the increase in seasonal employment opportunities in tourism and the construction, fishing, and timber industries. A corresponding increase in recruitment beginning in December would reflect the end of the seasonal employment period, which can be seen to decrease gradually in the fall months of September and October, finally fading as winter progresses. It is possible that drug users take advantage of employment opportunities during those months of the year when they exist, and use wage earnings to carry them through the late summer months and into the fall. As savings and earnings are depleted, they look for other sources of income. At the same time they are experiencing reduced employment due to the seasonality of the work cycle, they may be using drugs due to increased leisure time. This may be further substantiated by the finding of Cagle et al. (1998) who found that

male drug users in Anchorage were over three times more likely to be receiving unemployment compensation than female drug users. To receive unemployment assistance, applicants must have been employed in the very recent past. The strong effect of the interaction term suggests this relationship between the seasonal nature of employment, in addition to the basic efficacy of a monetary incentive. Additionally, the increased amount of free time available to individuals when they are unemployed may increase participation because they have no other demands being made on their time.

There are several limitations to this study. The first is the relatively small number of months (47) available for the analysis. Generally, a minimum of 60 months of data are used in this type of analysis. The second lies in the nature of the aggregated data. Aggregating micro-level data to monthly levels may cause a loss of information as the patterns of recruitment for various subgroups are collapsed into one total recruitment number for each month of the study. The RBA has approximately 365 variables, and this study was restricted to economic and income variables, which may have caused us to miss other relationships that may be worth further exploration.

One area for further research is that of drug use and labor force participation. If out-of-treatment drug users are participating in the workforce, even intermittently as in the case of seasonal employment, this is of interest as a covariate that may have additional explanatory value in explicating recruitment patterns. The basic findings, however, are consistent with other research. Incentives are important tools in social science research and they work in the recruitment of hidden populations into research.

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COMMUNITY ORGANIZATION AND DRUG PREVENTION READINESS

Mark Peyrot and H. Lovell Smith

ABSTRACT

This paper examines the determinants of neighborhood readiness to engage in collective action for substance abuse prevention. Factors investigated include community composition (characteristics such as SES, presence of children, racial composition), community context (drug problems and police resources), and community organization (formal neighborhood association functioning, informal neighboring, collective activities). Data were obtained from 188 community leaders who reported about their neighborhood, and census data were aggregated to the neighborhood level. Community composition and context factors had opposite effects on formal and informal neighborhood organization: SES was positively associated with informal neighboring and negatively associated with formal organization, while drug problem severity was negatively associated with informal neighboring and positively associated with formal organization. Yet, formal and informal organization were positively associated with one another, and both were positively associated with perceived readiness of the neighborhood to engage in additional drug prevention activities in the future.

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INTRODUCTION

Substance abuse has been recognized as a major public health problem. Abuse of alcohol, tobacco, and other drugs has been linked to a number of health problems (psychiatric illnesses, HIV/AIDS, cirrhosis, cardiovascular disease, overdoses, and others) which in turn are associated with increased mortality. The illegal drug trade is an ecological health risk factor for the communities where it is located because of its involvement with violent crime, leading to further injuries and deaths. In the face of this situation there have been major societal efforts to treat and prevent substance abuse.

Most substance abuse prevention efforts target specific at-risk populations, generally at the individual level of intervention. More recently, prevention efforts have become more community oriented, targeting cities and neighborhoods rather than individuals (Goodman et al. 1993; Kaftarian and Hansen 1994). A number of authors suggest that community self-help and grassroots mobilization is an important component of the remedy for conditions of social disorder (Gates and Rohe 1987; Lavrakas 1985; Lewis and Salem 1986; Skogan and Maxfield 1981). Our study focuses on the factors associated with micro-community (neighborhood) efforts to mobilize for collective action to control drug use, drug sales, and the associated criminal activity. We use the term "drug prevention" as an umbrella term to cover all these activities. These efforts include primary prevention activities directed toward community residents (e.g., youth recreation programs), neighborhood improvements (e.g., clean-ups), and prevention of drug-related crime such as trafficking and robbery in the local neighborhood (e.g., citizen patrol). The latter activities may only move the drug problem to another area rather than eliminating it, but this relocation solves the problem from the perspective of a neighborhood's residents.

The present study focuses on factors which can affect communities' readiness to engage in collective action for drug prevention (Bukoski and Amsel 1994; Donnermeyer et al. 1997; Oetting et al. 1995). Most research on community prevention readiness does not measure it directly, conceptualizing it in terms of factors hypothesized to increase community ability and willingness for collective action (Donnermeyer et al. 1997; Oetting et al. 1995). However, in order to determine whether these factors actually do influence prevention readiness, we need an independent measure of readiness which is not confounded with other, potentially causative factors. Therefore, readiness is operationalized by key informant estimates of residents' interest or willingness to take part in collective action (Peyrot and Smith 1998).

Model and Hypotheses

Our work (Peyrot and Smith 1998) posits a multi-factorial model (see Figure 1) in which community prevention readiness is a function of community composi-

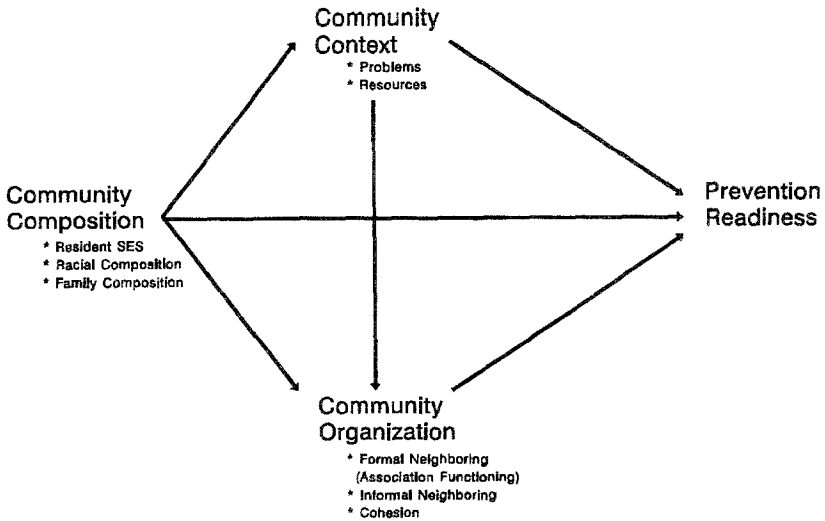


Figure 1. Model of Neighborhood Prevention Readiness

tion (the socio-demographic characteristics of residents), community context (problems and resources), and community organization (informal neighboring activities and characteristics of formal neighborhood associations). Below we describe the existing research on these factors and their relationships with one another and with mobilization and/or readiness. This review is used to formulate the hypotheses to be tested.

Community Composition

Several studies have examined how community composition affects neighborhood ties (reflected either as affect for the community or as informal neighboring activities). Residential stability (occupancy rate, percentage or duration of home ownership, duration of residence) is associated with stronger neighborhood ties (Kasarda and Janowitz 1974; Robinson and Wilkinson 1995; Sampson 1992; Taylor 1996). Being married and having children, factors that may increase residential stability, also have a positive association with neighborhood ties (Glynn 1981; Riger and Lavrakas 1981; Robinson and Wilkinson 1995).

Findings are mixed regarding the effects of indicators of socioeconomic status (SES) such as income and education. Relationships sometimes are significant (positive or negative) and other times nonsignificant (Buckner 1988; Crenson 1983; Davidson and Cotter 1986; Gerson et al. 1977; Hartnagel 1979; Hunter 1974; Robinson and Wilkinson 1995; Taylor 1996; Taylor et al. 1984). Findings

for demographic factors such as race and age also are inconsistent (Crenson 1983; Gerson et al. 1977; Hartnagel 1979; Hunter 1974; Taylor 1996; Taylor et al. 1984), but it is difficult to separate out their effects because SES tends to confound their effects. Within our model, SES is hypothesized to have a negative effect on readiness, in part because high SES neighborhoods need problem-oriented collective action less. In our earlier test of this model we found that neighborhoods with low concentrations of African-Americans had lower readiness (Peyrot and Smith 1998); thus, we hypothesize that African-American neighborhoods have higher readiness.

Community Context

One major component of community context is the social problems in the neighborhood. Some research has found negative effects of community problems (Bursik and Grasmick 1993; Skogan 1990; Taylor 1996; Taylor et al. 1985), while other has found positive effects (Gates and Rohe 1987; Hartnagel 1979; Riger et al. 1981). Our model hypothesizes that these effects are both direct (increasing perceived need for prevention readiness) and indirect (problem severity reduces community ties, and thereby reduces readiness). Our previous research (Peyrot and Smith 1998) has supported the hypothesis, but has identified an additional indirect effect. That is, drug problem severity increases formal organization activity. Neighborhoods with more severe drug problems have more neighborhood association activities and neighborhood collective action. In our model the hypothesized net effect of drug problem severity on readiness is positive, that is, it is an indicator of the need for collective action.

Community context also includes resources for dealing with community problems, such as businesses and local government agencies. These organizations are corporate actors which can take actions that effect the community. Businesses have interest in maintaining and developing the neighborhood and can contribute time and money to community mobilization efforts, thereby enhancing the effectiveness of neighborhood associations (Mesch and Schwirian 1996). Police can be another resource, but may be seen as part of the problem rather than part of the solution. In our previous research (Peyrot and Smith 1998) we found that police activity had positive effects on informal community organization, but was associated with a reduced level of prevention readiness. Police activity seems to substitute for formal self-help activity, while at the same time increasing community ties.

Community Organization

Informal community organization consists of the personal networks of residents. Several studies have shown that community involvement is associated with residents' ties to the neighborhood (Buckner 1988; Davidson and Cotter 1986; McMillan and Chavis 1986; Taylor 1996). While much previous work has exam-

ined the effect of sentiments of attachment, in this paper we focus on neighboring activities such as the exchange of favors and helping in emergencies. Our hypothesis is that these activities will be positively related to formal neighborhood organization and prevention readiness.

Our approach suggests that formal neighborhood organization also is important to mobilization. Our model operationalizes formal neighborhood organization in terms of neighborhood associations, which may be incorporated as nonprofit organizations or as quasi-formal organizations. Neighborhood associations can sponsor collective drug prevention activity such as block watches, community cleanups, and vigils. Neighborhood associations can act on behalf of the communities that they represent and serve as a resource for residents' initiation of collective action (Suttles 1972). These organizations may use grassroots political organizing to mobilize neighborhood residents and corporate actors for self-help projects or to obtain resources from local government.

Neighborhood associations can address the needs of residents at a collective level and can be effective in doing so (Kotler 1979; Perlman 1976). The success of these organizations is a function of their formal structure, including the role of elected officers, and the level of organizational functioning, including the frequency of organizational meetings and the number of activities implemented (Knoke 1990; Mesch and Schwirian 1996; Oropesa 1989; Peyrot and Smith 1998). We hypothesize that the number of neighborhood officer positions and meeting frequency are associated positively with readiness.

Community mobilization consists of neighborhood-level collective action, including both problem-oriented activities such as block watches, vigils, and cleanups, and collective neighboring activities such as block parties and community gardens. These activities may be organized informally by groups of residents and receive sponsorship from the neighborhood association. This type of collective action results when a neighborhood has formal or informal leaders who are able to plan activities and mobilize residents, as well as residents who are willing to participate in these collective activities. Thus, the current level of collective action within a neighborhood is hypothesized to effect readiness to engage in subsequent collective action. Our earlier research (Peyrot and Smith 1998) supports this hypothesis.

Research Approach

To conduct multivariate analyses of neighborhood-level phenomena, we needed to study many neighborhoods. Other studies have examined multiple respondents within each neighborhood to estimate community characteristics. However, this approach severely limits the number of neighborhoods that can be studied, even when substantial funding is available. As an alternative, we used community leaders as key informants. In addition to avoiding the problem of aggregating individual responses to represent neighborhoods, key informants are

able to report about aspects of community organization that especially interested us. Several community studies use this method (Hagedorn et al. 1976; Oetting et al. 1995; Shinn 1990; Warheit et al. 1977), including some with samples large enough to conduct multivariate analyses (e.g., Mesch and Schwirian 1996; Oropesa 1989; Perkins et al. 1990; Peyrot and Smith 1998). Data from this method have been found to be reliable; in a study of community prevention readiness key informants generally agreed in their ratings (Donnermeyer et al. 1997).

Another method for obtaining neighborhood-level data is to use census data. Generally this data is aggregated into an artificially constructed aggregation unit such as a census tract. A preferable strategy, which we employ, is to aggregate these data to the neighborhood level in order to characterize the residents living in a naturally occurring community. When both self-report and census data are available, some authors combine census and self-report data into single measures (e.g., Taylor 1996). This approach fails to take advantage of the differences in method-based measurement error. Using census measures to predict self-report measures reduces shared method variance across conceptual domains. Our use of different data sources increases confidence that the associations obtained in this study are meaningful.

METHODOLOGY

Survey Measures

In 1996 the Loyola College Center for Social and Community Research conducted telephone interviews of a sample of Baltimore City neighborhood leaders. The target sample was all officers of neighborhood associations listed in a directory published by the Baltimore City Planning Department. An earlier (1993) survey of over 400 Baltimore City neighborhood leaders had been conducted by the authors (Peyrot and Smith 1998). In order to have an independent sample, the current sample was selected to eliminate any leaders who had already been interviewed. Interviewers made up to five attempts to contact potential respondents, calling on five different days. Potential respondents could not be contacted for several reasons: no telephone number, or a bad number; no answer; the potential respondent was no longer at that number; the potential respondent lived at the residence but interviewers were unable to speak to him/her. Several persons could not be interviewed because the potential respondent was no longer an officer, or the organization no longer existed. Of potential respondents whose eligibility could be verified, the refusal rate in this survey was 15 percent. Interviewers completed 196 interviews. After eliminating those with partial data, we used 188 cases in the analysis.

Survey data were used to construct several measures (see Appendix). We used two measures of *community context*: availability of police services in the neigh-

neighborhood (two items, range = 0–3, alpha = .76) and severity of neighborhood drug problems (five items, range = 0–3, alpha = .94). There were several measures of *informal community organization*. One measure was a single item indicating the number of neighborhood-wide activities which took place in the last year. Informal neighboring was measured by the mean of three statements about social relationships among neighborhood residents (range = 1–5, alpha = .85); this variable was treated as a dependent variable in a separate analysis. There were two measures of *formal community organization*, including a single item indicating the number of positions in the neighborhood association. Neighborhood association activity level was measured by a single item indicating the number of annual open meetings; this variable was treated as a dependent variable in a separate analysis.

