National Institute on Drug Abuse

YOUTH AT HIGH RISK FOR SUBSTANCE ABUSE

U.S. DEPARTMENT OF
HEALTH AND HUMAN SERVICES
Public Health Service
Alcohol, Drug Abuse, and
Mental Health Administration

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Editors:

Barry S. Brown, Ph.D.
Addiction Research Center
National Institute on Drug Abuse

Arnold R. Mills, M.S.W.
Division of Clinical Research
National Institute on Drug Abuse

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National Institute on Drug Abuse
5600 Fishers Lane
Rockville, Maryland 20857

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PARTICIPANTS IN THE NIDA TECHNICAL REVIEW MEETING ON SPECIAL YOUTH POPULATIONS--WHAT ETIOLOGY SUGGESTS ABOUT PREVENTION AND TREATMENT PROGRAMMING

July 16-17, 1986

Presenters

Edward D. Farber, Ph.D.
1800 Town Center Parkway
Suite 411
Reston, VA 22090

J. David Hawkins, Ph.D.
School of Social Work, JH-30
University of Washington
4101 15th Avenue, N.E.
Seattle, WA 98195

Karol L. Kumpfer, Ph.D.
Graduate School of Social Work
University of Utah
Salt Lake City, UT 84112

Mark R. Weinrott, Ph.D.
Suite 411, Moyer Building
1130 S.W. Morrison Street
Portland, OR 97205

Discussion Panelists

Troy Armstrong, Ph.D.
5824 Shepard Avenue
Sacramento, CA 95819

Karst Besteman, M.S.W.
Alcohol and Drug Problems
Association of America
Suite 181
444 North Capitol Street
Washington, DC 20001

Ms. Darlind Davis
Alcohol and Drug Abuse
Prevention Unit
Dept. of Health and Mental
Hygiene
4th Floor
201 West Preston Street
Baltimore, MD 21201

George DeLeon, Ph.D.
Director of Research and
Evaluation
Phoenix House
164 West 74th Street
New York, NY 10023

Jeffrey Kushner, Assoc. Director
Office of Alcohol and Drug Abuse
Programs
301 Public Service Building
Salem, OR 97310

Chairman

Barry S. Brown, Ph.D., Chief
Treatment and Early
Intervention Branch
Addiction Research Center
National Institute on Drug
Abuse
P.O. Box 5180
Baltimore, MD 21224

Co-chairman

Arnold R. Mills, M.S.W.
Community Research Branch
Division of Clinical Research
National Institute on Drug Abuse
Room 10A-46
5600 Fishers Lane
Rockville, MD 20857

Preface

Work in the field of prevention programming has emphasized the development of large-scale efforts designed to contain drug use throughout the adolescent population. Given the pernicious character of drug abuse, and its endemic nature in this country, it is not surprising that there has been an emphasis on providing educational experiences and prevention programs for a general adolescent population.

But at the same time, it has been increasingly recognized that certain elements of the adolescent population are distinctly more at risk for substance abuse than others. Most notably, those living in communities in which there is widespread availability of illicit substances, and whose experiences more largely distance them from the larger society, can be viewed as at greater risk for substance use. In this monograph, four youthful populations are focused upon in an effort to understand both their degree of risk for substance abuse and the etiologic factors involved in such risk. The authors also explore intervention strategies and approaches consistent with the information available for each of the populations described.

The four populations selected for exploration illustrate the uneven state of knowledge regarding at-risk youth. Two of the adolescent populations, delinquent youth and children of substance abusers, have been the subjects of considerable study and, to a more limited degree, of intervention efforts targeted to their needs. Other populations, such as foster care youth and runaways, have been little studied, and consequently much less information is available about their substance-using behaviors.

In the panel format used and presented here, each of the authors presented his or her paper, and there was then an opportunity for a reaction panel to comment. The reaction panel consisted of seven persons in addition to the other three presenters. Each member of the panel has some type of responsibility for planning and implementing prevention and treatment programs for adolescent youth. By using a reaction panel of this type in conjunction with the prepared papers, it was our

intention to develop a monograph that would give voice to both research and service delivery concerns.

The area of at-risk youth has, of course, become a major national concern consequent to passage of the Anti-Drug Abuse Act of 1986. It is our hope and belief that the contributions of the authors and the reaction panel will add significantly to progress in this important area.

Special Populations: Etiology and Prevention of Vulnerability to Chemical Dependency in Children of Substance Abusers

Karol L. Kumpfer, Ph.D.

INTRODUCTION

Children of substance abusers (COSAs) are a special population deserving significant attention by prevention specialists. They constitute one of the highest-risk groups for substance abuse and other problem behaviors. Psychosocial studies find that offspring of alcoholics often exhibit cognitive and interpersonal problems as children and general psychiatric disturbances and alcoholism as adults (El-Guebaly & Offord, 1977; Adler & Raphael, 1983; Jacob et al., 1978; Wilson, 1982). Numerous studies have also shown that parental and sibling illicit drug use increases the youth's risk of alcoholism and drug abuse (Smart & Fejer, 1972; Kandel et al., 1978; Thorne & DeBlassie, 1985; Kumpfer, 1986a), and childhood behavioral, academic, and social problems (Kumpfer & DeMarsh, 1986a, b).

This introduction reviews the prevalence of children of substance abusers in the general population, the economic and social costs related to the multi-generational problem of substance abuse as well as research issues, and a general conceptual model of vulnerability. Next, three major sections review the literature on major risk factors for substance abuse vulnerability--biological vulnerabilities, in utero vulnerabilities, and early environmental vulnerabilities. The last section reviews possible prevention strategies for high-risk children of substance abusers.

Evidence of the Influence of Parental Substance Abuse on Children

The majority of clients in treatment for alcohol and drug abuse have had chemically dependent parents or relatives (Cotton, 1979; Templer et al., 1974, Goodwin, 1971). Subpopulations of alcoholism treatment clients who have the highest incidence of parental and family alcoholism are women, Indians, and youths who began drinking heavily as teenagers (Lisansky, 1957; Rathod & Thompson, 1971; Reese, 1985; Hoffmann & Noem, 1975). These subpopulations may have the greatest sensitivity to parental chemical dependency. Since these correlational studies were

conducted primarily with alcoholics in treatment, little is known about the percentage of alcoholics in the general population who have had alcoholic parents.

Mechanism of Influence: The Nature or Nurture Controversy. Findings of familial aggregations for chemical dependency do not help to resolve the nature/nurture controversy concerning the contribution of genetic or environmental factors to chemical dependency in offspring. Hence, twin and adoption studies (to be discussed in more detail later in the section on biological factors) are needed to help address this question. Adoption studies have shown that sons of alcoholic fathers with male-limited alcoholism (characterized by early onset and antisocial tendencies) have up to nine times greater probability of becoming alcoholics than sons of nonalcoholic fathers (Bohman et al., 1981; Cloninger et al., 1981). The general average cited for vulnerability to alcoholism for all types of children of alcoholics is more like four to five times the risk for the general population (Goodwin, 1985). In one of the few longitudinal studies conducted within the general population, Vaillant and Milofsky (1982a) found that the two primary predictors of alcoholism were the number of alcoholic relatives and Northern European ancestry. However, both of these variables combined accounted for only 15% of the total variance. In a recent article, Zucker and Lisansky Gomberg (1986) stress the important contribution of psychosocial, environmental variables to the outcomes found by Vaillant and Milofsky (1982a, b).

How parental substance abuse increases children's vulnerability to adolescent substance abuse is a complicated developmental issue with multiple risk factors and pathways. This paper attempts to present and integrate into a bio-psychosocial model the empirical evidence from both the genetic and psychosocial learning perspectives. The author's training and research has focused primarily on psychosocial influences on behavior, but recent advances in research on biological markers for children of substance abusers have given the alcohol and drug field a better understanding of the reasons why some children take such different developmental pathways under similar environmental conditions.

Economic and Social Importance of the Problem. The economic and social drain on the United States of perpetuating this intergenerational phenomenon of substance abuse is staggering. In FY 1986 approximately $205 billion were lost in the United States in economic and social costs of substance abuse (estimate based on cost of living and population increases from Research Triangle Institute 1983 data). In FY 1984 approximately 650,000 clients admitted for alcohol treatment and 178,000 clients admitted for drug treatment were children of substance abusers. These clients cost federal, state, and local funding sources approximately $663 million in treatment costs (Butynski et al., 1985). Given that most of this loss is caused by chemically dependent persons and not occasional users, targeting prevention interventions at high-risk children and youths is advocated.

Prevalence

Considerably more epidemiological data exist on the number of children of alcoholics than on the number of children of drug abusers. The Children of Alcoholics Foundation (1984) estimates that there are about 28.6 million Americans alive today who were raised by at least one alcoholic parent. The number of children (0-18 years of age) who are currently living with an alcoholic parent is estimated to be as many as 6.6 million.

Up-to-date estimates of the number of children living with any type of drug-abusing parent are not available in the literature. Since almost all of the research conducted on children of drug abusers is for children of heroin-abusing mothers, those data are reported here. By the mid-1970's there were over 234,000 children of heroin-addicted mothers in the United States (Cuskey & Wathey, 1982). However, the number of women entering drug abuse treatment is increasing. In 1978 about 20% of 54,000 drug treatment slots funded by NIDA were for women, whereas by 1984 that percentage had increased to 30%. Hence, the number of children of women in drug treatment has probably increased. Beschner and Thompson (1981) report that 67 to 73% of women entering these drug treatment facilities had children. According to Colton (1980), however, only about 58% of heroin-addicted women had some or all of their children living with them prior to treatment. Some of their children were living with relatives, some were adopted, and some were in foster care. About 13% of heroin-abusing mothers with 3- to 7-year-olds and 30% of heroin-abusing mothers with 8- to 17-year-olds have children in surrogate care (Sowder et al., 1981).

Children of Substance Abusers Have Multiple Problems. Given that children of substance abusers are more likely to be placed for adoption or foster care, and to have behavioral and educational problems, they are likely to be overrepresented in the special populations discussed in this technical review--foster care children, juvenile delinquents, and runaways. In addition, these children of substance abusers are overrepresented in the following special services:

- o intensive care services for birth defects and fetal alcohol syndrome (Abel, 1981, 1982a, b; Kaminski et al., 1978; Sokol et al., 1980; Streissguth et al., (1981);
- o children's attention deficit disorder (ADD) or hyperactivity treatment programs, particularly those with aggressive conduct disorders (Morrison & Stewart, 1971; Cantwell, 1972, 1975);
- o classes for the emotionally disturbed or handicapped children in the public schools (May, 1985, personal communication);
- o child abuse counseling programs (Behling, 1979);
- o adolescent psychiatric inpatient programs (Kearney & Taylor, 1969) and child psychiatric outpatient programs (Nylander, 1960--Note: COSAs were more emotionally disturbed, but used inpatient psychiatric services less often);

- o hospital treatment for somatic complaints (Nylander, 1960);
- o teenage mother pregnancy programs (Kumpfer, Hopps, & Alister, personal communication);
- o juvenile court case loads (MacKay, 1961, 1963); and
- o adolescent and adult substance abuse treatment programs (Reese, 1985; Ziegler-Driscoll, 1977).

Clinicians have also noted that a large percentage of perpetrators of incest are problem drinkers, but more research is needed to study this linkage. Child protective agency personnel also report that a large number of children in their case loads are children of substance abusers. Because of methodological problems in this line of research, the extent and nature of the relationship is unclear (Liepman, 1980; Russell et al., 1985).

Whether it is substance abuse in the parents, inherited syndromes, or gestational alcohol exposure that specifically causes these children to be overrepresented in these social and health services, or involvement with deviant, dysfunctional, or multiple-problem families is unknown. As El-Guebaly and Offord (1977) have reported, the nature of the causal link is unclear. Researchers have demonstrated, however, that many problem behaviors in chemically dependent persons and family dysfunction disappear when the chemical dependency stops. Thus, drug-free parents may decrease their abuse or neglect of child or spouse, which could decrease the number of children needing supportive therapeutic services.

These studies and others demonstrate that children of alcohol and drug abusers are at high risk for a number of problems--behavioral, emotional, educational, social, and medical--and also that they are likely to come from multi-problem families. Hence, prevention efforts that will help to normalize these children and their families are likely to reduce generations of pain, suffering, and social isolation and allow these children to lead happier, healthier, and more productive lives.

Research Issues

The most effective prevention interventions will likely be those well-grounded in the best known causes of substance abuse in these youths. Unfortunately, this line of research is very new; it lacks any consistent theoretical foundation to guide the testing of hypothesized causal variables, and has been flawed by an emphasis on clinical-intuitive data (Nardi, 1981). Much of the research mentioned in this review should be replicated in other sites, clinics, and laboratories. Major methodological problems, such as lack of comparable control groups, small sample size, unrepresentative samples, nonstandardized data collection techniques, and lack of triangulation of data sources (Olson, 1983) weaken conclusions from these studies.

Most of the research has focused on children of only two types of chemically dependent parents: 1) alcoholic fathers and 2) heroin-abusing mothers. Because of the significant and growing number of children of parents who abuse marijuana, cocaine, amphetamines, and prescription medications, studies on these

children are needed. The author's current research for NIDA on prevention interventions for children of drug abusers did study cognitive, social, and behavioral differences in children of parents who used these other drugs, as well as children of methadone-maintained parents (Kumpfer & DeMarsh, 1986a, b; Kumpfer, 1987).

Because this author and other child development researchers (Baumrind, 1985; Battjes & Jones, 1985; Greenspan, 1985; Kellam & Brown, 1982), believe that many of the precursors of substance abuse in children occur early in the child's life, longitudinal studies are needed that will elucidate the most important risk factors and protective factors. In their chapter on "Implications of Etiological Research for Prevention Interventions and Future Research," Battjes and Jones (1985) repeatedly make a strong case for the necessity of longitudinal studies in the understanding of substance abuse. Several longitudinal studies have been conducted focusing on correlates of mental health problems and juvenile delinquency in adolescents (Brunswick & Boyle, 1979; Elliott et al., 1982; Jessor & Jessor, 1977) or children (Kellam & Brown, 1982; Baumrind, 1985), but few longitudinal studies have ever been conducted to focus primarily on substance abuse.

Risk Factors Reviewed

What are the major risk factors or possible causes of substance abuse in progeny of substance abusers, and how can these be used to guide prevention design? Because of the lack of a cumulative, replicated body of knowledge in this field, much of what is discussed in this paper is still speculative and tentative, but nevertheless exciting. A complex picture of etiology is beginning to emerge that points to a distinct syndrome of biological and environmental risk factors that increase the child's vulnerability to chemical dependency.

A number of researchers are beginning to develop vulnerability models that combine biomedical and psychosocial variables and to test them against data (Kumpfer & DeMarsh, 1984, 1986a; Hill et al., 1985; Tarter, 1986). Both of these models also include mediating variables such as life stressors that become triggering mechanisms for sustained substance abuse episodes when they overwhelm coping capacities. The Kumpfer and DeMarsh VASC (Values/Attitudes, Stressors, Coping Resources) theory emphasizes primarily psychosocial factors, whereas the Hill and associates model emphasizes biomedical factors. A combined theory is recommended and is presented in the psychosocial environment section of this paper.

Reasons for this increased vulnerability to chemical dependency in children of substance abusers are reviewed in this paper--including both biological and environmental factors. Research into substance abuse risk factors is a relatively new, but growing field. The primary impetus for this research stems from early family studies (Amark, 1951; Bleyler, 1955; Pitts & Winokur, 1966), twin studies (Kaij, 1960; Jonnsson & Nilsson, 1968; Partanen et al., 1966), and adoptive studies (Schuckit et

al., 1972; Goodwin et al., 1973, 1974; Bohman, 1978) that suggested heightened susceptibility to chemical dependency in children with biological parents who were alcoholic. Recently, researchers have been searching for biological markers that explain the genetic diathesis. Their research suggests that children of substance abusers may differ significantly from children of non-substance abusers in 1) their reaction to and tolerance of chemicals, 2) their brain chemistry and function, and 3) their home environments.

Unique prevention approaches tailored to the specific etiology of drug abuse in children of substance abusers will need to be developed in order to make any significant headway in reducing vulnerability in this high-risk group. The few prevention programs that have been developed for children of alcoholics or drug abusers will be reviewed, and in the second half of this paper a number of special prevention strategies designed for these children are discussed.

BIOLOGICAL VULNERABILITIES

A growing body of literature on children of substance abusers (COSAs) suggests that COSAs may differ significantly in their genetic, biochemical, neurophysical, neuropsychological, and physical makeup from other children. Because of these differences, they are hypothesized to be more prone to developing alcohol and drug abuse problems, hence perpetuating a vicious cycle. Currently, it appears that these children are likely to display a large number of possible biological markers for substance abuse. Not all children of substance abusers will develop some or all of these biomedical problems. The author's vulnerability model hypothesizes that children with the largest number of risk factors are more likely to develop substance abuse (Kumpfer & DeMarsh, 1984). As research in this field progresses, it will be possible to determine which risk factors cluster together and whether some have more salience than others.

Not enough research has been conducted to determine whether the physiological differences in these children are caused by 1) genetic, inherited traits; 2) in utero exposure to alcohol and drugs, as in children manifesting fetal alcohol syndrome (FAS) or fetal alcohol effect (FAE); and/or, 3) poor family environment during their early years, including poor nutrition, lack of needed health care, sickness, lack of exercise, environmental toxins, and other factors that could affect their physical development. The rest of this section reviews studies, including those covering 1) genetic transmission (e.g., sibling, twin, and adoption studies); 2) biological markers of vulnerability, including differential reaction to alcohol and drugs, temperament traits, neurological, biochemical, and neuro-psychological factors; 3) the deviance syndrome and drug abuse vulnerability; and 4) genetic caveats.

Genetic Factors

Since biblical times, many people have believed that "the sins of the fathers are visited upon the children." Plutarch, an early Greek writer, concluded that "drunkards beget drunkards." For many centuries people have believed that alcoholism runs in families and is inherited in a Lamarckian manner (i.e., if the father studied art, the children might inherit artistic talents; if the mother drank, the children might be drunkards). Of course, if the mother drinks, the children may develop developmental problems that would make them more prone to become alcoholics.

The current notion of the alcoholic's genetic susceptibility to alcoholism developed after prohibition in 1933. Proponents of this belief think that persons generally vulnerable to alcoholism have inherited an inability to control their drinking based on an inbred "allergy" to alcohol. Peele (1986) has recently published a critique of this hypothesis that chemical dependency is completely determined by biological predisposition. He points out that "studies found no basis for believing that alcoholics lost control of their drinking whenever they tasted alcohol" (Marlatt et al., 1973; Merry, 1966; Paredes et al., 1973).

An allergy or histamine response to alcohol caused by an increased accumulation of acetaldehyde (similar to the Oriental Flush response) is generally associated with decreased alcohol consumption. Hence the function of disulfiram (Antabuse) in relapse prevention is to increase the acetaldehyde level to toxic and uncomfortable (if not potentially lethal) levels. It is somewhat paradoxical, however, that Eskimo and American Indians, who also manifest the Oriental Flush response, have high rates of alcoholism. Perhaps variations of histamine and immunological response may account for this racial variation. Certainly these supposedly similar racial groups differ in cerebral functioning and cultural sanctions that could also produce a difference in cognitive or emotional response to chemicals.

Hence, it is clear that much more research is needed to understand the mechanisms of biological vulnerability. In the absence of clear genetic mapping studies, no precise genetic mechanism has yet been proposed to account for the pattern of biological markers discussed below; however, such genetic studies are lacking in most health and family psychopathology fields currently accepted to be strongly genetically determined. Luckily genetic science has developed far enough for such studies to begin to unravel these paradoxes.

Few researchers today accept that chemical dependency is totally caused by genetic factors, but by a complex interraction of genetic, in utero developmental, and environmental factors. If chemical dependency is to be thought of as a "disease," it is mostly in the sense of a "disease of lifestyle" such as diabetes and heart disease, where genetic vulnerabilities can be triggered by stressors, nonsupportive lifestyles, and negative environments.

The following review of various types of risk factor research (twin, sibling, adoption, children of alcoholic studies) conducted primarily with sons of alcoholic fathers helps to elucidate reasons for increased susceptibility in some of these youths.

Sibling and Half-Sibling Studies. Early support for the genetic predisposition to alcoholism was found by Schuckit et al., (1972), who reported that 20 percent of 164 half-siblings of 69 hospitalized alcoholics were also alcoholic. In addition, 62 percent of the alcoholic half-siblings had at least one biological alcoholic parent, while only 20 percent of the nonalcoholic half-siblings had an alcoholic biological parent. Hence, biological ties to an alcoholic parent considerably raised the probability that the offspring would become alcoholic, despite the fact that both half-sibs were raised in similar family environments for much of their lives. Hill and associates (1985) are studying alcoholism vulnerability using a research strategy that evaluates psychological and neurological markers in "multiplex families" in which one alcoholic has at least one other alcoholic sibling and one other nonalcoholic sibling.

Twin Studies. A number of researchers in this field are convinced that alcoholism is genetically influenced (see Goodwin, 1985, for a recent review of the literature). This conclusion is drawn from studies that demonstrate concordance rates of about 71.4% for alcoholism in one-egg (monozygotic) twins, but only 32.3% for same-sex dizygotic or fraternal twins (Kaij, 1960). This concordance rate drops slightly for grade of drinking (rated 1-5) to 53% for MZ and 28% for DZ twins, but the ratio is generally about half for most studies. For instance, Hrubeck and Omenn (1981) reported MZ concordance rates of 26.3% compared to 11.9% in DZ twins, determined by examination of Veterans Administration hospital records only.

A number of additional studies support the greater concordance rate in identical twins. Loehlin (1972) found greater concordance for heavy drinking in MZ twins than DZ twins in a sample of 600,000 high school juniors who took the National Merit Scholarship Questionnaire test. In a study of 1500 Swedish twin pairs, Jonnsson and Nilsson (1968) found greater concordance for quantity consumed in MZ versus DZ twins.

Only two studies have not replicated this increased vulnerability to chemical dependency in identical twins. In a general population study in Finland, Partanen and Associates (1966) failed to find greater concordance in MZ than in DZ twins for "out-of-control" drinking and "consequences of drinking," but they did support the standard quantity and frequency of drinking differences between MZs and DZs. Gurling and associates (1981) found differences in alcoholism concordance rates in male twins (33% in MZ and 30% in DZ male twins and 8% in MZ and 13% in DZ female twins). Pickens and Svikis (1986) conclude that, "While methodological differences could account for some of the discrepant findings, uncertainty remains from the results of twin studies concerning the role of genetic factors in alcoholism."

Using a much improved data collection methodology that included state-of-the-art questionnaires and blood samples for

determination of zygosity, Pickens and Svikis (1986) have preliminary evidence of higher alcohol abuse/dependence concordance rates for male twin pairs of 66% in MZ and 39% in DZ twins compared to 33% in MZ and 30% in DZ female twin pairs. Their study is very important because it is one of the first to examine the concordance rates for problem use of other drugs (excluding alcohol and tobacco). Based on their analysis of the total sample of 54 same-sex MZ twins and 70 same-sex DZ twins, they have replicated this sex difference in concordance rates. They discovered drug abuse concordance rates of 55% in MZ and 31% in DZ males, but only 27% in MZ and 23% in DZ females. These data support the hypothesis that the genetic component in alcoholism may be male-limited, as suggested by Bohman and associates (1981), and more importantly, that the genetic transmission for drug dependency may be very similar to that for alcoholism.

Adoption Studies. The nature/nurture contribution of parents to offspring's substance abuse is difficult to assess. Since twins share the same in utero environment, these data suggest genetic influences in the etiology of alcoholism and drug abuse. However, identical twins may still share a more similar social or familial environment after birth. Because of this environmental similarity, another way to investigate the contribution of heredity versus environment is through the use of adoption studies.

In general these studies, conducted primarily in Sweden, Denmark, and the United States, show a twofold to ninefold increased risk for alcoholism in adopted children of alcoholics. The degree of vulnerability appears to depend on the type of alcoholism inherited (male-limited alcoholism or milieu-limited alcoholism) or the sex of the person. Male-limited alcoholism is a severe type of alcoholism characterized by early onset, poor treatment prognosis, and associated with anti-social behavior in the father and the son. This type of alcoholism (related to the "St. Louisian Triad Syndrome" discussed by genetic psychiatrists and the "Deviance Syndrome" discussed by epidemiologists and delinquency specialists) is found in about 25 percent of all male alcoholics in the general population (Petrakis, 1985). Adopted sons of biological fathers with this disease are at a ninefold risk of developing the same type of alcoholism (Bohman et al., 1981; Cloninger et al., 1981). Because postnatal environment has little impact on probability of development or severity of this type of alcoholism, it is fortunate that male-limited alcoholism is fairly rare in adoptive populations. In a study of 862 adopted Swedish men, Cloninger and associates (1981) found the prevalence of male-limited alcoholism to be only 4% compared to 19% for milieu-limited alcoholism. Daughters do not appear to be susceptible to this type of alcoholism, but Bohman and associates (1984) reported increased Briquet's Syndrome in daughters of alcoholics (diversiform somatization characterized by frequent pain without apparent physiological conditions).

Milieu-limited alcoholism, a milder form of alcoholism characterized by adult onset and few anti-social correlates, is the more common type of genetically influenced alcoholism and

occurs in both men and women. Its risk is influenced by environmental provocation.

Genetic or in utero alcohol effects from alcoholic mothers are rarely studied, but a significant effect is suggested by a large Swedish adoption study (Bohman et al., 1981), in which only 2.8% of control daughters became alcoholics, but 9.8% of the adopted daughters with two alcoholic parents became alcoholics. Sons of alcoholic mothers had a higher likelihood of becoming alcoholic than sons of alcoholic fathers (28% compared to 23%), which is twice the 14.7% risk factor observed for adopted sons with no biological parent who is alcoholic. In general, it is interesting to note that alcoholic mothers had more alcoholic sons (28% vs. 23%) and daughters (10% vs. 4%) than did alcoholic fathers. Women who become chemically dependent may have more biological vulnerabilities for chemical dependency than men who become chemically dependent, because they have become addicted despite considerable societal and biological protective factors that generally prevent women from abusing alcohol or drugs. These biological vulnerabilities, if inherited, could increase the offspring's risk of chemical dependency.

Whether living with an alcoholic parent increases vulnerability or decreases it is unknown. Unfortunately, extant studies have not involved sufficient numbers of children born to biological alcoholic parents and subsequently adopted by alcoholic parents to estimate this familial environment risk factor. Cadoret and associates (1985) have some adoption data that suggest that living with alcoholics or in a pro-alcohol environment can increase a child's likelihood of becoming an alcoholic. However, Cloninger and associates (1981) found that children without alcoholic biological parents raised in alcoholic adoptive families manifest no increase in likelihood of alcohol abuse; in fact, nonsignificant reduction in alcohol abuse occurred among adopted sons reared by alcoholic parents (13%) versus nonalcoholic parents (18%). A child with an inherited predisposition towards alcoholism, namely an adopted child of a biological alcoholic parent, however, may be more vulnerable. The stressful alcoholic family environment may interact with the genetic predisposition to magnify the likelihood of alcoholism.

Biological Vulnerabilities

The field of alcoholism and recently drug abuse has turned attention towards research attempting to determine what exactly is being inherited by these offspring of chemically dependent parents that makes them more susceptible to alcohol and drug abuse later. Identification of biological vulnerabilities and markers would provide warning signals to affected persons that they should limit alcohol consumption and be sensitive to early signs of dependency. Once these precursors are understood, risk

assessments could be developed and referrals made for prevention interventions designed to reduce each risk factor in a particular youth.

Biomedical research in this area is still in its infancy, and the few existing studies need additional replication; but a consistent picture is beginning to emerge of 1) differences in metabolism and reaction to alcohol and other drugs, 2) predisposing temperament and psychological characteristics, 3) neurological and biochemical differences, and 4) psychological and cognitive differences that could make a child more vulnerable to substance abuse. Each of these four major predisposing factors is discussed separately below.

Individual Reactions to Alcohol and Drugs. COSAs appear to have a more pleasurable reaction to alcohol and other drugs and can tolerate large amounts/doses of alcohol or drugs without apparent immediate negative side effects. Because the ability to consume large amounts of alcohol or drugs is necessary to become chemically dependent, it is not surprising that research studies substantiate this increased capacity. Preliminary studies on biological reactions to alcohol have been conducted primarily on college-age sons of alcoholics compared to sons of nonalcoholics, and suggest some possible biological differences, including:

1. Higher levels of blood acetaldehyde and reports of increased pleasurable and relaxing responses to alcohol (Schuckit & Rayses, 1979; NOTE: Schuckit and Rayse's (1979) finding of increased acetaldehyde in children of alcoholics (COAs) has not been replicated by other researchers, and Knop and associates (1981) speculate that this finding may be an artifact of a difficult measurement process);
2. increased relaxation or decreased resting skeletal muscle tension as measured by electromyogram (EMG) scores in response to ethanol (Schuckit et al., 1981);
3. decreased subjective feelings of intoxication (similar to an innate tolerance) at equivalent blood alcohol levels (Schuckit, 1980);
4. decreased psychomotor impairment, including studies that measured reaction time to the same amount of alcohol (Alpert & Schuckit, unpublished data);
5. decreased static ataxia after drinking (Schuckit, 1985), even though COAs have been found to have more static ataxia without alcohol than controls (Hegedus et al., 1984);
6. increased high frequency brain waves measured by electroencephalogram (EEG) activity and an increased slow alpha response to alcohol (Vogel et al., 1979; Propping et al., 1980; Propping et al., 1981; Pollock et al., 1983);
7. increased "normalizing" and synchronizing effect (Propping et al., 1981) on deficient slow wave alpha activity in sons of male alcoholics (Pollock et al., 1983) by decreasing fast alpha responses (Volavka et al., 1985);

8. a potential "normalizing" effect by alcohol on the autonomic nervous system (ANS) reactivity in alcoholics (not necessarily COAs) (Kissen et al., 1959). Hence, if the alcoholic is low in autonomic arousal functioning, alcohol will act as a stimulant, whereas if the alcoholic is high in sympathetic activity, it will act as a sedative;
9. higher serum prolactin (associated with decreased stress) after alcohol consumption in sons of alcoholics than in sons of nonalcoholics (Schuckit et al., 1983); and
10. better memory, reaction time, balance, and perceptual motor performance after alcohol than controls (Wilson, 1982).

Hence, it would appear that alcohol or drugs may have some beneficial effects on COSAs that do not occur in less vulnerable individuals. This increased pleasurable, normalizing, and stress-reducing effect of alcohol on many COSAs would provide a powerful reinforcer for continued drinking. In addition, COSAs appear to experience fewer negative effects of alcohol intoxication to the same amount of alcohol. The next sections discuss temperament and biological/psychological dysfunctions in COSAs that could be ameliorated by their use of alcohol or other drugs.

Temperament Vulnerabilities. Tarter et al. (1985) have discussed a number of temperament traits that could be used to conceptualize predispositions in COSAs to chemical dependency. However, this article promotes the thesis that these temperament traits are less descriptive of all COSAs than of a subset of COSAs that have inherited one of the major vulnerability syndromes associated with noncompliant, antisocial, and/or hyperactive behavior. Based on conceptualizations of longitudinal child development researchers such as Thomas and Chess (1977) and Rowe and Plomin (1977), Tarter et al. (1985) discuss the following temperament vulnerabilities in children of chemically dependent parents:

1. Excessively high activity level or hyperactivity in children with a biological alcoholic father (Morrison & Stewart, 1973; Cantwell, 1972), which makes them more prone to misuse alcohol as adolescents (Mendelson et al., 1971);
2. decreased attention span-persistence and possible attention deficit disorder (ADD), as noted in a number of neuropsychological tests measuring attention capacity (Tarter et al., 1984b);
3. decreased emotional homeostasis or ability to return to normal after distress found in alcoholics (Rosenberg, 1969) and hypothesized to be a vulnerability factor in COSAs (Tarter et al., 1985);
4. increased emotional lability characterized as "hot tempered," hypersensitivity (Goodwin et al., 1975); less emotional control, low frustration tolerance, emotional immaturity, moodiness and depression (Aronson & Gilbert, 1963) in sons of alcoholic fathers, and higher Hs, Hy,

and D scales on the MMPI in delinquent sons of alcoholics (Tarter et al., 1984b); and

5. increased gregariousness or decreased social inhibitions in children who subsequently become alcoholics (Block, 1971), combined with a lack of a) awareness of impressions created on others, b) empathy, and c) insight in interpersonal relations (Jones, 1968).

Tarter and associates also discuss a sixth temperament trait called "propensity to seek out new and different tasting foods"; however, it is unclear whether COSAs are supposed to be higher or lower in this trait and it has never been experimentally tested. They do make the interesting point that alcoholics have lower salivary output (Belknap et al., 1978; Wenger, 1948) and higher saliva sodium and potassium levels, which drops 50% after alcohol consumption. By this analysis they should be thirstier than other people.

Neurological Vulnerabilities. These temperament traits are proposed by Tarter and his associates to be indicative of three potential neuroanatomical substrate dysfunctions and possibly neurochemical disturbances--prefrontal dysfunction, limbic-diencephalic dysfunction, and midbrain dysfunction. In addition, he proposes dysfunction in arousal regulatory mechanisms such as endogenous circadian rhythms, disequilibrium in cholinergic and adrenergic neurotransmitters (Mawson & Mawson, 1977), and the autonomic nervous system.

Specific examples of a number of neurological and biochemical differences between COSAs and nonCOSAs are listed below:

1. Excessive high frequency EEG activity in 12-year-old sons of alcoholics (Gabrielli et al., 1982);
2. a deficiency in slow wave alpha activity (Propping et al., 1981);
3. reduced P300 amplitude of visual evoked potentials in sons of alcoholic fathers after alcohol administration (Bloom et al., 1982; O'Connor & Hesselbrock, 1985) or in 21- to 26-year-old sons with family history positive (FH+)(Elmasian et al., 1982), and sons (ages 6 to 13 years) who have never been exposed to alcohol in utero or postnatally and without alcohol administration (Begleiter et al., 1984; Porjesz & Begleiter, 1985);
4. increased P300 latency and reaction times in FH+ sons of alcoholics (Elmasian et al., 1982);
5. decreased memory associated with decreased P300 event-related potentials (ERP) and decreased capacity to assess significance and sufficient encoding (Hegedus et al., in press); and
6. decreased sleep time (Schuckit & Bernstein, 1981).

The evidence appears to be increasing for some type of brain activity dysfunction in COSAs although current studies are not totally supportive. It is probable that vulnerable and invulnerable COSAs would need to be separated some way and tested to get consistent results. In addition, older COSAs who have not developed chemical dependency are more likely to be invulnerables and not manifest these neurological problems. Polich and Bloom (1985) found no significant decrease in P300 amplitude in 12 FH+

subjects with either first- or second-degree relatives having alcoholism, but still got the increased latency effect. In her doctoral dissertation, Emmerson (1986) found nondrinking COAs had increased P300 amplitude without alcohol compared to nondrinking nonCOAs. Possibly adult COAs who do not become chemically dependent may have improved P300 information processing, and this is a protective factor (Werner, 1986). In addition, Emmerson (1986) found no difference in N2 latency associated with stimulus evaluation or attention in adult children of alcoholics, though this is often found in alcoholics (Renault & Leservere, 1979).

Biochemical Vulnerabilities. Individuals vulnerable to chemical dependency also appear to have neurochemical dysfunctions. More research in this area is needed to test hypotheses that COSAs may be deficient in serotonin or have an exaggerated increase in serotonin to alcohol (Goodwin, 1985; Myers & Melchior, 1977). Since alcohol also appears to increase serotonin, but subsequently to reduce it to subnormal levels in withdrawal (Kent et al., in press), this would help explain the "addictive cycle" in alcoholics. Others have speculated that vulnerable individuals are deficient in endogenous opioids, or may have increased susceptibility to tetrahydroisoquinole (THQs), and other morphinelike compounds (salsolinol and salsoline) which have been found in greater quantities after alcohol ingestion in the spinal fluid of alcoholics (Borg et al., 1980). According to Bloom (June 1986, personal communication), the quantities of THQs found in humans have been very small and not likely to explain vulnerability differences. Biochemical differences that have been found include the following:

1. decreased platelet monoamine oxidase (MAO) activity (related to increased bipolar affective disorder) in alcoholic clients and their first-degree relatives (Alexopoulos et al., 1983); and
2. decreased plasma and cerebrospinal dopamine betahydroxylase (DBH) (Schuckit, 1983).

A number of researchers are attempting to better understand the role of the brain monoamine systems in the mediation of ethanol preference, sensitivity, dependence, and/or tolerance. Murphy and associates (1985) report consistent suppression of alcohol intake in rats (Amit et al., 1984; Rockman et al., 1982) and in one study with humans (Naranjo et al., 1984) with the use of monoamine re-uptake inhibitors that have high specificity for serotonin neurons, such as Zimelidine. Other studies have reported decreased alcohol intake in animals after injections of the serotonin precursor, tryptophane (Zabrik et al., 1978). Recently, Murphy and associates (1985) found that both serotonin uptake inhibitors (fluoxetine and fluvoxamine) and norepinephrine (NE) uptake inhibitor (desipramine) significantly decreased alcohol consumption in alcohol-preferring rats. Though the mechanism by which these monoamine re-uptake inhibitors operate to alter alcohol consumption remains unclear, these studies suggest that neurotransmitter balance may be involved in vulnerabilities to chemical dependency.

Additional evidence of the role of neurotransmitters in drug abuse is the finding of Schuster and Sendin (1986) that drug-abusing, antisocial, and violent criminals in a prison study had significantly lower levels of the neurotransmitter dopamine. Dopamine levels in the brain are temporarily increased with the use of stimulants, but some researchers found that repeated use of stimulants, such as methamphetamine and cocaine, produced long-lasting depletions in dopamine and serotonin.

Some researchers have found that serotonin (5-HT) uptake inhibitors such as fluoxetine have been helpful in decreasing food consumption in overweight people. They found that these people were self-medicating their decreased serotonin by eating large quantities of carbohydrates not balanced by proteins. When this occurs, the carbohydrates break down into tryptophane, which then increases serotonin. These people may be self-medicating their neurotransmitter imbalances, as may be substance abusers, since alcohol also increases serotonin.

Neuropsychological Vulnerabilities. Given the large number of possible neurological and biochemical imbalances, it is not surprising that COSAs manifest a large number of behavioral, social, and educational problems (Kumpfer & DeMarsh, 1986a, b). A number of the specific factors that could affect educational achievement are listed below:

1. decreased I.Q. in 3- to 7-year-old children of methadone-maintained mothers (Sowder & Burt, 1980);
2. decreased academic achievement (Ervin et al., 1984; Hegedus et al., 1984);
3. decreased verbal performance and I.Q. (Gabrielli & Mednick, 1983);
4. delayed mental development (Herjanic et al., 1979);
5. increased left-handedness in adolescents prone to alcohol misuse (Lee-Feldstein & Harburg, 1982);
6. decreased abstraction and problem-solving capability (Noll & Zucker, 1983); and
7. decreased ability to shift cognitive set on the Minnesota Card Sort Test (Goodwin, personal communication).

Combined with these cognitive problems, which appear to stem from a lack of left hemispheric strength or dominance, are a number of temperament and activity level problems that make the child even more unlikely to succeed in the traditional educational setting. These factors include attention deficit disorder and hyperactivity as mentioned earlier. In addition, these COSAs are more likely to have behavioral disturbances such as phobias, fears, shyness, aggressiveness, temper tantrums, stuttering, thumbsucking, and nightmares (Kumpfer & DeMarsh, 1986a, b; Kumpfer, 1987; Sowder & Burt, 1980).

The Deviance Syndrome

It is possible that many of the neurological and biochemical differences described previously may be due to inherited differences in the St. Louisian Triad, since most of the prior biomedical research has been conducted with sons of alcoholic fathers. This author is unaware of any studies that separate sons of

alcoholics that have male-limited versus milieu-limited alcoholism. Since male-limited alcoholism is found in only about 25% of all male alcoholics, the field may know very little about the biological contributors to the types of alcoholism that affect the rest of the population. There may be a number of other biological markers that would be discovered if other types of alcoholism were studied in other populations, including daughters of alcoholic mothers and fathers. It is also possible, however, that drug abuse is more connected to genetic factors predictive of antisocial behavior than is alcoholism. In a recent study of alcoholism and antisocial personality, Cadoret and associates (1985) conclude that there may be specificity of inheritance for antisocial and alcoholic conditions. Using adoption records in Des Moines, Iowa, these researchers found that having antisocial parents did not increase alcohol abuse in offspring, nor was there an increase in antisocial personality in adoptees with biological relatives with problem drinking.

As mentioned earlier, there appears to be a strong correlation between antisocial behavior and adolescent drug abuse--particularly early antisocial behavior (Robins, 1978; Johnston et al., 1978; Kandel et al., 1978; Wechsler & Thum, 1973). In fact, the Jessors have theorized that drug use can be explained by a deviance syndrome or proneness to problem-behaviors (Jessor & Jessor, 1977, 1978). Longitudinal studies have found that antisocial behaviors generally precede drug use (Elliott et al., 1982; Johnston et al., 1978). Studies in the area of delinquency (Spivak, 1983) also demonstrate that such antisocial behavior may be detected as early as entry into kindergarten (which is useful for early childhood prevention programs). Earlier detection in preschool years is somewhat hampered by problem behaviors that are normal for this stage of development, such as temper tantrums and self-centered behavior (Rutter & Giller, 1983; Loeber, 1985). One study (Kellam & Brown, 1982) has found a significant positive correlation between aggressiveness and shyness in black 1st-grade students and frequency of substance abuse in the 10th grade. According to Hawkins and associates (1985), although "serious conduct disorders in childhood appear to be virtually a prerequisite for serious antisocial personality problems including drug abuse in later life, less than half those with serious behavior problems in childhood will manifest these problems later" (Robins, 1978, p. 80). According to this information, interventions aimed at prevention of drug abuse should consider targeting children in the elementary school grades who have both severe conduct disorders and drug-abusing parents, since at least one-half of these children are likely to become drug abusers.

Drug Abuse Biological Markers

Less research has been conducted on biomedical correlates of offspring of drug abusers than of offspring of alcoholics (Peele, 1985). Increased sensitivity to physical and psychological pain and certain medical syndromes (yet to be identified) could predispose some families to use drugs. Decreases in brain serotonin (5-HT) result in an increased sensitivity to pain (Harvey &

Yunger, 1973). Clinicians working with heroin clients report a hypersensitivity to pain in these clients (Brown & Millard, 1985, personal communication), though this could be due to decreased endogenous opioid peptide or endorphin production from prolonged heroin use. Other addictions such as alcoholism, overeating, and compulsive running have been attributed to endorphin shortages (Weisz & Thompson, 1983; Pargman & Baker, 1980). However, Weisz and Thompson (1983) found no solid evidence "to conclude the endogenous opioids mediate the addictive processes of even one substance of abuse" (p. 314).

In her CNS reactance theory, Petrie (1976) proposes that people intolerant to pain are "CNS augmenters," while those tolerant to pain are "CNS reducers" (for review, see Barnes, 1983). She found that augmenters had a larger decrease in pain sensitivity associated with alcohol, aspirin, and chlorpromazine (Petrie, 1978). Buchsbaum (1978) linked CNS augmentation to substance abuse in studies of sensory-evoked potentials. Recent studies (Hennecke, 1984) with 10- to 12-year-old children of alcoholic fathers found that more of these children are CNS augmenters. Because of the normalizing effect of stimulant medication on hyperactive children (Wender, 1975), youths who enjoy stimulant drugs such as cocaine, amphetamines, nicotine, and caffeine may also be stimulus augmenters.

Non-specific Drug Vulnerability

A number of studies suggest that male-limited alcoholism and drug abuse may have the same biomedical risk factors and that there is a lot of cross-over and lack of specificity in transmission of substance abuse (Shade & Hendrickson, 1971; Kandel, 1974; Annis, 1974; Newcomb et al., 1983; Fawzy et al., 1983; Peele, 1986). These studies have found youthful substance abuse particularly related to alcohol use in the father (Hochman & Brill, 1973; Stenmark et al., 1974), but prescription medication abuse in the mothers. In an early study of 8,865 Canadian youths and their parents, Smart and Fejer (1972) found that 71% of the children of prescription-abusing mothers became alcohol abusers, and smaller percentages used a number of other psychotropic drugs, including 18% who abused heroin. It is highly likely that the choice of alcohol by the fathers and prescription drugs by the mothers in these studies reflects the social acceptability of the use of these drugs by men or women, rather than different biological susceptibilities.

Opiate users often switch to alcohol after detoxification (Kaufman, 1982; O'Donnell, 1969), and in the 19th century some physicians switched alcoholics to opioids. Vaillant and Milofsky (1982b) reported that about 90% of benzodiazepine-dependent persons have alcoholism in their family or are alcoholics. Johnson and associates (1986), at the Research Institute on Alcoholism at the University of Pittsburgh, recently presented a poster paper at the National Council on Alcoholism conference that supported speculation that children of alcoholics are also vulnerable to drug abuse. She found that 10- to 18-year-old children of alcoholic fathers did not differ significantly from

adolescents of depressed or normal fathers in their attitude toward or experience and style of drinking. They did, however, have significantly more experience with illegal drugs. More had tried marijuana (37.5%) than the normal controls (16.2%) or depressed controls (14.3%). They were also more likely to use hashish, "speed," and cocaine. One interesting finding is that significant differences were found for increased experience with cocaine and "speed" only in the girls, and increased experience with hashish and marijuana only in the boys. COAs smoked marijuana more frequently and got "very stoned" more frequently.

The real disease predisposing these youths to alcohol or drug abuse may not be alcoholism, but the vulnerability syndrome discussed previously. Tarter et al. (1985) suggest that "alcohol consumption in predisposed individuals may be only one of a variety of available coping strategies and that its selection over other drugs may reflect the involvement of nonbiological factors (i.e., sociocultural influences and alcoholic beverage availability)." Since parents of today's substance abusers had little social access to illegal drugs, they were more likely to abuse alcohol. Vulnerable youth today often use a wide range of drugs, including alcohol.

Individuals manifesting these biological vulnerabilities are likely to manifest additional symptoms or symptom substitution in self-medicating their discomfort. The author hypothesizes that the vulnerability syndrome discussed in this paper may be the underlying disease described in the children of alcoholics and A.A./Al-Anon literature as "co-dependency" (Schaef, 1986; Wegscheider-Cruse, 1985). Co-dependency generally is described as the disease that underlies alcoholism and the proneness to addictive and compulsive behaviors in alcoholics and children of alcoholics. The "dry drunk" or adult child of an alcoholic parent (ACA) is described as being more likely to manifest any one or a number of "addictive" or compulsive behaviors (e.g., drug abuse, smoking, gambling, meditation or excessive religious rituals, compulsive hobbies, overeating and excessive use of sweets, workaholism, etc.). Tarter et al. (1985) suggest that these behaviors are more common in vulnerable individuals because they are using repetitive or calming behaviors to stabilize their arousal dysfunction.

The main point in citing this research is to demonstrate that the biological research literature on children of alcoholics is likely to apply to drug-abusing children or children of drug abusers. If this is so, the substance abuse field may not be far behind the alcoholism field in this type of vulnerability research. In addition, the vulnerability syndrome described in the biological marker literature (by whatever name it is called--"male-limited alcoholism," "deviance syndrome," "St. Louisian Triad syndrome," "co-dependency," "addictive/compulsive personality," "antisocial personality") is likely to be more descriptive of adolescent drug abusers than the general population of alcoholics. The logic behind this is that only 25% of male alcoholics are said to manifest male-limited alcoholism, whereas most adolescent drugs abusers are likely to manifest the

"deviance syndrome" (Hindelang & Weisz, 1972; Elliott et al., 1982; Jessor & Jessor, 1978).

Genetic Caveats

Not all alcoholic parents have a genetic vulnerability that they can pass on to their children, because some have milieu-limited alcoholism that appears to be mainly influenced by environmental conditions. In addition, some nondrinking parents may have biological vulnerabilities that never become manifest because of religious, sociocultural, or personal preferences not to drink. In addition, it is likely that there are many types of alcoholism and many biological risk factors.

There is a sense of excitement in this field, and this author believes that a cluster of major biological markers are likely to be discovered that explain the syndrome of psychiatric disorders sometimes call the St. Louisian Triad. Epidemiologists at Washington University in St. Louis have discovered that antisocial personality, chemical dependency, and Briquet's syndrome all tend to run in the same families. It is possible that certain hormonal, biochemical, and/or neurotransmitter deficiencies (over 200 kinds possible) could explain these psychiatric disorders. This author believes that a number of biochemical risk factors could cause vulnerability to chemical dependency. In particular, hormonal imbalances in utero can affect brain development and lead to cognitive disorders commonly found in chemical dependency (Geschwind & Galaburda, 1985).

The "state of the art" has improved considerable since Mendelson (1975) wrote a decade ago that "no specific biological, psychological, or social variable has been shown to have high predictive value for determining which individuals are at high risk to develop and sustain problem drinking behavior." Individual variables still contribute small amounts of variance; it is probable, however, that a number of risk factors will cluster together in major syndromes. A number of promising biochemical and neurophysiological risk and protective factors have been discussed--including metabolic enzyme variants, cell membrane variations, and neurochemical variation.

IN UTERO DEVELOPMENTAL VULNERABILITIES

Discussion of risk factors developed because of in utero exposure to alcohol or drugs is not generally considered in reviews of risk factors. The author believes that this is an important risk factor that is often overlooked. In addition, the Kumpfer bio-psychosocial model of substance abuse vulnerability includes this precursor. This section includes a brief review of gestational effects of substance abuse on the fetus. Research evidence increasingly demonstrates that many of the biological, cognitive, and behavioral risk factors previously noted in children of alcoholics and drug abusers are major features of fetal alcoholism syndrome (FAS) and fetal alcoholism effect (FAE) and are found in infants born of heroin-addicted, methadone-maintained mothers or polydrug-abusing mothers.

Associated symptoms of FAS/FAE include low birth weight, neonatal complications, hyperactivity, attention deficit disorders, learning disabilities, and EEG abnormalities (Abel, 1981, 1982 a, b; Finnegan, 1976; Stimmel et al., 1982-1983).

Because of the stigma of alcohol or drug use in pregnant women, a number of problems in children of substance abusers may be caused by unreported substance use during pregnancy. As pointed out by Clarren and associates (1985), "human and nonhuman primate studies on brain structure and function now strongly suggest that gestational alcohol consumption can affect fetal brain structure and function even in the absence of any external morphological change such as facial abnormalities or disruption in growth (characteristic of full-blown fetal alcohol syndrome)." Streissguth and LaDue (1985) suggest that functional neurobehavioral deficits are usually the product of lower levels of alcohol exposure than those necessary for physical abnormalities.

Fetal Alcoholism Syndrome or Effect

Since the first cases of fetal alcohol syndrome were identified as recently as 1973 (Jones et al., 1973; Jones & Smith, 1973), the long-term effects of FAS, or the more recently described FAE, are yet to be determined (Streissguth et al., 1985a). Researchers are currently trying to understand how alcohol produces the effects that it does on the fetus. Some researchers suggest that it impairs the fetus's hormonal system, which then affects brain structure and subsequent behavior in the child (Taylor, 1984). Because heavy alcohol consumption can result in a depression of serum testosterone levels in human male alcoholics, and testosterone is important in the development of neurons in the brain, Rudeen and associates are testing in rats the hypothesis that maternal alcohol consumption during critical periods for sexual differentiation could cause functional and structural neural abnormalities (Podolsky, 1985).

Fetal Drug Syndrome or Effect

Researchers working with drug-abusing women, primarily opiate abusers, have noted similar effects on the fetus as those found for FAS/FAE. Most of the children born of heroin-addicted mothers are born addicted. Because heroin use results in dysmenorrhea, many women do not discover that they are pregnant until late in their pregnancy (Rosenbaum, 1979). Since maternal narcotic withdrawal has been associated with increased fetal mortality and distress, including violent kicking and meconium staining, many of these women decide to stay on heroin. However, these children are then exposed to a number of other in utero risks such as venereal infections, hepatitis B, acquired immunodeficiency syndrome (AIDS), malnutrition, and other illnesses (Finnegan, 1976). Female addicts who do not enter treatment and receive little or no prenatal care are more likely to have birth complications and more negative neonatal outcomes (Thomas, 1975; Suffet & Brotman, 1984).

Drug Withdrawal or Neonatal Abstinence Syndrome

Within 24 to 72 hours after delivery, the newborn will begin withdrawal symptoms of irritability, tremors, hyperactivity, crying, frantic sucking, and sleep and feeding problems (for a comprehensive review article see Householder et al., 1982). Infant mortality rates are three times higher in these newborns. They are also more prone to Sudden Infant Death Syndrome (SIDS). According to Finnegan and Fehr (1980), few researchers have looked at withdrawal in newborns from other drugs like cocaine, cannabis, or hallucinogens. One study found few classic withdrawal symptoms in infants of PCP-abusing mothers (Chasnoff et al., in press), but they did find pronounced agitation and rapid changes in consciousness levels. Withdrawal symptoms make the infant difficult to care for and manage (Escamilla-Mondanaro, 1977) and may interfere with mother-infant bonding.

Characteristics of Fetal Drug Syndrome Children

Most of the studies conducted on the children of heroin- or methadone-maintained mothers document physical, emotional, and cognitive delays and problems in these children until they enter school, when the problems become less severe (Sowder & Burt, 1980; Kumpfer & DeMarsh, 1986; Hans et al., 1984). In a review of the literature, Householder and associates (1982) report that during the first year of life these children are more hyperactive, less consolable, and have more sleep and feeding problems and impaired attention span. Several followup studies of these children beyond the first year of life are being conducted (Johnson & Rosen, 1982; Marcus et al., 1984). Sowder and Burt (1980) found that despite similar child-rearing practices, 3- to 7-year-old children of addict parents had lower I.Q., more neurologic deficits, more vision and hearing problems, greater insecurity and anxiety, and shorter attention spans than matched comparison children. Because of these problems, 57% had a poor prognosis for school success.

Characteristics of FAS and FAE Similar to Those of COSAs

Hyperactivity has been noted in both children of alcoholics and drug abusers and FAS or FDS children. Clarren and associates (1985) discuss a type of hyperactivity found in FAS children characterized by increased minor motor movements that interfere with their ability to concentrate on learning tasks. Porjesz (personal communication, 1986) has also noted a unique type of hyperactivity and low vagal tone in children of heroin-addicted mothers. One interesting note is that Clarren has found that methylphenidate (a CNS stimulant), which is often used to treat hyperactive or attention-deficit-disorder children, was not successful in controlling this unique type of hyperactivity in FAS/FAE children. Another interesting finding is that infants intoxicated at birth because of drinking by the mother prior to delivery, metabolize ethanol very slowly because they are deficient in ethanol dehydrogenase. This enzyme deficiency causes

increased acetaldehyde after alcohol ingestion, a risk factor found in children of alcoholic fathers.

Researchers studying the effects of moderate prenatal alcohol exposure on newborns have found disturbances in sleep-wake cycles (Landesman-Dwyer et al., 1983), increased malformations (Ouellette et al., 1977; Rosett et al., 1979), jitteriness, increased tremors, hand-to-mouth activity, head turning to left, and nonalert wake state, as well as decreased vigorous body movements, decreased neonatal operant learning, weak sucking, and longer latency to first suck (Martin et al., 1979), lower Apgar scores, more heart rate abnormalities (Streissguth et al., 1982), and slow habituation to redundant stimuli (Streissguth et al., 1983). Additional problems in attention (Streissguth et al., 1984) and reaction time have been measured in FAE children until the child is 7 years old (Streissguth et al., 1985b).

Implications for FAS/FDA Prevention Interventions

Obviously, women, their families, and their physicians need more information on the risks of drinking, drug use, and smoking. The only safe message currently is not to drink, use drugs, or smoke at all during pregnancy. Unfortunately, according to the 1980 National Natality Survey (NNS), over 50% of pregnant women still drink or smoke during their pregnancy. Despite the fact that pregnancy is a time when when most women are particularly motivated to improve their health-risk behaviors (Weiner et al., 1985), without supportive interventions only 12% of the women were able to become free of alcohol and/or tobacco during pregnancy. Because surveys have shown that advice from physicians and other health professionals is the strongest factor in a women's decision to reduce high levels of drinking (Minor & Van Dort, 1982), physician-based prevention interventions during pregnancy may be effective in reducing FAS/FDS as well as health-risk behaviors in the spouses and family members.

Marcus and associates have found fewer motor deficits in 8- to 12-month-old infants of methadone-maintained mothers in families with more family resources (i.e., father present, stable parental and marital relationship, less maternal psychopathology, and higher maternal education and socioeconomic status). Streissguth and associates have also noted that FAS children can improve in emotional and social development if they have a stable and supportive home environment (Streissguth et al., 1978). She suggests special training and strong support systems for any type of caretaker of these special-needs children's (i.e., natural parents, adoptive parents, relatives, foster parents, day care specialists, and teachers).

ENVIRONMENT AND CHEMICAL DEPENDENCY

Environmental Transmission of Chemical Dependency

Most people agree that both nature and nurture influence human behavior; controversy concerns the contribution of each. Biological variables were addressed first in this paper, not

because the author believes that they are more important, but because they appear to influence the child earlier. In addition, these biological, and possibly inherited, factors are currently very new and eye-catching.

This section reviews the other half of the nature/nurture debate--the environment, the major factor amenable to change through psychosocial programming. Unfortunately, in recent years psychosocial contributors to etiology have been neglected, as every psychosocial researcher is aware. In a recent landmark article in the American Psychologist, Zucker and Lisansky Gomberg (1986) discuss possible reasons why prior longitudinal studies have failed to demonstrate the equal importance of the child's early environment. One factor appears to be philosophical assumptions of the preeminence of inherited traits over family environmental variables that affected statistical analyses and interpretations.

Despite years of controversy about nature/nurture contributions to human personality and behavior, few studies have collected enough data to measure either adequately in a single study. No longitudinal study has tracked children from early childhood until adulthood with adequate biological measures for the risk factors mentioned earlier. The longitudinal followup of the Gluecks' study of lower socioeconomic adolescent males living in Boston conducted by Vaillant and associates (1982) and Vaillant (1983), which indicated the importance of inherited variables, arrived at this conclusion on the basis of reported family history only. In addition, the importance of many of the psychosocial variables collected by the Gluecks were underestimated in their data analyses. Zucker and Lisansky Gomberg (1986) conclude that outcomes such as these have led to biased and reductionistic theories of the etiology of chemical dependency.

Theoretical Models. A number of researchers are currently working on theoretical models that would help to predict vulnerability to chemical abuse or dependency by combining both environmental and biological variables (Zucker & Lisansky Gomberg, 1986; Hill et al., 1985). The author has recently revised her theoretical model to include both biological and environmental factors. This Chemical Dependency Vulnerability Model is presented in Figure 1, and represents a simplified version of the author's prior Values/Attitudes, Stressors, and Coping Resources (VASC) model (Kumpfer & DeMarsh, 1986a) developed from the Public Health Services Host/Agent/Environment model. As in the VASC Model, the early childhood family environment is considered as one of the primary environmental factors in shaping the attitudes, life stressors, and coping skills that will eventually influence that youth's need for and choice of drugs. The new model would predict that biological factors, such as the genetic contribution of the parents, the prenatal environment, and physiological/cognitive disorders would interact with environmental factors, such as family, community, and social environments to influence the child's vulnerability to alcohol and drug abuse. In addition, similarly to the VASC Model, the environmental clusters of family, community, and social group are organized into three categories: those related to cognitive factors

Figure 1: A BIO-PSYCHOSOCIAL VULNERABILITY MODEL

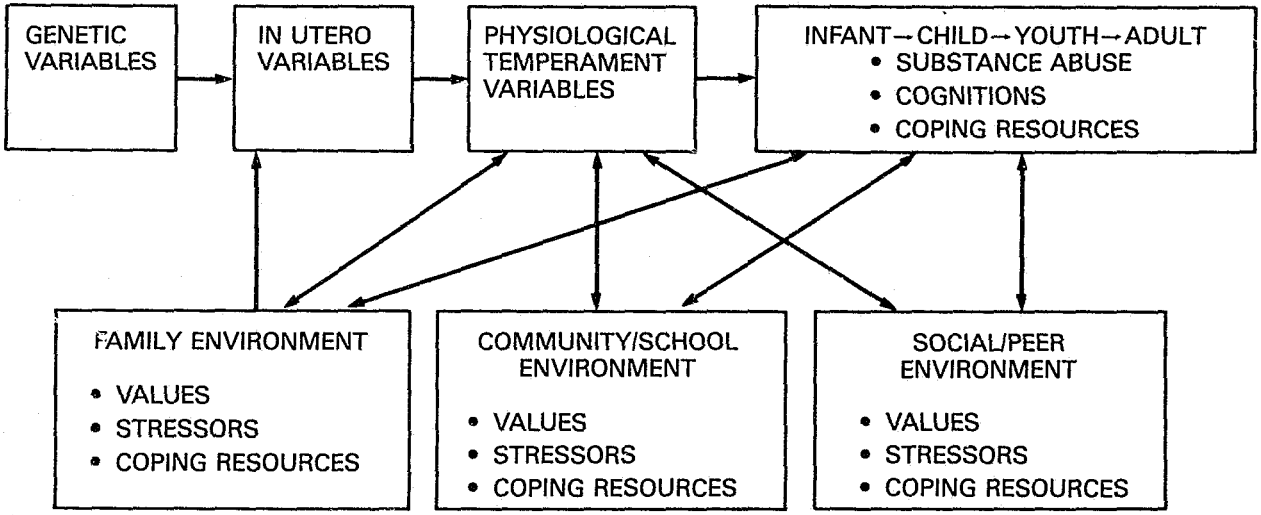

Figure 1: A Bio-psychosocial Vulnerability Model

(values and attitudes), environmental factors (stressors), and behavioral coping factors (skills).

Such a bio-psychosocial model clarifies the multitude of potential risk factors that need to be measured simultaneously in any well-designed study of the etiology of chemical dependency. The contribution of each major cluster of variables would change as the child develops. Early in infancy, the biological variables would predominate, with some modification beginning due to parental or caregiver environment and responsiveness to the child. In early childhood, the family environment would be very powerful in shaping the child's behaviors and cognitions. As the child becomes more involved in the outside community through watching television, looking at books, and observing people in shopping centers, church, and recreational activities, the community influence would increase. Starting just before entry to school, the influence of neighborhood friends, family friends, and school friends begins to increase, until during adolescence, the child's peer group is very powerful in shaping the child's vulnerability to drug abuse.

Early Childhood Environmental Variables. If sociocultural and family environments contribute much of the variance in vulnerability to substance abuse, what are these factors and how can they be addressed in prevention programs? As mentioned earlier, there is a real paucity of longitudinal or cross-sectional family studies that have been conducted primarily to study the etiology of chemical dependency. Most of the longitudinal studies used to examine risk factors for substance abuse have used databases developed to study other social or medical problems, such as delinquency, personality and mental development, or general growth and development studies. Zucker and Noll (1982) reviewed a number of these longitudinal studies that originated in childhood (none with children less than 9 years of age); followed them until adulthood, and measured the adult outcome variable of either alcoholism or problem drinking.

Early cross-sectional studies of children of alcoholics indicated that these children have a significant risk of developing a number of problems (Cork, 1969; Nylander, 1960). Kumpfer and DeMarsh (1986a) have also reviewed a number of more recent cross-sectional studies (Sowder & Burt, 1978a, b; Booz-Allen & Hamilton, 1974), including their own (Kumpfer & DeMarsh, 1986), which have compared high-risk children of substance-abusing parents with children of nonsubstance-abusing parents. The author's study represents one of the most comprehensive data collections of psychosocial variables on families and children of substance abusers (N = 60), and the only one to have a normal control group (N = 60) that was selected randomly through a stratified cluster sample in the general population. The substance-abusing parents and their children were voluntary participants in the author's prevention program--the Strengthening Families Program.

Both groups completed an extensive, self-administered Family Assessment Battery that contained a parent and child interview questionnaire, a Parent's Knowledge of Behavioral Principles, and eight standardized psychological tests, including the following: Moos (1974) Family Environment Scale, FACES-II (Olson

et al., 1982), Spanier (1976) Marital Adjustment Scale, Cowan et al. (1970) Parent Attitude Test, General Well-Being Scale (National Center for Health Statistics, 1977), Beck (1978) Depression Inventory, Family Inventory of Life Events (FILE) (McCubbin, Patterson & Wilson, 1980), and the Child Behavior Checklist (Achenbach & Edelbrock, 1979). The results of this study support the clinical observations from psychosocial histories of substance abuse treatment clients, that the early childhood environments of individuals who are more likely to become abusers are significantly more dysfunctional.

The conclusions from both the longitudinal and cross-sectional studies are very similar. This conclusion is supported by studies of families of youthful abusers that report more problems in these families with emotional disturbances (Rosenberg, 1969), inappropriate or dysfunctional interaction patterns (Blum et al., 1972; Braucht et al., 1973), and an increased incidence of other deviant behaviors by children (Adams & Gullotta, 1983). A number of articles that have reviewed the dynamics of families with substance-abusing children provide additional evidence that a poor early family environment is an important factor in the vulnerability to substance abuse (see Harbin & Maziar, 1975: Hawkins et al., 1985; Klagsbrun & Davis, 1977; Seldin, 1972; and Stanton, 1979).

The Developmental Sequence. A clearer picture is emerging of the primary elements of early environmental dysfunction for high-risk children. The primary elements of this developmental sequence include the following scenario. Each element in this scenario is discussed at length below, with supporting empirical data in the next section.

A chemically dependent or vulnerable parent, because of either genetic or in utero risk factors, has a child which has a higher probability than average of having special needs (i.e., difficult temperament, hyperactivity, learning disabilities, neurological deficits) (Tarter et al., 1985). Depending on the degree of involvement in chemical dependency of the primary caregiver (as the abuser or the enabler), the age of the child when the family becomes significantly involved in the abuse problem and develops the "family illness of chemical dependency," and a number of other factors (i.e., the social isolation of the family, lack of supportive extended family), the child will suffer from lack of nurturant parenting. The author's research found that the children appear to be more affected if the mother is the drug abuser, probably because mothers are traditionally the caretakers of the children (Kumpfer & DeMarsh, 1986b; Kumpfer, 1987).

Such parents are not generally willful in their neglect of parental responsibilities. They simply have too many other problems of their own. Most were never adequately parented by themselves. Significantly more of these chemical-abusing parents report lax discipline and lack of supervision by their parents (Kumpfer & DeMarsh, 1986a). They often have little idea of what it means to be a responsible parent. Their notion of reasonable expectations for the child are too high and they expect their children to be competent at a number of tasks much earlier than

other parents (Kumpfer & DeMarsh, 1986a; Kumpfer, 1987). These unrealistically high expectations lead to feelings of failure in the children.

In addition to this general lack of parenting skills, researchers are also finding a lack of family and home management skills (Patterson, 1986). These skills were also never taught to them by their parents and result in a number of factors (i.e., decreased family structure and rituals, increased conflict, poor communication, and poorer diet and exercise) which are often found in alcohol- or drug-abusing homes and are correlated as risk factors with substance abuse. If the family is socially isolated, as is often true (Ames, in press), the child does not learn appropriate interpersonal skills. The child may resort to inappropriate or antisocial behaviors to get attention from others. Innate tendency toward "strong-willed" or self-centered behaviors may not be tempered by social reinforcement from family and friends for being a "team player" or a well-socialized person. Antisocial and aggressive behaviors tend to further isolate the child from needed social supports and lead to social failure (Patterson, 1986). Few relatives, teachers, neighbors, or other children are interested in being a special friend to this type of child because they are so unrewarding and demanding.