The ultimate dependent variable was *drug prevention readiness*. It was the sum of three items: a rating of how many residents would be willing to engage in substance abuse prevention (range = 1–5) and two items indicating the number of prevention activities in which the neighborhood would be interested (what substance abuse prevention activities do you think your neighbors would be most willing to take part in?; if your neighborhood had the necessary assistance, what other types of neighborhood strengthening activities would your neighbors be most interested in?).

Census Measures

All our indicators of *community composition* were derived from 1990 Census Bureau data which had been aggregated into neighborhoods ($N = 314$) by the Baltimore City Planning Department. These officially defined neighborhoods sometimes combined smaller neighborhoods identified by residents as being distinct. Thus, there could be more than one neighborhood association leader within a neighborhood defined by the Planning Department (the 188 respondents in this study represent 123 neighborhoods). We used the address of each respondent's home or organization to assign them to one of the formally defined neighborhoods according to boundaries identified by the Baltimore City Planning Department.

We created measures of community composition representing the percentage of respondents or households within a neighborhood that possessed some characteristic, or the mean or median value for residents. These include: family composition (% households married families, % households with a single parent, % aged 0–14), percent disabled, and race/ethnicity (% African-American). Several socioeconomic status measures (median household income, mean family income, per capita income, % employed aged 16–65, % not on public assistance, and % not in poverty) were combined into a multi-item scale (six items, alpha = .95). Because of the differences in item metrics, we generated a standardized factor score.

We also created a measure of neighborhood problems using census data. We computed a measure of physical and economic decline consisting of the percentage of housing units that were vacant.

Table 1. Descriptive Statistics

<i>Variable</i>	<i>Sample Mean</i>	<i>Sample SD</i>	<i>City Mean</i>	<i>City SD</i>
Married Parent	12.4	7.4	13.2	7.5
Single Parent	28.3	16.2	29.8	17.1
Children	18.9	6.7	20.2	7.9
Public Assistance	16.0	12.5	17.0	14.6
Poverty	20.1	14.6	21.0	16.9
Working	66.1	13.2	64.6	15.8
African-American	55.9	40.7	55.2	40.3
Disabled	14.8	5.8	14.4	7.0
Vacancy	8.6	6.1	8.3	7.7

Analysis

For bivariate analysis we used Pearson correlations; we defined significance as $p \leq 0.05$. For the multivariate analyses we used hierarchical stepwise multiple regression (OLS) to obtain separate models of formal and informal community organization and prevention readiness (Peyrot 1996). In the analyses we entered predictor variables in hierarchical blocks representing their causal ordering, from most exogenous to most endogenous: community composition (aggregated resident characteristics), community context (drug problems and police services), community organization (informal neighboring, neighborhood organization positions and meetings, neighborhood events). Within each block, variables were entered using a stepwise criterion; only variables significant at $p \leq 0.10$ were included in the models, and they were selected using the stepwise method (if a variable became significant when later control variables were entered, the analysis was rerun forcing the variable into the model in the appropriate block). The hierarchical nature of the analysis indicates that if a variable is significant when all variables not more endogenous have entered the model, its total effect is significant. A variable meeting this criterion was retained in the model even if the direct effect became nonsignificant when potential mediating factors were entered in the model.

We computed multi-item scale scores by taking the mean of all items in the scale. When items from a multi-item scale were missing we computed means using the remaining variables. If data were missing for a predictor variable, we imputed values by mean substitution. All census data were present for every neighborhood; however, in a few cases we could not place a respondent in a specific census-defined neighborhood because the address information was inadequate. In those cases all census data for the respondent were imputed by mean substitution. Cases which had missing values for a particular dependent variable were dropped from that analysis, but we included these cases in the analyses for other dependent variables.

Table 2. Bivariate Correlations

Category/Variable	Neighboring	Meeting Frequency	Readiness
Community Composition			
Married Parent	-.01	-.21**	-.18*
Single Parent	-.18*	.17*	.34**
Children	-.21**	.08	.29**
SES	.22**	-.28**	-.35**
African-American	-.16*	.15 [#]	.32**
Disabled	-.24**	.18*	.20**
Community Context			
Vacancy	-.22**	.13 [#]	.12
Drug Problems	-.27**	.34**	.33**
Police Services	.29**	-.07	-.13 [#]
Community Organization			
Neighboring	NA	.01	-.13 [#]
Positions	NA	.28**	.09
Meeting Frequency	NA	NA	.21**
Events	NA	NA	.20**

Notes: [#] $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.
 NA = Not Applicable.

RESULTS

Descriptive statistics for the neighborhoods in this study are presented in Table 1. For the purpose of comparison, parallel data for all census measures are presented for the full set of 314 Baltimore neighborhoods. Not shown in the table is the similarity in median family income (sample mean \pm SD = 32.8K \pm 17.4K versus citywide = 30.3K \pm 16.5K) and neighborhood size (sample median = 2,892 versus citywide = 2,530). These data indicate that the neighborhoods in the current study were similar to the full set of neighborhoods in Baltimore City.

Bivariate Analysis

Bivariate analyses are presented in Table 2. Neighboring activity (interpersonal ties) was associated with factors from both the community composition and community context domains. In terms of community composition, neighboring was positively related to SES ($r = .22$) and negatively related to prevalence of single parent households ($r = -.18$), number of households with children under 15 ($r = -.21$), percentage of population African-American ($r = -.16$), and number of disabled persons ($r = -.24$). Among community context factors, neighboring was negatively related to drug problem severity ($r = -.27$), vacancy rates ($r = -.22$), and positively related to availability of police services ($r = .29$).

Table 3. Regression Analysis of Informal Neighboring^a

Category/Variable	I	II
Community Composition		
Married Parent	-.20*	-.25**
Single Parent	—	—
Children	—	—
SES	.33***	.14
African-American	—	—
Disabled	—	—
Community Context		
Vacancy	—	-.22**
Drug Problems	—	-.18*
Police Services	—	.22**
R-squared	.07**	.19***

Notes: ^aStandardized regression coefficients.

$p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

The measure of neighborhood association activity to be treated as a dependent variable is the frequency of meetings open to all residents. Several community composition factors were associated with more frequent meetings, including lower SES ($r = -.28$), more single parent households ($r = .17$), fewer married parent households ($r = -.21$), and more disabled persons ($r = .18$). Among community context factors, only drug problem severity was related (positively) to meeting frequency ($r = .34$). There also was a positive relationship with another aspect of community organization, number of neighborhood association officer positions ($r = .28$).

Variables from all three domains were correlated with neighborhood readiness. Higher readiness was related to lower SES ($r = -.35$), fewer married parent households ($r = -.18$), more single parent households ($r = .34$), more households with children under 15 ($r = .29$), higher percent African-American ($r = .32$), and more disabled ($r = .20$). Only one community context factor was related to readiness; drug problem severity was positively associated ($r = .33$). Among community organization factors higher readiness was associated with more frequent neighborhood association meetings ($r = .21$) and more neighborhood-wide events ($r = .20$).

In addition to the specific associations noted above, one larger pattern emerged. When the signs of the correlations with neighborhood readiness and meeting frequency are compared with those for neighboring activity, they are opposite; positive becomes negative and vice-versa. Not all relationships were significant, but where they were significant they were in opposite directions.

Table 4. Regression Analysis of Meeting Frequency^a

Category/Variable	I	II	III
Community Composition			
Married Parent	—	—	—
Single Parent	-.07	-.17	-.17 [#]
Children	—	—	—
SES	-.33***	-.25*	-.25**
African-American	—	—	—
Disabled	—	—	—
Community Context			
Vacancy	—	—	—
Drug Problems	—	.30***	.37***
Police Services	—	—	—
Community Organization			
Neighboring Positions	—	—	.12 [#] .32***
R-squared	.08***	.14***	.25***

Notes: ^aStandardized regression coefficients.

[#] $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Multivariate Analysis

Tables 3 through 5 present the results of the regression analyses. The hierarchical results reveal how much variance in each dependent variable were accounted for by each set of variables, and indicate the strength of the relationships when other variables at each stage are included in the model. Shown in the far right column are the final coefficients after all variables that met the criteria were entered; these represent the direct relationships with the dependent variables.

In general, results of the multivariate analyses parallel those of the bivariate analyses. The major difference was that fewer variables were significant in the multivariate analyses, indicating confounding among these variables. Most of the confounding involved community composition variables, for example, number of single parent households, number of married parent households, and number of children. Amount of disability was correlated with readiness and both indicators of community organization, but was not significant in any of the multivariate analyses. Inspection of the stepwise results indicates that disability was confounded with SES.

The bivariate relationship between interpersonal neighboring activity and neighborhood association activity was nonsignificant, but the relationship was significant in the multivariate analysis of meeting frequency. Inspection of the

Table 5. Regression Analysis of Prevention Readiness^a

Category/Variable	I	II	III
Community Composition			
Married Parent	—	—	—
Single Parent	—	—	—
Children	—	—	—
SES	-.24**	-.17 [#]	-.17 [#]
African-American	.16 [#]	.13	.16 [#]
Disabled	—	—	—
Community Context			
Vacancy	—	—	—
Drug Problems	-.19*	.18*	—
Police Services	—	—	—
Community Organization			
Neighboring	—	—	—
Positions	—	—	.10
Meeting Frequency	—	—	—
Events	—	—	.20**
R-squared	.14***	.16***	.21***

Notes: ^aStandardized regression coefficients.

[#] $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

hierarchical results shows that this is because the two measures of community organization were significantly related to drug problem severity in the opposite direction; when drug problem severity was controlled, the underlying positive relationship between the two elements of community organization was revealed.

Because the analysis was hierarchical, variables significant at entry were retained even if the direct effect became nonsignificant when potential mediating factors were entered. This happened in two instances. In the analysis of interpersonal neighboring, SES had a highly significant relationship at entry, which was maintained until drug problem severity was entered into the model. The effect of SES then became nonsignificant, indicating that drug problem severity mediated almost one-half of its effect. In the analysis of readiness, number of neighborhood association officer positions had a significant positive relationship that was reduced to nonsignificance when number of neighborhood events was entered into the model, indicating that frequency of events mediated the effect of association leadership positions.

In the analysis of meeting frequency, single parent households had a significant positive zero-order correlation, but a significant negative regression coefficient in the multivariate analysis. Sign reversal is an unusual statistical phenomenon

which suggests that this finding must be viewed with caution. One possible explanation is multicollinearity, but controlling for factors confounded with single parent households could reverse the sign of the coefficient without multicollinearity.

DISCUSSION

The study findings support our conceptual model of community organization and drug prevention readiness. Prevention readiness was significantly related to each set of factors in our model and community organization was related to community composition and community context. Moreover, relationships observed in this study are similar to those obtained in a study using the same measures with a different study population drawn from the same urban locale. At least within Baltimore, this model seems to provide reliable insight into these particular aspects of community functioning.

The results of this study suggest that particular variables have pervasive effects. Almost all of the variables had at least one significant relationship with formal or informal organization or readiness, and these relationships were in the direction predicted by the model. Most of these factors had significant relationships (bivariate or multivariate) with all three outcomes. Although many of these factors had pervasive effects, their effects on different dependent variables were in opposite directions. Of those factors which affected all three outcomes, the sign of the relationships with neighboring and meeting frequency were reversed in every instance. A factor which increased neighboring reduced meeting frequency, and vice versa. These findings represent something of a paradox: although the signs for relationships with other factors are opposite, the variables themselves are positively associated in the multivariate analysis (but not in the bivariate analysis where their relationship is nonsignificant). These findings replicate what we found in our earlier study (Peyrot and Smith 1998), suggesting that they are not artifacts.

The pattern of opposite relationships with other factors explains why the zero-order relationship between formal and informal neighborhood organization was nonsignificant. The exogenous factors generate a negative correlation between these factors, for example, in high SES neighborhoods informal neighboring activity was high but formal neighborhood organization was low. This component of their relationship is *spurious*, that is, another variable caused them to covary. On the other hand, after statistically eliminating this spurious relationship the remaining relationship (presumed to be causal) is positive; informal neighboring creates interpersonal ties which supported neighborhood association activity. The zero-order correlation combined these two offsetting effects, which canceled each other out. Thus, the multivariate analysis reveals the potential causal relationship and should be taken as the definitive analysis.

For each of the composition and context factors associated with meeting frequency and prevention readiness, the signs were the same. Moreover, the zero-order relationship between readiness and meeting frequency was positive. Conversely, informal neighboring was negatively associated with readiness and the relationships of these outcomes with other factors were opposite in sign. While neither informal neighboring nor meeting frequency were associated with readiness in the multivariate analysis, another indicator of formal neighborhood organization (neighborhood association officer positions) had a significant positive relationship. This suggests that formal neighborhood organization was viewed by neighborhood leaders as more important for readiness than was informal neighborhood organization. Still more important is the existing level of collective action.

Some of these results were ambiguous, especially when compared to those from our earlier study. Family composition had inconsistent effects, and the relationship of single parent households with readiness reversed signs between bivariate and multivariate analyses. This paper separated abandoned housing from drug problems and showed that each had a negative effect on neighboring. Our earlier study had shown that police services were related not only to increased neighboring, but also to reduced readiness. Although the latter relationship in this paper was not significant, the bivariate relationship was larger than in the earlier study.

Overall, the multivariate findings regarding specific determinants of drug prevention readiness supported our hypotheses. High SES neighborhoods had lower mobilization readiness, in part because of the lack of a perceived need to do so as reflected in lower drug problem severity. SES also has a modest negative direct effect on readiness; low SES neighborhoods may be more pessimistic about others acting to help them overcome their drug problems. African-American neighborhoods were more ready to take action. This may reflect a more collective orientation among African-Americans, especially following civil rights organizing efforts and the political activity of African-American churches. Formal neighborhood organization and current level of neighborhood activity were associated with greater readiness for future prevention activity. The replication of this finding from Peyrot and Smith (1998) suggests that community social organization represents a central phenomenon for future research on community action.

One interesting finding emerged from some supplementary analyses we conducted. We examined whether the number of persons attending neighborhood events or association meetings were associated with readiness. Neither of these variables was associated with readiness even though each was associated positively with its corresponding attendance opportunity. This suggests that the key influence on readiness (as it is measured in this study) was the level of social organization rather than the aggregate participation of individuals. Thus, it would be inappropriate to reduce *neighborhood* readiness to *neighbor* readiness.

Limitations

Because this research was cross-sectional, the inference of causality is open to question, as is the proposed direction of causality. An initial effort to disentangle the nexus of potentially spurious and reciprocal effects suggests that the proposed model is not incorrect, although the estimates of parameter size are not precise (Peyrot and Smith 1997). The measures used here seem to have adequate reliability and/or validity, although a number of additional factors could have been investigated. Elsewhere, we have discussed the measurement and analysis issues more extensively (Peyrot and Smith 1998).

Conclusion

Substance abuse is a major social problem. In this research we have taken a public health approach to the problem, focusing on one protective factor at the level of the micro-community—neighborhood readiness to engage in drug prevention. We have seen that several factors—neighborhood composition, needs and resources, and formal and informal organization—affect prevention readiness. Other research (Peyrot and Smith 1997) has suggested that readiness is prospectively associated with increased neighborhood prevention activity and that prevention activity is prospectively associated with reduction in drug problem severity. Efforts to stimulate and support neighborhood drug prevention activity may represent one of the important public health frontiers in the near future.

APPENDIX: DESCRIPTION OF MEASURES

Problem Severity: (0 = Not at all, 1 = Minor, 2 = Moderate, 3 = Serious)

- Drug-related violent crime.
- Use of illegal drugs by school age children and teens.
- Use of illegal drugs by adults.
- Sale of drugs in 'open air' drug markets.
- Houses where drugs are sold and used.

Police Service Availability: (0 = Not at all, 1 = Little, 2 = Somewhat, 3 = Very)

- Police patrolling.
- Police response to resident calls.

Neighboring: (1= Almost none, 2 = Few, 3 = Some, 4 = Many, 5 = Most)

- How many (people in your neighborhood) have several friends among their neighbors?
- How many (people in your neighborhood) have neighbors that they exchange favors with?

How many (people in your neighborhood) have neighbors that would help them in an emergency?

Readiness:

How many (people in your neighborhood) would be willing to join in neighborhood substance abuse prevention activities? (Same scale as Neighboring items)

What substance abuse prevention activities do you think your neighbors would be most willing to take part in? (Count of activities)

If your neighborhood had the necessary assistance, what other types of neighborhood strengthening activities would your neighbors be most interested in? (Count of activities)

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THE TRANSFORMATION OF PRIVATE ALCOHOL PROBLEM TREATMENT RESULTS OF A NATIONAL STUDY

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ABSTRACT

Private alcohol problem treatment in the United States arose from a social movement that began after Prohibition and culminated in the founding of the National Institute on Alcohol Abuse and Alcoholism in 1970. Using a treatment model that incorporated much of the ideology of Alcoholics Anonymous, an isomorphic set of private treatment centers grew rapidly across the country with support and assistance from NIAAA. As this support diminished and cost containment emerged, a crisis struck the population of treatment centers, leading to many closures. Nonetheless, most of the centers have survived. This chapter uses data from a national longitudinal study of privately funded alcohol problem treatment centers to illustrate the transformation of the treatment industry during the 1990s. We argue that this transformation results from an increased difficulty in obtaining treatment funding due to the health care cost-containment practices of managed care.

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INTRODUCTION

Privatized systems for the treatment of alcohol problems arose amidst the remarkable transformations and turbulence that have characterized the organization of the American health care system over the past 20 years. While only one of many organizational actors in this complex drama, private alcohol problem treatment offers rich research opportunities to study the effect of these transformations. In curious and important ways, this subset of the American health care system captures many of the major changes that began more than a decade ago and which continue into the present (Scott 1995). Examples of how private alcohol problem treatment plays into these changes include the following.

1. Alcohol problem behaviors constitute the “paradigm case” of the medicalization of deviance, as reflected in the addition of these behaviors to the “symptoms” and illnesses that are eligible for insurance reimbursement.
2. While the genesis of all private alcohol problem treatment organizations reflect some degree of entrepreneurship, their history also reflects an erratic and ambivalent public–private partnership in the delivery of health care. Today’s private alcohol problem treatment system likely would not exist in its present form without substantial government support through legislation and public funding.
3. Alcohol treatment organizations notably have foreshadowed broader trends through their keen competition with one another for patients, often leading to formalized internal marketing components. Patient competition and proactive marketing now have spread throughout the medical care system, and to some extent includes the public sector.
4. Alcohol problem treatment provides a clear example of the introduction of new and previously controversial services into mainstream medical care, especially the modalities of 12-step programming.
5. Alcohol problem treatment system’s staffing occurs with minimal involvement by the traditional health care professions of medicine and nursing. Instead, new “counseling” occupations and indigenous nonprofessionals (i.e., recovering alcoholics) dominate.
6. Private alcohol problem treatment is an excellent laboratory for examining the interrelationships of emergent forces coalescing as “managed care.” Early managed care efforts clearly targeted private alcohol problem treatment and, arguably achieved considerable success.

The issues regarding technology and staffing are intertwined with the impact of managed care. A bit of elaboration will help clarify the context for the remainder of this chapter. The social history of alcohol problem treatment may foreshadow what will distinguish “medical care” from “complementary and alternative medicine” in the future. One of the major discontinuities between alcohol problem

treatment and other kinds of medical care is that it is “non-mystified,” easily understood and described, and thus open to public scrutiny and criticism. The techniques of intervention are almost totally verbal, a far cry from the mysterious (and seemingly miraculous) elements of high technology that are both the boon and the bane of much of American medical care. In common parlance, alcohol problem treatment in most ways falls short of even being “low-tech,” to the point of being “no-tech.”

Experience with alcohol and alcohol problems among the general public is an important element in the non-mystification of alcohol problem treatment. Most American adults use alcohol and/or know people who are dependent or addicted to it. Thus a multitude of “data” in public discourse describes and defines what addiction and dependence “are” and what steps are necessary to alter such behaviors.

Alcohol problem treatment is part of a larger sector of the health care system collectively identified as “behavioral health care.” While this sector has grown rapidly in recent decades, prospects for its future expansion are uncertain. Sociologists have engaged in exciting yet tedious debates over the interplay between culture, norms, the definition of deviance, and the transformation of deviance into illness (Conrad and Schneider 1980). More than one sociologist has experienced painful disappointment as seemingly brilliant insights about the “social construction of deviant drinking” and the “medicalization of alcoholism” seem to fall on deaf ears among the educated public, sometimes generating hostile reactions. These experiences demonstrate that the transformation of behavioral definitions is deeply embedded in American culture at both the micro- and macro-system levels.

In this chapter we offer some social history and descriptive characteristics of private alcohol problem treatment in the United States. We begin by reviewing some of the field’s historical background, then look briefly at the results of our first on-site research study carried out in the late 1980s. We then describe the methods of our ongoing longitudinal study of a nationally representative panel of private treatment centers and ways in which those centers are becoming embedded into the health care system.

PHASE ONE: THE SOCIAL EMERGENCE OF ALCOHOLISM TREATMENT

Contemporary private alcohol problem treatment centers have a direct lineage from the post-Repeal social movement intended to redefine America’s alcohol problem from a perceived need to control consumption of beverage alcohol to the necessity of viewing and treating alcoholism as a disease (cf. Wiener 1980). The disease concept is based, in part, on the ideology of Alcoholics Anonymous (AA) which holds that alcoholism stems from biological abnormalities beyond individ-

ual control. Countering this apparent physiological determinism is the premise that alcoholism's consequences may be socially controlled through adoption and adherence to AA's step-based program of group and spiritual support, centered on sustaining abstinence from alcohol (Trice and Roman 1970).

AA was founded in 1935 by William "Bill" Wilson and Dr. Robert "Bob" Smith. Once its therapeutic effectiveness was accepted, a number of influential members of the Fellowship desired to "spread the word." Their goal was to change American society's heretofore discouraging the image of addiction to alcohol as intractable and hopeless. Recognizing that AA as a recovery system would veer from its therapeutic goals if it became a vehicle for social change, these early AA members founded a social movement organization in 1943—the National Council for Alcoholism Education (later known as the National Council on Alcoholism [NCA]). Its missions were to promote: (a) the idea that alcoholism was a disease, (b) that it was treatable, and (c) that treatment should be "mainstreamed" into the health care system. NCA's goal in promulgating the disease concept is captured in its ultimate slogan of "treating alcoholism as a disease like any other."

A natural cornerstone of such mainstreaming entailed developing and expanding alcoholism treatment. Treatment for inebriates existed in the 1940s, but not in the form desired by NCA activists. From their earliest years, nearly all states had one or more public mental hospitals that would admit chronic inebriates, a legacy of the public asylums founded specifically for alcoholics in the second half of the nineteenth century (Baumohl and Room 1990). Admissions tended to be drawn from the margins of society, and few optimistic treatment regimens existed. The two primary treatment modalities consisted of "drying out" through detoxification or long-term custodial supervision for those with brain damage and other long-term sequelae who were unable to function in the community.

Psychiatric medicine controlled these facilities and were more or less "medicalized." Rather than push for the expansion of these forms of custodial care, the NCA promoted the opening of new public outpatient facilities, called "Yale Plan Clinics" in the 1940s and 1950s (Bacon and McCarthy 1948). This reference to Yale reflected the NCA's appropriation of a "courtesy prestige" through association with the Center of Alcohol Studies at Yale University. The Yale clinics were based on the AA approach, administered independently from the state hospital system, and their design implicitly pointed toward inclusion of "respectable" middle-class alcoholics, in sharp contrast to the "Skid Row bums" that were the core of the cultural imagery of alcoholism.

During the early twentieth century, a tiny number of private sanatoria for treatment of inebriates appeared idiosyncratically, more often than not coupled with delivery of private psychiatric treatment (White 1997). Such institutions were clouded in secrecy and reputed to serve paying clients from affluent social classes. Apparently they also provided little other than "drying-out," and little

evidence suggests that enhancing these centers was among the early goals of NCA.

While AA involvement can be considered a more or less “complete” treatment, its tenets take a friendly orientation toward combining its principles with clinic and hospital-based care. By the 1960s, several innovators had developed models of hospital treatment within public alcoholism treatment systems that included AA and were distinct from both the earlier custodial regimens in state hospitals and the “revolving door” facilities for public inebriates. Willmar State Hospital in Minnesota, for example, organized a unit for the treatment of alcoholism around the principles of AA, and innovatively combined it with residential treatment to enhance the recovery process. In addition to group AA experiences, patients also received individual counseling and education about the impact of alcohol on human organ systems. This “Minnesota Model” inpatient treatment regimen was designed to last 4 weeks and graduates were expected to maintain a life-long affiliation with AA. Meanwhile, the publicly funded Georgian Clinic in Atlanta developed a closely related concept centered on a therapeutic community model involving patients in the governance and operation of the residential treatment program. The NCA may have used these and other innovative centers, probably totaling less than 20 prior to 1965, as a public relations vehicle to demonstrate “progress” and add legitimacy to its quest for mainstreaming the treatment of alcoholism.

From its base as a voluntary organization with limited success at fund-raising, NCA leadership saw government sponsorship as key to gaining the resources for elevating the status of alcoholism to “a disease like any other.” Spearheaded through NCA, the movement’s first major treatment-related achievement in the public arena, the decriminalization of the public inebriate, slowly materialized from the late 1950s through the late 1960s. The resulting moral transformation of the alcoholic from “bad” to “sick,” viewed as highly significant at the time, was implemented through model Federal legislation that was promoted for adoption at the state level. Demonstrating that alcoholism treatment could remove apparently hopeless individuals from “revolving door” custodianship was viewed by some as a key step toward mainstreaming. Moving these persons from jail to treatment was seen as combining practicality with humanitarianism, and indeed it marshaled the public resources needed to establish a range of new public treatment facilities beyond those in state mental hospital systems.

The infusion of public monies into organizational foundations would seem to be a signal for major progress in establishing a system of treatment placing alcoholism on par with other disorders. But the literature of the time suggests that significant portions of NCA-related leadership saw these accomplishments as “two steps forward, one step back,” reifying the post-temperance image of the alcoholic as a socially marginal, nonproductive public inebriate. Clearly, the capture of public resources for decriminalization did not target the working and middle-class alcoholics who typically succeeded in AA. It is doubtful that these “respectable”

alcoholics would be attracted to inpatient care designed to serve public inebriates. Decriminalization was a limited and perhaps limiting organizational achievement relative to NCA's mainstreaming goals.

At around the same time, alcoholism identification and rehabilitation programs in the workplace began to slowly develop and expand in number (Trice 1959; Trice and Roman 1972; Trice and Schonbrunn 1981). This work attracted attention and funding from the Christopher D. Smithers Foundation, the founder of which was also a leader within NCA. To an extent, this stream of research and activity distanced itself from the public inebriates that were the target of decriminalization. Continuing enthusiasm for the success of the small but growing set of "Minnesota Model" treatment centers accompanied this interest.

PHASE TWO: FUELING THE PERIOD OF RAPID GROWTH

The decriminalization of alcoholism that AA philosophy sparked embodied many constituency-building opportunities. The disenfranchised typically have little power and attract few powerful advocates through which to launch collective action. Thus, while decriminalization may have been a vital sequential step in the construction of today's alcohol problem industry, it did not in and of itself spawn a large-scale or significant social movement.

To reach out to the disenfranchised, NCA leadership slowly evolved a different, unspoken, and probably more effective tack. This near-reversal of emphasis located alcoholism within all levels of social strata, but took pains to describe the public inebriate as a nonrepresentative tiny minority of the alcoholic population. Such recognition had its logical roots in the alcohol-as-disease concept. Obviously, if alcoholism was a biological disorder (a fundamental premise for both AA and NCA), it should be distributed throughout the population, not concentrated in a single socioeconomic group. Thus, the focus of the mainstreaming campaign was on identifying the nearly invisible, socially integrated "hidden alcoholic."

Responding to its own definitions, NCA leadership focused on strategies to most effectively reach the vast bulk of American alcoholics who were in the workforce, not on Skid Row. This new emphasis resulted in the launching of a four-prong campaign (Roman and Blum 1987).