The lack of parental supervision and training in appropriate behavior often results in poor home and school behaviors (temper tantrums, crying, aggression, sadistic behaviors, lying, screaming, noncompliance). If these children do not receive special attention from a teacher or other concerned adult, they are likely to develop social and academic problems at school. Because of their parents' lack of supervision, these high-risk children are more often absent or late for school, poorly fed and clothed, and receive less help with their school work (Kumpfer & DeMarsh, 1986a). If combined with a decreased aptitude for academic work caused by learning disabilities, left-handedness and right hemispheric dominance, attention deficit disorders, and hyperactivity, this decreased exposure to education would lead to increased probability of academic failure and school dropout. Such a high-risk child would tend to dislike school, to be truant, to drop out of school early, and to have more difficulty finding good or steady employment.

The final chapter in this sad scenario is a youth or young adult who is more socially isolated and needs alcohol or drugs to become socially connected to others; a person who is basically a loner and whose life is full of many stresses because he or she accepts help from very few people. Such youths find it difficult to establish close, supportive, and lasting personal relations with others. If their academic abilities are low, they will find employment unrewarding and difficult. Because of their lack of home management skills, their life is often in chaos. A settled life is considered boring. Because they are always involved in crises (legal, financial, marital, family, work), they have little time to pursue their talents and become successful at something. Low self-esteem, frustration and anger develop. All of these factors have been found to be predictive of chemical dependency. Alcohol and drugs work for these people

in temporarily alleviating their distress, but unfortunately involve them in a downward spiral.

This picture is presented not to demonstrate that all children of substance abusers will follow the exact same developmental pathway, but to show what some of the risk factors are and how they can interact to product the multiple problems found in these children (Kumpfer & DeMarsh, 1986a; Kumpfer, 1987). Depending on protective factors in the child, such as high intelligence and attentional competencies (Garmezy et al., 1984), even temperament (Tarter et al., 1985), academic achievement (Labouvie & McGee, 1986), social responsiveness and dependency (Jones, 1968, 1971), and good coping skills (Kumpfer & DeMarsh, 1986a), this child will be more or less at risk for alcohol and drug abuse, depending on a continuum of risk and protective factors. The number of risk and protective factors are extensive, but further multiple factorial research may determine the most critical factors.

PSYCHOSOCIAL FACTORS IN THE EARLY CHILDHOOD ENVIRONMENT

This section highlights some of the main psychosocial variables found in empirical research studies to be significantly different in children vulnerable to chemical dependency. The ordering of the factor clusters follows those presented in the bio-psychosocial vulnerability model and the prior developmental sequence--parental dysfunction, family dysfunction, parenting dysfunction, community and social environmental dysfunction, and school environmental dysfunction.

Parental Dysfunction

A child is born to a family in which the parents are already dysfunctional as caregivers because they have multiple problems themselves. Researchers have found the following problems in substance-abusing parents or in the parents of people who become substance abusers:

1. Increased parental alcoholism, drug abuse, and nicotine dependency in parents of persons who later become problem drinkers (Vaillant, 1983; Kumpfer & DeMarsh, 1986a; Cotton, 1979; Goodwin, 1985);
2. Increased antisocial or sexually deviant behavior in these parents (McCord & McCord, 1960, 1962; Robins, 1966) that resulted in increased jail and prison terms (Booz-Allen & Hamilton, 1974);
3. Increased mental and emotional problems, including depression and narcissism (Kumpfer & DeMarsh, 1986a);
4. Increased marital conflict (McCord & McCord, 1960, 1962; Robins et al., 1962; Robins, 1966; Jones, 1968, 1971; Vaillant & Milofsky, 1982a); and
5. Increased parental absenteeism due to separation (Nylander, 1960), divorce, and death.

Although children of substance abusers have the same needs as all other children, these needs may not be met, depending on the severity of the family dysfunction caused by the parent(s)'

chemical dependency. Because of the above-listed parental problems, it is likely that these parents are hindered in their ability to focus on the needs of their children. In addition, because of the biological problems of these children discussed in the earlier sections, it is clear that a number of children of substance abusers are born with special needs themselves. Even the longitudinal studies reviewed by Zucker and Lisansky Gomberg (1986) report early temperament problems such as hyperactivity, rapid tempo, neural disorders, infant nervousness and fearfulness, and poor physical coordination in children who later become substance abusers. It is unfortunate that these children are born to parents who may be the least well equipped to deal with their special needs.

Family Dysfunction

Parental problems can lead to decreased time and attention to family responsibilities. The substance-abusing father and mother neglect to spend time with their children, to run a well-organized and supportive household, and to teach their children what it means to be responsible citizens. The following family dynamics have often been found in homes of substance abusers:

1. Increased family conflict (Kumpfer & DeMarsh, 1986a; Booz-Allen & Hamilton, 1974; Vaillant & Milofsky, 1982a; Black, 1982; Wegscheider, 1981; Ackerman, 1983; Moos et al., 1979);
2. Decreased family organization and home management skills (e.g., disorganized households, fewer rules, unpredictable schedules) (Kumpfer & DeMarsh, 1986a);
3. Decreased family rituals (Wolin et al., 1979, 1980; Bennett & Wolin, 1985);
4. Decreased family cohesion (Vaillant & Milofsky, 1982a; Kumpfer & DeMarsh, 1986a);
5. Increased family social isolation (Kumpfer & DeMarsh, 1986a);
6. Frequent family moves (Vaillant & Milofsky, 1982a); and
7. Increased family stress, including work strains, illness strains, losses, transitions, family and marital strain, and financial strain (Kumpfer & DeMarsh, 1986a) and low income (El-Guebaly & Offord, 1977).

Most of these factors have been reported in studies that look at isolated variables through self-report interviews of surveys. Self-reports are often of unknown reliability and validity, and the clinical samples may be unrepresentative of other clinical samples or substance-abusing families who do not enter treatment. Jacob and Seilhamer (in press) stress the importance of experimental designs, including direct observation of family interaction, in understanding the complex impact of the family on the offspring's risk for substance abuse. The fact that this is a relatively neglected area of research is supported by their finding of "less than ten reported studies in this area during the past 12 years, most of which can be considered preliminary and/or pilot efforts" involving clinical case studies and clinical quasi-experimental studies.

Although only preliminary studies, these observations of alcoholic family dynamics suggest:

1. Increased marital distress on Marital Status Inventory (O'Farrell & Bircher, 1985);
2. Increased "one-up" controlling communication combined with responsibility-avoiding features (Gorad, 1971), and more negative and hostile communication in couples (Billings et al., 1979);
3. Increased competition and less cooperation between parents (Cobb & McCourt, 1979);
4. Increased heterogeneity in interaction styles in couples where the husband is alcoholic (Kennedy, 1976);
5. Increased communication and expression of positive affect, previously inhibited, when drinking (Frankenstein et al., 1985);
6. Increased role reversals (Steinglass et al., 1971), particularly in problem-solving tasks when husband drinks (Jacob et al., 1981);
7. Increased physical isolation from each other in the home in "stable wet" families and less family coordination in problem solving (Steinglass, 1980);
8. Increased conformity and rigidity at the expense of problem solving during "dry" alcoholic phases (Steinglass, 1980); and
9. Increased negative communication by nondrinking wives of alcoholics when the husband drinks (Jacob et al., 1981), but increased positive communication by drinking spouses when alcoholic spouse drinks (Frankenstein et al., 1985).

Although these findings are interesting, they are very tentative because of the prevalence of methodological and design problems in these family interaction studies, including small and possibly unrepresentative samples.

Family Conflict. The degree of regular daily family conflict is amazingly high in these families. Family war appears to be the norm, rather than an isolated event, as in more supportive families. Probably the single most significant factor in the author's study of families where the parents were substance abusers (Kumpfer & DeMarsh, 1986a) was the extremely high level of family conflict. On both the child and parent interviews and the Moos Family Environment Scale, the drug-abusing families reported much higher levels of conflict than the families in the general population survey, and even higher levels than Moos' national norms for distressed families. Though the author's study did not measure sexual abuse and only indirectly measured physical abuse, the main manifestation of family conflict appears to be verbal abuse and negative communication patterns--threatening, chastising, belittling, and criticizing, as reported in other family studies (Reilly, 1979; Booz-Allen & Hamilton, 1974).

Impact of Family Dysfunction on the Children. Children need family stability with consistency and predictability in their lives to develop stable and functional patterns of behavior. To the degree that both parents are involved in chemical

dependency (as the addicted member or a co-alcoholic or co-drug abuser), the children are deprived of responsible, consistent parenting (Black, 1982). If the children do not find other people, organizations, churches, or books to teach them home and family management skills and planning and organization skills, they are at a great disadvantage in becoming successful adults. Chaotic home and business lives tend to lead to increased stress, which in itself can increase a person's risk for chemical dependency and mental illness. Some children of substance abusers try to overcompensate for their lack of organizational skills by becoming obsessed with organization. This can also lead to problems later.

Inappropriate conflict and anger management skills are behaviors that adult children find very difficult to modify from that observed in their parents, since these occur under emotional duress. As children they have more difficulty controlling their temper, and are more likely to fight at school and to be vindictive (Sowder & Burt, 1978a, b). These children tend to use the same verbal and physical tactics to get their own way as did their parents. Unfortunately, some of these tactics lead them into trouble with teachers, neighbors, and law enforcement.

Parenting Dysfunction

Parenting. Effective parenting is a difficult, time-consuming, complicated task. Staying on top of the situation requires quick, sensitive, and intuitive judgment of what will work best. The parent needs to experiment with different modes of response and carefully monitor the child's reactions. Most of all, coercive tactics should be avoided whenever possible, in favor of creative "win-win" solutions to potential noncompliant behavior. Parents need to maintain their role as reinforcing agents by continually doing what they can to develop a positive attachment between themselves and their children. If a parent loses this positive regard by the child, little can be done to have continuing influence in the socialization and education of the child.

Substance-abusing parents have several strikes against them in their efforts to be effective parents. Because of neglect and lack of parental education or support by their own parents, they are relatively unskilled parents. They lack knowledge of effective behavioral discipline techniques (Kumpfer & DeMarsh, 1986a, b), and tend to use more coercive discipline procedures modeled by their parents.

Stressors. Parenting disruptors, such as stress and substance abuse, have been found by Patterson (1986) to "interfere with the performance of these already marginally skilled parents." If the child is a temperamentally difficult child, a social-interactional process ensues that has been identified in four major longitudinal studies (Werner & Smith, 1977; Sameroff & Seifer, 1983) with the child at high risk for antisocial behavior, including substance abuse (Kellam et al., 1983, Kellam et al., 1977). Patterson (1986) has developed convincing performance models (structural equation models) that demonstrate that

"failure by parents to effectively deal with 'garden variety coercive behavior' sets into motion coercive interaction sequences that are the basis for training in aggression."

Cross-generational deficiencies (grandparents to parents) in parenting and discipline practices have been demonstrated to correlate with antisocial offspring (parent and grandchild) in two major longitudinal studies (Elder et al., 1983; Huesman et al., 1983). These findings support the notion proposed here that faulty parenting practices are handed down from generation to generation.

Chemically dependent parents have significant difficulties in rearing their children for many of the reasons mentions earlier--their own problems, their lack of knowledge and skills in how to parent, their unrealistic expectations and lack of information on developmentally appropriate behavior, and often the special needs of their children. Empirical studies have isolated the following major parenting problems:

1. Decreased family management skills (Loeber & Dishion, 1983; Rutter & Giller, 1983; Patterson, 1986);
2. Decreased parenting skills, including decreased knowledge of parenting skills and decreased appropriate discipline techniques or inconsistent or lax discipline (Kumpfer & DeMarsh, 1986a; Baumrind, 1983; Blum et al., 1972; Vaillant & Milofsky, 1982a; McCord & McCord, 1962; Jones, 1971);
3. Decreased monitoring and supervision of children as manifest in less contact or time spent with the children (Kumpfer & DeMarsh, 1986a, b; Kumpfer, 1987; Sowder & Burt, 1978a, b);
4. Decreased positive responses and reinforcement of the children (Kumpfer & DeMarsh, 1986a; Kumpfer, 1987); and
5. Decreased parental involvement with the child and decreased parent/child attachment (Vaillant & Milofsky, 1982a; McCord & McCord, 1962; Chein, 1966).

Family Management Skills. A number of child development specialist are beginning to identify lack of family management skills as the root problem in behavioral and emotional problems in children (Patterson, 1986). According to Patterson (1986), good family management skills consist of effective monitoring, discipline, positive reinforcement, and involvement of the child by the parents. Some researchers also include in this category home management skills such as rules and rituals. Each of these parenting skills is discuss further below.

Discipline Skills. Chemically dependent parents tend to be lax or inconsistent in their discipline practices with their children, depending on their drug state (Baumrind, 1983; Braucht et al., 1973; Blum et al., 1972). Children of alcoholics report being able to "get away" with something one day and being severely chastised the next day for the same behavior when the parent is not intoxicated (Black, 1982). The Kumpfer and DeMarsh data (1986a) showed that these children have fewer rules to follow, are more disobedient at home, and help less with housework.

The Sowder and Burt (1978a, b) study found that parents tend to be either strict or permissive in their discipline of

children. A similar result was reported by Baumrind (1983), who studied prosocial children with low risk for drug abuse and found that they generally come from authoritative families, whereas drug users come from authoritarian or permissive families--but more often families characterized by parent nondirectiveness. Drug abusers characterized their home environments as cool and hostile, with weak parent-child relationships and inconsistent parental discipline (Chein, 1966).

Monitoring and Supervision Time. A number of studies have documented that substance-involved parents spend significantly less time with their children than matched families. Sowder and Burt (1978a, b) found that 68% of the heroin-abusing parents spend less than 12 hours a week with their children. More recently, Kumpfer and DeMarsh (1986b) found that even in a family-oriented community (Salt Lake City), drug-abusing parents averaged only 5 to 10 hours per week in the presence of (not necessarily interacting with) their children, whereas the non-abusing families spend twice as much time with their children. This study supports the finding of Dishion et al. (1985) that heavy drinking by parents correlated significantly with inept monitoring and less parental involvement. Patterson and Dishion's (1985) research emphasized the important of parental monitoring of children's behaviors as a deterrent to antisocial behavior (Patterson & Stouthamer-Loeber, 1984). They found that increased rates of antisocial behavior covary with increased unsupervised time outside the home.

Positive Responses and Involvement. Emotional neglect has often been reported in substance-abusing families. The Booz-Allen and Hamilton (1974) study reported that emotional neglect most frequently discriminated between alcohol-abusing and non-abusing families (reported in 65% of the substance-abusing families). Substance-abusing parents appear to be limited in their ability to involve themselves meaningfully and emotionally with their children.

Parental Involvement. One of the most significant differences between the normal and drug-abusing families in the Kumpfer and DeMarsh (1986b) study was the number of family activities in which the parents were involved with the children. Drug-abusing parents spend less time in planned and structured activities with their children, such as Scouts, league sports, and clubs ($F = 8.7$; $p < .008$); planned but unstructured activities, such as parties, picnics, hikes, and activities ($F = 32.5$; $p < .000$); unplanned but structured activities such as watching television, playing cards, and games ($F = 7.5$; $p < .007$); and those activities that are both unplanned and unstructured, such as informal talks and visits ($F = 15.3$; $p < .003$). Lack of quality time together is indicative of poor parent-child relationships, which has been found to correlate with adolescent drug abuse (Blum et al., 1970; Streit, 1973). In a recent study, Hendin et al. (1981) found that marijuana abuse was often preceded by estrangement from parents due to unrealistic expectations or withdrawal of love on the part of the parents. Lack of parent-child bonding can leave children vulnerable to peer and situational inducements to use drugs or engage in delinquent behaviors

(Briar & Piliavin, 1965). Parent-oriented youth have been found to use marijuana less than peer-oriented youth. Youths who regularly use alcohol and drugs report feeling isolated in their families and less involved in family activities (Brennan et al., 1981). One of Vaillant and Milofsky's (1982a) findings was that lack of paternal attachment was indicative of future alcoholism.

Impact on the Children. This lack of parenting abilities has unfortunate effects on the children. The author's study found these children to have significantly more behavioral and emotional problems. They are less compliant and more strong-willed. They are more independent, because they have never developed a close social attachment.

As mentioned earlier, these drug-involved parents tend to abdicate their parental responsibilities and encourage their children to take care of themselves earlier. The concept of childhood seems to be lacking. From this point of view, these children often appear amazingly healthy and capable, particularly the oldest children. They are often forced into learning life management skills at a very early age and sometime have to perform many parental chores for the rest of the family and the parents. Black (1982) includes in her book a number of stories of children of alcoholics being asked to perform adult jobs at very early ages.

Despite these early demands to perform like competent adults, studies show that these children have many areas of behavioral deficits and later pay dearly for their lack of childhood. In general, these children have fewer age-appropriate social skills and have more behavioral problems at home and at school (Kumpfer & DeMarsh, 1986a; Fine et al., 1976). Problem behaviors also increase the child's risk of substance abuse (Jessor & Jessor, 1978; O'Donnell & Clayton, 1979).

Feelings. Clinicians have often reported that children from chemically dependent homes appear to have more difficulty than other children in identifying and expressing feelings (Black, 1982; Wegscheider, 1981). Their feelings, which are rarely validated by their parents, are painful and ambivalent. Characteristic feelings often reported in comparative studies include: resentment (50%); embarrassment (48%); anger, fear, loneliness, depression, and insecurity (Booz-Allen & Hamilton, 1974; Sowder & Burt, 1978a, b).

In a study by Roosa and associates (in press), children of problem-drinking parents identified in a general high school survey were significantly more depressed (measured by a depression subscale on the Hopkins Symptom Checklist) and scored significantly lower on the Rosenberg Self-Esteem Scale. Emotional disturbances such as depression are found to precede adolescent drug abuse (Paton et al., 1977).

Some researchers have reported increased anxiety in children of alcoholics (Anderson & Quast, 1983; Moos & Billings, 1982). The prior study by Roosa and his associates failed to find this result and suggested that the prior studies may have obtained this result because they failed to control for gender effects: females scored higher than males on anxiety, a result often reported in other studies.

Community and Social Environmental Dysfunction

If the family is very socially isolated from the community and made to feel "different," the child is more likely to develop social problems and be socially isolated also. Research studies have found that children of groups that condone use of alcohol and drugs are more likely to become abusers if they live in a socially restrictive environment in which they are in the minority. Factors related to this problem include:

1. Poorer environmental support systems (Vaillant & Milofsky, 1982a);
2. Decreased family involvement in recreational, social, religious, and cultural activities (Kumpfer & DeMarsh, 1986a, b); and
3. Decreased social networks (Fraser & Hawkins, 1984). Kumpfer (1987) found that parents in drug-abusing families had fewer friends.

Social Bonding. Beyond this lifestyle constraint, these families differ in values and attitudes from mainstream Americans. In general, they appear to place less stress on prosocial values and respect for authority or tradition. Included in this is condonation of antisocial values, such as "the ends justify the means." A number of alcoholic family studies have documented an external locus-of-control orientation (Morrison & Schuckit, 1983; Prewett et al., 1981; Kern et al., 1981). Possibly the decreased stress on social responsibility could be caused in part by this belief that they have limited control over their lives. Decreased bonding or attachment to society is demonstrated in their decreased stress on education and academic achievement (Sowder & Burt, 1978a, b) and religious, social, or cultural community involvement (Kumpfer & DeMarsh, 1986a, b). These parents tend to put less stress on cooperative involvement in the family and with groups or institutions in society. One overall theme may be increased emphasis on looking out for individual interests versus the good of the whole, which is a characteristic of a lower level of moral development and of the narcissistic personality. This self-centeredness may also be related to the unrealistic expectations for self-sufficiency which these parents have for their children (Kumpfer & DeMarsh, 1986a; Kumpfer, 1987; Reilly, 1979). Finally, the parents model pro-drug, alcohol, and criminal values (Mercer et al., 1976; Kandel et al., 1978; Kim, 1979; Brook et al., 1980).

Social Supports. Chemically dependent families are often socially isolated from the community, partly because of their need to maintain protective boundaries (Ames, in press) and partly because of community rejection. As a result of social isolation, these families receive less help and support from others with their problems, which could increase their family stress. Similar to the insular families described by Wahler and associates (1979), these families either do not try to make friends in the community or feel that they cannot have traditional friends. Fraser and Hawkins (1984) found street drug abusers have social networks which are about half those of other families and that the members of their social networks were

significantly less involved in conventional activities. Decreased involvement with community and religious institutions has been found as one of the psychosocial precursors of drug abuse (Tennant et al., 1975).

Impact of Social Isolation on the Child. Impact on the high-risk child includes the following factors: increased anti-social behaviors (Zucker & Lisansky Gomberg, 1986), increased aggression (Kellam & Brown, 1982), increased shyness, increased rebellion, increased social problems and lack of social skills, decreased social status, and increased sadistic behaviors (McCord & McCord, 1962). Due to the family's social isolation, the children in chemically dependent homes are unusually isolated and lonely. The Kumpfer (1987) study found they have fewer opportunities to interact with other children, have fewer friends they can tell secrets to, and bring friends home less often. These children report that they desire more friends, but believe that they lack the abilities to make friends. The children complain about being lonely, while the parents complain that the children are too dependent on them. Children of alcoholics from smaller families that have fewer siblings appear to be more affected by this social isolation since they are reported to have a higher risk for chemical dependency (El-Guebaly et al., 1978). Moreover, the children appear to lack social skills and behaviors appropriate to their age. Sometimes they are rejected in school because of their lack of reciprocity, poor language, and inappropriate behavior.

Occasionally, if the use of drugs or alcohol by the parents is well known in the community, other parents will forbid their children to play with "those children." Ames (in press) observed in alcoholic families that the parents, in an effort to maintain protective boundaries, guarded and controlled the children's social contacts and friends "with a seemingly paranoid and unnatural intensity." Children had to play in their own yard and even fenced backyards; they were never allowed to have playmates in their own homes. In addition, children of substance abusers receive little help from their parents in activities promoting their social lives (i.e., planning parties and outings, transportation, invitations to come to their homes for dinner, slumber parties, etc., and appropriate dress and toys).

These children are hampered in social development by the constraints on sharing "family secrets" without betraying the family. Since sharing secrets is a major act of developing intimacy and friendship, this constraint further isolates the children. Lack of friends often contributes to low self-esteem, which is predictive of drug abuse in adolescents (Kaplan, 1977). Lack of attachment to others and society, possibly because of poor parent-child attachments, is predictive of future alcohol abuse and delinquency (Hirschi, 1969).

School Environmental Dysfunction

If children are unable to develop an attachment to other children or teachers at school or to develop educational aspirations (Hindelang, 1973), they are more likely to develop chemical

dependency problems. Children who are not bonded to their school and have low commitment to school appear to be more likely to use drugs and become delinquents (Catalano et al., 1985; Johnston et al., 1986). Hence, lack of acceptance or rejection at school is a significant risk factor in children of substance abusers. If these children are ostracized from the nonusing cliques in school because they do not come from the "right kind of family," they are forced to find friends among the misfits and drug-using groups. Major early warning signs in this process for children of substance abusers are the following:

1. Decreased feeling of belonging at school and increased rejection by school peers (Kumpfer & DeMarsh, 1986a, b);
2. Decreased liking of school work and school activities (Kumpfer & DeMarsh, 1986a, b);
3. Decreased school attendance with increased tardiness and truancy (Kumpfer & DeMarsh, 1986a, b; Holmberg, 1985);
4. Increased academic and behavioral problems in school (Herjanic et al., 1977; Rimmer, 1982; Kumpfer & DeMarsh, 1985);
5. Increased placement in special education or alternative schools; and
6. Increased school failure and early dropout.

The final outcomes in this developmental progression--school failure and early school dropout--have been found to be related to adolescent drug use (Anholt & Klein, 1976; Robins, 1980). Earlier problems, such as truancy and placement in special classroom, have also been found related to later drug abuse (Holmberg, 1985).

Early Antisocial Behaviors. Reasons for this school failure are uncertain. Patterson (1986) has developed mathematical performance models that hypothesize that childhood antisocial tendencies, starting with noncompliance, are major contributors. A number of child development specialists are finding that early antisocial behaviors consistently covary with a number of childhood problems, including academic failure (Wilson & Herenstein, 1985) and peer rejection (Coie & Kupersmidt, 1983). Child noncompliance and failure to follow established classroom rules were found by Hirsh and Walker (1983) as two major reasons for academic failure, but Patterson's (1986) performance models found only 21% of the variance in academic performance (measured by standardized tests with the parents' Child Behavior Checklist) was accounted for by the child's antisocial behavior. He is testing additional models that include homework and classroom behavior variables to see if he can increase the percent of variance accounted for.

Cognitive Disabilities. Another possibility for academic failure would be decreased verbal capabilities and learning disabilities that are more often found in children born with the vulnerability syndrome (Geschwind & Galaburda, 1985). Children of substance-abusing parents have decreased cognitive and verbal abilities, particularly as preschool children (Sowder & Burt, 1978a, b). Associated problems include increased academic problems and behavioral problems in school (Rimmer, 1982; Herjanic

et al., 1977; Kumpfer & DeMarsh, 1986a, b), and increased learning disabilities (Gabrielli & Mednick, 1983; deMendonca et al., 1980).

It is difficult to say whether these cognitive difficulties are caused by the parental values, or that both are caused by other mediating variables such as biomedical syndromes or social variables. Since children of chemically dependent parents attend school less and are more often late for school (Kumpfer & DeMarsh, 1986a, b), this decreased exposure to academic material and limited help from their parents with homework (Kumpfer & DeMarsh, 1986a, b) could impair their ability to succeed in school. Knorr (1981) found that decreased completion of homework assignments results in lower academic achievement. Since it is the responsibility of the parents to track and support completion of homework assignments (Dishion et al., 1984; Patterson et al., in press), COSAs are disadvantaged in their attempts to achieve academically. These cognitive deficits and lack of academic motivation increase the child's risk of drug abuse (Smith & Fogg, 1978).

Since academic failure in late elementary grades has been shown to predate delinquent (Polk et al., 1981) and adolescent drug use (Robins, 1980; Smith & Fogg, 1978), schools need special services for the high-risk children who have learning disabilities and emotional/behavioral problems. These high-risk children are more likely to have academic problems (Kumpfer & DeMarsh, 1986a; Jones, 1971), to be late for school or truant (Kumpfer & DeMarsh, 1986a), and become early school dropouts (Vaillant & Milofsky, 1982a).

Substance Abuse. For whatever reason, children of substance abusers also find that they have a hard time controlling their use of alcohol and drugs. Even with the conviction that they will "never let it happen" to them, they have no clear idea of how much is too much (Brown & Beletsis, in press). When they start having more social problems as adolescents and young adults, they find it difficult to avoid substance abuse. Their parents modeled drug use for coping with problems, and they tend to find alcohol and drugs very pleasurable.

Research studies support the clinical observations that adolescent children of alcoholics are more likely to report heavy drinking (Barnes et al., 1986) and increased drug abuse (Johnson et al., 1986). Roosa and associates (in press) report that self-identified children of alcoholics attending high school self-help groups scored significantly higher on drinking than their peers in the groups. In order to study youth whose parents were not in treatment, these researchers also studied high school students with problem-drinking parents identified through a general high school survey. About 18% of the student body identified their parents as problem drinkers (the national prevalence rate is estimated at about 12.5%; Russell et al., 1985). The results of this study showed a nonsignificant trend for the self-identified children of nontreated alcoholics to drink more than their peers in school.

The High-Risk Child's Personality and Chemical Dependency

The prior parental, family, and social environmental problems, combined with the biological differences of high-risk children, tend to mold a child's personality into a fairly predictable vulnerability syndrome for chemical dependency. Labouvie and McGee (1986), in a sequential longitudinal analysis of the Rutgers Health and Human Development Project data of 882 adolescents (ages 12 to 21 years), found that light, moderate, and heavy users differed in basic personality traits. Early-onset, heavy users tend to score lower on Achievement, Cognitive Structure, and Harm Avoidance on the Jackson Personality Research Form (1968), and higher on Autonomy, Exhibition, Impulsivity, and Play than later and lighter users. These high-risk youths move rapidly to multiple drug use by age 15 and cocaine use by age 21. Due to positive family or school impact, light users on the other hand tend to have exactly the opposite personality traits and to limit their use to alcohol even at age 21.

Their data suggest that youths who are at high risk for chemical dependency have different personality structures to begin with, and the youths' basic personalities did not change significantly over time (3 years) with increased drug or alcohol use. These results, combined with information from other longitudinal studies of youths, support the notion that youths prone to heavy chemical dependency are already different by the time they reach the age of alcohol or drug use. Patterson (1986) says that more than a dozen longitudinal studies (Olweus, 1979, 1980) have demonstrated that aggression is as stable as intelligence in children. His most recent research supports the developmental process described earlier for high-risk youths. Disrupted family management skills lead to the development of antisocial behavior in the children. These aggressive, coercive, and noncompliant behaviors then increase the child's risk of rejection by normal peers and academic failure. Patterson then hypothesizes that poor social and academic success, combined with noncompliant behaviors, leads to parental rejection and low self-esteem. With more normal families this process may occur last; however, with chemically dependent parents, data suggest that parental neglect and rejection may occur much earlier.

Alcohol and drug abuse is more common in antisocial adolescents (Watters et al., 1985; Elliott et al., 1985). Kandel and associates (1986) found marijuana and other illicit drug use correlated with early delinquency in males, but not females. The attractiveness of alcohol and drugs to youth who lack other means of needs gratification should not be underestimated. Mood-altering drugs require no skills or competencies for use and deliver almost instantaneous effects--excitement, peer approval, as well as feelings of being mature, socially adept, attractive, and relaxed. Drugs are the great social equalizer. If the medical literature is accurate concerning the differences in the effect of alcohol on COSAs versus nonCOSAs, then it is possible that COSAs may outperform other kids when under the influence.

"Cool," competent, normal kids become sloppy and funny, while shy, unsocial COSA kids become brave and confident.

IMPLICATIONS FOR PREVENTION

The prior research demonstrates that some children of substance abusers may have inherited biochemical differences that increase their vulnerability to substance abuse. The degree and type of inherited biochemical and neuropsychological vulnerability will differ for each child. In addition, the extent and type of psychosocial damage sustained by the child because of being raised in a substance abusing household will also vary. For these reasons, prevention programs designed for children of substance abusers should be designed to be flexible and tailored to the specific needs of the child. An extensive biochemical and psychosocial risk assessment with specific prevention interventions designed for each risk factor would be an ideal strategy. At first glance, this would appear to be very costly. Involving children and families in interventions that they do not need, however, is also costly and ineffective.

Prevention Interventions for Biochemical Risk Factors

Some prevention practitioners in the field become discouraged each time they hear about a new possible biochemical or neuropsychological difference. There is a tendency among these people to think that there is little that can be done about biomedical dysfunctions. That may be less the case now and even less so in the future. Samuel Guze stressed in his address to researchers in this field at the 1986 American Psychopathological Association that genetic engineers and biochemical researchers may discover ways to change genetic makeup and biochemical disorders more rapidly than effective strategies can be developed to change whole family environments. So there is hope and optimism in this field, and a feeling of finally beginning to understand why people become substance abusers.

Along with this knowledge comes increasing sympathy for and understanding of the substance abuser and high-risk children of substance abusers. It is becoming clearer that many substance abusers do not freely choose to use drugs as a normal person would choose to use or not use. Instead, vulnerable children suffer from a medical disease that impels them to use alcohol and other drugs to self-medicate their dysfunction in order to function more normally. Their misfortune is that the drugs that help them are 1) often illegal, 2) often of unknown strength, 3) have unfortunate side effects, 4) habituate with use, and 5) can have negative effects on their health and behavior. In addition, vulnerable individuals have less capacity to regulate their use of drugs based on internal homeostatic body cues. Hence, their likelihood of abusing or overusing their chosen drugs has increased.

The picture that is emerging of vulnerable individuals fits with the characteristics of those classically diagnosed as antisocial, borderline, or character-disordered. Whatever the

underlying cause of the medical syndrome, the symptoms affect overall temperament, emotionality, ability to concentrate, ability to sleep, impulsivity, verbal ability, short-term memory, planning and decision making, and other characteristics that influence a person's capacity to succeed in life.

Are these vulnerable children doomed? To some degree they will always suffer from their neurological and biochemical impairments. However, with better diagnosis it should be possible to teach parents, teachers, physicians, and therapists to help these children modify and in some cases overcome their limitations. This will not be a simple job. In the future, we will look back on the early school-based prevention programs of the 1970's and 1980's as well-meaning but misguided efforts. Their primary problems are that, in general, they apply generic educational and skill-building interventions designed for the general population to a total student body, when only certain high-risk youths need help. In addition, they are not based on the real causes of abuse in youths. Non-vulnerable youths might attempt some experimental or social use of alcohol and other drugs, but those who will become abusers are primarily those who have the vulnerability syndrome discussed in this paper. Prevention specialists are beginning to realize that, given limited funding for substance abuse prevention (only 77 cents was spent per capita in 1984 on prevention, whereas the economic substance abuse cost was $850 per person), targeting more intensive prevention interventions at high-risk youth would be most cost-effective.