1. The public had to be convinced that alcoholism was pernicious and pervasive, and could occur anywhere in the social structure. Logically this meant successfully arguing that the majority of alcoholics are "hidden," not receiving treatment, probably functioning at levels well below normal, and in doing so potentially jeopardizing themselves and their significant others.

2. Mechanisms were needed for treating these “respectable” alcoholics. Such facilities were clearly not those that had been constructed to serve the goal of decriminalization, so new facilities needed to be built.
3. To make treatment for alcoholism universally accessible, treatment costs needed to be covered in the same manner as other disorders. This required extension of health insurance coverage to include alcoholism.
4. The vast group of “hidden alcoholics” needed to be identified and directed into treatment. The workplace had great potential for this purpose. Workplace interventions, ultimately refined into employee assistance programs, became visible in a small but distinguished set of American corporations, and were promoted as the mechanism to provide patients for the new system of treatment.

On the last day of 1970, President Nixon signed legislation that established the National Institute on Alcohol Abuse and Alcoholism (NIAAA) as an agency within the Public Health Service charged with promoting research, prevention, and treatment of alcohol problems. Passage of this legislation and its implementation during the following decade may be seen as the climax of the NCA’s efforts.

Through the carefully designed titles of the enabling legislation (worked out between the alcoholism movement’s lobbyists and congressional staff), NIAAA was given a range of authorities that led to the progression of steps which ultimately institutionalized the treatment of alcoholism as a disease entity. This authority was accompanied by a substantial funding bill.

The promotion of treatment was the major thrust, emphasizing direct “formula” grants to the states to support the development of public treatment facilities. Growth of private treatment was facilitated by NIAAA’s indirect funding of lobbying for the passage of mandatory health insurance coverage for alcoholism at the state level, as well as by funding for the development or enhancement of numbers of “demonstration” private not-for-profit treatment centers geared toward treating working and middle-class alcoholics. This emphasis was enhanced by the establishment of a small but significant number of Minnesota Model treatment centers in the 1960s and 1970s, that offered sound models for further treatment center development. Private center development also was enhanced by NIAAA’s support in each state of workplace specialists who diffused prototypical concepts of EAPs to public and private employers (Roman 1975); the referrals generated by workplace programs would be natural candidates for the new and existing private treatment centers.

This pattern of development describes the peculiar role of the Federal government in health care during the 1970s. Stemming in part from “Great Society” ideology of the 1960s, wherein numerous programs were launched to improve the well-being of marginalized segments of society, there was institutional legitimacy in government involvement in the promotion of the population’s happiness and well-being. The vision of the community mental health movement sought to

extend the mental health services already available to the employed sector of the population to the economically disenfranchised. In perhaps a parallel fashion, Medicare provided the retired and nonworking elderly with the health care coverage available to the employed. These strategies differed from socialized medicine in that they were complements and supplements. The funding directed toward alcoholism treatment indicates a third strategy, the stimulant for private sector development in the form of private alcoholism treatment centers.

Employer-sponsored insurance coverage of working people and their dependents provided in many instances coverage for alcohol problem treatment. As such, it formed the essential fuel for the rapid growth of private alcoholism treatment centers that occurred from the mid-1970s through the late 1980s. Both dedicated members of the alcoholism community and outside entrepreneurs responded quickly by establishing private treatment centers. Coupled with insurance coverage, direct funding from both federal and state levels provided significant economic stimulus for the growth of private treatment. But while private center growth was a pivotal outcome of NIAAA's programming and funding, the agency's efforts were, in an economic sense, only an initial stimuli, not ongoing patronage.

PHASE THREE: GROWTH FOLLOWED BY CRISIS, ORGANIZATIONAL DECLINE, AND DEATH

The collection of private alcoholism treatment centers enjoyed growth, development, and apparently substantial income from approximately the late 1970s to the late 1980s. While other forms of medical care began to be affected by what were prototypes of managed care, alcoholism treatment initially avoided these impacts. A development-enhancing "sidestep" was the initial exclusion of alcoholism treatment from the Diagnostic Related Groups (DRGs) that capped Medicare payments for a great many treatments in general medicine. While DRGs initially affected only Medicare payments, they came to influence caps placed on payments for services by Medicaid and by private insurers.

No systematic research was conducted until late in the 1980s, but those data strongly suggest that through the 1970s centers emerged largely on the basis of serving geographically determined needs. The centers opening during this period almost universally followed the Minnesota Model. Local, regional, and national advertising emerged to diffuse the concept of inpatient treatment, and the mass media showed a slow but steadily increasing emphasis on the experiences of alcohol problem and recovery among celebrated personalities. The ascendance of inpatient treatment as the "paradigm" was reinforced by insurance regulations in many states, which suggested or prescribed coverage in group policies for inpatient treatment only. During the decade of the 1980s, and into the 1990s, however,

major and interrelated challenges to the centers' financial and organizational health emerged.

First was the initiation of a challenge to the relative efficacy of the residential treatment services that were the sole or central activity of most of these centers, that is, more or less a direct challenge to the Minnesota Model. A federally commissioned study (Saxe et al. 1983) found no evidence of advantages of this mode and duration of treatment over other types. What was initially implicit, but which rapidly became explicit, was the charge that the residential experience was far more expensive than was needed to produce the rate of successful client outcomes that could be inferred from research data. The challenge centered on the combined duration and residential nature of the treatment, which together generated the relatively high costs.

Problematic within these contentions, however, was the quality of supporting research data. Most published treatment evaluations were conducted on public sector programs, and these assessments typically were limited in terms of programs covered, time until follow-up, comparability of treatment effectiveness criteria across studies, and a lack of randomization in the placement of patients in different treatment regimens. Thus, from the perspective of residential treatment, equivalent outcomes among patients going through modest outpatient programs and intensive residential inpatient programs arguably could be explained by the poorer prognoses and greater treatment needs of the latter group. Such technical problems in research design did not lead to a dismissal of the issue of residential treatment's relative effectiveness, in part because better data existed upon which to argue the superior efficacy of inpatient care. Most studies indicated that factors other than treatment modality appeared more important in explaining observed treatment outcomes, especially patient motivation to change.

In a second and related challenge, attention was drawn to the costs of treatment. Beginning in the early 1980s, many employers experienced rapidly rising costs of health insurance coverage for their employees. Periods of economic recession in which costs for employee benefits were seen as amenable to the introduction of internal controls exacerbated this problem, particularly when compared to trying to manage market forces in the global economy. Employers' concerns were shared by third-party insurers, whose profits and competitive positions were adversely affected by rising costs. The dual concerns of employers and insurers slowly spread to managers in the public sector responsible for managing public payments for eligible clients receiving private health care. These factors contributed to what was defined as the health care reform crisis of the early 1990s. The costs of alcoholism treatment joined a general category of costs perceived to need scrutiny, evaluation, and likely reduction.

The prosperity and sanguinity of privately financed inpatient treatment for alcohol problems was short-lived. Residential inpatient care services provided by the relatively new set of private alcoholism treatment centers were under attack from two directions: efficacy and costs. Each line of attack bolstered the other. The

ascendant alternative was not abandonment of treatment, but less expensive services delivered in community-based outpatient care settings that were believed to produce the same pattern of results as inpatient care.

The rise of managed care has become an almost automatic explanation for any negative changes in health care systems during the 1980s and 1990s. While there is certainly credence to this explanation, it is offered without much specification of exactly what is the referent for "managed care." Furthermore, it is used as a superordinate explanation, overriding other possible factors. Finally, the assignment of dramatic impact to managed care subtly depicts health care organizations as helpless, passive, and without defenses.

While recognizing that managed care indeed put substantial limits on private alcoholism treatment, a more complete understanding may be found in considering their particular vulnerabilities to external challenges, including managed care. According to organizational theory, the potency of environmental challenges is affected by the extent to which organizations can buffer themselves from impacts. Health care organizations, like other organizations, typically use a number of resources to buffer environmental impacts. By contrast, several features of private alcoholism treatment centers, most of which are fairly unique, describe vulnerable and weak buffers to the challenges they faced.

First, compared to the extant inpatient facilities in publicly funded settings such as state hospitals and clinics, private residential alcoholism treatment was new on the health care scene. While the costs of inpatient care for 28 days were not large relative to the costs of such care in a general hospital setting, they were very high relative to the costs of no treatment or treatment in general medical care systems when treatment for problem drinking was disguised under other diagnoses. Although the centers received much publicity, along with numerous "social stars" who recovered in these centers, the larger culture's expectations and norms about appropriate medical care did not widely include alcohol problem inpatient treatment. As described earlier, American society contains sharp ambivalences toward alcoholism and its appropriate management (Blum et al. 1989). Inpatient care does not appeal to what Americans value as the best response to social and medical problems—the "quick fix." Finally (and ironically in light of the roots of NCA), inpatient care appeared expensive and elaborate when compared to participation in Alcoholics Anonymous, an alcohol problem treatment that had become widely accepted.

Second, these centers and their third-party payment support represented a significant mainstreaming of alcoholism treatment. Yet little evidence suggests that the treatment centers had established interdependent relationships with other parts of the health care system. Such interdependencies ("we need them") can buffer environmental challenges, with other parts of the system of medical care coming to their aid and advocating for their value. For example, alcoholism treatment centers could create interdependencies through receiving problematic referrals from emergency rooms or from primary care wards where patients' other medical care

needs were impeded by their untreated alcoholism. Partly because of the short organizational life of these centers, that is, a liability of their newness, little evidence exists of the development of such interdependencies.

Third, the NIAAA had engaged in several programmatic activities that enhanced the development of the private centers. Beginning in the 1980s, as part of a newly conservative government philosophy, Federal assistance of this sort shriveled dramatically (Smith and Lipsky 1993, p. 64). Particularly when coupled with cutbacks in insurance coverage, many centers were unprepared when faced with establishing lines of resource dependency in competitive and unpredictable environments.

Fourth, the treatment centers themselves had not developed a collective identity that was manifest in a trade association or other lobbying groups that could defend its unique interests, partly due to the variation in organizational ownership and sponsorship that precluded interaction among the centers' ownership. Very often, the interests of these second-level organizations were not likely coterminous with the interests of the alcoholism treatment centers.

Fifth, the low-tech or no-tech nature of the treatment centers' delivery system may have made them especially vulnerable to external challenges to their value. The treatment processes in residential treatment programs appear to be "talking cures." Such processes are readily comprehensible to any intelligent external observer. This evokes criticism of the "unnecessary" extent of residential stays. Further criticism resulted from the centers' own publicity efforts which drew attention to "luxurious" vernal and seaside settings, and extensive recreational facilities.

Sixth, because they were new, low-tech, noninstitutionalized, lacked a lobbying group, and were generally without support from other organizations, alcohol problem treatment centers were vulnerable to those charged with reducing costs for employers and insurers.

Seventh, the distribution of the population of centers reflected their rapid and generally unplanned growth from the late 1970s through the late 1980s. Both ecological and institutional theorists have argued that the density of a new organizational type can affirm its legitimacy and facilitate its institutionalization (Hannan and Freeman 1989). However, given certain contingencies, density may work in the opposite direction, reducing legitimacy because of perceived over-saturation and the suggestion of exploitation. The public may perceive a "barrage" of media advertising for multiple, duplicative alcoholism treatment centers. In addition, local physicians, other health care providers, and human resource managers in workplaces may become overwhelmed by direct marketing efforts. Because the number of reasonable candidates for alcoholism treatment is relatively small in any given area, the "dense presence" of treatment centers may undermine credibility, and cast them outside the mold of the typical passive, reactive health care delivery agency.

The source of many of the foregoing observations is a field research study initiated by the present authors in 1986 (Roman 1989). In this project we generated a sample of 125 private, hospital-based and freestanding centers, representing the full population of such centers in Georgia, and random samples of qualifying centers in Florida, California, Minnesota, and New York.

A goal of this study was to establish a typology of these centers and to explore their linkages with the environment, especially those that could provide them with patients. In light of these goals, the data were initially the source of considerable dismay, for we discovered that centers were practically identical to one another. Almost perfect isomorphism in the organization and delivery of services was found, following patterns of 28-day inpatient treatment, using 12-step principles as the foundation for treatment design, and targeting services toward clientele with appropriate health insurance coverage. The period of on-site data collection coincided with the time of "sanguine growth" described above. Most of the centers were prospering and few anticipated challenges to their strategies of organization and operation.

While the lack of variation within the data was initially discouraging, a continuing follow-up of the centers documented the existence of what was to be the beginning and the end of a major period of crisis. Just as the growth of the population of these centers was spectacular, their transformation occurred with almost equal rapidity. Following the initial field visits, we continued to track the centers in the study through telephone interviews on a semiannual basis. Through these follow-ups, we documented a dramatic number of closures, indicating that environmental conditions were failing to support many centers' existence. We observed nearly a 20 percent fatality rate in our sample of centers between 1989 and 1991.

We were far from alone in observing organizational death among private alcoholism treatment centers. High organizational mortality among these centers received wide publicity in both professional and mass media, although in both instances it was centered on anecdotes of closing centers rather than on data describing the actual incidence of organizational death. The extent of this publicity was so great that many in both the public and professional communities seem to believe that this genre of organization is practically extinct today.

Given the analysis of factors that created vulnerability and the general absence or weakness of buffers among treatment centers, their total or near-total demise might not be unexpected. While we observed very high mortality during the period that we have retrospectively labeled a crisis, however, the majority of the centers in our sample survived. Given the reasoning that has been presented, organizational survival among these centers is equally if not more curious than death. In an earlier analysis (Blum, Shane, and Roman 1997), we undertook event history analyses with Cox regression models to explain the pattern of organizational survival and death. Because structure and process varied so little across centers,

the focus of the analysis was upon differential patterns whereby treatment centers linked themselves with other organizations in their environments.

It might be expected that the greater the extent to which a treatment center was linked with other organizations as sources of treatment clients, the greater the likelihood of survival. Our analysis indicated, however, that even though organizational linkages are sources of clients, there is significant substantive variation among them. Indeed, some combinations of linkages could be "fatal." The analyses revealed that organizational death was significantly related to linkages wherein organizational stakeholders: (1) imposed costly and conflicting demands on the treatment organizations; (2) provided patients under numerous contingencies instead of providing them "munificently"; and (3) reduced the centers' autonomy in managing treatment service delivery.

PHASE FOUR: DIVERSIFICATION AND SURVIVAL

We first considered the rise of private alcoholism treatment via a small-scale social movement culminating in a model of inpatient treatment that incorporated much of the movement's AA-based ideology. We then saw this model providing the foundation for a broad-scale effort to rapidly diffuse and institutionalize private alcohol problem treatment. This prototype produced a substantial population of highly similar inpatient treatment centers which were, in turn, quite vulnerable to a series of environmental interventions designed to curb and control costs. A consequent health care cost reform resulted in the demise of a substantial portion of centers, a trend which has dominated imagery about private treatment centers to the misjudgment about their high rate of survival in this crisis. We now address this issue, the survival and modest growth of the private alcohol problem treatment enterprise that has occurred since the mid-1990s. Following a description of the methods utilized in a current research study of a nationally representative sample of private alcohol problem treatment centers, we provide descriptive and bivariate data to illustrate the transformation of private alcohol problem treatment over the past decade.

Methods

A joint effort of the University of Georgia and Georgia Institute of Technology, and funded by the NIAAA, the National Treatment Center Study is based on a nationally representative sample of 505 private sector alcohol problem treatment centers. Centers were selected from a stratified random sample of geographic areas throughout the United States. A second stage of random sampling occurred among the centers that existed within these geographic areas. Centers deemed eligible for inclusion in our study had to explicitly offer alcohol problem treatment

Table 1. Decade Founded by Number of FTEs
(percentages in parentheses)

	<i>Less than 20 FTEs</i>	<i>20-50 FTEs</i>	<i>50 or More FTEs</i>	<i>Total</i>
Pre-1970	10 (27.0)	10 (27.0)	17 (46.0)	37
1970-1979	35 (38.5)	36 (39.5)	20 (22.0)	91
1980-1989	105 (46.3)	72 (31.7)	50 (22.0)	227
1990-1995	57 (76.0)	9 (12.0)	9 (12.0)	75

Note: Chi-square = 41.65 ($p < .001$).

as one component of their services. In addition, an eligible center had to offer a level of care equivalent to Level 1, Level 2, or Level 3 programming as defined by the American Society for Addiction Medicine (ASAM). Practices involving individualized counseling by psychologists or LCSW's and detox-only facilities were not eligible for participation. Of those programs sampled meeting eligibility requirements, 89 percent (450) agreed to participate.

On-site interviews collected administrative, clinical, and marketing information. When possible, this information was collected from three separate individuals. Because of the small organizational structure of some programs, not all employed an individual assigned exclusively to marketing, and in most of these cases marketing data were collected from the center administrator.

We first describe the distribution of centers by size and age, and by the proportions of for-profit and not-for-profit centers. We then use organizational location and profit status to create a relatively simple typology of centers. Next, we consider the diversity of treatment services offered in these centers in the late 1990s and we look at approximate levels of diversity across centers of different age, size, and type. These data support our key point, namely the extent to which diversification has represented a survival strategy, and the extent to which the typical private alcohol problem treatment center has moved away from the singular pattern of 28-day inpatient treatment that characterized the late 1980s. We end the discussion by briefly examining the centers' apparent economic problems by type of center and compare treatment costs.

Centers' Organizational Characteristics

As mentioned earlier, the majority of the 450 centers included in our current research were founded during the 1980s (53.1%), with a smaller percentage

Table 2. Decade Founded by Profit Status
(percentages in parentheses)

	<i>Not-for-Profit</i>	<i>For-Profit</i>	<i>Total</i>
Pre-1970	23 (60.5)	15 (39.5)	38
1970-1979	72 (77.4)	21 (22.6)	93
1980-1989	148 (61.9)	91 (38.1)	239
1990-1995	40 (50.0)	40 (50.0)	80

Note: Chi-square = 14.29 ($p < .01$).

founded in the 1970s (20.7%) and 1990s (17.8%), and relatively few existing prior to 1970 (8.4%). In the past, the size of a program would have been measured by its number of beds. Today, the move toward outpatient treatment has made program size much more difficult to ascertain.

In assessing programmatic characteristics, any number of variables may be used as a proxy for size. While the number of beds remains an accepted indicator, this measure excludes those centers offering outpatient treatment only. Other possibilities include the patient capacity or slots available in outpatient services, the total number of employees, the number of FTEs, and the amount of revenues generated by the center. For our purposes, number of FTE's seems to best represent size because this number is available for all centers regardless of variations in the levels of care offered. The number of FTEs in our sample ranged from 1 to 612 with a mean of 38.2 FTEs and a median of 20.5 FTEs. Table 1 shows a cross-tabulation of number of FTEs by decade founded.

The relatively small size of the newer centers is of interest here. While nearly one-half of the centers existing prior to 1970 report employing more than 50 FTEs, the trend since then has been toward smaller centers. Examination of the four decades reveals that an increasing percentage of centers have fewer than 20 FTEs with more than three-fourths of the centers founded since 1990 falling into this category. This pattern may indicate increasing hesitation among those entering the treatment field to risk opening a large facility in the current fiscal environment. On the other hand, center size may be an indicator of survival likelihood. Most of the pre-1970 small centers may have closed during the turbulent period in the late 1980s and early 1990s. Indeed, many of these small new centers may close over the next several years due to their inability to remain competitive in the current environment. The longitudinal nature of this study, which will extend

Table 3. Center Typology based on Profit Status and Organizational Location

For-Profit Hospital-based	81
For-Profit Nonhospital-based	86
Not-for-Profit Hospital-based	236
Not-for-Profit Nonhospital-based	47

from 1995 to 2000, will enable us to document any closures and, thereby, better address this finding.

An interesting but not unexpected change occurred in the legal classification of these centers since the late 1980s. Of the 124 centers interviewed in our 1988 study, 63 percent reported being for-profit. By contrast, in our current research only 37.6 percent of the 450 centers are for-profit. A not-for-profit status makes a center more flexible in terms of seeking funding because it is eligible to apply for and receive grant funds. Three possible explanations exist for this increase in the percentage of not-for-profit centers: (1) centers founded in the 1970s and 1980s may have deliberately changed their legal status; (2) for-profit centers may have been overrepresented among the closures of the late 1980s and early 1990s; and (3) not-for-profit centers may be overrepresented among those opening in the 1990s. A cross-tabulation of decade founded by profit status (Table 2) eliminates the third explanation. For-profit centers represent one-half of those centers opening since 1990. Of the centers founded earlier than 1990, less than 40 percent are for-profit.

Another anticipated change can be seen when we examine our centers' organizational locations. In contrast to the 1988 study when almost 34 percent of our participating centers were freestanding, today very few centers have this distinction. Among the centers included in this study, only 76 (16.9%) were completely freestanding. Three-hundred-and-seventeen (70.4%) were operating as units of either general or psychiatric hospitals, while the remainder (57) were physically freestanding but supported by a larger corporate structure. Table 3 reports a simple typology of centers based on physical location and profit status. Again, in contrast to our earlier study, the majority are not-for-profit hospital-based programs (52.4%).

The movement toward hospital-based programs has not translated into an increased number of beds. In fact, since the late 1980s, a significant decrease in the average number of beds has occurred. The 124 centers in the 1988 study had an average of 38 beds dedicated to adult chemical dependency treatment. Of the centers in the present study offering inpatient chemical dependency treatment, an average of 27 chemical dependency beds are available. If the centers offering only

Table 4. Diversification of Center Services

<i>Level of Care/ Services</i>	<i>Percent of Centers</i>
Detox	81.3
Adult Inpatient Chemical Dependency	65.6
Adolescent Inpatient Chemical Dependency	11.1
Inpatient Psychiatric Services	11.1
Partial Hospitalization	71.3
Intensive Outpatient	75.3
Outpatient	53.6
EAP Services to Workplaces	32.9
DUI Assessments	40.9
Other Services	42.0

outpatient treatment services are included, the average number of chemical dependency beds is only 16.5.

THE DIVERSIFICATION OF SERVICES

In the 1988 study of private alcohol problem treatment centers, only 57 percent of the 124 participants offered some type of outpatient program. In our current study, 94.4 percent of participants offer some form of outpatient service. Furthermore, 13.6 percent are outpatient only facilities with an additional 13.6 percent offering detox and outpatient services without a structured inpatient treatment program. In the earlier study, 100 percent of participating centers offered inpatient alcohol abuse treatment services. In addition to expanding outpatient services, centers have also expanded into other areas. Table 4 illustrates the diversification that has occurred since our earlier study.

While the majority of the centers continue to offer adult inpatient services (65.6%), an increasing movement toward outpatient services and other nontreatment-related services exists. Nearly one-third of our participants (32.9%) reported offering EAP services to workplaces and another 40.9 percent conduct assessments on those arrested for driving under the influence, regardless of whether or not they are eventually admitted for treatment. In addition to these services, 42 percent of our centers reported offering a number of "other" services. Among the most popular were programs for DUI arrestees who did not meet the criteria necessary for admission to treatment, one-on-one counseling services, and supportive living arrangements.

To compare the diversification of services across different subsets of treatment centers, the services identified in Table 4 were summed with the number of ser-

Table 5. Service Diversity by Decade Founded^a and Center Type^b
(percentages in parentheses)

	1 to 3 Services	4 to 6 Services	7 to 10 Services
<i>Decade Founded</i>			
Pre-1970	8 (21.1)	16 (42.1)	14 (36.8)
1970-1979	17 (18.3)	52 (55.9)	24 (25.8)
1980-1989	48 (20.2)	130 (54.6)	60 (25.2)
1990-1995	27 (33.3)	43 (53.1)	11 (13.6)
For-Profit Hospital-based	10 (12.5)	48 (60.0)	22 (27.5)
For-Profit Nonhospital-based	28 (32.6)	37 (43.0)	21 (24.4)
Not-for-Profit Hospital-based	49 (20.7)	137 (57.8)	51 (21.5)
Not-For-Profit Nonhospital-based	13 (27.7)	19 (40.4)	15 (31.9)

Notes: ^aChi-square = 13.18 ($p < .05$).

^bChi-square = 15.35 ($p < .01$).

vices offered ranging from 1 to 10 with a mean of 5.1 and a median of 5. Table 5 compares the number of services offered by the decade in which the center was founded and by center type. Not surprisingly, the centers founded during the earlier decade offer significantly more services than the centers founded since 1990. This may be attributed to the new centers' relatively smaller size. The explanations for this finding are similar to those given for the findings in Table 1. First, the greater diversity among the older centers may be a product of their having to diversify in order to survive. The new centers have not had to face this challenge yet. Second, while these older centers may have offered a wide range of services since their inception, the nondiverse centers founded during these earlier decades may have been overrepresented among the closures of the late 1980s and early 1990s. As we follow these centers over the next several years, the newer centers may start to diversify or close their doors.

One explanation for the increasing diversity among treatment centers may be the movement toward hospital-based programs. As the second part of Table 5 illustrates, both for-profit and not-for-profit hospital-based programs offer significantly more services than their freestanding counterparts. While only 12.5 percent of for-profit hospital-based programs and 20.7 percent of not-for-profit hospital-based programs offer 1

Table 6. Percent of Centers Reporting Declining Revenues

<i>Center Type</i>	
For-Profit Hospital-based	43.5
For-Profit Nonhospital-based	18.1 ^{a,b}
Not-for-Profit Hospital-based	35.1
Not-for-Profit Nonhospital-based	32.3

Notes: ^aFor-Profit Nonhospital-based programs significantly less likely to report declining revenues than For-Profit Hospital-based programs ($p < .01$).

^bFor-Profit Nonhospital-based programs significantly less likely to report declining revenues than Not-For-Profit Hospital-based programs ($p < .05$).

to 3 services, nearly one-third (32.6%) of for-profit nonhospital-based programs and 27.7 percent of not-for-profit nonhospital-based programs offer only 1 to 3 services. The administrative support and resources available through the hospital make offering a wide range of services more feasible.

PROJECTING SURVIVAL

Because a center's survival depends on numerous variables, predicting survival is tenuous. One strong predictor of closure is declining revenues. Respondents were asked whether their revenues for the last fiscal year represented a declining trend, a growth trend, or a period of stability. Centers reporting revenues that are stable or growing should have a better chance of survival than centers whose revenues are declining. Table 6 shows the percentage of centers reporting declining revenues. Interestingly, hospital-based programs were the most likely to indicate that their revenues were in decline. A one-way ANOVA indicates that both for-profit and not-for-profit hospital-based programs are significantly more likely to report declining revenues than for-profit nonhospital-based programs.

An earlier finding pointed out that hospital-based programs are more diverse in terms of the number of services offered. This finding seems to contradict our earlier assertion that diversification improves the chance of survival. As we have alluded to in previous tables (see Tables 1, 2, and 5), however, the centers that have opened since 1990 are more likely to be small, nondiverse, for-profit nonhospital-based programs. Two reasons may account for the seeming success of the for-profit nonhospital-based program. First, these relatively new centers may not have existed long enough to establish baseline revenues by which to judge the revenues of the most recent fiscal year. Second, having come into existence during the managed care era, these newer centers may already have adapted successfully to survive in this environment. As a result, they are able to remain small,

Table 7. Average Daily Cost of Treatment
in Five Levels of Care by Center Type

	<i>For-Profit Hospital-based</i>	<i>For-Profit Nonhospital-based</i>	<i>Not-for-Profit Hospital-based</i>	<i>Not-for-Profit Nonhospital-based</i>
Detox	\$802 ^{a,b,c}	\$626 ^c	\$565	\$430
Adult Inpatient	\$752 ^{a,b,c}	\$523 ^c	\$475 ^c	\$325
Partial Hospitalization	\$331 ^{a,c}	\$317 ^c	\$240 ^b	\$216
Intensive Outpatient	\$149 ^c	\$135	\$133	\$111
Outpatient	\$81	\$69	\$78	\$59

Notes: ^aCost is significantly different than the cost for a similar service in a Not-for-Profit Hospital-based program ($p < .05$).

^bCost is significantly different than the cost for a similar service in a For-Profit Nonhospital-based program ($p < .05$).

^cCost is significantly different than the cost for a similar service in a Not-for-Profit Non-hospital-based program ($p < .05$).

offer a relatively limited number of services, and continue to experience revenue growth.

Finally we consider the variable costs of treatment across different types of centers. Table 7 shows the average daily cost of treatment across the four types of centers for five levels of care: detox, adult inpatient, partial hospitalization, intensive outpatient, and outpatient.