Prevention Strategies for Biomedical Risk Factors

Future strategies to decrease biomedical risk factors could include the following:

1. Bio-education. High-risk youth could be assessed and have their specific risk factors identified. Profiles of typical outcomes for this type of combination of biomedical and psychosocial factors could be explained to the child's parents, physician, therapists, and possibly to the child when older. Special interventions could be recommended for each cluster of risk factors. Monitoring could be conducted to determine if the child is responding to the prevention interventions. Special reading materials, films, and brochures could be developed. The high-risk youths could probably profit from an awareness of their risk factors and the reasons for their condition, including the development of family pedigrees. These children have a right to know that if they ever drink alcohol or use other drugs, they may lose control more rapidly than other children; hence, they may never be able to use them socially.
2. Bio-counseling. Prospective natural parents and adoptive or foster parents need to have special genetic and fetal alcohol or drug effect counseling to understand the probabilities that their new child will have biological or inherited vulnerabilities toward drug abuse

and the other psychiatric disorders that cluster with it (i.e., eating disorders, Briquet's Syndrome--formerly called hysteria--or psychosomatic complaints, antisocial personality, and neuroticism). If their family history indicates high risk or if the family history of the adopted or foster child indicates high risk, they should be counseled about how life with such a child could be. They should be apprised of the special attention and care that the child will need to overcome his or her deficits. If they decide to take the risk and commit to responsibly raising such a special-needs child, they need to develop a plan of habilitation from the very beginning. This would include regular risk appraisals and special parent/child interventions. Special diet, exercise, and vitamins or minerals may be needed for these children.

3. Bio-engineering. In the future, it may be possible for high-risk parents to have one or more genes in isolated sperm or eggs modified so as to reduce or eliminate genetic precursors of alcoholism or other drug dependencies. Genetic cloning is already being tested in animals. Before this can become possible, researchers need to know more about the genetic material that causes vulnerabilities to different types of alcoholism and drug abuse. The author is collaborating with geneticists and psychiatrists to locate high-risk families, freeze blood samples, and analyze them for genetic markers of chemical dependency.
4. Bio-pharmacology. For some of these high-risk youths, their disorder will not be controllable through diet, exercise, special nutrients, or behavioral interventions. They may need drugs. Hopefully, better drugs will be developed and prescribed for their condition. Current psychotropic drugs are so nonspecific in their effect on neurotransmitters that they are analogous to clubs, when a needle would remove the defect. Improved research into the effects on neurotransmitters of alcohol and other drugs will help pharmaceutical researchers to develop better drugs with fewer side effects and less chance of overuse.

Reviewed here are only some of the possibilities in the future for the reduction of biomedical risk factors in children of substance abusers. The next section reviews prevention interventions for modification of the child's high-risk environment. These approaches will feel more comfortable for prevention specialists who are trained as social workers or psychologists, and typically believe that most psychiatric or psychological problems are caused by the child's environment.

Prevention/Intervention for Psychosocial Risk Factors

Longitudinal studies in this country support the belief that a positive environment with "goodness of fit" between the child's and the parents' temperament can modify vulnerability factors (Thomas & Chess, 1984). This premise is challenged by the biomedical studies reviewed in this paper. However, according to Tarter and associates (1985), "temperament traits, although to a significant extent inherited, are modifiable by environment" (Buss & Plomin, 1975; Tarter et al., 1985, p. 351; Thomas & Chess, 1977, 1984).

Role of the Family. The family and its natural social support system can be vital in the socialization and education of the child. The need of the family to perform this vital role has not decreased in importance in recent years, but the family has lost some of its power and direction, according to some family specialists. Direction means that families develop positive goals, objectives, and outcomes for the child, and implement such plans through their power to mobilize effective resources. Unfortunately, some parents in our society, and particularly those involved in debilitating addictive behavior such as chemical dependency, gambling, and workaholism, or mental illness, which effects 19% or 43 million of our society, do not have the capabilities to develop direction for their children nor the ability to mobilize powerful resources. Hence, they are hindered in their essential family role to use their power, through the socialization process and application of natural caregiving, to assist children to develop competencies to be more effective members of society.

Children of substance abusers who inherit the vulnerability syndrome (i.e., hyperactivity, impulsivity, antisocial tendencies, delayed development, proneness to tantrums, crying, fears, loud talk, and laughter) often have substance-abusing parents who are least capable of tolerating temperamentally difficult children and least able to provide for their special needs. Because of this, these children are at increased risk for parental abuse and neglect (Tarter et al., 1984), placement in foster care and adoption, and are more likely to leave home as runaways or to spend a lot of time "on the streets" and with drug-using peers. Tarter also stresses that "it is not surprising that susceptibility to peer influence is a major determining factor in the adolescent's decision to engage in nonnormative drinking" (Jessor & Jessor, 1975; Zucker & Noll, 1982).

Thus, special substance abuse prevention programs for high-risk children will need to address the social, cognitive, and behavioral deficits exhibited in these children and also attempt to improve the child's home and school environment and the parent/child relationship. The primary strategy for habilitation in these children is a complete assessment of the child's risk factors mentioned earlier. Prevention modules should be designed to minimize each deficit through special skills training. Whether the parent-child relationship should

be strengthened is questionable if the child's parent is a poor role model, as found in the author's research (Kumpfer, 1987). Obviously a strong supportive relationship with a good role model (nonsubstance-abusing parent, relative, teacher, neighbor, volunteer surrogate parent) should be encouraged through specially designed prevention programs. One of the most important factors in the final stage of prealcoholism for youth is lack of a strong positive relationship with a nonsubstance abusing adult.

Prevention Interventions Targeted for Specific COSA Risk Factors

Each of the primary risk factors in children of substance abusers is discussed below, with suggested prevention interventions. After that, strategies most appropriate for each developmental stage are reviewed.

Hyperactivity/ADD. A picture is emerging of a type of child whose body moves faster that the brain can evaluate the consequences; such children often "don't look before they leap" and hence get into trouble. Douglas (1980) has developed a "stop, look and listen and think" method that appears effective with hyperactive children. Encouragement to finish tasks and reinforcement for persistence in attention through graduated tasks may help. Social skills training could also teach the child awareness of social cues and to use appropriate voice tone and affect. The author's Children's Social Skills training program was successful in modifying some of these social skill deficits (Kumpfer & DeMarsh, 1986a, b).

Emotional Stability. These children need simplified, predictable, and highly structured environments that will not induce excess stress and fears. A close relationship with at least one family member is very important in soothing their fears and meeting their increased dependency needs. Parents and teachers need to be retrained in methods for dealing with the many behavioral disturbances manifest by COSAs (i.e., fears and phobias, thumbsucking, stuttering, enuresis, nightmares, tantrums, loud talk and laughter, crying). Behavioral parent training has had a demonstrated positive effect in reducing these emotional and behavioral problems through the Strengthening Families Program developed by the author (Kumpfer & DeMarsh, 1986a, b; Kumpfer, 1987). Stress management techniques taught for adults could be modified to be developmentally appropriate for COSAs who manifest excessive autonomic reactivity and decreased homeostasis. Because of their increased conditionality to external stimuli, these children need stable conditionable rituals to regulate their time.

Sleep Disturbances. If the child is a poor sleeper and has nightmares, the parents need to do all they can to develop regular sleep schedules and good sleep habits in the child. A regular bedtime, quiet room, bedtime rituals, and parental reassurance of protection and love are typically employed in normal homes, but often lacking for the COSA who needs them most. Simplified relaxation training and meditation or self-hypnosis techniques may help this child.

Cognitive Dysfunction. For the COSA with academic problems, a complete assessment of learning disabilities should be conducted. Parents or surrogate parents need to be trained to do in-home tutorials to supplement and reinforce remediation conducted by special education specialists. Special training in sequencing, short-term memory, selective attention, planning and problem-solving, abstraction, and embedded figures may help increase the child's skills in these areas. Training for special education teachers in the neuropsychological bases for these cognitive deficits and the awareness of signs of a substance-abusing home (Ackerman, 1983) could help these teachers to work more effectively with COSAs. Specially designed children's social and cognitive skills training programs could be designed for high-risk vulnerable COSAs in special education classes.

Empathy Deficits. Exactly why some COSAs manifest antisocial tendencies and lack empathy for others is unknown. Possibly empathy develops from taking time to read nonverbal cues. Some clinicians believe that "streetwise" and manipulative COSAs are able to read nonverbal cues very well. However, they do not appear to be able to decenter and feel with the other person, perhaps because of some lack of parental modeling of empathy skills. Child discipline techniques suggested by Bruno Bettelheim that include parental reminders to the child to imagine how the other person must feel when "they do that" may help COSAs develop empathy. Theatrical training in role-taking may also help. Unfortunately many COSAs have parents who also lack empathy and are very narcissistic, and so are not very good role models. The Child's Game part of the author's Strengthening Family Program teaches these parents to watch and describe what their children are doing and feeling in a running monologue. Learning to decenter and concentrate on their child for any length of time is often difficult for substance-abusing parents, but they can learn.

Prevention Strategies by Age and Site of Intervention

Infancy and Early Childhood. During the formative (0-6) years of age, parents, other family members, or child care specialists will have the major responsibility for conducting special remediation training for vulnerable COSAs. In addition, health care specialists such as the family physician, well-baby clinic staff, and substance abuse treatment specialists may have access to the child and parents and hence could conduct or refer the parent for parent-training courses. Hence, these health specialists should have specialized training in signs of vulnerability in children. Black (1982) has developed special play therapy techniques for young COSAs. Both Bavolek's Nurturing Program (Bavolek et al., 1983) and Kumpfer's Strengthening Families Program (Kumpfer & DeMarsh, 1984) include methods for teaching empathy and improved parent-child interactions to dysfunctional parents. The reader is referred to a review article by DeMarsh and Kumpfer (1986) on many prevention programs that could be used to decrease COSAs' risk factors in childhood or adolescence.

Childhood. During the elementary and junior high school years, adults working with their children have an opportunity to make changes in them. Teachers need increased awareness of the etiology of the vulnerability syndrome. Unfortunately, many adults who could help these children are driven away by their difficult temperament and unrewarding interpersonal style. By increasing understanding of the individual, biological, and family deficits in these youths, adults having contact with these children (e.g., through dance, music, sports instruction, girl's or boy's clubs, camp counseling, recreational playgrounds, and others) could be induced to take on the personal challenge of helping these children. A close, rewarding, supportive relationship with an adult in the community can have significant impact.

Special groups for COSAs could be conducted in any of these settings. Since most of these children are in schools, schools become the usual access method. However, the highest-risk children are most likely in special education classes, foster care, detention centers, migrant worker programs, transient shelters, or other special programs. Ackerman (1983) has authored an excellent book on what educators could do to help COSAs, including identification, walk-in centers, student discussion groups, and personal support. COSA prevention program in schools are just beginning to be implemented in several areas of the country, generally employing commercially available programs, such as Lerner's "Children Are People," Tisch's "Kids are Special," Glenn's "Capable People Program," and the author's "Strengthening Families Program." Most of these programs include trainer's manuals, films, videotapes, and homework assignments. Though clinicians report that the children benefit from the awareness that they are not the only ones with chemically dependent parents, there are no scientific evaluation results except for the Strengthening Families Program. The positive results of the Strengthening Families Program are reported in Childhood and Chemical Abuse: Prevention and Intervention (Ezekoye et al., 1986).

Special weekend and summer camps may be valuable in removing these children from dysfunctional homes, but programs should strive to modify the home environment by involvement of the family as well. High-risk children in regular schools are generally identified by the teachers and referred for special groups during or after school. These groups are not labeled COSA groups, to avoid stigmatizing the children.

Parents should make sure that their children understand the short and long-term consequences of alcohol and drug use. Prevention programs such as NCA's "Talking With Your Kids About Alcohol" (Prevention Research Institute, Inc., Lexington, Kentucky) are helpful, as well as materials that parents can order from the National Federation of Parents for Drug Free Youth. Parents could join one of the local parents groups for the prevention of drug abuse in their local community. "Tough love" strategies developed for adolescents who are already abusing and who are noncompliant can be tried as a last resort (York et al., 1982).

One exciting possible prevention program for high-risk children and youth, which the authors are pursuing, is an "Adopt-A-Family" approach in which a group of nonusing families from the community can volunteer to sponsor a family which contains a high-risk child. Our particular emphasis currently is to use "Family Friendship Circles" developed by the Cottage Program International or local parent groups to engage a matched high-risk family (where the parent or grandparent is chemically dependent) in structured prevention activities (Kumpfer et al., 1985). Since these high-risk children and families need long-term interventions, it may be more cost effective to use local families who care about combating drug and alcohol use by youth in their community for delivery of the strategies. Special training and scheduled social, cultural, and recreational activities and hot-line consultation will be made available to the host families.

Adolescence. High-risk youths during adolescence are likely to show up in the youth corrections system. Special training for probation and parole officers may help them in their work with this type of delinquent.

In junior high and high schools, peer counseling and student assistance programs could offer help, support and referrals for high-risk COSAs. Morehouse (1984, 1985) reports positive results of student assistance programs for children of alcoholics.

Service clubs, schools, and churches should consider alternatives programs that stress "natural highs" and healthy lifestyles, as these programs have been neglected as possible prevention strategies. Schaps and associates (1981), in a review of prevention programs, found only 12 prevention studies on alternative programming. Five of the programs had positive outcomes, but 12 reported no program impact. The evaluation of the largest alternatives programs conducted nationwide, the Channel One Project, showed slight positive findings for improved democratic problem solving and participation in alternatives, but increased use of inhalants, hallucinogens, and alcohol (Hu et al., 1982). In their review of alternatives programs, Swisher and Hu (1983) stress that some alternative activities promote decreased use and others promote increased use depending on the social environment and people associated with each type of activity. Activities such as those involving entertainment, sports, social, extracurricular, and vocational activities are associated with increased use of alcohol or drugs, whereas academic activities, religious activities, and active hobbies are associated with decreased use.

Murray and Perry (1985) are in the process of evaluating an alternatives program based on the functional relevance of drugs for youth at different ages. They have found that transition-marking and social acceptance are important functions of alcohol and drugs among younger children, while stress reduction appears more important among older children. All of the youths used alcohol and drugs to enhance personal energy, for recreation, and relief from boredom or loneliness. They are evaluating their school-based program, called Amazing Alternatives, which helps

youth to identify health-enhancing alternative activities for each function served for them by substance use.

Young Adulthood. Even into adulthood, COSAs are at high-risk for developing chemical dependency. Kandel (1985) reported that persons at highest risk for substance abuse are those who started using tobacco and alcohol very early or very late. Early-using youth are probably those that fit the biopsychosocial vulnerability syndrome discussed in this paper. For them, early identification, diagnosis, and medical help may be the best prevention strategy. It is possible, however, that late-starting alcoholics or drug users may also be COSAs who vowed never to use alcohol or drugs like their parents, but eventually succumb because of multiple life stressors that overwhelm their minimal and rigid coping skills.

Colleges and universities need to establish ways to educate and identify high-risk young adults. College-age youths do appear to drink a considerable amount of alcohol. A study at the University of North Carolina found that 85% of the males and 83% of the women drank monthly, with the average consumption rate being 28 ounces (equivalent to 54 beers) for males and 17 ounces for females per month (McCarty et al., 1979). Alcohol and drug abuse prevention programming in institutions of higher education has been historically neglected. Many college officials seem to feel that excessive alcohol or drug use is simply part of the fun of being in college. In addition, many colleges have shown reluctance to be involved in alcohol prevention programming, because they receive substantial amounts of funding from the alcoholic beverage industry for sports activities and general university donations. Mills and associates (1983), in their book, Handbook for Alcohol Education: The Community Approach, promote a "problem-specific" prevention program similar to the one they implemented at the University of North Carolina. If vulnerable young adults could be educated about their risk factors and taught how to monitoring their alcohol and drug use and problems, early intervention may be possible even during the college years.

Not all COSAs will manifest the vulnerability syndrome discussed in this paper. Other COSAs may have few or none of the biochemical, neuropsychological, and temperament differences of this syndrome. However, they may become more prone to substance abuse in late adolescence or early adulthood because of depression and stress. COSAs who fit this etiology are those who are high-achieving, bright, and overly responsible. Their constant attempts to control their environment, take care of their families, and please others eventually decrease their emotional resources and result in depression and substance abuse. Since female substance abusers are more likely to have primary depression, female COSAs may fit this pattern more than male COSAs, who are more likely to inherit the "male-limited" alcoholism characterized by early onset and antisocial behavior (Cloninger et al., 1981). These older COSAs could find help and support from Alateen and Al-Anon self-help groups, but Black estimated that only 3 to 5% of all COSAs use Alateen.

CONCLUSION

Chemical dependency is a multi-generational problem, and until society begins to target high-risk children for special attention, we will never break this vicious cycle and significantly improve the situation. Chemical dependency runs in families, whether for environmental or genetic reasons. Hence, more prevention efforts should be targeted at children of chemically dependent parents. Even if the parents are not chemically dependent, there are identifiable childhood behaviors and family risk factors which make a child more vulnerable to alcohol and drugs. More research is needed on these early childhood risk factors, as well as methods for identifying such children early and delivering remediation.

The numerous familial and childhood antecedents of chemical dependency suggest that prevention programs should be comprehensive, intensive, and enduring. Whenever possible, prevention strategies should include the family and focus on improving the child's behaviors and strengthening family relationships. Considerable data support the notion that parents are the most influential childhood factor in shaping the child's later adaptation to life, including use or abuse of drugs. Parents who model nonuse or socially appropriate use of alcohol and medications, and who are warm (but provide close supervision), appear to have fewer children who become seriously involved in drugs (Auerswald, 1980; Baumrind, 1985). In addition, parents have an obligation to raise their children to be competent, independent individuals with survival skills necessary to succeed and contribute to our society without the use of drugs. This means responsible parenting, by giving the needed time, love, guidance, and attention to the child.

Unfortunately, because of permissive societal values concerning alcohol and drug use, even many competent children will experiment with drugs and alcohol, as this is typical of risk-taking and trying out new adult behaviors. Few youths who have social competencies and close relationships with their parents will become drug abusers. According to the most recent analysis of Kandel's data, only 25% of all children who initiate drug use continue usage after age 23 (Yamaguchi & Kandel, 1984). Hence, parents should not condone the use of any drugs, except medically, but must be careful not to overreact with harsh sanctions and withdrawal of love to experimentation with drugs (like marijuana) that may be normative for their children's age and school (Baumrind, 1985).

Primary Prevention Funding Issues

The citizens of this country should demand more research on the cause of alcohol and drug abuse. Thirty-five times more funding is spent on cancer research than on chemical dependency research though the economic and medical costs of chemical dependency are almost equivalent. Chemical dependency researchers may be only a decade away from a good understanding of the biochemical disturbances associated with alcoholism.

Once these are understood, better prevention programs can be developed.

More etiological research should be conducted to better understand the psychosocial and biomedical transmitters of drug abuse from parent to child. In addition, longitudinal prospective studies of COSAs are needed. Because maternal chemical dependency tends to have a devastating impact on children, more study is needed on chemical dependency in women. Such studies should be aimed at elucidating the variables which transmit precursors of chemical dependency to the children. Currently, there are a number of prospective studies being conducted of sons of alcoholics, but none on daughters of alcoholics.

Cost-effective, intensive, and long-term strategies must be found to deal with this multi-generational problem of chemical dependency. At some point in history, Americans must invest substantially in helping to break this multi-generational cycle and decreasing the high rates of alcohol and drug abuse in our youths. It may not take a lot of money if communities are willing to get involved, but the solution will certainly require a lot of time and commitment on the part of substance abuse practitioners and community members.

The American public is currently very interested in solving the drug abuse problem, but unfortunately the prevention approaches currently being supported will do little to solve the medical problems discussed in this paper. The majority of funding to "fight the war on drugs" is going to supply reduction and punitive law enforcement approaches. Approximately 200 times more funding is going toward supply-reduction versus demand-reduction strategies of prevention. The Rand Corporation Report on Strategies for Controlling Adolescent Drug Use (Polich et al., 1984) details why the use of supply-reduction interventions are ineffective in decreasing drug use and probably have pushed youth into harder drugs. Lip service is being paid to the notion of "demand reduction or primary prevention" and very little funding for research and programs is being suggested.

This paper proposes that we take seriously the concept of chemical dependency as a bio-psychosocial disease, rather than a moral issue. Through understanding of some of the possible causes of chemical dependency, the author hopes that the general public will develop an increased compassion for the sufferer rather than an attitude of judgment and condemnation. It is unfortunate that antisocial personality and chemical dependency often are associated in the vulnerability syndrome discussed in this paper. It is time for this nation to develop a better understanding of chemical dependency and make etiological research and primary prevention a national priority.

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AUTHOR

Karol L. Kumpfer, Ph.D.
Department of Psychiatry
and
Social Research Institute
University of Utah
Salt Lake City, Utah

PANEL DISCUSSION OF KUMPFER'S PRESENTATION

Panel: One point in clarification. You said 20 to 25 percent of the male children of alcoholics will in fact have some problem with substance abuse. So you're talking about 75 or 80 percent who will not. I think one of the things that we have to be careful about is that, although it's a risk factor, it's one of a number of risk factors. But it's one of those risk factors that people will just jump on and say, "If I've got a child of an alcoholic here, this is going to be an alcoholic or drug abuser, and I've got to intervene." I think it's a risk factor that, like a lot of other risk factors, maybe explains some percentage of the variance, but it's down in the 20 or 25 percent range.

Kumpfer: Well, it could be 12 percent. If we take out all the women we almost split that in half. I mean, you're really pretty low. And the reason that I talk about it is because it's one of the only things we have any research on because the research is so limited over the population. If we initiate significant research we might be able to identify the biological, psychological, and family risk factors for a much broader range of substance abusers.

Panel: Your presentation was extremely informative. I just want to go through some points quickly. I would question whether the findings are conclusive.

Kumpfer: I would say that on the vulnerability syndrome I would consider these preliminary findings, as I mentioned, until they're replicated. It's indicative of a picture starting to emerge, of a cluster of symptoms that now all fit together for a very small percentage of the population we're talking about.

Panel: I think that's important because that does bear upon these deliberations as to setting priorities in terms of a strategy. Secondly, I think it's very important that you stress the factor of variability. My guess is that variability is the rule and that would further reduce the amount of specificity you can impose in terms of programs or initiatives in this area. It's clear to me and I think to workers in the areas of delinquency and substance abuse that we're talking about a spectrum. You yourself have said maybe about 12 to 20 percent are understood by genetic factors and then we're left with some 80 percent, a large target population that needs to be accounted for. Your plea is to look for a vulnerability syndrome in those. I'm not against research of that sort. But I think there are probably equally important areas to emphasize in trying to describe that other 80 percent that do not seem to be, at least on the face of it, representative of a vulnerability syndrome. The other point I want to make is around the word vulnerability, itself. In the area of drug and alcohol abuse, vulnerability is O.K. for a working title, but I'm worried about those kinds of labels when we really might be dealing with a literature that talks about correlates rather than really strong predictors.

Related to this, if the word vulnerability applies at all, it's certainly nonspecific. Given these two facts, that

(a) vulnerability is nonspecific and (b) it represents a very small proportion of the population, I would wonder about strategies that would focus upon change in the consciousness of biological markers in families or communities. I think we'd have to think about that. If much of the data are coming out of families in treatment, we have to look at what has really happened over the past 15 years, which is family breakdown as a consequence of drug abuse rather than as an antecedent of drug abuse. And so some of the descriptive factors of those families should be considered in that light.

Much of what keeps reappearing to me is the behavioral data. We're looking at addiction or some chronic delinquency behavior which can be described. So that my own predilection is to return to behavioral parameters so that strategies of prevention are based upon what we actually see, and maybe we should be guided by that until the psychobiological processes are made clearer.

And in regard to that, there are a few studies and a good deal of clinical observation that focus on building individuals' immunity to the forces that drive them into drug abuse. All of the information we have around relapse prevention and a lot of the process and treatment outcome data keeps pointing to building up immunity factors which are strictly behavioral and social. We don't devote a lot of time to the biological markers. Even a number of the sophisticated Alcoholics Anonymous (AA) people grant the possibility of the disease residing in the organism and yet, strangely, they don't focus very much on that. They keep talking about the behavior, attitude, and social networks of individuals, at least in terms of intervention. So that while I'm impressed with the literature, and because I'm a scientist I think psychobiological study has to be advanced, I would keep a balanced view in terms of strategies and prevention, and focus a little more on social and behavioral factors.

Kumpfer: One of the things that I think is interesting in what you're mentioning is that we need to get back to dealing with behavioral interventions for the things that we can see in these kids. Maybe it's only me because I've been doing that for 4 years, but that's not new to me. For me it was interesting to get into the literature and explore biological vulnerability. And, in a way, I really haven't stressed at all the research that I've been doing for 4 years on using behavioral technologies to change some of the risk factors in these kids that we see. We went in with parent training for the parents, with child skills training for the children, and family relationship skills and family management skills building for the family, and found that all of these programs--these were 14-week programs--were significant in decreasing risk factors in these kids. And most of them were behavioral.

When I started, I didn't believe we were going to be effective because the parents were just too dysfunctional. We're dealing with mostly heroin-abusing parents, 6- to 12-year-old kids, and these kids were pretty far along, then, in the behavioral problems that they had. And so what we had to do was to teach these parents the behavioral principles, the standard

patterns and behavioral techniques, and then have the parents apply them consistently, when the parents have almost never done anything consistently in their lives. We had to set up all kinds of behavioral contingencies just to get them to the different sessions. And at the end of 4 years, we have gotten significant pre-post test changes in quite a number of factors for the children with the parent training program, and with the family skills training program, and with the children's skills training program. The upshot of the whole thing was that the children's skills training program was not as effective as working with the family together. And the family program appeared to be more effective than the parent training alone. But they were different. Really, each of those two programs did what the objectives of the program were.

The behavioral parent training program basically just teaches the parent disciplined family management or dealing with a noncompliant child. It does not improve family relationships. So we didn't get good results on improving family relationships. In fact, with the post-test we also found that the parents really didn't like being parents as much after going through the parent training program. But the parents increased their knowledge of behavioral principles. They were better disciplined, they were better at reasoning effectively. But they spent less time with their children after the program was finished. They didn't enjoy being a parent as much. The family spent less time together; however, the children's behavior improved. They became model kids. And they had much better behavior at school, too. They decreased their screaming, their arguing, they had less temper tantrums, a whole range of behavioral problems that they first had disappeared. They had less anger and more positive home responses to parents and their siblings. And effectively, and this is strange, they increased the feeling that they were loved. A lot of it had to do with the fact that they were more accepted at school, which increased their happiness. But also we got decreased confiding in the parent, less time confiding in the parents, they didn't like the parents as much, and their perceptions of being liked by other kids was down.

Panel: One of the few studies in which the parents left home and the children stayed.

Kumpfer: I don't think anyone ever told them that being a parent you had to do all these things. You have to go through this incredible process and it's hard work. But the kids liked school. They weren't getting along with their siblings any better. They decreased their intentions to smoke and they decreased their intentions to drink.

Panel: Do you understand these results?

Kumpfer: I think part of it. I really don't think that the parent training programs deal with how hard it is for the parent in a real dysfunctional family, and with what's been going on in the family to begin with.

Panel: What percentage of parents stay with the program long enough to be subjects for the study?

Kumpfer: Certainly, there were ones that dropped out right away, that say they're going to come but they never show up.

But ones that we could get there more than two or three times, I don't remember exactly. My impression was that it was as high as 70 or 80 percent of the total program. We gave them a lot of motivation. They got paid to come, we had spinners for these parents where each time we played gambling, and if they were there, we also spun for all kinds of dinners and movie tickets, and every time they came, they got something else on top of being paid. And then they got $50 if they finished the whole program at the end.

Panel: I take it you got different findings with family skills training than you got with parent training?

Kumpfer: What was interesting was in the family skills training, it looks like the kids were doing better at some things and worse in others. They were crying more, they were arguing more. They did increase their passivity, but they increased their temper tantrums, they decreased their other child problem behaviors. But there were asking more for help with homework, they were getting more positive responses from the home. They felt that they were loved more, they were seeking attention more, they were confiding in their parent more, they had increased feelings the parent liked them, they were liking school more, getting along with siblings. The family got through some of the barriers the kids had with their parents, that they were just relating more to the parents. And that's the good thing. The good thing is you go on and reestablish the good bond and get the kids to confide in the parents and have a better family relationship. But on the other hand, the parent is also the irritant and is the modeler of drug problems and all that. Maybe the kids are going to get worse in the end. You've established a better family relationship, but now they are going to be more likely to model their parents.

Panel: Is there some danger that family measures that are self-reported tend to make you look like you're doing a little better than you probably are?

Kumpfer: With our study we get to see the parent working with the child. We're videotaping them together. They have to meet criteria. It's not like having them come in, teaching them a class, and telling them to go home and do it as homework because then you never know what they really look like as a family unit.

Panel: We did some of that too, and we found out that they could do it pretty well in the lab. But they didn't do it once they got home. And they certainly weren't doing it in our samples 6 months later.

Kumpfer: Well, see, what we're talking about would be a long-term study. The ultimate bottom line, you know, is, do they get into drug and alcohol use or do they have less delinquency behavior and problem behavior if they go through this program? I'm not defensive about not doing in-home evaluation. We tried. I lost my entire first year of data and we were set back because we tried in-home observations and evaluations. At one point we had a shooting.... The father was shot while I had two interviewers in the home because somebody came to do a drug

deal. It was very difficult. And people were not very compliant. They'd make appointments but they wouldn't open the door.

Panel: One of the questions that I have about this has to do with intervention, especially for young children. If we know that no female children of substance abusers are at any higher risk than are male children of nonsubstance abusers for drug abuse, and if we know that only 20 to 25 percent of the male children of substance abusers will, in fact, have a likelihood of substance abuse, then we'd have a risk of something like 75 to 80 percent false positives. Now we're not intervening in this case on the basis of existing behavior. We're not intervening because this child is having behavioral or adjustment or academic problems in elementary school. But we're intervening because we've diagnosed this kid as the child of a substance abuser. And the question that I have is about that the basis for intervention, given the degree of risk that we see.

Panel: If you're looking at it as the highest-risk population that we can possibly identify from the research perspective, then there may be validity much greater than the small percentage would suggest.

Panel: But if you look in terms of childhood and you say, "What's a risk factor that's predictive that has the least number of false positives?", then you would take early aggressive behavior in boys and get grades kindergarten through second grade.

Panel: Or self-concept.

Panel: No, the self-concept stuff is really mixed up. Early aggressive behavior is very clear, that kids who are rated by their teachers as extremely aggressive in kindergarten through grade 2 are at risk, and if you want to do some multiple rating you can even get ratings from peers and parents. For those kids, you also have a false positive problem. But the false positives there are only 40 percent. In other words, you take 100 percent of kids who are rated as extremely aggressive by their kindergarten or 1st grade teachers, and you say how many of those kids will go on to be serious delinquents or drug-abusing kids--about 60 percent will. But the difference is that the warrant to intervene here is current and existing behavior, not the risk of future problems. And so, instead of labeling the person on the basis of, "You're a child of an alcoholic or substance abuser, therefore you're at risk for substance abuse, therefore we're putting you in this group," you're saying, "This kid is right now a behavior problem in school on the basis of aggressive behavior. Let's intervene to change the existing behavior." And the reason I want to raise it is because I know you're sensitive to this issue. But I think the earlier point is very important. The children-of- alcoholics movement has been developing, and yet there's no genetic evidence for girls at all, and only 20 to 25 percent of the sons of alcoholics are going to be there.

Panel: And I hate to get back to this, but one has to look at cost to society. When you go in to state institutions, and I

have, and you survey those kids, 95 percent of them have severe alcohol and drug abuse problems and/or committed their crimes under the influence. The best predictor of adult incarcerated people are adolescent incarcerated people. And when you talk about cost to society, that's it right there. And the other piece is that those kids don't have parents that are going to participate in any of these programs by that point. You can't find their parents, or if you're lucky enough to find their parents, they are not interested in playing in this ball game.

Panel: But that's at that point in time. I think you can enlist and involve their parents when kids are in kindergarten through grade two.

Panel: My point was, though, that if you're going to look at cost to society, and I think ultimately some of us have to, the bang for the buck comes from getting back to aggressive identification because those are the kids really costing society in the long run.

Panel: I'm saying I worry about this as a warrant to intervene in children's lives as a preventive strategy because of the risk of false positives, because of the weakness of the prediction, and because there's nothing that the kid did, or is doing right now, that is taken as a warrant to intervene. And I think there's an ethical issue here and yet I know it's going to be snapped up because it's what I think we're all looking for--the magic bullet--what we can assume is a causal factor. We can say, "Ah, that's the child of a substance abuser, let's grab him and deal with him."

Kumpfer: I want to clarify that these programs are typically not labeling these kids as children of alcohol and drug abusers. They will talk with the teachers and ask them to identify kids who have problem behaviors. There are a number of different kinds of problem behaviors like acting out, temper tantrums, aggressiveness, maybe depression, excessive shyness. But also things like are they late for school, are they missing school? They're going to get kids that have all different kinds of problems into these groups. Then they just say, "This kid has some problems in school that the teacher thinks would benefit from our special program. So they just send a letter out to the parents asking the parents if they'd be willing to have their kid go to a new type of stay-after class just for special-needs kids. And they just call them "Kids are Special," "Children are People," "Developing Capable People." "This will just be a little something extra that will help your kid be successful."

Panel: See, that's what I think we keep coming down to, though. If we're going to do intervention and target kids, let's do it on the basis of instant behavior. If it's just that somebody's got something to get off their chest, let's have a rap-room, let's set that up, because kids want to come in there, whatever it is they want to come in there for. Let's not just limit it to a rap-room for children of alcoholic and substance abusers.

Panel: Is the rap-room really a common phenomenon?

Panel: It's not common but it's out there.

Panel: And is it utilized?

Panel: I only know of three schools that have rap-rooms.

Panel: One county has rap sessions available Tuesdays and Thursdays in every junior high and high school in the county. It runs through the summer.

Panel: What about during the school year?

Panel: It's open every day for I think all seven or eight periods. Now, the counselors are not what you'd call trained counselors. They don't have degrees in educational psychology or clinical psychology, but tend to be volunteers.

Panel: I take it no one has ever done an evaluation of that activity. Have they?

Panel: The county says that they have evaluated it and found that in the schools where they have a significant population of kids, about 5 to 10 percent of the student body participating in some rap-sessions, that they have a reduction in deviant behavior. I don't know what they mean by deviant behavior.

Panel: It sounds like, and understandably so, success or failure may be being read in terms of the impact on the school environment specifically.