Generally, whether hospital-based or freestanding, for-profit programs charge significantly more for their treatment services than do not-for-profit programs. Without exception, although not always statistically significant, not-for-profit nonhospital-based programs charge less for all five levels of care. From the point of view of managed care or from the perspective of increased use of private centers by public agencies, however, some of the cost differences between for-profit and not-for-profit centers are dramatic. Likewise, attention is drawn easily to differences between hospital and nonhospital settings, although these differences are considerably smaller than those across the profit status dichotomy. Also noteworthy is that the differences across both dichotomies are much sharper when any form of inpatient experience is included in the treatment. While for-profit centers do charge more for their services, the costs cited here reflect the centers' reported "retail" charges. When contracts are established with third-party payers, for-profit centers may be forced to give a higher percentage discount to the contracting organization to remain competitive with the not-for-profit centers.

Although private alcohol problem treatment centers in this sample do not rely heavily on self-paying clients as a source of revenue (mean = 10.77%, median = 5%), some types of programs are more reliant on self-paying clients than others. Arguably, if costs were prohibitive to self-pays, we would expect centers offering the lowest average costs (not-for-profit nonhospital-

based programs) to treat the largest percentage of self-paying patients. The pattern revealed in the data indicates that self-pays are significantly more likely to be found in nonhospital-based facilities, with little difference between for-profit (18.6%) and not-for-profit (16.7%) that are outside hospitals. By contrast, self-paying clients are much rarer in hospital-based facilities, again with little difference between for-profit (7.2%) and not-for-profit (7.6%). While only suggestive, these data point to a greater degree of anonymity offered by centers that are outside hospital settings. Not only are these centers not located on the grounds of another facility where one's identity might be revealed, but their records are independent from those of these larger systems.

Self-paying clients may be more important to these centers than realized, especially because they do not receive much attention in discussions of managed care. These data indicate that close to one-fifth of clients in these nonhospital centers are self-pay, a margin that could "make or break" a for-profit center. By the same token, the funds generated by the percentage of the self-pays in the most expensive, for-profit hospital-based programs may also be of considerable importance. But it is clear that self-paying clients alone do not determine costs.

CONCLUSION

We provided in this chapter an overview of the development of a particular type of health care system for substance abuse, the private alcohol problem treatment center. This exploration indicates the potential richness of sociological analyses of health services in the substance abuse area. This category of treatment providers has had a dramatic and even turbulent history. The transformation from a fledging self-help group into a nationwide complex of relatively expensive and highly visible programs offering a "one size fits all" treatment modality gave way to large-scale abandonment of that modality replaced by considerable diversification of services. Survival and growth in the number of centers indicates that diversification is a clearly adaptive response. It may be that diversification is especially adaptive to the demands of managed care. At least that is what the lesson that private alcohol problem treatment appears to offer.

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FROM RESEARCH TO PRACTICE

THE BRIDGE IS OUT AND THE WATER'S RISING

Barry S. Brown

ABSTRACT

Drug abuse research has received strong and continuing support in the hope that the knowledge acquired from that research will shape the course of drug abuse treatment and prevention. However, whereas mechanisms exist to assure the sharing of knowledge within the research community, efforts to bridge the gap between research and practice have been partial and inadequate. Getting treatment and prevention programs to adopt new behaviors requires a use of strategies capable of inducing organizational change. Studies have demonstrated the importance of interpersonal contact as a part of those strategies, and the futility of relying on the professional literature. Nonetheless, reliance on the print media continues to be the strategy of choice to achieve technology transfer. To permit research findings to influence the course of drug abuse programming and policy will require new governmental initiatives in terms both of an emphasis on interpersonal contacts to achieve organizational change, and the promotion of technology transfer as a significant area for study.

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The ultimate goal of drug abuse treatment and prevention research is to improve the effectiveness of drug abuse treatment and prevention services. While that statement appears self-evident, and would likely receive near unanimous support from both the public officials who make research money available and the research community that takes that money, the contention of this paper is that our behaviors in the drug abuse field lag well behind our rhetoric. Exploration will be made of reasons for the discrepancy between talk and action, and suggestion made of strategies intended to make our behaviors consistent with our words.

TECHNOLOGY TRANSFER AND RESEARCH DISSEMINATION

Technology transfer, as defined by Backer (1991), involves the transmission of information to achieve application. That is, technology transfer has both cognitive and behavioral components. There is an acquisition of knowledge for the purpose of modifying organizational behaviors. Technology transfer is, then, a behavior change process. In that regard, technology transfer is distinguishable from research (knowledge) dissemination which entails sharing information solely to increase the recipient's knowledge base. Research dissemination may result in changed behavior, for example, by stimulating additional study; but behavior change is not the objective of research dissemination.

The drug abuse research community has developed a network of journals, conferences and, more recently, internet initiatives designed to bring research findings to the attention of their colleagues. Journals, of course, remain the primary source for sharing research information. The first American journal devoted to drug abuse issues, the *International Journal of the Addictions* (renamed *Substance Use and Abuse* in 1996), appeared in 1965. In the three decades since, at least 17 journals—or more than one every two years—have been introduced in the United States addressing issues in drug abuse treatment and prevention. While a few have ceased publication, their numbers have been more than replaced by the increasing use of mainstream sociological, psychological, mental health, criminological, public health, and medical journals to report drug abuse findings.

It can be argued that the journals are available to everyone and, therefore, serve the needs of the drug abuse treatment and prevention service communities as well as those of the research community. Indeed, the most recent addition to the research journal numbers, the *Journal of Maintenance in the Addictions*, reports that it “targets the provider/consumer of services, that is, the individual program ... and the recipients and other beneficiaries of that care” (Payte 1997, p. 2). Somewhat less grandly, the *Journal of Substance Abuse Treatment* (Imhof and Hirsch 1999) reports itself “directed toward treatment practitioners in both the private and public sectors.” While the sincerity of those journals' intentions is undeniable, there is question about the success of their efforts.

A study of the use of journals by treatment staff to implement a vocational rehabilitation initiative (the Job Seekers Workshop), described in the research literature as effective on the basis of both initial study and replication, found 0 percent of 55 programs implementing that initiative on the basis of journal publication only (Sorensen et al. 1988). Indeed, in a survey of clinical psychologists in practice, Cohen (1979) found that even a sample of academically trained mental health staff reported reviewing an average of only two professional articles a month. Sorensen and Gudysh (1991) conclude that many mental health professionals see the research literature as irrelevant to their efforts.

Research Dissemination and the Service-Delivery Community

There are several problems with using research journals to transmit information to the treatment community. The concerns of drug abuse research overlap but do not coincide with those of the service-providing community. Descriptions of methodology, the detailing of statistical analyses that permit reports of significant findings, and the cautious interpretation of those findings conform to the concerns and often the special language of research. Moreover, because journals are concerned primarily with the adequacy of the research reported, the information available from them tends to be heavy on establishing the credibility of the study and light on description of the intervention under study.

The emphasis on research design likely reflects an accurate understanding of the demands of journal referees and the opinions of the author's colleagues. Responding properly to those concerns can mean the difference between professional recognition—including tenure, promotion, and/or the potential for research grants—and the denial of professional opportunity. Thus, there are mechanisms as well as incentives for reporting to the research community; comparable mechanisms and incentives do not exist for successful reporting to the service delivery/policy-making communities.

The difficulty of relying on the research journals to disseminate information is compounded by the paraprofessional movement that has exerted a particularly strong influence on drug abuse treatment. Treatment staffs are comprised largely of individuals with bachelors degrees or less, but with often substantial histories of human relations work experience. Price and D'Aunno (1992) report 44 percent of a national sample of outpatient treatment staffs as having college degrees (23%) or less (21%). Mulligan and colleagues (1989) report 55 percent of alcohol and drug abuse counselors in Massachusetts as having college degrees (34%) or less (21%). A national survey of all known alcohol and drug abuse treatment programs conducted by the Substance Abuse and Mental Health Services Administration (SAMHSA) indicates that 36 percent of full-time program staff are counselors other than psychologists (4%), social workers (6%), or nurses (9%). Indeed, the second largest full-time staff category is administrative (26%) while an additional 18 percent are described only as "other direct care" (SAMHSA

1993). These figures are little changed from the surveys of drug abuse treatment providers conducted nearly two decades earlier (Brown 1996).

In drug abuse treatment, the term “paraprofessional counselor” translates roughly but not exactly into “ex-addict counselor.” Thus, the treatment field has long depended on the skills and efforts of a staff whose value resides in their experiential background (in both substance abuse and counseling) rather than their educational achievement. Consequently, a substantial proportion of the target population for research findings are individuals without significant experience in the use of journals as a medium of exchange. More importantly perhaps, these staffing patterns suggest the extent to which drug abuse treatment remains a field that values experience as properly shaping the delivery of treatment services (Backer et al. 1994). Or, in the words of many of these same providers, “If you walk the walk, you can talk the talk.” This is not to say that drug abuse treatment staff generally—or paraprofessional staff specifically—do not value education or are not open to new initiatives; it is to say that a reliance on the published research literature is not likely to meet the needs or background experiences of this audience.

Prevention staffs present an even more diverse audience for research findings. Prevention workers are parents, community activists, educators, business people, police, the clergy and, perhaps less frequently, individuals whose job is conducting drug abuse prevention. Moreover, prevention programming also has acquired its own equivalent of the treatment paraprofessional. The parent/volunteer, or parents movement, emerged as an effort to empower parents to assert themselves as drug control agents in their families and communities. The parents movement has, at times, purposely distanced itself from government and academic communities although it has made substantial use of those materials produced by them that warn of the dangers of drug use. Like paraprofessionals, their capacity to contribute to prevention activities derives largely from experience, in this instance from experience in parenting and work in their communities—and from their organizational strength.

Simple economics also influence the access to research findings. The work of universities make it essential that journals are available to further the education of students (and faculty) and the research of faculty (and students). Consequently, universities have library budgets; treatment programs rarely do. Institutional journal subscriptions can cost in excess of \$1,500 annually for a single journal, making even one subscription—much less subscriptions to 17 journals—a significant cost item. Neither the cost of journals nor of staff time to review those journals are easily absorbed by service delivery programs.

Research dissemination, then, is a task best suited—if not only suited—to sharing information with the research community. Still, if research dissemination is ill suited to the needs or characteristics of treatment and prevention staffs, it is nonetheless a frequent event. Technology transfer, as an active effort to induce change in programming or policy formation based on the findings from research, is an uncommon event.

IMPEDIMENTS TO TECHNOLOGY TRANSFER PROGRAMMING

The public and its elected representatives provide dollars for research with the intention of improving the delivery and effectiveness of health care services. Moreover, most—if not virtually all—treatment and prevention researchers are concerned with seeing positive change in program and policy. Finally, performance-based standards and now managed care loom as threats to the funding of programs with less successful client outcomes (Becker 1995). Why then have efforts at technology transfer lagged so far behind the production of research information? Unfortunately, the absence of technology transfer is far clearer than the reasons for that absence. Nonetheless, several issues suggest themselves.

As noted above, few incentives exist for the research community to develop a technology transfer initiative. Rewards for the research community are attached to publications in the research journals and, in general, the more rigorous the journal's standards, the greater the prestige and resulting reward. Typically, rigor translates to a greater emphasis on the methods and vocabulary of research. Thus, in general, the more prestigious the journal the less its accessibility to the service delivery population. In contrast, the work of describing one's findings to the service community—when it occurs at all—is typically restricted to the host program(s) that were studied or, at best, to programs in one's immediate community. Without belittling those efforts, it seems fair to say that they are often seen as a kind of obligatory public service, the *quid* for the service provider's *quo* in making a program available and/or the effort owed one's community. Opportunity is rarely sought to uncover additional service providers who might benefit from the researcher's findings.

A second impediment to efforts to promote technology transfer is the absence of both information and resources for the accomplishment of technology transfer. Thus, while some few researchers may feel that journal publication is sufficient to the task—with the onus on service providers to locate and adapt study findings to their use—most would grant that journal publication cannot achieve technology transfer. However, with some considerable legitimacy, researchers can assert that they lack the expertise on the one hand, and the dollars on the other, that would be required to extend their work beyond journal publication. Moreover, the research community can reasonably argue that journal publication fulfills their implied contract with the funding agency to provide information to improve the provision of drug abuse services. Filling the gap between the provision of information and the achievement of positive change in service delivery lies beyond the scope of that contract. That is, research responsibility extends as far as knowledge development and sharing, the work of technology transfer, the work of changing the behaviors of service providers, belongs to someone else. It is a reasonable argument and begs the largest problem in achieving technology transfer. Simply put,

the structure of federal support for drug abuse treatment and prevention research has been inadequate to the task of technology transfer. That structure permits, but neither demands or significantly facilitates, the use of research findings to achieve program and policy change.

Historically, the research institutes have described knowledge development as their major responsibility and objective. Theirs has been a science industry. Effectiveness has been measured by number of publications generated. No effort is made to measure the effectiveness of work conducted under a grant announcement by assessing the extent to which knowledge developed generates change in drug abuse programming or policy formation. Doing well has not meant doing good. It is perhaps most telling about the significance attached to technology transfer by the National Institute on Drug Abuse (NIDA) that a single comparative study of technology transfer techniques has been supported in the course of its nearly 25-year history—and that study was completed more than 15 years ago.

In 1990, Congress chose to assign responsibility for drug abuse research to one agency and organizational structure (NIDA within the National Institutes of Health), and responsibility for transmitting research findings to the service delivery community to another agency and organizational structure (locating the Centers for Substance Abuse Treatment and Substance Abuse Prevention in the Substance Abuse and Mental Health Services Administration). It was left to those separate agencies and organizations to work out their relationship. Thus, the agency mandated to generate research findings is not the agency empowered to use those findings to achieve program and policy change, and the agency best positioned to understand the needs of the field is the one less capable of supporting and facilitating the necessary research. Moreover, just as the research community has little incentive or opportunity to conduct technology transfer in this structure, it also continues to find little encouragement for studying the effectiveness of differing strategies for achieving technology transfer.

In this latter regard it is important to reemphasize that technology transfer is a behavior change process. It involves modifying the policy and/or practices of organizations and, to achieve that objective, requires modifying the thinking and behaviors of individuals in those organizations. To produce behavior change, the technology transfer strategy must not only develop the cognitive skills needed to implement a new treatment component, but may also have to induce or increase motivation for behavior change, reduce concerns about change generally, and/or about the innovation being made available specifically, and explore organizational issues in adopting new strategies. In short, technology transfer involves recognizing the human and organizational issues involved in modifying established behaviors, of which cognitive skills building is just one.