Panel: Pure counseling programs and student assistance programs basically do the same thing. They are not just for kids that act out. They are for kids that voluntarily want to come in as well. And we look at grade-point average and behavior disruption and all of those kinds of things as measures.

Panel: Down another road, when parents are in treatment, to what extent is an effort made to work with youngsters, and is it warranted? If we're not doing much, should we be doing more?

Panel: I'll give you some experiences in the therapeutic community. Some contemporary ones are getting increasingly aggressive about it with the family, siblings, and so on. The message is there, the client is in treatment and may be a parent. And it even affects clients in outpatient settings operating under the therapeutic community's perspectives and methods. And of course, TC's have a fairly explicit perspective that they can teach. So the form of the intervention would be, "Yes, you're the client and of course everything you're learning and everything you are now can be an influence on your child and the way you are parenting your child." So all of that is aggressively being pursued, namely, the client as parent, the client as sibling, and how they affect other members of the family. That's the first part. The second part is to bring the other members of the family in, and they are going through formal and informal kinds of training and group interactions to clarify values and clarify their own behaviors and, of course, to detect problems.

Kumpfer: The family treatment perspective is growing in the treatment field. But I don't know of very many programs that are doing more than just family therapy or talking about the impact that the client substance abuser has on the rest of the family. Our program was an exception. But the whole COA movement is going to change that. There are a lot of treatment agencies now that will start running groups, they'll start with

"Adult Children of Alcoholics" groups and then they will start running groups for the children eventually. But they have problems with payment. It's an issue. Most state agencies won't support collaterals, what they consider collaterals--treatment for anyone but the identified client--and also with third-party insurance they may not be able to. So clients will have to pay for it themselves in a lot of cases unless we can get some of that changed.

Panel: It's my observation that the brochures and ads that talk so much now in the trade journals about family-oriented treatment and so on are about at the same status as a few years ago when everybody was talking about how wonderful their extended aftercare was, when very often it only involved giving the name and telephone number of an AA fellowship in your hometown. It's my observation that there's a lot of people talking about family treatment, but there are very few programs that are aggressively pursuing it unless they are self-paced. Everybody's now got a family week. Everybody's got it. Then talk to the family members and say, "What was addressed during that meeting?" and so on. And then you learn there's an awful lot of fluff.

Panel: An indirect prevention that goes on and is very active and routine, at least at drug-free treatment centers that I know, is where the target client is an adolescent already in trouble, and then family members are brought in and there's a particular emphasis on the sibling who may or may not have problems. There are strategies to either prevent sibling problems or to treat a sibling problem that is detected in the treatments. So in terms of that configuration, you see active informal prevention efforts.

Delinquents and Drugs: What the Evidence Suggests About Prevention and Treatment Programming

J. David Hawkins, Ph.D., Denise M. Lishner, M.S.W., Jeffrey M. Jenson, M.P.A., M.S.W., and Richard F. Catalano, Ph.D.

The evidence is clear and consistent. Frequent use and abuse of drugs is more common among youths who engage in chronic delinquent behavior than among other adolescents (Elliott et al., 1985; Hartstone and Hansen, 1984; Watters et al., 1985). Moreover, recent students have revealed common factors in the etiology of adolescent drug abuse and delinquency. This evidence suggests that efforts to prevent adolescent substance abuse and chronic serious delinquency should target the same factors. The same interventions may decrease the risk of both these apparently concomitant forms of behavior. Further, given the high rates of drug use among delinquents, drug abuse intervention and treatment programs are clearly needed for this special population.

This paper explores the evidence linking adolescent drug use and delinquency, examines shared and distinguishing factors in the etiology of each, and discusses implications for prevention and treatment programming.

THE LINK BETWEEN DRUG ABUSE AND DELINQUENCY

> "Persons exhibiting serious involvement in delinquency or illicit drug use are in general quite likely to exhibit serious problems in both areas...." (Elliott and Huizinga, 1984:51).

In the National Youth Study, a self-report study of a national probability sample of adolescents, Elliott and Huizinga (1984) found that in 1980 nearly 50 percent of serious juvenile offenders (who admitted having committed three or more index offenses in the past year) were also multiple illicit drug users. Eighty-two percent of these chronic serious offenders reported use, beyond experimentation, of at least one illicit drug. In the 1980 sample, incidence rate of alcohol use among serious delinquents were four to nine times those of nonoffenders; rates of marijuana use were 14 times those of nonoffenders, and rates of use of other illicit drugs were six to 36 times those of nonoffenders, depending on the drug.

Our 1985 survey of a sample of institutionalized delinquents in Washington State (see Table 1) revealed that, although an average of three years younger than the national sample of high school seniors surveyed that year (Johnston et al., 1986) (see Table 2), the delinquents had higher lifetime and current prevalence rates for the use of all illicit drugs. As shown in Tables 3 and 4, 84 percent of the delinquents as compared with 54 percent of high school seniors had used marijuana. Nearly 64 percent of the delinquents, as compared with 25.7 percent of high school seniors, had used marijuana in their last 30 days in the community. The seniors surpassed their younger delinquent counterparts only in the prevalence of alcohol use.

TABLE 1

Type of Offense Leading to Institutionalization
(Entries are percentages)

	Project Adapt - 1985 (WA Sample)		
Committing offense	All Clients n=77	Males n=58	Females n=19
Burglary or theft	26.0	24.1	31.6
Simple assault or assault	15.6	13.8	21.1
Robbery	14.3	10.3	26.3
Sex offense	29.9	37.9	5.3
Miscellaneous crime[a]	14.3	13.8	15.8

[a]Miscellaneous crime includes (1) taking a motor vehicle without the owner's permission, (2) car prowl, (3) harassment, (4) malicious mischief, (5) destroying public property, (6) probation violation, (7) minor possession, and (8) prostitution.

Criminal behavior and drug use often occur simultaneously. A Rand survey of prison inmates in California found that over 40 percent of the prisoners reported using hard drugs (heroin, barbiturates, amphetamines) during the 3 years before their incarceration (Peterson and Braiker, 1980). A subsequent study of 2,000 inmates in California, Michigan, and Texas revealed that 83 percent of prisoners incarcerated for violent offenses were taking drugs daily during the month prior to their committing offense (Chaiken and Chaiken, 1982). In a study of substance abuse among juveniles adjudicated for violent crimes, half reported that they used alcohol or drugs prior to their violent behaviors and 40 percent reported using drugs immediately prior to their committing offense (Hartstone and Hansen, 1984).

These findings have led to speculation and research regarding possible causal relationships between drug use and crime. Some have argued that drug use causes or exacerbates crime (Ball et

TABLE 2

Demographic Characteristics
(Entries are percentages except where noted)

	Project Adapt - 1985 (WA Sample) n=77	National Sample of High School Seniors[a] n=16,000
Age: (years)	x=15.0	mode=18.0
Males	14.5	(males &
Females	16.6	females)
Sex:[b]		
Males	75.3 (n=58)	47.5 (n=7,600)
Females	24.7 (n=19)	50.0 (n=8,000)
Race:		
White	53.2 (n=41)	75.0 (n=12,000)
Black	36.4 (n=28)	14.0 (n= 2,240)
Other	10.4 (n= 8)	11.0 (n= 1,760)

[a]Source: Johnston, L.D.; O'Malley, P.M.; & Bachman, J.G. (1986). Drugs and American High School Students. Rockville, MD: National Institute on Drug Abuse.

[b]Missing data account for the discrepancy in the total number of cases for the national sample of high school seniors.

TABLE 3

Lifetime Prevalence of Use of Ten Types of Drugs
(Entries are percentages)

	Heroin	Other Opiates	Cocaine	Barbi-turates	Tranqui-lizers	Amphet-amines	Marijuana	Alcohol	Halluci-nogens	Inhalants
Project Adapt - 1985 (WA Sample)										
All Clients	11.7	27.3	40.3	18.2	14.3	44.2	84.2	88.3	28.6	20.8
Sex:										
Male	6.9	22.4	34.5	13.8	10.3	37.9	80.7	87.9	29.3	19.0
Female	26.3	42.1	27.8	31.6	26.3	63.2	94.7	89.5	26.3	26.3
National Sample of High School Seniors[a] - 1985										
All Seniors	1.2	10.2	17.3	9.2	11.9	26.2	54.2	92.2	10.3	15.4
Sex:										
Male	1.4	11.3	19.7	9.9	11.7	24.6	56.6	92.6	12.4	18.5
Female	0.8	9.1	14.8	8.3	11.7	27.6	51.5	91.9	8.0	12.4

a. Source: Johnston, L. D., O'Malley, P. M. & Bachman, J. G. (1986). Drugs and American High School Students. Rockville, MD: National Institute on Drug Abuse.

TABLE 4

Thirty-Day Prevalence of Use of Ten Types of Drugs
(Entries are percentages)

	Heroin	Other Opiates	Cocaine	Barbi-turates	Tranqui-lizers	Amphet-amines	Marijuana	Alcohol	Halluci-nogens	Inhalants
Project Adapt - 1985 (WA Sample)										
All Clients	3.9	14.3	22.1	9.1	6.5	31.2	63.6	58.4	14.3	3.9
Sex:										
Male	1.7	12.1	20.7	6.9	3.4	25.9	60.3	56.9	13.8	3.4
Female	10.5	21.1	26.3	15.8	15.8	47.4	73.7	63.2	15.8	5.3
National Sample of High School Seniors[a] - 1985										
All Seniors	0.3	2.3	6.7	2.0	2.1	6.8	25.7	65.9	2.5	2.2
Sex:										
Male	0.3	2.6	7.7	2.4	2.2	6.5	28.7	69.8	3.4	2.8
Female	0.1	2.0	5.6	1.6	1.9	7.1	22.4	62.1	1.4	1.7

a. Source: Johnston, L. D., O'Malley, P. M. & Bachman, J. G. (1986). Drugs and American High School Students. Rockville, MD: National Institute on Drug Abuse.

al., 1983; Gropper, 1985), while others suggest that individuals with criminal tendencies are inclined to become drug abusers (Santo et al., 1980). Still others have argued that delinquency and drug abuse are different behavioral manifestations of a "deviance syndrome" which results from common etiological factors and processes (Donovan and Jessor, 1984; Elliott et al., 1985; Jessor and Jessor, 1977; Kandel, 1985).

Understanding the relationships between delinquency and drug use among adolescents has been made more difficult by the fact that both minor delinquency and the occasional use of "gateway" drugs, including alcohol and marijuana, have become relatively widespread among American adolescents. The majority of teenagers commit minor delinquent offenses such as shoplifting or vandalism (Elliott et al., 1985) and try alcohol and marijuana before graduating from high school (Johnston et al., 1986). While undesirable, minor delinquency and occasional use of alcohol and marijuana have become statistically normative (cf. Baumrind, 1985; Kaplan et al., 1986). The factors which lead to these forms of adolescent individuation are likely to be quite different from factors which lead to serious and persistent delinquency or the regular use of illicit drugs (Gorsuch, 1980; Hawkins et al., 1985b; Kandel et al., 1986; Kaplan et al., 1986; Kimlicka and Cross, 1978; Robins and Przybeck, 1985; Simcha-Fagan and Gersten, 1986).

Thus, in discussing adolescent delinquency and drug use, it is important to specify the behavior of concern or interest, whether one is seeking to understand etiology or to prevent deviant behavior. There is evidence that different patterns of drug use at different developmental stages have different etiological origins (Kandel, 1982) and are associated with different patterns of current behavior. Robins' research (1980) has shown that occasional use of drugs does not appear to be associated with antisocial personality or delinquency. In contrast, drug abuse, especially in adolescence, appears to be part of a general pattern of rebelliousness and nonconforming behavior (Johnston et al., 1978; Segal et al., 1979, 1980) which criminologists have called a "deviance syndrome" (Elliott et al., 1985; Hindelang and Weis, 1972; Jessor and Jessor, 1978) and mental health professionals have labeled antisocial personality (Robins, 1980).

Epidemiological statistics also suggest that the occasional use of drugs by most adolescents is a phenomenon separable from regular drug use or chronic delinquency. Annual surveys of high school seniors conducted by Johnston et al. (1985) have shown that rates of lifetime prevalence of illicit drug use among high school seniors are far greater than the estimated rate of chronic antisocial behavior among boys, which ranges from 4 to 15 percent depending on the definitional criteria used, age of the subjects, and the type of behaviors included (Elliott et al., 1985; Farrington, 1983; Loeber, 1982; Shannon, 1978; Wolfgang et al., 1972). The rates of drug experimentation are also far greater than the 5 percent prevalence of daily marijuana use found by Johnston in the class of 1985. It appears reasonable to hypothesize that behaviors with such different rates in the population may arise from separable etiological roots. In sum, the factors

which lead to occasional drug use and/or minor delinquency are likely to differ from the factors which produce drug abuse and chronic serious delinquency (Robins and Przybeck, 1985).

Epidemiological studies indicate that involvement in delinquent behavior generally precedes drug use chronologically (Bachman et al., 1978; Elliott and Huizinga, 1984; Elliott et al., 1985; Holmberg, 1985; Inciardi, 1981). Among most youths, delinquent behavior peaks between ages 15 and 17, while drug involvement increases during the teen years and peaks in the early twenties (Elliott and Huizinga, 1984; Kandel et al., 1986). However, for a small proportion (probably between 2 and 6 percent of the youth population), both serious criminal behavior and frequent drug use persist into adulthood (Elliott and Huizinga, 1984). This small group of drug-using chronic offenders is responsible for a disproportionate number of violent and property crimes (75 percent of robberies and 50 percent of felony assaults, according to Johnson et al., 1983) and for large social and economic costs to society.

Wolfgang et al. (1972) found that 6 percent of the 1945 Philadelphia birth cohort was responsible for 52 percent of the recorded offenses. These chronic delinquents, who had been arrested at least five times, each represented only 18 percent of the officially processed delinquents. Chronic offenders made up only 7.5 percent of the 1958 Philadelphia birth cohort, but accounted for 69 percent of all index offenses, including 61 percent of homicides, 76 percent of rapes, 73 percent of robberies, and 65 percent of aggravated assaults (Farrington, 1983; Wolfgang and Tracy, 1982). Similarly, studies of daily heroin users have shown high levels of criminal activity, including violent crime (Johnson et al., 1983).

This paper focuses on the prediction, prevention, and treatment of serious delinquency and the frequent or abusive use of drugs among adolescents rather than on more widespread minor delinquency and occasional drug use.

The existing evidence indicates that in spite of apparent differences in age of onset and patterns of maintenance, serious and persistent delinquency and the frequent use of illicit drugs emerge from common etiological roots (Elliott and Huizinga, 1984; Elliott et al., 1985; Fagan and Hartstone, 1984; Watters et al., 1985). Recent reviews reveal similar risk factors for delinquency (Blumstein et al., 1985; Farrington, 1985; Loeber and Dishion, 1983; Rutter and Giller, 1983) and adolescent drug abuse (Hawkins et al., 1985, 1986b). While some distinguishing factors are evident in the etiology of serious delinquency and drug abuse related to gender, the type of drug considered, the type of delinquency considered, and the severity of the behavior (Elliott and Huizinga, 1984; Kandel et al., 1986), it appears that some precursors are common to both serious delinquency and drug abuse. The identification of these shared risk factors should inform the design of empirically sound strategies for preventing these behaviors.

RISK FACTORS FOR DELINQUENCY AND DRUG ABUSE

This section summarizes (Factors 1-12) the evidence regarding shared risk factors for chronic serious delinquency and adolescent drug abuse, and also points out risk factors which have been identified for one of these types of behavior but not the other.

Early Variety and Frequency of Antisocial Behaviors in the Primary Grades of Elementary School

Problematic conduct early in life continues for certain children (Loeber and Dishion, 1983; Gersten et al., 1976; Ghodsian et al., 1980; Patterson, 1982; Langner et al., 1983; Werner and Smith, 1982; West and Farrington, 1973). The greater the variety, frequency, and seriousness of childhood antisocial behavior before age 10, the greater the risk of persistent and frequent delinquency continuing into adulthood (Blumstein et al., 1985; Farrington, 1979b, 1985, 1986; Robins, 1978, 1979; Robins and Ratcliff, 1979). Aggressive behavior in early elementary grades is related to rates of both later self-reported and official delinquency (Emsinger et al., 1983; Craig and Glick, 1968; Farrington, 1978; Magnusson et al., 1975).

Early antisocial behavior also predicts frequent use of drugs in adolescence (Johnston et al., 1978; Kandel et al., 1978; Lerner and Vicary, 1984; Robins, 1978; Simcha-Fagan and Gersten, 1986; Wechsler and Thum, 1973). In their sample of 1,242 urban, black 1st-grade students, Kellam and Brown (1982) found a positive correlation between 1st-grade male aggressiveness, especially when coupled with shyness, and the frequency of substance use 10 years later.

Further, early delinquent behavior appears to predict early initiation of the use of illicit drugs. Simcha-Fagan and Gersten (1986) found that early minor delinquency is associated with the transition into marijuana use, and that early adjustment problems predict the use of illicit drugs other than marijuana. Kandel et al. (1986), in a longitudinal study, found that early delinquency is a predictor of marijuana and other illicit drug use among male adolescents, although it did not predict female drug use.

Early antisocial behavior appears to be predictive of early initiation of drug use (Wechsler and Thum, 1973), but not of drug initiation later in adolescence (Hawkins et al., 1986b). This is important in light of evidence regarding the role of early drug use initiation in the etiology of drug abuse, which is summarized below.

Early initiation of drug use increases risk for regular use (Kandel, 1982; Kaplan et al., 1986) and for drug abuse (Bloom and Greenwald, 1984; Kandel, 1982; Rachal et al., 1982; Robins and Przybeck, 1985). Further, there is evidence that early initiation into drug use also increases the probability of involvement in crime (Brunswick and Boyle, 1979; Kleinman, 1978; O'Donnell and Clayton, 1979).

This link between early drug use initiation and delinquent behavior is supported by our 1985 data from institutionalized

delinquents regarding age of initiation of the "gateway drugs" alcohol and marijuana (see Table 5). Nearly 83 percent of the delinquent sample, as compared with 32.7 percent of the national sample of high school seniors (Johnston et al., 1986), had tried alcohol by age 14, while 78.9 percent of the delinquent sample, as compared with only 15.5 percent of the high school seniors, had tried marijuana by age 14. It appears that the early initiation of antisocial behavior and drug use characterizes youths who will become multiple problem deviants (Donovan and Jessor, 1984; Jessor and Jessor, 1977).

Parent and Sibling Drug Use and Criminal Behavior

Children whose parents or siblings engage in crime and/or drug use are themselves at high risk for these behaviors. Convicted parents and delinquent siblings increase the risk of delinquency, whether measured by official records (Robins, 1979; McCord, 1979; Craig and Glick, 1968; West and Farrington, 1973; Langner et al., 1983; Loeber and Dishion, 1983) or self-reported offending (Farrington, 1979a, 1986). Having siblings who have been convicted of a crime is strongly predictive of chronic offending (Blumstein et al., 1985). The contribution of family criminality is underscored by West and Farrington's (1977) finding that less than 5 percent of all families were responsible for 48 percent of the criminal convictions of all family members in their longitudinal study of working-class London youths.

Likewise, parental and sibling alcoholism (Cotton, 1979; Goodwin, 1971) and use of illicit drugs (Thorne and DeBlassie, 1985) increase the risk of alcoholism and drug abuse in offspring. Parental drug use is associated with initiation of substance use by adolescents (Kandel et al., 1978; Kandel, 1982; Kim, 1979; Johnson et al., 1984) as well as with frequency of use (Rachal et al., 1982; Zucker, 1979). A consistent correlation between parents' use of alcohol and other legal drugs and adolescent drug abuse has been shown (Bushing and Bromley, 1975; Cotton, 1979; Lawrence and Vellerman, 1974; McGlothlin, 1975). Not surprisingly, 36.8 percent of our sample of institutionalized delinquents reported that their parents had used marijuana, and 26.3 percent reported that their parents currently used marijuana (see Table 6). Bush and her colleagues found that parent and family modeling of drug use positively influences children's expectations to use drugs as well as their actual drug use (Ahmed et al., 1984).

Poor and Inconsistent Family Management Practices

Children raised in families with lax supervision, excessively severe or inconsistent disciplinary practices, and low communication and involvement between parents and children are at high risk for later delinquency (McCord, 1979; Robins, 1978, 1979; Loeber and Dishion, 1983; West and Farrington, 1973; Farrington, 1979a, 1986) and drug abuse (Baumrind, 1983; Braucht et al., 1973; Penning and Barnes, 1982; Simcha-Fagan and Gersten, 1986).

TABLE 5

Age of First Use for Alcohol and Marijuana
(Entries are percentages)

Age/grade in which drug was first used:	Alcohol		Marijuana	
	Project Adapt (WA Sample) (1985)	National Sample of High School Seniors[a] (1985)	Project Adapt (WA Sample) (1985)	National Sample of High School Seniors[a] (1985)
	n=77	n=16,000	n=77	n=16,000
Age 12/6th grade	56.5	9.7	57.8	3.5
Age 13 or 14/7th-8th grade	26.3	23.0	21.1	12.0
Age 15/9th grade	1.3	22.8	----	12.5
Age 16/10th grade	2.6	18.5	5.3	12.1
Age 17/11th grade	1.3	11.8	----	8.7
Age 18/12th grade	----	6.4	----	5.4
Never used	11.8	7.8	15.8	45.8

a. Source: Johnston, L. D., O'Malley, P. M. & Bachman, J. G. (1986). Drugs and American High School Students. Rockville, MD: National Institute on Drug Abuse.

TABLE 6

Parental Use of Marijuana
(Entries are percentages)

	Project Adapt - 1985 (WA Sample)		
Q: Do either of your parents smoke marijuana?	All Clients n=77	Males n=58	Females n=19
No	63.2	68.4	47.4
Used to but quit	10.5	10.5	10.5
Yes/sometimes or a lot	26.3	21.1	42.1

There is some evidence that poor parental supervision and discipline are predictive of general delinquency rather than chronic offending (Blumstein et al., 1985), though there is little research on this topic.

Conversely, positive family relationships appear to discourage youths' initiation into drug use (Adler and Lutecka, 1973; Jessor and Jessor, 1977; Kim, 1979; Norem-Hebeisen et al., 1984). Family factors appear to be more important for females than males in predicting illicit drug use (Kandel et al., 1986).

Family Conflict

In spite of much speculation regarding the role of "broken homes" in the etiology of delinquency, the evidence regarding family structure and delinquent and drug-using behavior is mixed. While children from homes broken by marital discord are at higher risk of delinquency and drug use (Baumrind, 1983; Penning and Barnes, 1982; Robins, 1980), there does not appear to be a direct independent contribution of "broken homes" to delinquent behavior (Wilson, 1985). Though parental discord may lead to family breakup, conflict between family members appears more salient in the prediction of delinquency than family structure per se (Farrington, 1985; McCord, 1979). Similarly, Simcha-Fagan and Gersten (1986) found that the use of heroin and other illicit drugs is strongly associated with parental marital discord. Thus, children raised in families with high rates of conflict appear at risk for both delinquency and illicit drug use.

Family Social Deprivation

Children from socially deprived families characterized by social isolation and multiple entrapment of parents in extreme poverty, poor living conditions, and low-status occupations are at elevated risk of chronic delinquency and drug abuse (Blumstein et al., 1985; Farrington, 1985; Robins, 1979; West and Farrington, 1973). This relationship between parental income, occupational prestige, and children's behavior is not linear.

Nonchronic delinquency (Blumstein et al., 1985; Thornberry and Farnworth, 1982; Van Dusen et al., 1983), occasional alcohol use, and marijuana experimentation (Simcha-Fagan and Gersten, 1986) do not become more prevalent as socioeconomic status decreases. However, persistent serious crime and the regular use of illicit drugs appear more prevalent among those raised in conditions of extreme social and economic deprivation.

School Failure

Whether measured by self-report or by police records, delinquency is related to academic performance at school (Bachman et al., 1978; Elliott and Voss, 1974; Gold and Mann, 1984; Noblit, 1976; Polk et al., 1981; Kelly, 1980; Figueira-McDonough, 1985). Youths who experience academic success are less likely to be delinquent, while those who fail in school are more likely to engage in persistent delinquency (Farrington, 1986; Hawkins and Lishner, 1987; Loeber and Dishion, 1983).

The relationship between achievement and delinquency appears to be interrelated with race and social class. Youths from low socioeconomic and minority backgrounds are more likely to experience academic failure than are white middle-class students. Yet, the experience of academic failure itself appears to be related to delinquency, controlling for class and race (Jensen, 1976; Johnson, 1979; McPartland and McDill, 1977; Noblit, 1976; Palmore and Hammond, 1964; Polk et al., 1974; Rhodes and Reiss, 1969; Stinchcombe, 1964).

School failure in late elementary grades precedes delinquency (Phillips and Kelly, 1979; Kelly, 1980; Polk et al., 1981). By the end of elementary school, low achievement, low vocabulary, and poor verbal reasoning predict later delinquency (Farrington, 1979b, 1986; Rutter et al., 1979; Spivack, 1983). It should be noted, however, that early academic performance in grades 1-3 of elementary school does not appear to be predictive of delinquency (Spivack, 1983; Spivack et al., 1978). In earlier grades, aggressiveness and other school adjustment problems, including school truancy (Farrington, 1985), appear more strongly predictive of later delinquency.

School failure has also been identified as a predictor of adolescent drug abuse (Anhalt and Klein, 1976; Brooks et al., 1977; Galli and Stone, 1975; Jessor, 1976; Robins, 1980). Poor school performance is a common antecedent of initiation into drugs (Jessor and Jessor, 1977; Johnston, 1973; Kandel et al., 1978), and has been found to predict subsequent use and levels of use of illicit drugs (Smith and Fogg, 1978). Holmberg (1985), in a longitudinal study of 15-year-olds, reported that truancy, placement in a special class, and early dropout from school were prognostic factors for drug abuse. In contrast, outstanding performance in school reduced the likelihood of frequent drug use among a 9th-grade sample studied by Hundleby (1986).

What is not clear from the existing research is when, developmentally, school achievement becomes a stable predictor of delinquency and drug abuse. Fleming et al. (1982) found that children who scored high on 1st-grade readiness and IQ tests

exhibited earlier and more frequent use of alcohol and marijuana. These students were more than twice as likely to become frequent users. Teacher-rated learning problems for 1st-grade students were not related to future substance use when shyness and aggressiveness were controlled. Aggressiveness in the Woodlawn sample of 1st graders was invariably accompanied by learning problems, but learning problems frequently occurred without aggressiveness and, alone, did not predict subsequent drug use (Kellam and Brown, 1982). Kandel (1982) suggests that low school performance does not itself lead to drug use, but that the factors leading to poor school performance are related to drug involvement.

The available evidence suggests that social adjustment is more important than academic performance in the early elementary grades as a predictor of later delinquency and drug abuse. Early antisocial behavior in school may predict academic failure in later grades (Feldhusen et al., 1973), as well as later delinquency (Spivack, 1983) and drug abuse. Academic failure in late elementary grades may exacerbate the effects of early antisocial behavior and/or contribute independently to delinquency and drug abuse.

Low Degree of Commitment to Education and Attachment to School (School Bonding)

Negative relationships have been reported between delinquency and commitment to educational pursuits (Elliott and Voss, 1974; Hirschi, 1969), participation in school activities (Glasser, 1978; Lawrence, 1985), achievement orientation and educational aspirations (Hindelang, 1973; Hirschi, 1969; Kelly and Balch, 1971), and caring about teachers' opinions (Hindelang, 1973; Hirschi, 1969). Longitudinal analyses of data from a Seattle panel studied in 7th and 9th grades showed that low bonding to school in 7th grade was more consistent and pronounced for those who became chronic serious delinquents by 9th grade than for those involved only in minor delinquency by 9th grade (Catalano et al., 1985).

Low commitment to school also appears to be related to adolescent drug use. Annual surveys of high school seniors by Johnston et al. (1985) show that the use of hallucinogens, cocaine, heroin, stimulants, sedatives, or nonmedically prescribed tranquilizers is significantly lower among students who expect to attend college than among those who do not plan to go on to college. Drug users are more likely to be absent from school, to cut classes, and to perform poorly than nonusers (Brooks et al., 1977; Kandel, 1982; Kim, 1979). Greater drug use has been demonstrated among dropouts (Annis and Watson, 1975). Factors such as how much students like school (Kelly and Balch, 1971), time spent on homework, and perception of the relevance of coursework also are related to levels of drug use (Friedman, 1983), indicating a negative relationship between commitment to education and frequent drug use among junior and senior high school students.

Peer Factors

Association with delinquent peers during adolescence is among the strongest correlates of adolescent delinquency (Akers, 1977; Elliott et al., 1985; Hirschi, 1969; Jensen, 1972; LaGrange and White, 1985; Loeber and Dishion, 1983). Similarly, association with drug-using peers is one of the strongest predictors of adolescent drug use (Elliott et al., 1985; Jessor et al., 1980; Kandel, 1982; Kandel and Adler, 1982; Kaplan et al., 1982; Norem-Hebeisen et al., 1984; O'Donnell and Clayton, 1979). Drug behavior and drug-related attitudes of peers are among the most potent predictors of drug involvement (Kandel, 1978). Kandel (1985) suggests that adolescents coordinate their choice of friends, values, and behaviors to maximize congruence in their friendships. There is evidence that adolescents increase use of drugs due to influence of friends and that they also choose friends who reinforce their drug norms and behaviors (Kandel, 1985).

Perceived use of substances by others is also a strong predictor of drug use (Robins and Ratcliff, 1979; Jessor and Jessor, 1978; Kandel et al., 1978). Frequent users of marijuana have a greater orientation toward friends than parents, and greater perceived support and models for use (Jessor and Jessor, 1978). Jessor et al. (1980) found that perceived environmental predictors (such as friends as models for use) accounted for twice the variance in drug use as compared to personality factors. The two most powerful discriminating variables for multiple drug use considered in an analysis of multiple drug use groups were both indicators of use of drugs by friends (Clayton and Ritter, 1985).

It is not known at what point peer associations become important in predicting delinquency and drug use. Investigators have begun to study childhood peer associations longitudinally into adolescence (Coie and Dodge, 1983; Coie et al., 1981; Giordano et al., 1986; Roff et al., 1972). This interest has been prompted in part by evidence that childhood social maladjustment is a significant predictor of antisocial behavior, including delinquency and drug abuse, later in life (Asher et al., 1981; Conger and Miller, 1986; Cowen et al., 1973; Ladd, 1983; Tyler, 1982; Kellam and Brown, 1982; Lerner and Vicary, 1984; Roff et al., 1972; Roff and Wirt, 1984). The way in which early peer experiences affect the formation of an individual's adolescent peer group and subsequent involvement in delinquent behavior or drug use requires further study.

Attitudes and Beliefs

Individual attitudes and beliefs are related to substance use and delinquency. Generally, a constellation of attitudes and beliefs indicating a "social bond" between the individual and conventional society has been shown to inhibit both delinquency and drug use (Hirschi, 1969; Hindelang, 1973). The elements of this affective bond which have been shown most consistently to be inversely related to drug use and delinquency are attachment to parents (Adler and Lutecka, 1973; Chassin et al.,

1981; Jessor and Jessor, 1977; Kim, 1979; Krohn et al., 1983; Shibuya, 1974; Wechsler and Thum, 1973; Wohlford and Giammona, 1969), commitment to school and education, as noted earlier (Elliott and Voss, 1974; Friedman, 1983; Hirschi, 1969; Johnston et al., 1981; Kim, 1979; Krohn et al., 1983), regular involvement in church activities (Schlegel and Sanborn, 1979; Wechsler and McFadden, 1979), and belief in the generalized expectations, norms, and values of society (Akers et al., 1979; Catalano et al., 1985; Hindelang, 1973; Krohn et al., 1983).

Conversely, alienation from the dominant values of society (Gorsuch and Butler, 1976; Jessor and Jessor, 1978; Kandel, 1982; Kandel et al., 1978; Penning and Barnes, 1982; Smith and Fogg, 1978), low religiosity (Gersick et al., 1981; Jessor et al., 1980; Kandel, 1982; Robins, 1980), and rebelliousness (Bachman et al., 1981; Block et al., 1984; Goldstein and Sappington, 1977; Green 1979; Kandel, 1982; Smith and Fogg, 1978) have been shown to be positively related to drug use and delinquent behavior. Similarly, high tolerance of deviance (Brooks et al., 1977; Jessor and Jessor, 1977), resistance to traditional authority (Goldstein and Sappington, 1977), a strong need for independence (Jessor, 1976; Segal, 1977), and normlessness (Paton and Kandel, 1978) have all been linked with drug use. All these qualities would appear to characterize youths who are not socially bonded to society.

Research also has shown a relationship between specific attitudes and beliefs regarding drugs and drug use initiation. Initiation into use of any substance is preceded by values favorable to its use (Kandel et al., 1978; Krosnick and Judd, 1982; Smith and Fogg, 1978).

Neighborhood Attachment and Community Disorganization

Neighborhood characteristics such as high population density (Sampson et al., 1981), high officially recorded rates of crime (Kobrin and Schuerman, 1981), and lack of natural surveillance of public places (Murray, 1983) have been identified as predictors of increased delinquency in juveniles.

Attachment to neighborhood also has been recognized as a factor in the inhibition of crime (Wilson and Herrnstein, 1985). Studies by Newman (1972) and Murray (1983) indicate that people in communities characterized by low crime rates have a stronger sense of bonding to the neighborhood, participate actively in the informal surveillance of public areas, and move less often than people in high crime neighborhoods. Sampson et al. (1981) have shown that a rapid change in neighborhood population results in higher victimization rates, even after accounting for racial and age differences. Herting and Guest (1985) found that length of residence in a neighborhood is strongly associated with positive sentiment toward (bonding to) the neighborhood. An influx of new residents into a neighborhood may diminish the authority of informal organizations that exert regulatory control over residents, and can lead to conditions of neighborhood disorganization.