For the most part, the efforts in drug abuse have addressed only cognitive skills, as in the development and circulation of manuals, monographs, and research capsules. Thus, among other efforts, NIDA staff developed the SRB (Services Research Branch) Notes which evolved ultimately into the NIDA Notes as a brief

and user-friendly report of research findings as well as initiating a Therapy Manuals series. The Center for Substance Abuse Treatment (CSAT) developed a Treatment Improvement Protocol (TIP) series that presents in-depth exploration of issues significant to the treatment community. While these and other documents can be seen as containing useful information presented without research jargon, findings from studies of technology transfer indicate that the mere circulation of materials achieves little in terms of the adoption of new technologies (Sorensen et al. 1988; Brown 1998). Study is needed to understand outcomes of differing behavior change strategies and to clarify the process of change with different groups and organizational structures.

FINDINGS FROM STUDIES OF TECHNOLOGY TRANSFER

The relative absence of technology transfer study in the drug abuse field does not translate into an absence of knowledge about the issues and strategies significant to effective technology transfer. The following issues have been identified as significant to the development of effective technology transfer.

Relevance

The more largely research findings appear to support the mission and goals of an organization, the more likely the staff of that organization will make use of those findings (Averch 1975; Banta and Bauman 1976; Cox 1977; DiMaggio and Useem 1979; Glaser et al. 1983; Leviton and Hughes 1981; Rogers 1995). While other factors will influence the extent to which an intervention is incorporated by the individual program, the effort to encourage implementation of an innovative strategy is facilitated by a view of the intervention as significant to the well-functioning of the organization and its staff.

Several authors suggest recruiting staff of host organizations to help plan and, where appropriate, carry out some portion of data gathering (Backer 1991; Boyer and Langbein 1991; Dawson and D'Amico 1985; Glaser and Taylor 1973; Lobosco and Newman 1992). It is argued that promoting staff ownership of the study and its findings increases the felt relevance of study findings to organizational behaviors and functioning. Involving stakeholders, wherever feasible, in study planning has also been seen as increasing the likelihood that study questions embrace areas relevant to those who are expected to use study findings (Brown 1996).

Indeed, it has been suggested that a process be structured to develop national clinical research agendas in association with the input of research consumers including service delivery and policy-making staffs (Brown 1987; Patton et al. 1977). This strategy offers the advantage of developing issues for national programs of research that are seen as significant to effective service delivery by the

people charged with that responsibility. That involvement, then, assures both the greater incorporation of clinically significant issues for study and a greater involvement of research consumers in understanding and applying the results of studies responsive to their suggestions.

One cautionary note that has been sounded in relation to using service delivery staffs to help set research agendas involves appropriate sampling strategies. There is the danger that the clinical personnel sampled will be drawn disproportionately from the programs that communicate most easily with researchers and government research administrators, in other words, will be drawn from the ranks of university affiliated and federally endowed programs (Brown 1995). Those programs are likely to reflect concerns that accord with a somewhat idealized service delivery condition. For example, a university-based grant-supported treatment program may enjoy staffing patterns—in terms both of staff: client ratios and staff educations and backgrounds—unknown to the general run of treatment programs and irrelevant to the functioning of most service providers. Research questions predicated on the use of that type and level of treatment staff risk being greeted with apathy if not hostility when suggested to more traditional service providers.

Timeliness

To achieve maximum utility, study findings must reflect both the mission and concerns of an organization and be produced at a point at which they can affect the decision-making process (Boyer and Langbein 1991; Florio et al. 1979; Leviton and Hughes 1981; Siegel and Tuckel 1985). The issue of timeliness contains within it both opportunity unique to the field of substance abuse and difficulty intrinsic to the conduct of research. First, with regard to opportunity, in the fields of drug and alcohol abuse one person in each state supervises, if s/he does not in fact control, all state and federal money (other than research grants) expended locally for treatment and prevention. Because the combination of state and federal funds account for the vast majority of resources available to service delivery, state directors constitute a relatively small audience that can be accessed for at least some significant portion of technology transfer (although a few state officials pass that responsibility to local administrators). At the same time it should be understood that, as with all government programming, the budget process typically starts about a year before actual budget submission. Thus, in the field of drug abuse, one can point to a specific date by which new technologies have to be understood and accepted and to a specific individual in each state empowered to facilitate the process of technology transfer.

The second issue concerns the difficulty intrinsic to the conduct of research. Timeliness is a problem within research because, on the one hand, the process of research is typically exceedingly deliberative and, on the other, research is always reactive. The planning, execution, analysis, and interpretation of research is structured to be cautious, to avoid a rush to judgment. Moreover, that process can only

be undertaken *after* the identification of a problem or concern (and frequently only after the normal gestation process for writing and obtaining federal research grants subsequent to problem identification). Research is best suited to long-term planning. Immediate problem solving is beyond its usual capacity (Sorensen and Clark 1995).

Clarity

While technology transfer depends on the accessibility of information, and that accessibility depends—at minimum—on the use of a language that is clear and a format that is user-friendly (Argarwala-Rogers 1977; Boyer and Langbein 1991; Siegel and Tuckel 1985; Smith 1988), we have already explored the reasons for which those seemingly simple demands create problems for drug abuse research. Neither the language nor format of the research literature offer accessibility even for the academically trained clinician. Alternative strategies give promise of creating greater clarity and achieving greater technology transfer.

Interpersonal contacts with service providers, as opposed to reliance on written materials alone, promote greater understanding and incorporation of new service delivery initiatives (Backer 1991; Boyer and Langbein 1991; Sorensen and Guydish 1991). Glaser and colleagues' (1983) extensive review of technology transfer projects with different populations also supports this premise. A study of technology transfer, involving random assignment of methadone treatment programs to different strategies for achieving the adoption of an innovative vocational rehabilitation technique (the Job Seekers Workshop), supports the importance of interpersonal contact in work with drug abuse treatment staffs (Hall et al. 1988; Sorensen et al. 1988). The authors report adoption rates by 28 percent of programs receiving on-site training, by 19 percent of programs with individual staff members sent to multi-program training workshops, in contrast to 4 percent of programs receiving written materials (how-to manuals), and by 0 percent of programs for whom materials were only available through access to the research literature. Presumably, interpersonal contacts increase opportunity to clarify aspects of the service delivery component or findings to be adopted, can make clear the relevance of the component or findings to that setting, and permit issues of implementation specific to the organization to be addressed.

Credibility

While research methods and practice may lie outside the training and experience of service providers, several authors emphasize the significance of research findings to those same providers in establishing the credibility of new strategies and activities (Boyer and Langbein 1991; Chelimsky 1987; Patton et al. 1977; Siegel and Tuckel 1985). Lobosco and Newman (1992) found that educators distinguish between quantitative and qualitative data, indicating a preference for the

former. Other investigators emphasize that the researcher and research strategy must be seen as objective and effective (Boyer and Langbein 1991; Patton et al. 1977).

Replicability

Regardless of the value attached to a novel service component, or its appropriateness and timeliness to a program, if adoption of that component appears to exceed the resources available to the program it will likely be stillborn. Both the material and human resources needed to implement an initiative must be clearly available (Backer 1991; Glaser et al. 1983; Leviton and Hughes 1981). Additionally, service providers need to see the comparability of the study population and the study setting to their own situation (Brown 1995). Thus, a task of technology transfer is to make clear the feasibility, or replicability, of the treatment or prevention initiative in that setting.

Reducing Staff Concerns

As noted earlier, creating a readiness for the adoption of innovation can involve reducing staff concerns about changing long-standing practices to move into new, and on that basis, decidedly less safe territory (Davis and Salasin 1977; Leviton and Hughes 1981). Indeed, Siegel and Tuckel (1985) warn that entrenched organizations may vigorously attempt to maintain the *status quo*. While no one would suggest extensive psychotherapy to achieve technology transfer, acknowledging the demands that change can place on the functioning of service staff may be important to gaining their confidence, and overcoming their resistances.

Diffusion Theory

Diffusion theory has been developed from these findings to describe the process of adopting innovation (Green, Gottlieb, and Parcel 1987; Oldenburg, Hardcastle, and Kok 1997). Thus, diffusion theory stresses the "fit" between the innovation and its adopter, describing compatibility in terms of concerns that accord with relevance, timeliness, clarity, and so forth. Diffusion theory also describes the communication channels whereby innovations are transmitted and, in that context, emphasizes the value of interpersonal channels over and above the use of media alone to encourage adoption.

MODELS OF TECHNOLOGY TRANSFER

Use of interpersonal channels has found expression in two primary models. Consultant models use experts in the innovation to provide information, advice, and

training over an extended period to the staff expected to implement that new initiative. Workshop models use experts to provide information and training to selected program staff who, in turn, transmit that information and training to other staff, or themselves take the major responsibility for the implementation of innovation within their own organizations. In spite of the logic available in support of models involving person-to-person contact—and in spite of the widely recognized pioneering efforts of Howard Davis at the National Institute of Mental Health (Kiresuk 1986; Larsen 1986)—little has been done either to mount such models for use in drug abuse or to study their effectiveness in drug abuse or other service programs (Backer et al. 1994; Hall et al. 1988; Larsen 1986; Nurco and Hanlon 1996). Nonetheless, as described above, in the only study conducted with drug abuse treatment staff, the use of consultant and workshop strategies were associated with significantly greater adoption of a treatment model than either the use of written manuals or the reliance on reports in the professional literature (Hall et al. 1988; Sorensen et al. 1988).

Studies from mental health are also limited but generally support interpersonal models of technology transfer, although the studies are somewhat uneven in terms of both research strategies and findings. Only one study used both random assignment of programs and a measure of program adoption. That study found on-site consultation to be more effective than telephone assistance, and group sessions to be more effective than individual consultation (Stevens and Tornatzky 1980). Consultant visits were found more likely to lead to “progress toward adoption” than the distribution of manuals, although actual implementation was not assessed (Fairweather et al. 1974; Fairweather 1980; Tornatzky et al. 1980). However, no difference was found between mental health centers randomly assigned to a use of consultants and to the distribution of manuals where outcomes involved only the consideration of the innovations described rather than their implementation (Larsen et al. 1974). Consultation to mental health centers around specific problems was associated with greater reported problem resolution at eight but not at four months when compared to a control group which did not receive consultation (Larsen 1986).

These studies suggest several issues for evaluating technology transfer strategies. Perhaps the foremost issue is the need for those studies. The absence of research is incontrovertible. However, the absence of studies sponsored by the institutes is significant only if technology transfer is viewed as a concern for the field, and as an area in which current efforts are inadequate due, at least in part, to the need for greater understanding of effective technology transfer strategies.

Technology transfer has long been cited as a major responsibility for and by NIDA. In its initial authorizing legislation, when the Institute provided funding for both research and services, NIDA was described as providing a mechanism “to assist in solving problems of drug abuse and drug dependence.... Such a program must concentrate on the delivery of prevention and rehabilitation services to the millions of Americans who are most suffering or are most likely to suffer from

drug abuse or drug dependence" (SAODAP 1972, pp. 61-62). Twenty years later the ADAMHA Reorganization Act, placing NIDA within the National Institutes of Health (NIH) and establishing the Substance Abuse and Mental Health Services Administration (SAMHSA), directed SAMHSA and NIH (acting on behalf of NIDA, NIAAA, and NIMH) to coordinate for the purposes of assuring that "relevant research findings ... are disseminated to service providers in a manner designed to improve the delivery and effectiveness of treatment and prevention services" (U.S. Congress 1992, p. 326).

Statements by the current Director of NIDA both affirm the significance of technology transfer for the Institute and for the field, and speak to our inadequacy in achieving effective technology transfer (Leshner 1994, 1996, 1997). In one article in this area, Leshner (1994, p. 3) has written:

I have found that few people besides the researchers themselves know about the depth and breadth of these [drug abuse study] findings. So far as I can tell, it is largely scientists alone who fully appreciate the potential for new drug abuse discoveries.... Research findings are not reaching those who need to understand and act on them. I think that it is time to correct this situation. Given the importance of the problems we are addressing—drug abuse and addiction—NIDA must be more than a purely scientific institute. Besides conducting critical research, we must both provide information necessary for making policy decisions and give guidance to treatment and prevention efforts.

Indeed, in later writings Leshner (1996) decries the "great disconnect"—the gap between public beliefs about drug abuse and scientific information and has, in fact, initiated a series of "town meetings" to narrow that gap (Leshner 1997). While any such initiative is welcome, if technology transfer is significant to the improvement of drug abuse services and we are ineffective in conducting that activity, it is essential that technology transfer become an area for the development and testing of strategies designed to increase our effectiveness.

ISSUES IN CONDUCTING STUDIES OF TECHNOLOGY TRANSFER

Conducting those studies involves issues common to the conduct of all evaluative study and issues specific to understanding the effectiveness of technology transfer. General issues of research design, as related to technology transfer, exceed the scope of this paper and are, in any event, available from Ciarlo (1981). In addition, they have been detailed with specific reference to the field of education by Dunn and colleagues (Dunn 1983; Dunn et al. 1984). Therefore, discussion will be limited to three issues identified as a particular concern for technology transfer study related to drug abuse (Backer et al. 1994): the selection of outcome criteria, threats to the validity of outcome studies of technology transfer, and the significance of process evaluation.

Selection of Outcome Criteria

As with any evaluative study, selection of outcome criteria must reflect the objectives of the intervention. Where the intent of an intervention is to encourage the adoption of an innovation, the outcome criterion becomes an assessment of the extent to which that intervention is adopted by the programs and/or individuals targeted. In measuring the extent of adoption, two issues are worth noting. First, adoption of an intervention—like the adoption of any set of new behaviors—is rarely an “all or none” phenomenon. New behaviors, when adopted at all, are typically adopted in part. Thus, measuring how much, and perhaps which aspects, of the behaviors are adopted becomes essential. Second, adoption of a new treatment strategy will almost certainly involve adaptation of the model to the needs and characteristics of that program and its client population. The translation of that model to meet the circumstances of programs can, itself, be a useful topic of study both in terms of the issues around which translation takes place and the efficacy of the modified strategy. To the extent that a model lends itself to adaptation while remaining effective, that model can be viewed as portable and therefore as useful.

A strategy for measuring the extent of adoption involves describing the steps in the adoption of innovation with a view toward assessing the extent to which each of those steps is achieved (Hall et al. 1975). Thus, the adoption of innovation can be seen as encompassing (a) change in knowledge and beliefs, (b) change in attitudes and perceptions, (c) change in behaviors, and (d) systems and policy change.

Knowledge and Beliefs

Every technology transfer activity involves an effort to increase the store of knowledge available to the recipient of that activity. In the instance of research dissemination, increase in the store of information can be the sole objective. In the instance of technology transfer, increase in knowledge or skills is the essential prelude to activity. The technology transfer initiative may then involve not only a concern with increasing knowledge or skills, for example, effort to train staff in the delivery of an aftercare services model, but may also involve concern with modifying beliefs, for example, effort to modify staff's view of drug abuse treatment as encompassing post-discharge contacts (aftercare). Measurement of effectiveness can embrace both extent of change in knowledge/beliefs and the numbers of persons demonstrating that change.

Attitudes and Perceptions

Technology transfer depends not only on knowledge/skills levels and/or beliefs, but depends as well on positive attitudes or perceptions regarding: the

utility of the innovation, the likely responsiveness of clients to the innovation offered, the commitment and effectiveness of the agency expected to put the innovation in place, and the individual's view of his/her own capacity to implement that innovation. Understanding staff members' views of their own and their organizations' capacities to adopt and implement the innovation may help explain the success or failure of the technology transfer strategy.

Behaviors

As described above, an innovation may be implemented in its entirety or in large or small part. Moreover, the innovation must be adapted to the demands of the organization, its staff, and its client population. As the innovation is adapted to the organization, some degree of fidelity to the letter of that innovation may be legitimately sacrificed to permit fidelity to its spirit. Thus, to understand the efficacy of the technology transfer strategy, it will be essential to measure the extent to which an innovation is implemented and to describe the nature of the changes needed to fit the model to different organizations. Indeed, the degree of change may call for additional study to clarify that the transmuted model is achieving the same treatment or prevention goals as the original.

Systems and Policy

In general, the highest objective to which treatment and prevention researchers aspire is to have their work and findings alter the practice of treatment or prevention. The capacity to modify or create policy often appears remote at best. Indeed, it has been contended that research findings are developed too slowly, are too loaded with caveats, too obscure in language, and sometimes may be too methodologically tainted to have significant impact on policy formation (Boyer and Langbein 1991). On the other hand, it has been argued that evaluative studies of AIDS prevention strategies developed for the field of drug abuse were associated with important aspects of policy development at state and the federal levels (Brown 1995). Understanding the impact of research findings on policy formation may lend itself to case study methodologies only; nevertheless, the opportunity to impact policy is of such obvious importance that achieving that objective and assessing success in achieving that objective should both be undertaken.

Threats to the Validity of Outcome Studies

The threats posed to the integrity of evaluative studies of technology transfer parallel the threats posed to the integrity of all evaluative studies. The three selected for review are seen as having particular significance for study of technology transfer: sampling strategies, the risk of getting socially desirable responses, and the danger of contamination.

Sampling

Sampling strategies merit attention on two counts. For example, it is beyond the scope of all but a very few, and very expensive, studies to draw a nationally representative sample of treatment programs—stratified where appropriate by modality—to receive a given innovation. However, it may be feasible to draw a representative sample by focusing on a selected geographic region. Where that is not feasible, investigators will need to select programs without bias, particularly with regard to resources available to those programs. Moreover, because the study will likely involve assignment of programs only after an agreement by those programs to implement the innovation if assigned to a technology transfer condition, it will be important to understand the number declining, the reasons for declining, and perhaps the characteristics of those programs to help clarify the portability of the innovation in question.

A second issue with regard to sampling relates to the selection of respondents within the programs targeted for technology transfer. In exploring knowledge acquisition and/or attitudes/perceptions, it will be useful to sample the universe of those who could have responsibility for implementing the innovation or to sample randomly within that population. In exploring behaviors with regard to the implementation of the innovation, it will be important to be cautious about the selection of individuals who will speak for the program. Line staff may have a different perspective with regard to extent of implementation (or its value) than supervisory or administrative staff. When using mailed questionnaires or telephone interviews, there is the risk that the single perspective obtained may not accurately reflect the view of the larger group. With particular regard to understanding the extent of implementation of a given innovation, validating self-report with independent observation is useful (Sorensen 1997, personal communication).

Social Desirability

In any study of technology transfer, there is the danger of getting an exaggeration of positive responses or a diminution of negative. Program staff have been exposed to trainers or consultants traveling some distance to provide them with information and materials designed to help them do their jobs more effectively. Alternatively, the program staff may have been transported at some expense to get that exposure. Trainers and trainees may have broken bread together, and perhaps shared interests and ideas about drug abuse programming. In short, they have developed a relationship based around their joint commitment to provide more effective services to clients and community. In this context, program respondents may shade their responses regarding attitudes, perceptions, and behaviors in a positive direction. Again, the independent validation of self-report data with particular regard to implementation behaviors is vital.

Contamination

Although the risk of information sharing through the research journals appears minimal, contamination cannot be wholly discounted. We live in an information-rich environment in which efforts may even be made to transmit information available from journals and elsewhere in a user-friendly format and language. Specifically, newsletters, electronic bulletin boards, and a variety of conferences have the potential to confound the impact of a technology transfer initiative. Thus, any study of the effectiveness of a technology transfer initiative should inquire for all the respondents' sources of information about the innovation in question rather than assume that only the technology transfer initiative is a factor.

Process Evaluation

Just as the innovation available for transfer must be described in sufficient detail to permit its replication (Carroll 1997), the technology transfer strategy being evaluated must be delineated with sufficient precision to permit its use by others, whether for additional study or as a technology to be employed in implementing additional innovations. Typically, both the innovation being transferred and the technology transfer strategy require detailed elaboration in an implementation manual.

Beyond that description, the technology transfer process can be detailed in terms of numbers of persons reached, number and frequency of times spent (in consultation, workshops, reviewing materials), numbers of persons and times spent discussing materials with fellow staff members, rates of attendance/lateness/participation at technology transfer sessions, and satisfaction reported with the technology transfer strategy. In addition, characteristics of the technology transfer audience can be determined with a view toward understanding the significance of selected characteristics for response to the technology transfer strategy, for example, paraprofessional and professional staff members.

RECOMMENDATIONS FOR ACTION

Clearly, it will be important to initiate a program of study to clarify the impact of differing technology transfer strategies on the several audiences critical to successfully implementing treatment and prevention innovations. However, we need not await the results of those studies to mount an aggressive effort to transfer the findings of clinical research to the activities of clinical practice. Although limited, available research points to the clear utility of interpersonal strategies to achieve technology transfer and, more specifically, to the utility of consultant and workshop strategies in encouraging the adoption of drug abuse treatment innovation. Those and other technology transfer initiatives using

interpersonal strategies should be the subject of further study and refinement; and additional strategies, such as interactive computer technology, need to be developed and tested. We should, however, make immediate use of strategies already available to facilitate the process of improving the delivery of drug abuse treatment and prevention services.

As noted earlier, dividing responsibility for research and technical assistance between two independent and sometimes competing agencies does little to encourage intelligent and effective use of research findings. In the face of that division, either of two organizational strategies can be undertaken.

First, the organization funding the research, and thereby having an overview of research findings, can assume sole or major responsibility for the task of technology transfer. Indeed, the Director of NIDA (Leshner 1997) has indicated his interest in undertaking exactly such a role. In one iteration of that effort, staff of NIDA alone, or in conjunction with additional selected clinical researchers, would take responsibility for reviewing the adequacy of the research conducted in association with a particular innovation, and determining if the innovation in question is ready for transfer. One cautionary note should be sounded here. A likely concern of the research community will be to clarify the generalizability of study findings. That concern can create a lengthy period of replication with new populations and settings in which efforts to promote precise reporting frustrate efforts to share findings in time for their use by large numbers of providers and their clients. Moreover, there are so many variables of setting, staffing and client or target population that achieving generalizability to all groups and conditions will likely prove impossible. On the other hand, it is very feasible to describe the conditions and populations with which the innovation was effective and to allow other programs and organizations to judge whether or not those conditions and populations are sufficiently comparable to justify use of the innovation in their setting.

Technology transfer initiatives can be advanced by assessing results and the adequacy of research of a grant funded project in its last year of study. At that point, if the study has merit, the investigator could receive an administrative supplement to develop a detailed training and implementation manual if none already exists, and to devise a technology transfer plan jointly with the institute to encourage replication of that innovation by appropriate programs.

A second model would involve the collaborative efforts of NIDA with the Substance Abuse and Mental Health Administration (SAMHSA), the latter working through its constituent agencies of the Center for Substance Abuse Treatment (CSAT) and the Center for Substance Abuse Prevention (CSAP). In that instance the Centers would conduct technology transfer based on the analyses of research adequacy conducted by the institutes.

Whether that technology transfer is delivered by an institute or SAMHSA, it may be most effectively undertaken by coordinating that transfer through state drug abuse authority directors. As noted above, the directors administer the bulk of dollars available for treatment and prevention efforts. Consequently, they form

a critical audience for understanding the importance and encouraging the use of new service delivery strategies. Working with the state directors, appropriate service agencies can be selected within those states for the transfer of innovation making use of interpersonal strategies such as consultant and workshop models. A technology transfer initiative working with and through state agency directors has been described by Brown (1995). In that effort state drug abuse directors were initially briefed on successful models of outreach for HIV prevention and the research findings supporting those models through a use of regional meetings. Next, candidate service delivery programs from within each director's state were selected to attend statewide workshops at which officials from those programs received training in the outreach strategies seen as appropriate to the program's needs and resources. In all, more than 300 programs received training.

The conduct of technology transfer can and should be accompanied by a program of research into outcome and process. A program of evaluative study accompanying technology transfer initiatives would provide essential guidance to efforts aimed at improving the delivery of substance abuse services. The goal of clinical research is to make available new and improved treatment and prevention techniques. To make those innovative services truly available requires their adoption by the treatment and prevention communities. Understanding how best to accomplish that objective should be an important part of a services research agenda. Unfortunately for all concerned, but especially for the service provider and his/her clients, it is the part of the research agenda that has been virtually ignored to date. Until that agenda is addressed, the research and service delivery communities appear destined to remain on opposite sides of the river, within hailing distance of each other but too far apart to communicate effectively.

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Zili Sloboda, Sc.D., is an Adjunct Research Professor in the Department of Sociology of the University of Akron. She also is currently the President of D.A.P. Linkages Inc., a new company with the goal of linking research to policy and practice to assist communities in delivering effective drug abuse prevention and treatment services. Most recently, Dr. Sloboda held the position of Director of the Division of Epidemiology and Prevention Research of the National Institute on Drug Abuse (NIDA). Formerly, at NIDA she had served as the Associate Director for Planning and Service Coordination of the Division of Clinical Research, as Chief of the Prevention Research Branch, and as a Research Epidemiologist focusing on the natural history of HIV infection among drug abusers. She was trained as a Medical Sociologist at New York University and as an Epidemiologist at the Johns Hopkins University School of Hygiene and Public Health. Her research has included epidemiological studies of drug abuse in New York City; evaluations of drug abuse treatment programs; health services research relative to the utilization of a geriatrics program, of dental services, and of a community-based hospital; and prevention research focusing on comprehensive community programs for sickle cell screening and for cancer. She was the founder of the Society for Prevention Research and also helped establish the International Epidemiologic Work Group and the Global HIV/AIDS Prevention Research Network. She has published in the areas of drug abuse, cancer prevention, and AIDS prevention. She has served as a consultant to several federal as well as international agencies and has been an invited speaker both in the United States, Europe, and Asia. She is on the editorial board for *Cancer, Substance Abuse and Misuse*, and *Prevention Science*.

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Richard C. Stephens received his Ph.D. in Sociology from the University of Wisconsin in 1971 and is currently Professor of Sociology at The University of Akron. He has been involved in a large number of drug-related research projects

including: the relationship between drug use and crime, addict lifestyles, issues surrounding methadone maintenance, drug treatment program evaluation, and the effectiveness of AIDS education programs targeted at drug users and their sexual partners. Dr. Stephens has published two books, over 50 research articles, and 10 chapters in books. He was the Principal Investigator on both the RO-1 NIDA grant and the National AIDS Demonstration Grant which created Project SAFE, an AIDS educator program in Cleveland targeted at intravenous drug users and their sexual partners. Since coming to the University of Akron, he has been Principal Investigator on a NIMH funded grant to evaluate the effectiveness of two different AIDS education programs targeted at African-American newly delivered mothers. He was also Co-Investigator on a National Institute on Nursing Research grant which evaluated the effectiveness of AIDS peer education for African-American teenagers. In addition, Dr. Stephens is Evaluator for the Cleveland CSAT sponsored Target Cities program. He also is national coordinator for the 11-city Target Cities database. Dr. Stephens also serves as the national coordinator of a two-year CSAT funded study of the impact of changes in the SSI regulation on drug and alcohol abusers.

James Swartz, Ph.D., received his doctorate in Clinical Psychology from the medical school at Northwestern University and also holds a Master's degree in Behavioral Research from Loyola University in Chicago. Over the past 12 years, he has conducted evaluation studies of drug treatment programs and large-scale surveys of drug dependence and psychiatric disorders among criminal justice offenders. He has authored or coauthored book chapters and articles related to drug use and drug treatment for criminal populations. He is presently the director of research and information services at Illinois Treatment Alternatives for Safe Communities, Inc. (TASC). His current interests include refining and adapting screening and assessment batteries for drug-involved criminal populations, studying comorbid psychiatric disorders and substance dependence, and developing Internet-based information systems to track client data across criminal justice and drug treatment settings.

Yvonne M. Terry, M.S.A., is a visiting research specialist at the University of Illinois at Chicago. She is currently working on ImpacTeen, a Policy Research Partnership to Reduce Youth Substance Use funded by the Robert Wood Johnson Foundation. She has been project director of a study examining trends and correlates in substance use in an adolescent population and is the author of a book on religious intercultural mission. She received her master's degree in not-for-profit administration from the University of Notre Dame and has published in the areas of HIV/AIDS, drug policy, youth drug use, and international development.

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