The Chicago area studies (Schlossman et al., 1984; Shaw et al., 1929; Shaw and McKay, 1931; Shaw and McKay, 1942; Short, 1976), and the McCords' (1959) evaluation of the Cambridge-Somerville project pointed to community disorganization as a factor in the breakdown of the ability of traditional social units such as families to transmit prosocial values. A lack of informal social controls appears associated with increased rates of delinquency and recidivism in disorganized communities.

It is likely that community values and norms affect rates of adolescent drug use and abuse as well. It can be hypothesized that disorganized communities have less ability to limit drug use among adolescents and may also weaken or counteract the socializing ability of units such as families and schools to limit adolescent drug use, though we are not aware of specific studies of this issue as related to adolescent drug abuse.

Mobility

There is evidence that rates of antisocial behavior among adolescents increase following various transitions such as the change from elementary to middle or junior high school, and from junior high to senior high school (Felner et al., 1981; Hamburg and Varenhorst, 1972; Finger and Silverman, 1966). Further, it appears that residential mobility predicts delinquency (Farnworth, 1984; Spivack, 1979) and is associated with higher rates of drug initiation and frequency of use (Catalano et al., 1985; Kaplan et al., 1984). The Cambridge study (Farrington and West, 1981; West, 1982) found that greater mobility was correlated with high rates of delinquency, though distant moves (to places outside London) were found to produce lower rates of delinquency. West (1982) attributes these latter results to a break-up of delinquent associates and reduced opportunity for crime. Kaplan et al. (1984) found that subjects of a longitudinal study who were "missing" at time 2 or time 3 were somewhat lower in self-esteem, felt more rejected by peers, family, and school, saw more potential in adopting a deviant response, and were more likely to have friends who used drugs than did subjects present at followup, suggesting that mobile subjects may have higher levels of risk for drug abuse prior to moving. While the contribution of mobility to delinquency and drug use is not well understood, there is evidence that it may play a role in the etiology of these behaviors.

Constitutional and Personality Factors

Since the late 19th century, criminologists have debated the proposition that criminals are constitutionally or genetically different from more conventional citizens (Wilson and Herrnstein, 1985). Similar arguments have been advanced that alcoholism is an inherited disorder (Goodwin et al., 1977a, 1977b). Debates among scholars over these claims have been tied to ideological and political perspectives as well as empirical evidence (Peele, 1986), often inhibiting rational investigation of this issue.

Constitutional factors are factors present at or soon after birth, whose behavioral consequences are thought to appear gradually during a child's development (Wilson and Herrnstein, 1985). There is evidence that adult criminals, serious delinquents, and conduct-disordered children can be distinguished from comparison groups on neurophysiological and cognitive dimensions (Barnum, 1985; Fenwick, 1985; Mednick et al., 1981; Peterson et al., 1982). Depressed levels of autonomic (Rutter and Giller, 1983) and central (Mednick et al., 1981) nervous system arousal have been found in delinquent youth. These findings may be related to other research relating attention deficit disorders (characterized by excessive motor activity, impulsivity, and easy distractibility) with delinquency (Rutter and Giller, 1983). Longitudinal followups of children referred to clinics for treatment of attention deficit disorders or hyperactivity have shown them to be at elevated risk for delinquency (Weiss, 1983). Retrospective studies of adolescent delinquents also suggest that they demonstrated behavior in childhood typical of that found in hyperactive youth (Olweus, 1979). Douglas and Peters (1979), in a review of attention deficits in hyperactives, conclude that hyperactive children are not especially distractible, but perform better in highly stimulating environments. While they exhibit impairments in sustained attention, selective attention appears unaffected. Attention deficits of this type are similar to those found in delinquent populations (Rutter and Giller, 1983). These findings may, in turn, be related to evidence regarding a link between sensation-seeking, delinquency, and drug abuse.

There is evidence that a sensation-seeking orientation may predict initiation and variety of drug use. Penning and Barnes (1982) suggest an association between marijuana use and alienation, lower motivation, and sensation-seeking. Zuckerman (1979) and Satinder and Black (1984) have reported similar results. Spotts and Shontz (1984) found measures of sensation-seeking to be related to the number of drugs used. The authors view their results as "consistent with the proposition that a need for stimulation or change underlies experimentation with a large number of substances" (p. 427). In a related finding, Ahmed et al. (1984) discovered that two measures of risk-taking, willingness to risk injury and willingness to risk illness, predicted expectations to use and actual use of alcohol and cigarettes. Willingness to risk illness was also associated with intentions to use and actual use of marijuana. Further research exploring the relationship of sensation-seeking to drug use in children is needed, since most research except the Ahmed et al. (1984) study has been conducted with adolescents and young adults.

Research has produced less consistent results regarding the relationships between sensation-seeking and delinquency. Relationships between officially adjudicated delinquency (Farley and Farley, 1972), self-reported delinquency (White et al., 1985), and sensation-seeking have been reported for adolescents. However, other studies have failed to find a relationship between sensation-seeking and delinquency (Karoly, 1975; Thorne, 1971). One may speculate that sensation-seeking is a response to depressed levels of nervous system arousal manifested as attention

deficit disorders. Sensation-seeking could be hypothesized as an attempt to compensate for low levels of nervous system arousal. The risk of delinquent behaviors and drug use may be increased through such attempts.

Studies of adult criminals (Rutter and Giller, 1983) and delinquents (Davies and Maliphant, 1974) also demonstrate poor passive avoidance learning relative to controls. Individuals displaying antisocial problems persevere in making punished responses regardless of whether or not they are vital to completion of the experimental task, indicating that they may be relatively unresponsive to aversive stimulation. There is evidence that a subset of delinquents and adult criminals have low levels of cortical and autonomic arousal, and possibly psychiatric conditions consequent to low arousal (Syndulko, 1978), but the causal or predictive nature and extent of these relationships are not known.

Cognitive deficits also have been found disproportionately in delinquent and criminal populations, even when controlling for socioeconomic status and other background variables (West and Farrington, 1973; Wolfgang et al, 1972). The cognitive deficits of offenders appear to be largely composed of deficits in verbal abilities (Prentice and Kelley, 1973).

Low verbal ability may affect the probability of delinquent behavior in several ways. Low ability will probably increase the likelihood of school failure, which appears more strongly linked to delinquency than ability itself (Gottfredson, 1981). Low verbal ability may also increase the likelihood of aggressive behavior in childhood. Camp (1977) found poor use of language in problem-solving tasks to predict aggressiveness and conduct disorders in elementary school-aged children. Additionally, low ability may be related to a discounting of future benefits associated with conforming behaviors and hence with impulsive delinquent acts or drug use.

With regard to drug abuse, there is evidence of a constitutional predisposition toward alcoholism. Convergent evidence from twin (Gurling et al., 1981; Hrubec and Omenn, 1981; Kaij, 1960; Schuckit, 1981), adoption (Cadoret and Gath, 1978; Cadoret et al., 1980; Goodwin et al., 1974, 1977a, 1977b, Murray and Stabenau, 1982), and biological response studies (Pollack et al., 1983; Schuckit, 1980; Schuckit and Rayes, 1979; Schuckit et al., 1983) suggest that genetic factors may play a role in the etiology of some male alcoholism.

No evidence of psychopathology has been found for drug users as opposed to nonusers, except when users are very young (Anhalt and Klein, 1976). Gersick et al. (1981) suggest that the personality characteristics of those with an early onset of use may differ from those who initiate use later, since use becomes normative with increasing age. For example, Hesselbrock et al. (1985) found that attention deficit disorder, hyperactivity, and conduct disorders before age 12 predicted the onset of drinking. Generally, with the exception of rebelliousness, alienation, and sensation-seeking, personality factors have been found to be less predictive of substance use than behavioral or

interpersonal factors (Gersick et al., 1981; Jessor et al., 1980; Kandel, 1978; Long and Scherl, 1984).

While constitutional factors may increase the risk of delinquency and drug abuse, it is likely that these factors interact with other risk factors in the etiology of these behaviors, as suggested above. It is unlikely that there are simple direct relationships between individual constitutional factors and these behaviors. Further, constitutional factors, like other risk factors, appear to contribute relatively small proportions to explained variance in delinquency or drug abuse. For example, the adoption studies which suggest a genetic factor in male alcoholism also reveal that fewer than 25 percent of the sons of alcoholics become alcoholic. Factors other than genetic predisposition must be considered to explain why over 75 percent of the sons of alcoholics do not themselves develop alcoholism (Peele, 1986). Conversely, about half of the hospitalized alcoholics do not have a family history of alcoholism (Goodwin, 1985), suggesting that a substantial proportion of alcoholism is not linked to genetic factors.

In summary, the preponderance of evidence from the etiological research indicates a common set of risk factors for both serious chronic delinquency and drug abuse as distinct from minor delinquency and occasional drug use. Further, there is evidence that, the greater the number of risk factors present, the greater the probability of drug abuse (Bry, 1983; Elliott et al., 1985; Kandel et al., 1986). This evidence suggests that prevention efforts seeking to reduce drug abuse hold greater promise if they address a combination of risk factors for delinquency and drug abuse.

USING KNOWLEDGE OF RISK FACTORS TO INFORM PREVENTION PROGRAMMING

While covariation and temporal ordering have been established for the risk factors summarized above, it is difficult to choose among a host of plausible rival hypotheses regarding the relationships among various risk factors for delinquency and drug abuse in seeking to understand the causal processes leading to adolescent deviance. For example, relationships between poor family management practices and delinquency and drug abuse, early antisocial behavior and delinquency and drug abuse, and constitutional factors and delinquency and drug abuse, have been found. However, it is not yet known how constitutional factors, family management practice, and early antisocial behavior may interact in the etiology of adolescent deviance. To what extent is childhood aggressiveness determined by constitutional factors, and to what extent is it a product of poor family management? What are the direct and indirect contributions of each to delinquency and drug abuse? The answers to such questions will help to untangle the causal pathways in the development of serious antisocial behavior among adolescents. Longitudinal research continues to be needed to address such issues and to further inform decisions regarding the most promising approaches for preventing drug abuse in high-risk groups. Nevertheless, the existing evidence regarding risk factors provides a guide for empirically based practice.

This evidence suggests that greater attention should be given to prevention approaches addressing multiple common risk factors for delinquency and drug abuse and to coordination of services targeting youths exhibiting serious antisocial behaviors. The strong correlation between chronic serious delinquency and drug abuse should be translated into prevention and treatment interventions (Fagan and Hartstone, 1984). Historically, the juvenile justice system has not dealt with drug or alcohol use among youthful offenders who enter the system, despite the clear link between the two problems (Schneider, 1985). Efforts are needed to develop and coordinate prevention and treatment programs which address the common factors contributing to these related problems among high-risk groups.

These efforts should be guided by theoretical perspectives that integrate knowledge of risk factors into developmental models that identify appropriate interventions at different stages of social development (cf. Hawkins and Weis, 1985; Hawkins et al., 1985, 1986b).

IMPLICATIONS FOR PREVENTION AND TREATMENT PROGRAMMING

Two knowledge bases are available to inform policy planning in delinquency and drug abuse. The first, the literature regarding factors in the etiology of delinquency and drug abuse, has been reviewed above. The second foundation for action consists of results of evaluations of delinquency and drug abuse prevention and treatment programs. This second body of literature has been the subject of much debate in both fields. Reviews of the delinquency prevention literature (Berleman, 1980; Lipsey, 1986; Lipton et al., 1975; Romig, 1978) and the drug abuse prevention literature (Janvier et al., 1979; Schaps et al., 1981) have noted the methodological inadequacies of many evaluation studies. These methodological problems have, in fact, been so severe that Lipsey states that little can be concluded regarding the effectiveness of many approaches to delinquency prevention given the quality of the evidence available. Yet certain approaches to adolescent drug abuse as well as recent meta-analyses of delinquency prevention (Kaufman, 1985) and treatment (Garrett, 1985) have shown positive results. This paper does not provide a comprehensive review of the prevention or treatment fields. Rather, the suggestions regarding promising approaches to prevention and treatment offered below emerge from consideration of the previously reviewed evidence regarding risk factors and from evaluation studies which have produced positive or promising results.

The Early Identification and Prevention of Delinquency and Drug Abuse

Prevention programs should target those groups at greatest risk of chronic serious delinquency and drug abuse, and should address the known risk factors for these behaviors. A consensus appears to be emerging that interventions provided early in the developmental process hold greatest promise for preventing

delinquent and drug-related behavior problems (Loeber and Stouthamer-Loeber, 1986).

The effectiveness and efficiency of interventions targeted on individuals depend upon the ability to identify and diagnose early predictors of high-risk status. While several screening instruments to identify adolescents with alcohol or other drug-related problems have been developed (cf. Alibrandi, 1978; Mayer and Filstead, 1979; Winters and Henly, 1985), little work has been done to develop procedures for identifying youths at future risk of drug abuse. However, in the delinquency field, a number of methods have been developed to identify children believed to be at risk of later law violations. Early efforts concentrated on the identification of specific personality disorders in young children (Healy, 1915). Following diagnosis, targeted youths were provided individual treatment services in the hope of preventing subsequent involvement in antisocial behavior (Lundman, 1984). Glueck and Glueck (1950), looking at a male population, developed a method of predicting delinquent behavior based on five factors: discipline of the boy by the father, supervision of the boy by the father, affection of the father for the boy, affection of the mother for the boy, and cohesiveness of the family. The Gluecks' believed that families of juvenile delinquents were characterized by erratic discipline techniques, low cohesiveness, and hostile or rejecting attitudes. Weighted scores were assigned to each of these factors to accurately predict a youth's likelihood of engaging in delinquent behavior. Any youth whose score exceeded an established criterion was identified as a "predelinquent."

Efforts to validate the Glueck prediction method produced mixed results. Craig and Glick (1963) followed up 250 boys who had been scored on the Glueck scale when entering the 1st grade. Ten years later, 82 percent of those with the highest scores had become persistent serious delinquents. However, Loftus (1974) reported that the Glueck method was not efficient in predicting subsequent illegal behavior among boys making their first court appearances. Tait and Hodges (1962) reported incorrect classifications in approximately 67 percent of cases sampled in their study. These results indicate a persistent problem in efforts to identify predelinquents, the issue of false positives, or the identification of children as "predelinquent" who will not subsequently engage in serious, persistent antisocial behavior.

More recent efforts to identify children at high risk of delinquency have used combinations of teachers and parent ratings of current behavior to predict future delinquency. Loeber et al. (1984) have developed a procedure called multiple gating which uses teacher and parent reports to screen predelinquent youths from youths who are not expected to become delinquent. The multiple gating system consists of three sequential assessments: 1) teacher ratings of a youth's problem behavior in the early grades of elementary school; 2) parents' telephone report of conduct problems presented by the youth at home; and 3) an interview with the child and parents about family management practices. Loeber et al. (1984) reported that these gates produced valid positives 56 percent of the time. These results

suggest that in some cases children at risk of later delinquency and drug abuse can be accurately identified. However, inaccurate positive predictions of over 40 percent indicate that problems associated with false positives persist.

The problem of false positive predictions creates ethical issues for prevention efforts directed at individuals. The ethical problem is the labeling and treatment of individuals as "predelinquents" or future drug abusers who will not, in fact, engage in serious delinquency or abuse drugs. Given the rate of false positive predictions associated with currently available diagnostic systems, there is some risk in focusing prevention efforts exclusively on identified high-risk individuals with the goal of delinquency or drug abuse prevention. Yet, prevention efforts focused early in the etiological development of antisocial behavior hold promise for preventing early conduct problems from becoming chronic behavior supported by peer interactions in adolescence.

This dilemma suggests an alternative strategy for targeting efforts to prevent chronic, serious antisocial behaviors early in development. This is the targeting of preventive programs on neighborhoods, schools, or communities with high proportions of high-risk individuals, rather than simply on high-risk individuals. Preventive efforts can be made available to the population in the targeted high-risk school, neighborhood, or community area. Alternatively, the ethical problem associated with early identification and intervention may be minimized by focusing delinquency prevention activities on already existing problems such as identified behavior problems, academic failure, or family management problems. While some risk factors, such as a family history of antisocial behavior, may not present a current problem in the child's behavior which warrants intervention in its own right, the presence of other risk factors, such as current antisocial behavior by the child, clearly provides a legitimate warrant for intervention.

Given the existing knowledge of risk factors, experimental prevention efforts with high-risk populations in high-risk areas appear warranted. Promising preventive programs which seek to reduce conduct disorders and antisocial behaviors in early developmental stages, to correct poor family management practices, to prevent school failure, to address peer and other social influences toward drug use and delinquency, and to ensure the development of personal skills are described below.

Early Childhood Education and Parent Involvement

As noted above, conduct problems in the first years of elementary school are predictors of male delinquency and drug abuse in adolescence. A number of children lack interpersonal skills and are not socially prepared for their first years of education (Spivack, 1983; Spivack and Shure, 1982). Lack of interpersonal skills for school participation may cause children to perform poorly in the classroom and to have social difficulties. Poor classroom achievement and rejection by prosocial peers are both

factors that later will increase risk for delinquency and drug abuse.

One promising prevention approach which addresses these risk factors is early childhood education. The Perry Preschool Program is an example of an early childhood education program that helps young children develop interpersonal skills and assists parents to develop skills in family management. Preschool classes focus on enhancing children's intellectual and social development. In addition, trained teachers visit mothers and children in their homes for 1-1/2 hours each week (Berrueta-Clement et al., 1984)

Evaluation of the Perry Preschool Program provided to low-income black families in Ypsilanti, Michigan, have shown positive results. Followup studies reveal that when compared to a randomly assigned control group, those who had attended the preschool had lower arrest rates and numbers of arrests as shown in official police and court records, and lower rates of self-reported fighting at age 19 (Berrueta-Clement et al., 1983, 1984). Preschool participants also had higher rates of secondary school completion, higher gradepoint averages, and fewer pregnancies during adolescence. The results indicate that preschool participation combined with a parent education program may reduce levels of later delinquent behavior and improve academic and social adjustment among high-risk populations. Effects of this approach on drug use have not been assessed.

Preschool preventive programs serving high-risk populations allow children and families to be reached before risk factors for delinquency and drug abuse become well established, and appear to hold promise for preventing both delinquency and adolescent drug abuse.

Parent Training Prevention Strategies

We have noted the importance of family factors in the early socialization of children and the strength of family management variables as childhood predictors of subsequent delinquency and drug problems. Family-focused interventions which seek to improve family management skills appear promising as a prevention strategy.

Highly developed social learning approaches to improving family management skills have been implemented and evaluated (Alexander and Parsons, 1973; Klein et al., 1977; Patterson, 1982). Parent training combines knowledge building with skill development. Typically, trainers use lectures, reading assignments, or videotapes to provide instruction in skills, followed by demonstration, modeling, and supervised practice to ensure skill acquisition at the level of application (Frazer et al., in press).

Most systematic evaluations of parent training have involved children with conduct problems. Parent training focused on teaching parents to monitor their children's behavior, to use moderate contingent discipline for undesired behavior and to consistently reward prosocial behavior (Patterson and Fleischman, 1979) has been shown to reduce children's antisocial behaviors

and to produce increases in parent-child attachment and decreases in children's skill deficits (Fleischman, 1981; Patterson and Reid, 1973; Peed et al., 1977). Moreover, at least four randomized experimental tests of parent training have shown significant reductions in preadolescents' problem behaviors (Karoly and Rosenthal, 1977; Martin, 1977; Patterson et al., 1982; Walters and Gilmore, 1973).

Kumpfer and associates (DeMarsh and Kumpfer, 1986; Kumpfer and DeMarsh, 1983) have designed a family skills training program specifically for children of drug abusers participating in treatment programs. Research suggests that these children are at high risk of drug abuse. The Strengthening Families Program is a structured skills training program that teaches parents how to monitor and control their child's behavior. Children participate in a social skills class while parents meet in weekly training sessions. In the second hour of each ses- sion, parents and children meet with individual trainers to practice principles introduced in skills classes. Posttreatment evaluations revealed significant improvements in parent-child communication skills and reductions in children's behavior problems. Children in the program also reported significant posttest reductions in their intentions to use tobacco and alcohol.

The evidence regarding the effectiveness of parent training in reducing childhood conduct disorders suggests the promise of this approach as a prevention strategy for delinquency and drug abuse. Training adjusted to the developmental stage of the child should help parents develop skills to reduce children's early conduct problems in preschool and early elementary years, to increase academic performance in middle elementary grades, and to deal with social influences toward drug use in late elementary and junior high school years. To date, little experimental research on the effectiveness of parent training for drug abuse prevention has been conducted, though single-case interventions (Bry, 1983) and preliminary studies of group experiments (Hawkins et al., in press) suggest the promise of these approaches in this area.

Life Skills Training in Schools

A number of programs have been developed for use in school classrooms to reduce antisocial behaviors and increase prosocial behaviors of students. These have been offered at all grade levels and have been packaged alternatively as health promotion curricula, law-related education, citizenship skills, interpersonal skills training, or proactive classroom management. At their best, each of these approaches uses the principles of good instruction to communicate specialized content to students. The specific content may vary, as do instructional approaches used, but all these programs explicitly address both instructional and substantive issues.

Instructionally, these approaches specify clear learning objectives for students, attend to creating a mental set so that students will be interested in achieving the learning objective, demonstrate or model the skill to be learned, provide instruction

in the skill, provide opportunities for guided practice, monitor closely to assess student achievement of objectives, and reteach as necessary. In addition to teacher-led curricula, some use media figures, sports figures, peers, or puppets to deliver the content of the life skills message to be taught.

The following life skills curricula have been tested and shown promising from a prevention perspective, either because they reduce risk factors for serious chronic delinquency and drug abuse or because they address these outcomes directly.

A. Cognitive interpersonal skills training (Spivack and Shure, 1982) is provided by kindergarten and 1st-grade teachers to show children how to generate alternative solutions, understand means-ends relationships, and develop sensitivity to interpersonal problems. Training for young children includes games designed to increase cognitive skills, followed by training in alternative responses to interpersonal problem situations. A program of this type implemented in a Philadelphia nursery and kindergarten with 4- and 5-year-old children showed that training increased cognitive problem-solving skills among inhibited and impulsive subjects (Spivack and Shure, 1982). Trained children were less likely to exhibit impulsivity or inhibition, were better liked by their peers, and showed greater awareness of others in distress than control subjects. Children considered to be adjusted interpersonally were less likely to show deviant behavior over the course of a 1-year followup.

Shure and Spivack (1983) adapted this program for application at the 4th- and 5th-grade classroom level. As with the program for young children, subjects were taught problem-solving skills such as alternative, consequential, and means-ends thinking over a 4-month period. Tests of the intervention (Shure and Spivack, 1983) showed decreased impulsive behaviors following participation in the program. Positive correlations between training and behavioral change were reported for pro-social behaviors such as sociability, concern for others, and popularity. The authors also suggest that skills training may have led to enhancement in academic achievement and to increased comprehension of task-oriented classroom activities. Unfortunately, the absence of control subjects in this study limits knowledge of the causal efficacy of the program.

B. Proactive Classroom Management (Hawkins and Lam, in press; Hawkins, et al., 1986a) is provided by teachers at all grade levels to teach basic skills for classroom participation. Teachers teach students such things as expectations for attendance and rules for using the pencil sharpener, as well as other basic classroom procedures, depending on grade level. In addition, teachers learn how to quell classroom disturbances without losing time from instruction. In combination with interactive teaching and cooperative learning techniques, proactive classroom management has been shown to increase time on task and decrease time off task in middle school classrooms, to positively affect students' attitudes about school and subjects such as math, and to reduce rates of student suspension and expulsion among both general population and high-risk students (Hawkins and Lam, in press; Hawkins et al., 1986a).

C. Law-Related Education (Center for Action Research, 1981, 1984) is an instructional program designed to increase students' conceptual and practical understanding of the law and legal processes. Taught at both primary and secondary grade levels, Law-Related Education (LRE) materials seek to improve citizenship skills, enhance ability to work within the legal system, and promote favorable attitudes toward law enforcement and the justice system. Classroom teachers are trained to teach specific law-related topics within school curricula. Mock trials, use of legal and law enforcement professionals in the classroom, visits to courtrooms, and police ride-alongs are widely used methods of involving students in LRE programs.

An evaluation of 12 LRE classrooms revealed that participating students gained a greater knowledge of the law and legal systems than their control counterparts enrolled in regular classrooms (Center for Action Research, 1981). This increase in knowledge was significantly correlated in a favorable direction with reduced infractions of school rules, violence against students, and public disorder and drinking. With respect to 11 offenses examined, reductions in delinquency were found in four LRE classrooms. Three LRE classrooms reported an increase in delinquent behavior. There was no change in delinquency in the remaining classrooms.

Studies have also shown that participation in LRE programs is effective in increasing students' knowledge of politics and government (Donovan, 1975) and in developing positive attitudes toward police (Jacobsen and Palonsky, 1981). Prosocial attitudes, values, and beliefs appear to be important deterrents to delinquency (Hirschi, 1969). When combined with effective teaching practices, LRE may foster attitudes favorable to prosocial behavior and prevent adolescents from engaging in delinquency or drug use.

D. Life Skills Training (Botvin et al., 1983, 1984) is provided by classroom teachers, health professionals, or peer leaders to teach general personal and social skills. This approach seeks to teach preadolescents and adolescents (grades 4-8) basic skills useful in developing a healthy lifestyle. These include information on self-image, smoking and health, as well as training in decisionmaking, communication, assertion, and coping with anxiety. When provided just prior to smoking onset, life skills training has been effective in reducing smoking rates immediately after and 1 year following treatment (Botvin et al., 1983, 1984). Significant positive effects have also been shown on monthly and weekly levels of marijuana use (Botvin et al., 1984). Evidence suggests that training is most successful when provided on consecutive days in a school curriculum or mini-course rather than in weekly sessions (Botvin et al., 1983).

E. Interpersonal Problem Solving Skills Training (ICPS) and Behavioral Social Skills Training (BSST) (Michelson et al., 1986) combines cognitive and behavioral skills training approaches in a staff-delivered prevention program for youths identified as high risk in grades 4 or 5. Youths selected through a multiple gating procedure involving parental ratings of aggression and

delinquency and teacher ratings of aggression receive 60 skills training sessions focused on a range of topics. During the first year of the project, students receive training in developing effective problem-solving and interpersonal skills. Topics include developing empathy, standing up for one's rights, and learning to deal with authority figures. The second phase of training teaches skills to help children resist peer pressure, improve patterns of behavior in school, and get along better with family members in the home. The program seeks to teach high risk students skills for controlling antisocial impulses, enhance skills for prosocial interactions, and develop internal controls for children to manage their own behavior and reinforcement systems when actors in the environment fail to provide appropriate reinforcements. While this synthesis program is still being tested, evidence from the separate use of cognitive and behavioral skills training methods is positive. Both methods have shown positive effects in reducing antisocial behavior among youths at risk by virtue of their behavior (Garrett, 1985; Rinn and Markle, 1979; Shure and Spivack, 1983; Spivack and Shure, 1982; Van Hasselt et al., 1979; Weissberg et al., 1983).

A number of other life skills curricula exist. These include health promotion curricula such as the Hearty Heart and Keep it Clean curricula, currently being tested by Perry and associates (Perry and Jessor, 1985; Perry et al., 1985). The Keep it Clean and Hearty Heart curricula are prevention programs aimed at elementary and junior high school students to reduce smoking, drug, or nutritional problems. Program objectives suggest that changes in specific environmental, personality, and behavioral attributes are likely to positively affect a youth's overall health and may lead to reductions in smoking or drug use. At the level of individual behavior, the emphasis is on the skills repertoire of children in relation to smoking, drug use, or diet. The Keep it Clean curriculum is a school-based skills training program for junior high school students taught by same-age peer leaders (Perry and Jessor, 1985). The program provides training in how to say "no" to peers and in how to evaluate the effects of media pressure to use tobacco. Time management skills, the specification of behavioral intentions, and reinforcement for actual behavior change are also emphasized. These interventions are being evaluated currently.

In sum, a wide range of life skills approaches are available. A few of these approaches have demonstrated positive effects on children's attitudes, beliefs, and behaviors. Those programs which use proven instructional approaches to convey behavioral and cognitive skills necessary for successful personal and social functioning at each developmental stage hold promise for preventing delinquency and drug abuse. Many of these can be easily integrated into the academic curriculum to further learning of basic skills at each grade level. Integrated, intensive life skills training offered to youths engaged in high rates of antisocial behavior at home and school holds promise for reducing the antisocial behaviors of those youths not sufficiently skillful to succeed following general classroom programs.

Social Influence Strategies in Schools

Social influence strategies seek to address directly the recognized influence of drug-using and delinquent peers on antisocial behavior. Most go beyond peer influence to address family, media, and community influences as well. These strategies have been implemented just prior to the age of onset for adolescent drug use and have sought to prevent early initiation of drug use in general population samples. Social influence strategies are based on social learning theory and teach behavioral skills to recognize and assertively resist social influences to use drugs while seeking to increase self-confidence that these skills can be used successfully (Bukoski, 1986). The classroom interventions, usually ranging from 5 to 20 sessions, seek to help young people to identify influences in their environments to use drugs; to correctly estimate, rather than overestimate, the extent of drug use among their classmates; to identify immediate social and/or health risks associated with drug use; to develop skills to resist social influences to use drugs; and to make explicit commitments not to use drugs. Instructional methods include input, modeling, guided practice of the skills, feedback, and reinforcement for desired behavior.

These approaches were developed initially to prevent and reduce cigarette smoking among adolescents, but they have been broadened to include alcohol and marijuana use prevention by some investigators (McAlister et al., 1980; Shaffer et al., 1983).

When implemented in 5th- through 10th-grade classrooms, these programs have prevented or delayed the onset of smoking in general population samples (Evans et al., 1981; Flay et al., 1983a, 1983b; Hurd et al., 1980; Johnson et al., 1984b; McAlister et al., 1980; Perry et al., 1983; Murray et al., 1984; Schinke and Gilchrist, 1983). There is some evidence that the social influence approach also prevents alcohol and marijuana use (McAlister et al., 1980).

The repeated success of the social influence interventions, whether delivered by teachers, staff, or peers, in reducing early cigarette experimentation suggests the preventive promise of focusing on peer and/or broader social influences as risk factors for the initiation of drug use. However, the effects of these interventions in reducing drug abuse among those at highest risk remain to be tested.

Enhancement of Instruction To Broaden Academic Success

Academic failure in late elementary grades is a risk factor for later antisocial behavior. There is increasing evidence that teachers can improve their methods of teaching so that the rate of academic failure is decreased (Bloom, 1976; Gold and Mann, 1984; Gottfredson, 1984; Gottfredson et al., 1983; Stallings, 1980). An integrated staff development program for teachers which includes workshops in proactive classroom management, interactive teaching, and cooperative learning combined with an observation and coaching system has shown positive effects on

achievement and behavior at the end of 1 year (Hawkins and Lam, in press).

Efforts to improve the quality of education to increase the base rate of academic success among all students hold promise as primary prevention strategies for delinquency and drug abuse. To the extent that efforts to achieve excellence in education do so by raising standards and providing education to meet these standards to all students, they hold promise for reducing drug abuse and delinquency. However, programs which show apparent increases in achievement simply by excluding high-risk students are not likely to prevent either delinquency or drug abuse. Such school-based programs likely increase the numbers of adolescents engaged in behaviors which are not age-appropriate, including early sexual activity, regular drug use, and employment rather than school attendance (cf. Greenberger and Steinberg, 1981).

School Based Health Clinics

The first school-based health clinic was developed in 1973 to offer prenatal and postpartum care to pregnant teenagers at a St. Paul, Minnesota, inner city high school. This focus was soon shifted to preventing unwanted teenage pregnancies by offering family planning, sex education, and pregnancy testing services to all junior and senior high school studenst (Dryfoos, 1985). Today, drug and alcohol treatment, individual counseling, immunization, and weight-control programs are also provided by many school-based clinics (Zabin et al., 1986). School-based clinics allow health education and academic subjects in the classroom to be combined with medical care and treatment in a clinic setting.

Curricula developed by school-based health clinics in the St. Paul school system emphasize skills acquisition and knowledge development about nutrition, drug and alcohol abuse, health care availability, and sex and family life. Evaluations of the program reveal a significant decline in births and high contraceptive use among students receiving services (Dryfoos, 1985; Edwards et al., 1980). The program also has been effective in preventing pregnant teenagers from dropping out of school. Edwards et al. (1980) report that 80 percent of participating students returned to school following the delivery of their babies. Zabin et al. (1986) have recently completed an evaluation of a school-based health program in Baltimore, Maryland. The program was located in a junior and a senior high school and provided sex education, birth control information, and counseling for male and female students. Pregnancy rates decreased by 30 percent among high school students involved with the program for at least 2 years, while rates rose 58 percent at similar schools in the city during the same time period.

We previously noted that success in school and commitment to education are important factors in preventing delinquency and drug abuse. School-based health programs may represent an effective way to reach high-risk adolescents. Studies of the effectiveness of school-based health clinics in reducing adolescent drug use are needed.

Summary

In summary, a number of approaches appear to hold promise for the prevention of delinquency and adolescent drug abuse. These include early childhood education with parent involvement for preschool children; parent training for parents of preschool through junior high school youths; life skills training in schools at all grade levels; social influence strategies in schools in late elementary and junior high grades; enhancement of classroom instructional methods to broaden academic success at all grade levels; and, though less well documented, school-based health clinics which enhance school retention, success, and commitment among high-risk students in junior and senior high schools.

There is evidence that a comprehensive approach which seeks to address multiple risk factors for drug abuse through implementation of a combination of family- and school-focused preventive programs can reduce adolescent drug use levels in targeted geographical areas (Kim, 1982).

PROMISING TREATMENT AND CONTROL APPROACHES

We turn now from the topic of prevention to treatment. Recent meta-analyses by Garrett (1985) and Davidson et al. (1984) have reviewed the effects of treatment interventions for delinquents. Garrett reported positive effects of treatment for adjudicated delinquents in the studies she reviewed. With respect to reduction in subsequent delinquency, life skills training, cognitive behavioral approaches, and contingency management showed positive effects, as did outdoor experience programs. Cognitive behavioral approaches appeared most successful regardless of the rigor of study, suggesting the promise of efforts to provide youthful offenders with skills and internal controls to manage their own behavior. Three studies of family-focused interventions also showed positive effects, suggesting the importance of involving those in the family environment, to which delinquents often are returned following treatment. Individual counseling and group counseling interventions did not produce positive effects in the reduction of delinquent behavior following treatment.

Importantly, Garrett reported on only one substance abuse program for adjudicated delinquents which had been evaluated. This intervention did produce positive effects on recidivism and community adjustment following institutionalization. Further development and testing of treatment and control interventions for youths with serious delinquency and drug problems are needed. The following sections identify treatment approaches which warrant further empirical testing.

Cognitive Behavioral Interventions

Adolescents involved in both chronic serious delinquency and the frequent use of drugs often lack a range of skills which appear important if their patterns of behavior are to change.

These skills include impulse control, anger management, problem solving, time management, assertiveness, and coping with anxiety or stress. Lack of these skills is likely to have contributed to delinquency and drug problems. Cognitive behavioral skills training can reduce skill deficits associated with involvement in drug use and crime.

Cognitive behavioral skills training is a promising approach for youths with conduct problems across developmental periods. As noted earlier, such approaches are currently being tested with high-risk 5th-grade boys in Pittsburgh identified through multiple gating procedures (Michelson et al., 1986) and with institutionalized delinquents with drug use histories preparing for community reentry. A skills training program for institutionalized delinquents which we are currently testing focuses on helping youths identify situations in which drugs or alcohol caused them problems, and providing specific behavioral skills for avoiding future trouble. These skills include impulse control, personal responsibility, avoiding trouble, social networking, coping with authority, and problem solving (Hawkins and Catalano, 1984). The available evidence suggests that training delinquents with drug use histories to assume personal responsibility for their behaviors and to develop practical skills for community living holds promise for rehabilitating youths with serious crime and drug problems (Garrett, 1985).

Environmental Support

Treatment programs have demonstrated the ability to change young people's behaviors while they are in a highly structured environment. Yet upon release to the community, youths are often unable to sustain the behavioral gains they accomplished during treatment (Jones et al., 1981; Kirigin et al., 1982). Given such results, aftercare appears fundamental to the long-term success of residential and institutional programs for delinquent and drug-abusing youths. Without effective aftercare, problem behaviors are likely to return following residential intervention. The task is to create a community that will reinforce prosocial behavior patterns learned during residential treatment.

Effective programming for the treatment of juvenile delinquents with drug problems may require a combination of interventions. Our current test of the effectiveness of reentry/aftercare intervention for institutionalized delinquents who also have significant drug or alcohol problems combines cognitive behavioral skills training with a case management system. Case managers begin work with institutionalized delinquents at least 10 weeks before their release and continue to work with them through their first 6 months in the community. Case managers coordinate an array of community resources and services for each youth. Case managers work with youths to make and implement reentry plans, conduct home visits and family meetings before and after release from treatment, and assist youths with integration back to school or work. Case managers use community visits and involvements as opportunities to encourage and reinforce the practice of cognitive behavioral skills learned in

skills training sessions. Membership and involvement in pro-social groups or organizations, including Alcoholics Anonymous and Narcotics Anonymous as appropriate are also encouraged. Results of the experimental intervention's effectiveness will be available in 1987.

THE IMPLEMENTATION OF TREATMENT AND CONTROL INTERVENTIONS

Coordination of the actors and organizations seeking to assist youths who are experiencing delinquency and drug problems should increase efficiency while ensuring appropriate services for adolescents who need them. The evidence linking delinquency and adolescent drug abuse suggests cross-cutting interventions that transcend categorical administration boundaries. Coordination and case management strategies can increase resources for intervention with individual cases and can improve assessment and case planning. The coordination of fragmented components into an efficient delivery system for juveniles with delinquency, drug, and other problems is a major component of the Serious Habitual Offender Drug Involved Project (SHODI), Treatment Alternatives to Street Crime (TASC), and North Carolina's Willie M. Program. An example of this coordination is the Willie M. Program's use of a case management system to involve all relevant organizations and individuals in developing a community treatment plan which turns an array of diverse services into a system of intervention in the least restrictive environment for delinquent youths with chronic mental health problems.

CONCLUDING NOTE

There is reason for cautious optimism. Evidence supports the promise of preventive and treatment approaches that address factors associated with risk of chronic serious adolescent delinquency and drug abuse. Broadened use of these approaches holds promise for further reducing the rates of these closely linked adolescent behaviors.

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AUTHORS

J. David Hawkins, Ph.D.
Jeffrey M. Jenson, M.P.A., M.S.W.
Richard F. Catalano, Ph.D.
Center for Social Welfare Research
School of Social Work
University of Washington
Seattle, Washington

Denise M. Lishner, M.S.W.
King County Division of Alcohol and Substance Abuse
Seattle, Washington

PANEL DISCUSSION OF HAWKINS ET AL.'S PRESENTATION

Panel: In a way I'm fussing over language, but I would reconsider the use of "risk" from the standpoint of what it connotes. Talking about risks which don't lend themselves to path analysis and seem to serve more largely a probability function, leads us to imply more than we really have. So I've asked you to reconsider that term and bring it back to "antecedents."

Hawkins: I want to take that on because "risk factors" to me is very distinct from a word like "causes." "Risk factor" means it's a factor which increases the risk of the problem behavior. "Antecedents" to me is a kind of a nonword. You can't communicate to a lot of people if you use the word "antecedents." If you say "risk factors," I think what you're saying is that these factors, when present, increase the risk of the problem behavior.

Panel: But you, yourself, stress that we don't even yet have a good path to account for these. We can't even postulate the sequence of--

Hawkins: We can postulate; we just haven't tested it yet.

Panel: Well, that's a serious issue when you want to say there's a risk factor. And then I don't know how much of the variance they account for.

Hawkins: I think there's a need for simplification, but I think oversimplification is a danger in this area. If we think that we're going to find three causal variables or four causal variables, then we're probably misleading people. That's one of the realities in the field that we're dealing with.

Panel: I appreciate what you're saying and I think it's something that we should take fairly seriously. I wouldn't want to get the public overconcerned so that children are labeled. If "risk factor" is a problem, is there some other word that could be used? "Antecedent" just isn't going to translate.

Hawkins: I think my solution to that has been to give caveats to what I mean by risk factors. And where you present this as a public message, people have to understand what you mean by a risk factor. A risk factor of being the child of an alcoholic may double the chances that you're going to be an alcoholic yourself. Still, only 20 to 25 percent of the male children of alcoholics become alcoholics. In other words, a minority become alcoholics.

Panel: I didn't think we would settle this today. But it was an opportunity to raise issues and concerns that I have in this area. I have a little more. The social bonding formulation sounds like a hypothesis, and it's really a very good one. But given that and given the data that you talked about, wouldn't you think that prevention strategy should be focusing more on systems, that is, the interrelationship among factors or variables that are reflected in something like social bonding? In other words, we do into the school to do something and go to the parents and do something; and we keep pressing for better and better ways to do each. I think we should seek better and better ways. But maybe one of the things that is missing in

prevention strategies is the idea of a highly integrated approach which would look at all the key components of a community action. For example, if you look at all your data, you've got parents, you've got teachers, you've got the kids themselves. I would want to see us, based on your formulation, move toward strategies which transform communities or help communities transform themselves. I don't think, for example, parents' efforts are going to work without teachers changing. And I don't think teachers in school are going to be able to change without law enforcement changing. Everybody agrees that we've been giving mixed messages to youth, particularly on drug abuse. That would tell us we need strategies to send a unified message as to drug abuse. Now, you can't do that without a systems approach. You can't get the media to do that without, for example, making sure the parents buy that, that the police buy that, that the mayor buys that, that the schools buy that. The implementation of a consensus message requires a community integration strategy.

Hawkins: I agree with you that I don't believe that you can do intervention with any single unit of socialization and expect that's going to get the job done with this population. I think you have to intervene in the classroom, I think you have to intervene with the peer group, and I think you have to intervene in the community, especially if you're talking about this phenomenon in disorganized, high-risk communities. I do think that you can do those things without getting a consensus up front from the mayor and the city council, and law enforcement, and everybody else, that we're going to do this. I also agree with you, however, that it is potentially a desirable thing to do. I just think that you can spend a lot of time trying to get a consensus among people who don't see it as a problem, or who don't agree, or who can't see eye to eye on the issue. I also think that you can have a difficult time convincing anybody to support it financially.

Moreover, if you empower communities to deal with this problem, you'd better empower them all the way to where they can design and implement their own programs, and if you do that, you'd better be very sure they know what the promising programs are and buy into that because you could empower them to do lots of activity and work that wouldn't be on target. And I think that we are not in the position just now to be able to tell them very much to do. We are in a position to say, these are things that should be tested and should be done. But I don't think that we're in a position to give a community a blueprint for action. That's what I'm worried about.

Panel: I don't know that this is the forum to discuss the feasibility of that. I would simply say flatly it is feasible and not extraordinarily expensive to fund certain very important initiatives.

Panel: For high-risk populations?

Panel: No. For communities that may include high-risk populations.

Hawkins: The problem I'm having is I'm thinking about Saul Alinsky. Is that the model? I'm trying to figure out what's

the model that you have in mind that you say might work. There's the Woodlawn model. I mean, there was a community organizing model where you looked at the whole community and tried to organize it. What's happened? Everybody moved out. Basically, everybody who could left that ghetto and the only people who are left are people who can't get away.

You see, what I'm saying is I think you can do it piecemeal. Here's an example. A network TV affiliate decided that this was an issue that they wanted to get into and get into for several years. And so we've been putting together a series of programs over the years to try to affect parents' knowledge and skills about this, you know, kids' attitudes, etc. Well, the program director of that TV station and the general manager are involved in this. And they have a task force of community people, so it's kind of approximating what you say. We haven't had to mobilize anybody else except this TV station and they've done documentaries on the problem with followup workshops where 4,000 people have come out to parent training workshops on drug abuse prevention. And it didn't take a systems approach in the sense that I think you're talking about, of having to get everybody to agree on the strategy before we implement it. All it really took was working with this one TV station that has the biggest audience group in the city.

Panel: Early in your presentation you talked about an extremely high convergence between the behaviors of different dysfunctional populations, between crime and regular drug users. Anyhow, the question is, why is it just now becoming known in the research community?

Hawkins: One thing is, I think that the convergence wasn't as clear earlier. The other thing is that we haven't had studies that measure both delinquency and drug abuse in general populations. Elliott's data do. Our study of institutionalized delinquent youths suffers from the problem of many studies, the same problem that Kumpfer's study suffers from, and that is that you pick a bunch of people with this problem and then you see what's the rate of the other behavior and you find that there are high correlations but you don't know how that falls out in the general population. Elliott's data are very good in that sense. He has a general population sample and then says, what's the overlap among these kids way down at this end of the distribution? He finds a good overlap. Our longitudinal prevention study has that same capacity, too, in the sense that we're taking the general population and then seeing how the behaviors develop.

But I think that maybe another reason that people haven't focused on it is the categorical funding of programs. Some people at NIDA and the Office of Juvenile Justice and Delinquency Prevention (OJJDP) have managed to put some money together to do some work together on etiology in delinquency and drug abuse. But basically the twain have never really met.

Panel: How generalizable do you think it would be from very discrete skills learned in treatment programs to these kids' long-term existence out in the community? Are there

long-term followups that indicate that any of this stuff really works and really does make a difference?

Hawkins: The generalizability issue is a problem for this reason. The kids develop better skills than they had before. But usually the skills are not good enough to receive reinforcement from the natural environment. In other words, the kid who was kicking and beating the teacher may now be just saying mean things to the teacher. And so, in the absence of the environmental support, I don't think these things will generalize and be maintained.

Panel: And, as you mentioned, one of the difficulties would be that if we could utilize a program like this with a group of kids who were not far out on the extreme, the results may be a lot more promising.

Hawkins: That's why I go back to this emphasis that earlier in development is better for successful intervention. And you have to reinforce constantly. When we go on home visits with our kids, we're talking with the kid all of the time. "O.K., what was that? What was going on in that situation? How did you do it? What skill did you use? How did you use the skill? What skill should you have used if you didn't do it?" The point is to generalize and maintain the behavior. You have to have someone reinforcing the attempts because the efforts will not be reinforced by the natural environment.

The other thing is, in terms of recidivism, studies do show that the cognitive-behavioral interventions are consistent in producing reductions in recidivism in comparison to other interventions tested. So there is some evidence that recidivism--reoffending resulting in another charge--can be reduced through these interventions.

At the same time, you're taking away competency within a subculture, you're taking away the fact that these kids are good at something, you're teaching them other problem-solving skills that they're never going to be quite as competent at as a different social group that you hope they will fit into later on. And the question is, what can you train them to be competent in that can serve as a substitute for their antisocial behavior? In our program we try to get these kids involved with more conventional kids in an organization, in an activity kind of arena where they practice and rehearse skills in an area of their interest.

Panel: One other comment. In looking at this array of intervention strategies, two things seem to be missing. Maybe they're subsumed under other items. We thought that the notion of ownership or investment was terribly important in program structure and operations. And secondly, the notion of easily obtained achievement and some kind of structured reward. Those were real consistent themes we encountered over and over again as crucial in the operation of prerelease programs.

Hawkins: The closest I come to the first one is a personal responsibility idea. But that may be slightly different from what you're talking about. The structured reward notion, there's evidence that environmental structured reward systems

can change behavior over time. The question is, how do you get kids to internalize changed behavior and maintain it afterwards?

Panel: I think the notion of the transition out of deviant activities seems to occur best when you have replacement activities.

Hawkins: Well, that's what this peer replacement thing is. But we talk about two things: peer replacement and activity or involvement replacement. There's interaction, there's replacement of the people you interacted with. There's replacement of the activities you've been involved in. And, conceptually, I think the point is very well made. You have to be able to replace both those things in order for people to be committed, bonded to the new lifestyle.

Panel: We found in the course of our work that the process had to be marked by symbolic gestures or activities.

Hawkins: Absolutely. We do lots of symbolic gestures and activities in our work. But that's all part of the clinical wisdom. And maybe you or Jeff Kushner or somebody's written that up. But the whole notion of the symbolic graduation ceremonies, winning a hat that says "Project ADAPT," the T-shirts and stickers: You know you can motivate 16-year-olds better with stickers than with anything else I've seen. It's hard to believe, but it's true.

Foster Family Treatment: A Model for Drug Abuse Prevention and Early Intervention

Mark R. Weinrott, Ph.D.

The special populations discussed in this monograph--delinquents, children of alcoholics, and runaways--have earned their status via a fairly well-defined behavioral or familial characteristic. On the other hand, foster children have been so designated on the basis of a system's response to a myriad of behavioral and familial circumstances. According to the Child Welfare League of America, about half of all foster children have been the victims of physical abuse, sexual abuse, or neglect (NIMH, 1986). The remaining half is even more heterogeneous, running the gamut from infants with physical handicaps to adolescent multiple offenders. There would appear to be no question that, as a group, children entering foster care are at greater risk of displaying virtually any emotional or behavioral disorder, including drug or alcohol dependence. Nonetheless, status as a foster child cannot justify intervention in and of itself. With 270,000 children in foster care, it would be impractical even if defensible otherwise. Moreover, far better predictors of antisocial behavior or psychopathology exist than the designation as a foster child.

In short, identification of foster children as a special population recognizes that increased risk of physical, mental, and behavioral disorders. Nonetheless, simply to identify those youngsters has little utility for prevention or early intervention programming. What is promising is the use of foster family treatment as a model for preventing drug and alcohol dependency among youngsters whose level of risk is clearly very high. The remainder of this paper is devoted to a description of foster family treatment.

The model described herein is born of two contemporary movements in the realm of adolescent mental health: deinstitutionalization and learning-based treatment approaches. With respect to juvenile delinquents, neither movement has been extraordinarily successful in reducing deviant behavior (Empey, 1982; Wilson and Herrnstein, 1985). However, there is now emerging a treatment model that draws upon the strengths of both community-based settings and social learning technology in such a way that the joint effect appears greater than that produced by either

element alone. The new model, referred to here as Foster Family-Based Treatment (FFBT), relies heavily on the behavioral technology developed in more restrictive settings. It is applied in a true family environment, one in which the youth remains until emancipation or one which approximates that environment in which he or she will later be placed. FFBT provides a sharp contrast to traditional specialized foster care and to other forms of community-based behavioral treatment.

Foster families have traditionally sought to provide nurturant, custodial care to dependent children. For the most part, they have been successful in that regard (Pardeck, 1982). Less satisfactory has been the application of the conventional foster care model to "special needs" children, those identified as emotionally disturbed (Bryant, 1980; Pardeck, 1982; Trasler, 1955). Many of these youths bounce from foster family to foster family before finding their way to a group home or institution. Given that specialized foster care seldom means comprehensive parent training, it is no surprise that intensification of the traditional model (i.e., more nurturance, supervision, and payment) would fail to yield significant and lasting effects.

The prevailing attitude is that group homes and other residential programs are effective in reducing deviant behavior during treatment (Kazdin, 1985; Wilson and Herrnstein, 1985). Unfortunately, the effects often dissipate once a youth is exposed to negative contingencies that operate in the environment to which he or she returns (Kirigin et al., 1982). There is near-universal agreement on this point (Kazdin, 1985; Wilson and Herrnstein, 1985). Since most youths are returned to their own parents and the latter have resisted, refused, or been denied treatment, there is little reason to anticipate improvement in family management skills. Indeed, having grown accustomed to the "good life" with their child in residential care, having the child return home may exacerbate whatever problems originally existed. It is clear that many families reorganize without the target child and, after a brief honeymoon period, begin to resent the intrusion (Haley, 1980). Tempting as it is to promote followup family therapy, parents of conduct problem youths are often poorer candidates for treatment than the identified child (Marlowe et al., 1986). Presently, for a youth to qualify for seven-day placement, there must be evidence of a very difficult home situation, e.g., abuse, neglect, or substance abuse by parent, and most parents who do qualify have been exposed to a variety of interventions, however ineffectual, prior to placement. Such parents are not terribly invested in their children and often do not supervise them adequately (Loeber and Dishion, 1983). Unfortunately, one of the best predictors of antisocial behavior in boys is the amount of unsupervised time they spend in the community (Patterson, 1986).

It is naive to think that most youths who are taught self-control strategies, social skills, and academics will somehow continue to achieve after discharge. Under the auspices of incompetent and/or uninspired natural parents, or well-intentioned but easily manipulated foster parents, many youths revert to delinquent behavior or substance abuse, especially if there is a

negative peer group waiting in the wings. Indeed, nearly 50 percent spend time in an institution after participating in community-based residential programs (Weinrott et al., 1982). Apparently, group homes, even those that operate using a house-parent model, are not adequate representations of the post-treatment environment.

FFBT was introduced as an alternative and supplement to residential treatment programs. It is obviously cost-effective to place a child with highly skilled professional foster parents to prevent a more restrictive placement later. Indeed, FFBT programs cost only about one-half to two-thirds the amount required for residential care (Trout and Meadowcroft, 1985). FFBT can also be used as a way of transitioning youth from residential placements when no viable family resource exists. As will be described below, there is also reason to view these programs as promising based on the partial, but supportive, evaluative findings available.

COMMON FEATURES OF FFBT PROGRAMS

The four FFBT programs targeted to date utilize behavioral and cognitive-behavioral strategies based upon social learning principles. These strategies are implemented by foster parents who, while not normally employees of the agency, function as the clinical line staff. They are the agents of behavior change while simultaneously providing a youth exposure to "normal" family life. These youth now relate to highly skilled parents and take part in interactions at home with those parents' own children and in the community. The biological children can also serve as powerful role models for the troubled youth.

Unlike traditional foster care, or most specialized foster care, the FFBT programs described here recruit parents to engage in very specific, predetermined treatment activities. Parents receive a great deal of professional training and consultation and are expected to implement a plan analogous to a school Individual Educational Plan (IEP). Professional foster parents are meticulously screened, given intensive pre-placement training, provided with ongoing consultation and/or family therapy, encouraged to support one another through a variety of group educational and social activities, compensated at a rate above that normally allotted for foster care, and held accountable for their performance. Typically, payments are contingent on foster parents' attendance at training and supervisory sessions and on performance.

The family's link to the program is the "parent supervisor/program manager/case manager/treatment coordinator." This person is responsible for 6 to 15 youths, far fewer than the 40 to 100 families carried by state-employed caseworkers. Contact with the family, by phone and/or face to face, is likely to be at least 3 hours a week, with face to face contact at least once weekly. Youngsters are typically seen once a week on an individual basis. Because FFBT managers are not preoccupied with placement decision or crisis intervention, they tend to play a role in recruitment, selection, and training, as well as case monitoring. They

develop the treatment plan in concert with the youth and foster parents, design special incentive systems or interventions, and serve as a liaison to schools, public agencies, courts, and other organizations to create a context for the youths' success. Unlike conventional foster care, virtually all program services provided to the youth are delivered by this single key individual who is available 24 hours a day and who exercises a great deal more autonomy than the typical caseworker. There is no family counselor, social worker, or educational specialist to fragment treatment and drive up costs. Proponents of FFBT believe that the advantages of fewer miscommunications, greater personal investment, and increased accountability outweigh those attributed to idealized interdisciplinary teams.

Each of the four programs described below devotes a great deal of time, money, and energy to recruiting professional parents. Though strategies for recruiting traditional foster parents are well established (albeit fallible), they do not generate the kinds of applicants needed for this type of treatment-oriented program. Because youths placed in FFBT homes are likely to be more troublesome than children raised previously by a couple, good parenting instincts, common sense, and even-temperedness do not guarantee a successful placement. Foster parents need to be willing to learn new methods of managing problems, seek consultation from program staff, and weather periodic lapses during the course of treatment. This is especially true when there is a history of substance abuse. From a recruiter's perspective, one cannot be content with kind-hearted parents who are guided largely by intuition and who see themselves as rescuers. It is, therefore, imperative that youths be portrayed as they are and that potential foster parents know that their job will be difficult, time consuming, and occasionally demoralizing.

Recruiting practices vary among programs to accommodate differences in the types of parents sought (e.g., working class vs. middle class) and the types of children to be placed. Still, there are many common features of a successful recruiting campaign. These include careful planning, emphasis on stressful aspects of the job, enthusiastic and prompt response to inquiries, information about the level of pay (which must be enticing), publicizing the role as a second career, and use of simultaneous, multimedia advertising. Whether recruiting is sustained throughout the year, or is restricted to several campaigns of 1 to 2 weeks, depends upon the program.

Program staff employ all kinds of devices to keep parents happy (support and incentives), energized (respite care), and stimulated (foster parent network; in-service training). Resignation of quality foster parents can be disruptive and demoralizing, particularly since current foster parents are the very best recruiters.

To maximize the chances of success for both the youth and foster parents, youths are matched with families on the basis of sex and age preference of the parents, youth needs (e.g., nurturance), and parents' strengths (e.g., availability for supervision, communication style, perseverance). All programs rely

on pre-placement visits to assess compatibility. Typically, one child, and no more than two, will be placed with a foster family.

There are a great many other similarities among the four target programs. Each receives its funds from state and/or county contracts, all have a fairly similar administrative structure, all maintain control over intake and discharge decisions. They have similar objectives for youth performance, although the primary placement goal may vary from a return to the natural parents to emancipation/independent living. Performance goals for youth involve, at least, no law violations, regular school attendance, and the acquisition of age-appropriate social skills. All accept referrals from state or local child welfare agencies or juvenile courts, with custody typically vested in the state child welfare agency.

Each program described herein is engaged in some form of internal evaluation and the results, corroborated by clinical impressions, have led their directors to the same conclusion: FFBT appears to be working. Were the program directors naive with respect to empirical criteria, evangelical by nature, or vested in the commercial success of their venture, then one would be properly skeptical. But all of them are seasoned, openly critical of some program components, respectful of research, and modest in their claims. They are cautious by nature, and yet one gets the sense that they feel something very special is happening in these programs.

CAPSULE DESCRIPTIONS OF FOUR PROGRAMS

People Places, Staunton, Virginia

This pioneering program now serves up to 70 youths statewide. Referred youths are physically aggressive (44 percent), incorrigible both at home and in school (62 percent), show attention deficit disorder (33 percent), are frequently involved in stealing (24 percent), and have histories of running away (29 percent). Fully 70 percent have been adjudicated "neglected," 55 percent are the product of at least one alcoholic parent, and about 66 percent are victims of physical and/or sexual abuse. As in the other three programs, virtually every youth referred to People Places is residing outside of his or her home. Sixty-six percent are males, 75 percent are Caucasian, and 58 percent are 13 years or older at intake.

Teaching Parents, as they are designated at People Places, tend to be in their mid-40's, married about 10 years, and average about one to two children of their own. Twenty-five percent are black, and only about 30 percent have any education beyond high school. A typical Teaching Parent has served the program for about 3 years.

People Places devotes a great deal of effort to creating an appropriate match between youth and family and to training its parents. There are six pre-service workshops, on-the-job supervision, and periodic in-service presentations. The fully scripted pre-service curriculum is competency-based and covers 14 core skills such as observing and tracking behavior, praising,

setting teaching goals, identifying reinforcers, creating positive time, delivering consequences, and listening. Extensive use is made of modeling, rehearsal, and video feedback. The goal of treatment is to return youths to their natural parents, permanent foster care, or adoption. Formal followup services to receiving families may be purchased by the referring agency. People Places also offers a special education component, individual counseling, and preparation for independent living. The average length of a youth's enrollment is 2 years.

The program operates on a per diem rate of $36 for foster family treatment of a 13-year-old, with an additional $6 per day for individual counseling, $12 for independent living preparation, and $20 for special education through its Pygmalion School. Annual costs range from $13,200 to $20,100 per youth. Teaching Parents are paid an average of $450 per month, plus an allowance for travel and damage. Parents may earn an additional $35 per month allowance for reinforcers, etc. Local agencies may help subsidize the cost of clothing.

Internal evaluation has focused on staff ratings of improvement on four to five target behaviors identified at intake. Over 75 percent of these behaviors were rated as less problematic at discharge, in two separate cohorts (Witters and Snodgrass, 1982). In 1980 the conviction rate for People Places youth (17 percent) compared favorably to that reported by Bryant (1984) for a local halfway house for male juvenile offenders (42 percent), and was equal to that for a group home for girls (17 percent).

Professional Parenting, BIABH Study Center,
Morganton, North Carolina

A satellite in Asheville has increased this program's capacity from 20 to 32 youths. Professional Parenting accepts behavior-disordered and delinquent children, ages 12 to 17, with the average age approximately 14. Youths come from all over North Carolina. About 60 percent have incompetent or rejecting parents, 25 percent of whom were chemically dependent and nearly half physically or sexually abusive. Virtually all youths have had multiple out-of-home placements. About half have been adjudicated either "delinquent" (25 percent) or "undisciplined" (30 percent). Professional Parenting has more recently begun to serve more violent and aggressive youth known in North Carolina as Willie M. Children. Nearly two-thirds of program participants are male; virtually all are Caucasian.

Foster parents tend to be lower-middle-class, ages 35 to 40, married for an average of 18 years, with about three children of their own. Most have no formal education beyond high school. For the first 16 Professional Parent couples, the average length of service was 20 months. Youth stays have ranged from 3 months to 4 years with an average of 18 months. Because this program tends to accept youths who have no viable home to which they can return, they often remain in the program until emancipation at age 18.

Treatment components are not as rigidly applied as one might expect from a group of Teaching Family disciples. Still,

the pre-service workshops are very structured and skills oriented. Quarterly in-service training sessions and in-home and telephone consultation focus more on troubleshooting and modifying the youths' individual treatment plan. This approach seems better suited to rural, less educated professional parents, who tend to rely heavily on their "good instincts." When necessary, a point system or other structured intervention is introduced. The treatment program has been described in a novel, Son-Up, Son-Down (Carenen, 1986).

The cost of treatment is $30 per youth per day, or $7,200 per year. For Willie M. Children, the per diem allotment is $45. Professional Parents receive only $400 per month, the lowest of any of the four programs. There is a contingency fund for damage or theft.

Internal evaluation has focused on subjective measures, chiefly foster parent satisfaction with program services (reported as very high), their adjustment to the youth (reported as even greater), and youth adjustment to the placement (also reported as very high). Outcome data are impressive. Of the first 44 youths who entered the program, nearly 90 percent have remained or departed to nominally restrictive alternative placements within their own communities, that is, some family living arrangement or independent living. Only five youths (11 percent) have since spent time in a correctional facility, psychiatric hospital, or other highly structured setting.

Monitor Program, Oregon Social Learning Center, Eugene, Oregon

The newest of the four target programs, Monitor now serves 12 youths. They are delinquent boys and girls, all Caucasian thus far, and referred from all counties in Oregon. The age range is 12 to 18, with an average age of 15. Monitor appears to deal with the most difficult population of any of the four programs, its youths averaging at least one felony, and all having been briefly committed to a state training school (from which they are paroled to Monitor). The 29 youths served to date had an average of four prior out-of-home placements. Nine of 29 had attempted suicide, 13 had documentation of substance abuse, 20 had a history of multiple runaways, and all had chronic truancy problems.

The treatment program is designed to last 6 months, with a goal of returning the youths to their natural parents, permanent foster care outside the Monitor Program, or preparation for independent living. Social skills training, family therapy, parent groups, a very heavy emphasis on positive incentives/activities, and daily telephone consultation characterize the treatment program. Most youths attend Eugene public schools while in Monitor homes.

The per diem is $60, or approximately $10,000 per youth to complete the 6-month program. Monitor parents receive $460 to $550 per month, plus a clothing allowance of $40 per month.

Resources for internal evaluation are severely limited, as the state of Oregon provides no funds for this purpose. However, of the 29 youths (20 males and 9 females) admitted through April

1986, 15 have completed the program, 6 others are currently enrolled, and 8 have been revoked (5 of whom were in the first month of placement, all of whom were male). The majority of those who have completed the program have been "at risk" for at least 6 months, with only one youth recommitted as of December 1986. Given that all the Monitor youths were headed for training school, the preliminary findings are most impressive.

Pressely Ridge Youth Development Extension (PRYDE), Pittsburgh, Pennsylvania and Clarksburg, West Virginia

This is the most thoroughly documented, widely disseminated, and largest of the four models. Pittsburgh PRYDE has an average census of 80 and a capacity of 90 youths. West Virginia PRYDE serves about 10 youths in each of two different communities, Wheeling and Clarksburg. The following discussion pertains mainly to the Pittsburgh site, but the treatment/training regimen is the same in West Virginia.

PRYDE serves emotionally disturbed children between the ages of 6 and 18 (average age 13). Sixty-five percent are age 13 or older at intake; 58 percent are males, 55 percent are black. Youths average 1.4 prior out-of-home placements, with 25 percent having been in a group home, child care institution, or wilderness camp. Twenty-one percent have spent time in a psychiatric hospital. Because PRYDE participants are somewhat younger and, in urban Pittsburgh, perhaps more likely to go unnoticed, they appear to have had fewer contacts with the juvenile justice system than youths in the other sites. However, about two-thirds have a history of aggression, about one-fourth have been involved in firesetting or vandalism, and nearly half committed theft.

PRYDE parents tend to be in their mid to late thirties, married for about 10 years, predominantly black (55 percent), and well educated. Very few drop out of the program. They are required to attend ten pre-service sessions and eight to ten workshops per year. Training focuses on communication skills, discipline, skills training, negotiation, social rewards, and an elegant point system. Additional topics are addressed on a periodic basis. Advanced training is available to those who earn excellent marks on performance evaluations. There are weekly home visits by a parent supervisor who assists in the implementation of the point system, a daily written plan for each youth, behavioral contracts, and other special program components. Ten to 20 percent of PRYDE youths attend Pressely Ridge Day School. PRYDE appears to devote considerable time to dealing with natural parents, a conspicuous omission in several programs (though often beyond their control).

All PRYDE training sessions have been scripted and policies pertaining to youth and foster parents have been carefully delineated. There are formal mechanisms for monitoring foster parent performance. Administratively and clinically, this program is packaged for replication and for process (formative) evaluation.

PRYDE parents earn $20 per day plus an additional $5 per day for a successful semi-annual evaluation. A total of about

$7,500 per year (plus a one-time clothing allowance of $100 to $300) represents about half the $50-per-youth daily cost of operating the program.

The primary goal for all youths is a permanent home where treatment gains can be maintained, preferably in the natural family. The average PRYDE youth remains in the program for 10.5 months and, according to internal evaluation data, 58 (70 percent) of the 83 discharges from June 1981 through February 1986 have been successful. That is, youths have returned home (60 percent), have been placed in regular foster care (12 percent), been adopted (3 percent), or were emancipated (24 percent). All unsuccessful discharges (30 percent) resulted in a more restrictive placement. The program also has impressive followup results on measures of education and work status. Youth ratings of foster parent competency, parent evaluations conducted by staff, foster parent ratings of their supervisor, and foster parent turnover rates all indicate successful implementation of the PRYDE model (Hawkins et al., 1985).

IMPLICATIONS FOR DRUG ABUSE PREVENTION AND INTERVENTION

Despite the positive findings from internal evaluations, FFBT needs to be appraised in a more rigorous manner before there can be serious claims of effectiveness. Yet it is worth speculating on the applicability of the model to drug abuse prevention and early intervention. It is true that no FFBT program now accepts a significant number of youths whose primary presenting problem is substance abuse. But among those identified as emotionally disturbed, conduct disordered, or delinquent, drug use is not uncommon. As a part of the analysis of the National Youth Survey (Elliott et al., 1985), 84 percent of youths whose self-reports indicated serious and/or frequent criminal acts admitted regular alcohol and/or drug use (Huizinga and Dunford, 1985).

Drug and alcohol use in FFBT programs has been dealt with in a variety of ways. Foster parents have been required to monitor carefully the whereabouts and activities of youth placed in their homes. They may be responsible for seeing that a youth complies with random or regular urinalysis. They may support, if not actually participate in, local outpatient programs. Access to privileges may be contingent upon attending group therapy or supervised recreation offered by drug and alcohol programs. FFBT has also been used as a vehicle for transitioning youths from inpatient hospital and residential programs, particularly when no viable family resource exists. Monitoring and counseling can then be assured after discharge. Obviously, the prospect of long-term relapse prevention is higher when followup intervention can occur within the community, where realistic, high-risk situations are encountered routinely (Marlatt and Gordon, 1985).

The reliance of FFBT programs on existing drug and alcohol alternatives is largely a function of low demand for those services. If, however, an FFBT program were specifically designed to serve adolescent drug abusers, then it would be practical to

offer a broader range of drug and alcohol interventions within the program itself. The potential for engaging competent, motivated, and caring foster parents in the treatment of these youth is much greater than that of enlisting the active participation of natural parents, many of whom are resistant, emotionally exhausted, or easily manipulated. And if a youth had been part of a deviant peer group, it is easier to avoid repetition of deviant behavior if a youth moves to a new family in a different neighborhood.

Of course, there are problems with placement of drug abusers in professional foster families. There is particular concern among parents and program staff when other teenagers reside in the home. Those latter tend to be very impressionable with regard to drug paraphernalia, risk taking, and the behavioral effects of drug use. Some FFBT programs make it a practice to place youths at risk for drug abuse in homes with only very young children or no children. In addition, there is a tendency to match these youths with professional foster parents who have served other program children in the past. Such parents are less likely to frame all of a youth's deviant behavior as a by-product of substance abuse. They are also better able to anticipate and accept periodic lapses and to provide the same kinds of negative consequences (e.g., work projects) as they would for other forms of antisocial behavior.

Recruiting of families for children with a drug problem compounds the most difficult of all program functions. Additional monetary compensation, not typically available, would surely increase the pool of volunteers. A special campaign designed to enlist appropriately sensitive and realistic recovering addicts or alcoholics as professional foster parents might be especially effective. Often these individuals are employed as counselors in outpatient or residential programs. Indeed, the benefits for a foster parent who is recovering may be even greater than those for the youth.

In conclusion, FFBT holds promise as a model for preventing and perhaps treating substance abuse. The benefits of a normal family setting, access to community services, activities, realistic high-risk situations, and 24-hour-a-day program support are the same for drug abusers as for the emotionally disturbed children for whom FFBT programs were originally designed. Clearly, the model is sufficiently flexible, exportable, and inexpensive to warrant a demonstration project.

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AUTHOR

Mark R. Weinrott, Ph.D.
St. Mary's Home for Boys
Beaverton, Oregon

PANEL DISCUSSION OF WEINROTT'S PRESENTATION

Panel: Can you speak to this whole permanency planning mood that actually originated in your state and that has been kind of touted as a solution to some of the problems that you're talking about? It's the notion that you can't put kids in foster care and just jump them around. You have to have a permanency placement plan from the very beginning for that kid. And that there has to be a consistent review and there's some inhibitions against movement without a plan. Do you see changes as a result of permanency planning and are they for the better or for the worse?

Weinrott: I've seen no permanency planning in Oregon, although the term is used occasionally.

Panel: In our state they have units in social services which are supposed to handle it. And if they take the kid away from the mother and the father to begin with, then they decide at that point is this child going to go up for adoption. If they don't plan to ever have that kid back, whatever their problems as parents, then that kid should go up for adoption.

And in the meantime, the parents are working on a plan. If they're alcohol and drug addicts, whatever, what are the steps they have to take to get their kids back? They have to go through these things, parent training, through therapy and then they can get their kids back. And that's a permanency plan.

Panel: I'm curious about one thing. How permanent can it be? Don't the parents always have the right, the biologic parents always--

Weinrott: Not if rights have been terminated.

Panel: But that's what I mean. The biologic parent would have to have signed away his or her rights to the child.

Weinrott: Or be taken away. You see, historically, people grab the kid, and say, "Let's put him in a foster home. And then we'll figure out what to do." Then, if there are problems, they put him in another foster home. Seldom does anyone say, "Look, what's the plan? Are we going to get this kid back with his parents or not? And if we're going to return the child to his parents, what are the criteria for returning him or her?" And let's have it explicit at the point of removal and then there has to be a periodic review to see whether or not the plan has been achieved or progress is made. If there's no progress, let's terminate the rights and get the kid placed in permanent foster care or adopted, rather than being in numerous temporary foster homes and eventually in residential treatment.

Panel: In Utah the permanency planning coordinator is thoroughly dedicated to that program. They're operating more like social workers. And they're working with a family, working with the foster parents, they're working with everybody to try and get that kid in the best possible place.

Weinrott: Termination of rights is something that is relatively infrequent in our state because it tends to drive up costs, particularly if the kid is not adoptable. Now I don't know whether that trend is the same in other parts of the country or not. But right now there are very few parents whose rights

are being terminated. Far fewer than most clinicians would like to see.

Panel: In fact the big push right now is to keep the kid with the natural parents and go to all ends in order to do that.

Weinrott: In any event, I'm quite certain that as a group, foster care kids are more at risk of drug and alcohol abuse and dependency than a random sample of kids. But I also think that they're probably at risk for everything that's not good in our society. And I'm not sure that being a foster kid would be that much of a red flag, certainly not one that could justify screening and prevention. Certainly, there have been attempts to train existing foster parents. I think most of those attempts have been rather meager. There have been lots of demonstration projects with younger kids in which foster parent training has shown pretty good effects on youth outcomes. But when anything's been instituted on a large scale, say statewide, it seems to have fallen apart. If a foster child gives you enough trouble you can give him back and get another one because there's a whole bunch out there. The system really gives the parents an easy out. Let's face it, if I have four or five foster kids in my home, and if my choices are give the kid back and get a spare, or come to parent training on a regular basis to be taught what I already think I know, you can guess what the choice is going to be. Any parent that really wants to go out and get services, I think, can probably do that. But it's much easier to just give the kid back.

Panel: I assume that the need for foster parents is such that you couldn't do it the other way around. That is, you cannot qualify people to be foster parents by putting them through some kind of extensive training?

Weinrott: If you've got well-ventilated bedrooms, with smoke alarms, and no felony charges, at least of a sexual nature, then you're well qualified. There's a tremendous demand for these people. And that isn't going to change. What we're talking about here is basically marketing a bad product. We've got these kids that have not done all that well, who have got all kinds of skill deficits, and perhaps some physical handicaps. And we've got social service people, who really are not into marketing, trying to market factory "seconds." And the incentives for the people that we're marketing to are not very great. I think we ought to wake up and get together with ad agencies and people that know what they're doing with respect to marketing and see if we can't get more people willing to provide both regular and special foster care. I think it's quite possible.

Panel: You had a paragraph in your paper that only five families out of a hundred get through to provide Foster Family Treatment. And you make the statement that the recruiting of these professional parents is the number one priority for most program directors. What constitutes, if you can define it, the proficient, professional parent? If that can be defined, then is there some way to devise a program so that the kids feed into that set of characteristics?

Weinrott: The program in Virginia does that to a large extent. They do a great deal of matching parent strengths to kid

weaknesses. Some of the characteristics are skill-based and others more trait-like. But in general it's so difficult to find good, professional parents that there is a lot of compromising that occurs when matching.

Panel: What are the five most important characteristics of the best foster parents? What are you looking for?

Weinrott: First, a well-organized family in the sense that there are routines and rituals. Second, patience. And by patience I include in that an expectation of lapses, particularly with kids returning from institutional settings, or with kids that have had drug and alcohol problems. You've got to get people who are accepting of a relapse prevention model and don't tend to view one crisis or one lapse as total regression. Third, a track record of having raised some reasonable kids of their own. It's very unusual to have a couple that has not done that or is not doing that. Fourth, high energy, and a certain compulsiveness about communicating with the case supervisor, gathering data, and attending meetings. Fifth, good parenting instincts: just knowing when to push an incentive system and set of negative consequences and when to back off. It's the same thing that you look for in staff in programs where you can't expect the motivation system and rules to carry all the weight.

Panel: We do that and say, "Trust your instincts," but you've got to do that in a responsible way and to really look and see if their instincts are trustworthy.

Weinrott: You can train people to teach application of a point system, use of communication tactics, and all that. But when things don't go very well, if you've trained people that aren't allied with you philosophically, they don't wing it in ways that are very compatible with the program. They wing it in ways that are usually more reflective of where they went to school or how they were raised. So if you train caseworkers or foster parents to use social learning methods, and they don't work, the adults end up falling back on what's most familiar to them. So I think that you've got to find people that philosophically are compatible with this sort of social learning/cognitive-behavioral approach. Because they will need to make on-the-spot decisions that are compatible with the philosophy of the program. They need to think, "Well, if I do this, what am I reinforcing?" instead of just jumping in.

Panel: A question about drug-using kids. To what extent are they represented among all of these groups?

Weinrott: I don't think there are enough labeled as such to conclude anything about them. Very few have been placed in these programs because they were substance abusers.

Panel: Is that really true? Because I feel that what happens in a lot of these cases is that nobody recognizes it. It's there. But the Children's Services Worker is a master's-level social worker who has never had any training in alcohol and drug abuse, and has no way to identify those problems. Just as an example, we have a 3-day residential training package where we're training Department of Human Resources staff, 1,500 of them this year, some of them Children's Services Division workers. Our referrals from the Children's Services Division to treatment

programs has almost tripled and we've only trained maybe a third of them at this point. I've just go to believe that there's a whole lot of those kids that have got the problem, but there's no attempt to identify it or do anything about it.

Panel: You've made a particular attempt to do so. Would the problem be defined in terms of the individual workers or in terms of systems? That is, the system in some sense purposely omits training individuals. There's a wish not to know about those problems, not to have to deal with those problems.

Weinrott: Well, a lot of programs won't take kids that have those problems. So, if a caseworker wants to place them in a program, then it's probably a good idea not to look too hard.

Panel: I'd like to elaborate briefly on what was being said, and that is that if you look at the court situations, it's well known to most court administrators and judges that the vast majority of kids going through the system in fact have a problem of some sort. But if you look at this whole thing historically, responses have been restricted or confined to usually the committing offense. The point being that statutes or guidelines have negated a more broad-based assessment and identification process. It's a classic problem and a problem that is only now beginning to be addressed. If you look at case histories of serious offenders, the intersection is enormously high for problem behaviors. But there is maybe one in ten kids who are chronic offenders who are identified as having any history of drug and alcohol abuse. Well, that's just not the case. It's really much higher.

Panel: I think what we're looking at is an age situation. You're saying these programs serve kids from 6 to 18 and the average age is 12 or 13. Those kids may have initiated it, but they may not have a problem at that point with substance abuse. So the parents may be reporting accurately, foster parents may be reporting accurately, the programs may be reporting accurately that there's not a drug abuse problem. The kids may be precocious in terms of early initiation, but it hasn't gotten to the point of chronic abuse.

Another thing I wanted to pick up on is that, in a Washington state study, it was found that although the delinquent kids have these experiences of serious drug and alcohol involvement, the criminal justice system has not until very recently picked that up at all or cared to deal with it. And it was probably a result of what was at the time considered enlightened law enforcement. Law enforcement people said, "Look, we don't want to hurt people who are just minor users. We're after the big dealers. So, if we pick up a kid and he's been using alcohol or been using marijuana, we're not going to hurt him for that. We're not even going to charge him with it." And so, as part of the "enlightened law enforcement" of those days, people weren't noticing the alcohol and drug stuff and weren't charging kids for that and weren't including that in their records, even though there was evidence of it. And I think it's only recently that people started to say, "Wait a second. We've got these kids in our institutions. We've got major problems here. And we've got to start drug cottages, alcohol cottages."

Panel: And one of the things I've heard repeatedly is that the kids keep coming through the course over and over again for different charges. But the one persistent theme is drug and alcohol problems.

Panel: You say that the authorities don't pick them up for alcohol and drug problems. In Utah they do. For 10 to 15 years, we've had Utah alcohol and drug schools for kids. If they get picked up for an alcohol or drug charge, the juvenile justice system has special court schools that are run by the alcohol and drug treatment agents and the parents of the kids are supposed to come to these once a week for 10 weeks. And they do special things where the kids have experiences with different parents. They work once with their parents and they work with another set of parents. And they have exercises they go through, communication exercises. And in the evaluations, they show that the kids still recidivate, but they don't recidivate at the same rate as the kids who don't go through the teen school.

Panel: Historically, most states haven't had any of that stuff. Not unless it was a DWI, and then you went to the DWI school.

Panel: But not a teen school.

Panel: How's the teen school structured? You're not describing an alternative school, I assume?

Panel: No. The parents and the kid have to go to an evening group once a week for 10 weeks or something like that. The judge sends them. They're run by the courts. And they have a curriculum that they run them through in terms of alcohol or drug education. They have these parent-child communication exercises. One unique thing is that they trade off--they have triads of mother, father, and another kid, then they go back and work on their own parents.

Panel: Let me just see if I've got the Foster Family Treatment model. This is done through a private nonprofit organization, and the case management system is relatively small. Is it always 6 to 15? And as a case manager supervising that many cases, how much am I supervising the kids and how much am I supervising the parents?

Weinrott: To the extent possible, you're supervising the parents.

Panel: So I'm a backup for the parents. I'm really working with the parents and the parents are supposed to be working with the kids.

Weinrott: Well, there are typically weekly or every-other-week sessions involving the whole family and the case manager. And so in that sense I suppose you could say that there's some supervision of the kids going on. But it's largely parent-mediated treatment.

Panel: Are those at the home, those weekly meetings?

Weinrott: Some of them are. But it varies from program to program. A lot of them are not.

Panel: When we talk about cheap, compared to what is the question. We've got a 6- to 15-case management system, which is a low ratio compared to the usual child welfare or residential treatment.

Weinrott: It's cheap compared to residential treatment. Because at this point these kids are not candidates for anything else. They've blown out of too many foster homes to try that again, at least right away. They can't go home and there doesn't seem to be anything, at least in those communities, in terms of day treatment. So, foster family treatment is about one-half to two-thirds the cost of a group home operating with shift workers (as opposed to houseparents) or a traditional residential program.

Panel: So, if I were going to have a comprehensive set of the services of the 1980s in my community, I want to have home-based services to do crisis intervention and crisis management to keep kids in the home if that were appropriate. And then, if that weren't appropriate, I'd let them go into a regular foster care situation to see if that would do it. And if that didn't work, then this would fit in the next point on the continuum. Short of residential care, maybe an alternative to residential care, but probably after I'd done just run-of-the-mill foster care.

Weinrott: And if they do end up in residential care, it may be worth trying on the way out, as a transitional arrangement or as a permanent placement once they're out.

Panel: In describing the model, my sense of the genius of the approach is the notion of the case management function. Could you be more explicit about some of the other aspects that tie in with the social learning approach that would lead you to say that it would be a very effective method to deal with multi-problem kids?

Weinrott: The parents and the kids, either directly or indirectly, are taught a variety of social skills not unlike the kinds of things that kids are taught in Teaching Family group homes--how to get along with teachers, how to seek jobs if they're older, how to negotiate solutions with their parents. There are fairly elegant point systems for younger kids. Parents are taught how to discipline and how to set up contingencies and they'll get the permission of the kid up front that that will be the way things happen. I think that's really an important part of this model. You get the parent and the kid to agree that if this, this, and this occur, then these will be the consequences. Oftentimes, consequences are in the form of work projects, especially for the older kids. The parents are taught how to supervise work projects so they don't turn into an incredible hassle. I think one of the neat things that these parents are taught is that there are consequences that are harder on the kids than they are on the parents. Typically, consequences are tougher on the adults than they are on the kids. When you have that situation, it becomes very difficult to keep people pumped up enough to keep using them. But with the case manager as mediator and a prior agreement, you have the kids following through better than they would in a normal family situation or in a foster family situation where the parents are likely to be perceived by the kids as being arbitrary and a little harsh.

One thing to keep in mind if there is an effort to try and mount one of these projects is that all of these programs provide

a fair amount of social activity and support for their foster parents. So the program needs to be large enough so that when these people get together there are enough of them there to have a good time. People talk in terms of a minimum of about 15 families to accomplish that.

Panel: Let me understand. Are there support groups that are formed for foster parenting?

Weinrott: Well, there have always been foster parent associations that seem to have some tie to the state. Every state, I'm sure, has a foster parent association, newsletters, meetings, and occasional social gatherings, like a free night at the zoo. Within the four programs described here, there are all kinds of social events. Some include the kids, some are just for the parents. It's a way of trying to build a sort of esprit de corps, to let these people know that what they're doing is really valued, and to let off a little bit of steam by telling some war stories. They keep that very separate from their treatment activities so that their group training sessions don't turn into a lot of venting and story-telling.

Panel: One thing that occurs to me is that it's the monitoring and tracking function that the case manager does that's so important in this model.

Weinrott: Well, it's not all that's important. I just think that they do a better job of monitoring kids in this model than anything else I've seen, including most community-based residential programs.

Panel: What occurred to me was that children of substance abusers don't have that anywhere as far as I know. The parents come in for treatment, they treat the parents. The kids don't get any special services at all. We don't really have funds for that kind of thing. And I was looking at the kind of services that I'd like children of alcohol and drug abusers to have. They're scattered, they're different kinds of things--parent training, get them in with Big Brothers, Big Sisters, early education stuff, all kinds of different things that they could use. Maybe what they really need is that if the parents come in for treatment, the children get assigned a case worker to take a look at the children and find out if the children are O.K. Are they safe, even? Do some assessment with the children and then coordinate services that child may need in the community. They could find parent training for the parents and special educational help for the kids.

Panel: I'd like to make a general observation that ties together two or three themes, which we haven't talked about in terms of the potential of this model. Some of the work I've done involves looking at some of the options for providing placements for serious juvenile offenders with a multitude of kinds of problems. Well, particularly in some of the inner city communities we looked at, the whole foster care approach just didn't exist. But the bottom line comes back to the issue that we have these intergenerational patterns that emerge for child abuse, substance abuse, criminal behavior, etc., etc. And I think here you begin to have some solution to that kind of ongoing problem. I think it's exciting if the recruitment

problems can be solved. Because maybe you begin to break those cycles and that is the real issue.

Panel: One of the things agreed about this is that just the enhanced amount of money paid to parents compared to what's paid to regular foster parents is important. At least my reading is that in communities where it may have been difficult to recruit people, there might be enough of a financial incentive to recruit people for this kind of thing. And that might help cut down on the use of group homes.

Weinrott: Even houseparent-operated groups, which are supposed to simulate family living, are nowhere near that. I've observed literally hundreds of them. They're not like families at all. There is as much deviance to be learned in many group homes as there is in any residential facility, occasionally even more. Unfortunately, a lot of these kids are going to stumble into parenthood. And I don't know what they're going to use for norms. It's unfortunate that programs like Achievement Place and this foster family treatment model will never be evaluated on the basis of their ability to teach skills that will be useful to youngsters as adults. In fact, that may be their main value. Most of the things that are taught in Teaching Family group homes--social skills, maintenance skills, job skills, keeping your house clean, keeping yourself well-groomed, being polite--most of that stuff doesn't matter very much to adolescents. But when you get into the real world, the work world, and you've got to keep your home or apartment in order and pay the bills, then those skills come into play. I think that life survival skills have a much better chance of being taught or at least modeled in a professional foster family than in virtually any other form of treatment.

Panel: To what extent are these four programs independent, and to what extent are they people who were talking to each other and have developed similar models or looked at each other's models? In other words, is this a TC phenomenon where one begat another begat another? Or is it independent innovation in four different areas?

Weinrott: These four programs all began independently. They didn't even know each other existed until they were well underway.

Panel: Are they talking to each other now?

Weinrott: Now, not only are they talking with one another, but three of the four cosponsored a conference with NIMH last November. So there is sort of a small network that's formed.

Panel: Assuming this is not already being done, would it be feasible to use the case manager heavily invested for a period around parenting issues and skills training for kids, but then tapering off his or her involvement with the family? What I'm wondering is whether or not there can be that kind of a tapering with a heavy-duty investment at the outset.

Weinrott: Well, I think it varies from program to program and also in terms of the placement goal for an individual. If a kid is going to return to his natural family, then I think that the case manager is likely to stay pretty heavily involved through the transition. If the goal is to keep the kid in the

professional parents' home up until emancipation, and that appears to be going rather smoothly, then they do fade out quite a bit. So, it really runs the gamut. And I don't think that there is a policy in any of these programs because the set length of treatment and the nature of the post-program setting can vary so much.

Panel: It is important that none of these are alcohol and drug specific. I think it would be interesting to do one because I think the support systems for an alcohol- and drug-specific model would be very significant.

Panel: I would think recovering parents are going to understand alcohol and drug abuse much better than the typical foster parent or child care worker. But if you could train them properly, and I think you can, they wouldn't necessarily have to be recovering alcoholics.

Panel: But suppose these parents just recreate the same household that they came out of, that helps to create alcohol and drug abuse?

Panel: Well, that's what you've got to be careful about when you look at recovering parents.

Panel: I think the first step would be to implement this model and compare it to other existing models. And maybe within the model you could look at how recovering parents do versus others. I don't know.

Weinrott: At a NIDA technical review a couple of months ago, we were trying to design evaluations of a number of model programs. The programs that dealt with tougher kids (vis a vis school-based prevention programs) were very difficult, if not impossible, to evaluate. Foster family treatment avoids many of the problems. First, it's community-based. Second, most of the FFBT programs have many more referrals than they do spaces. Third, the criterion measures are not unlike measures that have been used in a variety of other family-based intervention programs. So, in many respects one could put together a fairly good evaluation of FFBT much easier than for some of the others. I remember leaving that conference feeling we didn't really have very much to recommend that seemed rigorous enough for programs that dealt with the tougher kids.

he Adolescent Who Runs

dward D. Farber, Ph.D.

Adolescents in crisis frequently flee from their homes to runaway houses and alternative youth shelters. Estimates of the incidence of this behavior vary widely. A DHHS study (in Shaffer and Caton, 1984) indicated that in 1981, 35,832 youths were served by 127 programs targeted to runaway and homeless youths across the nation. An additional 130,000 youths were treated in these settings on a one-time or crisis basis.

Perhaps the most reliable estimate of runaway behavior comes from an Opinion Research Corporation (1976) nationwide telephone survey. Contact with nearly 63,000 households indicated an annual incidence rate of overnight runaway behavior of 1.7 percent for 10- to 17-year-olds, or up to 635,000 individual runaways per year nationally. Cumulative prevalence, or the proportion of youth households who had ever experienced a runaway event, was estimated at 8.3 percent, or about 1.5 million youths total. Nye and Edelbrock (1980) suggest that one in eight youngsters will run prior to his or her 18th birthday; Russell (1981) found that 10 percent of all males and 9 percent of all females reported running away from home at least once.

Many runaways do not make use of community services and thus will not come to public attention. Youth escaping from their homes may seek shelter with relatives and friends, remain homeless, or have only brief episodes of runaway behavior. It remains unclear how these "throwaway youths"--those who have been overtly rejected by their families (Adams and Gullotta, 1983)--may differ from those who seek asylum at youth shelters or community agencies.

Three general classes of runaways have been delineated in the past:

1. Temporary escapists--adolescents who run away primarily to seek adventure and excitement. Brennan et al. (1978) estimated these at 20 percent of the total population of runaways.

2. Delinquent alienated youth--adolescents who run either due to negative experiences with restrictive parental control or difficulties in the schools or community. This category has been said to include up to 70 percent of all runaways (Brennan et al., 1978) and may include youths who impulsively leave home

for a few hours after parental conflict, as well as those 16 percent of runaways who cross state lines in their escape (Bucy, in press).

3. Abused or neglected youths--adolescents who have been told to leave their homes or have been abandoned. These adolescents were suspected to have been physically or sexually maltreated. Early estimates indicated this classification to contain as few as 5 percent of the runaway youth population (Butler, 1974), but as will be indicated in the body of this text, present impressions are that this group actually comprises a substantial majority of runaway adolescents.

The crises identified by youth workers precipitating adolescent runaway behavior include acts of delinquency, drug usage, school suspensions, and sexual acting out. Suicide attempts and psychotic breakdowns are frequently reported in families of runaways (Fisher et al., 1979) and have been seen as causal agents. Disruptions of the family structure are related to the incidence of adolescent runaway. Illness or the death of a parent, parental separation, divorce or remarriage, a family move, and single-parent environments are possible precipitants of runaway behavior (Russell, 1981; Nilson, 1981; Brennan et al., 1978; Hildebrand, 1968). The adolescent who runs is often described as having a poor self-image, engaging in hostile interactions with parents and step-parents, lacking in nurturing experiences, and having a poor perception of his or her ability to exert control over the environment (Russell, 1981; Nilson, 1981).

CHILD ABUSE AND RUNAWAY BEHAVIOR

Child abuse is a significant stressor for adolescents, in terms of both its prevalence as well as its negative impact. The National Study of the Incidence of Child Abuse (1982) found that 30 percent of all injuries in cases of child abuse involve adolescents. Some 24 percent of all fatalities and 41 percent of all serious injuries in reported cases of child abuse occur in youth between the ages of 12 and 17. Yet the physical and sexual maltreatment of the adolescent has received limited study, particularly in its relationship to adolescent runaway behavior.

The association of abuse and runaway behavior has varied from 5 percent to 65 percent. Nilson (1981) identified 65 percent of the 28 runaways she examined as having been neglected and/or abused, as compared to 33 percent of a non-runaway group. Lourie et al. (1979) reported that approximately 30 percent of runaway adolescents had experienced abuse or neglect. In 28 percent of delinquents examined by Reily (1978), "sexual tension" with fathers or stepfathers precipitated runaway behavior. Shaffer and Caton (1984) found that 25 percent of their sample initially reported having run away because they were the victims of violence or sex, but that half of the sample studied had been abused by one or both parents.

One study examining the link between runaway behavior and adolescent maltreatment is worth describing in detail (Farber et al., 1984). In a 6-month period, all adolescents receiving crisis and counseling assistance at Huckleberry House, a runaway

shelter in Columbus, Ohio, were administered the Conflict Tactics Scale (CTS), a measure of how families resolve conflicts (Gelles, 1979; Straus, 1980). The CTS assesses three methods of conflict resolution: verbal reasoning, verbal aggression, and violent behavior. The adolescent responds to a list of acts of conflict resolution within the family ranging from the use of rational discussion (i.e., discussing the problem calmly) to severe physical aggression (i.e., using a knife or a gun).

Of the 212 adolescents between the ages of 12 and 18 who were given the CTS, 199 successfully completed the scale. Forty-two percent were male and 58 percent female, with a mean age of 15.00 years (SD = 1.46). The questionnaire was completed anonymously and thus demographic information was not available for many of these youths. The previous year, however, this shelter provided services to 422 runaway adolescents, 40 percent of whom were male and 60 percent female. Fifteen percent of the population was black, 85 percent was white. It was difficult to assess socioeconomic status, as 85 percent of the adolescents listed family income as "unknown." The runaway shelter in general, however, has provided services for families across socioeconomic groups. When asked at intake why they ran, 14 percent of all youths identified the critical reasons as abuse, the threat of abuse, or emotional neglect. Counselors at the shelter initially identified these factors as critical with 11 percent of the runaways.

Gelles (1979) compiled an "at risk" child abuse index on the CTS which combines the items under the violent behavior category felt to produce the greatest probability of injury or damage to the child: kicked, bit, or hit with a fist; hit with something, beat up; and used a knife or gun. It is assumed that these acts have a high potential of causing harm to the intended victim and therefore are given the at-risk designation. Any act of violence places the child at risk. For each type of violence there are six levels of chronicity, ranging from "occurred one time" to "occurred more than 20 times." With four types of violent behaviors indexed, the child abuse at-risk score can range from 0 to 24. The greater the number of violent acts or types of violent activities, the higher the score on the at-risk index. A score of 1, however, indicates sufficient violence directed toward the youth to be of concern.

Some 78 percent of all runaway adolescents had an at-risk child abuse index of 1 or above. Only 22 percent of the runaways, therefore, did not report any act of violence directed toward them by a parent in the 1 year preceding the runaway incident. The mean at-risk child abuse score for this population was 5.35 (SD = 5.08). An analysis of variance comparing the child abuse scores by age and by sex revealed no significant interactions (child abuse by age: $F = 1.07$, N.S.; child abuse by sex: $F = .00$, N.S.).

To assess the meaning of this level of child abuse score, the CTS was administered to a group of adolescents in the same community identified by either a hospital child abuse team or a county child protective services agency as having been abused. The at-risk child abuse scores of abused adolescents were

contrasted with those of the runaways. As Table 1 indicates, a mean at-risk score of 6.74 for the labeled abused group does not significantly differ from the index value for the runaways (T = 1.15, df = 244, N.S.).. There do not appear to be significant differences in self-reported level of violence directed toward adolescents labeled "runaways" and adolescents labeled "abused."

Table 1. At-risk child abuse index by group: Abused vs. runaways

	N	X	SD
Labeled abused	47	6.74	5.66
Runaways	199	5.35	5.08

From Farber et al. Violence in families of adolescent runaways. Child Abuse and Neglect 8:295-299, 1984. Copyright Pergamon Press Ltd.

T = 1.115, df = 244, N.S.

Although violence has been reported as of variable importance as a precipitant to runaway behavior, this study indicated an extremely high level of violence directed toward adolescents who run to youth shelters. Using the CTS, a reliable self-report of family conflict resolution, one finds that over 75 percent of the adolescents who ran reported having been subjected to severe maltreatment. While there was no attempt to indicate a cause-effect relationship, and other social and stress factors may be at work as well, it is suggested that familial violence is a critical factor in the adolescent's decision to run.

Once a youth has been labeled as having been abused, there are numerous protective and legally mandated services available for the victim in the community. Protective services, police, social work agencies, and medical facilities attempt to ensure safety, care, and treatment. The runaway adolescent, however, receives little support from the community and is frequently perceived as "bad" or "unruly." Alternative youth shelters frequently have difficulty maintaining supportive services and therapeutic interventions. Yet there is little difference between the abused and runaway adolescent in the level of violence directed toward them. The support services available for abused youth need to be made available for the runaways. Training programs for crisis counselors and youth shelter workers need to incorporate assessment of violent and inappropriate conflict resolution. Before a runaway adolescent can be expected to return home successfully, the resolution of abuse and maltreatment which may well have precipitated the runaway behavior will need to be addressed.

FACTORS INVOLVED IN RUNAWAY BEHAVIOR

A number of other factors have been examined as influencing or describing these youths who flee their homes. Mean or model age of these youths ranges from 15 to 16 years (Opinion Research Corporation, 1976; Farber et al., 1984). Shaffer and Caton (1984), however, point to an interesting phenomenon: an increasing number of youth present in each age cohort of adolescence--that is, more 17- than 16-year-olds, more 15s than 14s, etc. Gender ratios in various studies have ranged from 40 percent to 60 percent male (ORC, 1976; Shaffer and Caton, 1984; Shellow et al., 1967; Farber et al., 1984). Studies that find fewer males are generally those assessing runaway shelters, while those finding more males are more typically examining rates of leaving home only. The ORC study did not find much difference in incidence rates between blue- and white-collar families, and Shellow et al. (1967) reported SES patterns in their sample roughly similar to the population as a whole.

Seventy percent of runaway youth returned home in less than 1 week, and 40 percent returned home in less than a day (ORC, 1976). Frequently runaway behavior is impulsive and poorly planned; Shellow et al. (1967) found that only one-third of runaways left home with more than one dollar.

Runaway behavior does not appear to be a one-time incident. Shaffer and Caton (1984) found that 40 percent of their sample had been in a shelter previously, with one-third having been in shelters more than twice prior to the index incident. Some 87 percent of their sample had run away from home earlier. Shellow et al. (1967) found 28 percent had run away two or more times in a 1-year study period.

Sexual behavior of the runaway was examined in the New York City survey. Shaffer and Caton (1984) found that 75 percent of their runaway adolescents had had intercourse. Only 6 percent of males and 23 percent of females had used birth control. One-third of the girls had been pregnant, and 25 percent said that they had been raped. Only 4 percent admitted to prostitution or involvement in pornography.

Substance abuse has not been carefully examined in this population. Farber and Joseph (1985) found nearly a third of their population admitting to drug abuse on initial interview. Shaffer and Caton (1984) had a 70 percent acknowledgment of some drug usage. Thirty percent of the runaways had used three or more drugs. Only 2 to 3 percent said they used drugs to an extent that they could not stop. More than half acknowledged, however, that other people had objected to their drug usage. Eighteen percent used alcohol to intoxication at least once a week.

Whether drug usage among runaways is at variance with the general adolescent population is unclear. In a survey of 18,267 high school students in 1981 (Johnston et al., 1981), 66 percent of the seniors acknowledged some illicit use of a drug at some time. Some 70 percent of the New York runaway sample used marijuana; 60 percent of the high school seniors had, but relative frequency of usage is unknown. Edelbrock (1980) found usage of

drugs and alcohol to be highly associated ($p < .001$) with runaway behaviors as reported by parents.

EMOTIONAL AND BEHAVIORAL REACTIONS IN RUNAWAYS

There have been few attempts to systematically examine the family characteristics and the behavioral and emotional presentations of adolescents who run. As part of an adolescent psychotherapeutic treatment program, Farber and Joseph (1985) assessed 77 adolescents who had been physically maltreated. Thirty-one of these youths were referred by a protective service agency, 24 from a runaway shelter, 15 from a hospital-based child abuse team, and 7 from other community-based agencies. At intake, shortly after crisis intervention and family stabilization, all youth were administered the Conflict Tactics Scale, a measure of family conflict resolution discussed above (Gelles, 1979); a structured clinical assessment measuring an adolescent's behavioral, social, and emotional status; and an assessment of family characteristics and parental history of violence. Methods of statistical analyses and measures of reliability for these tools can be found in Farber and Joseph (1985).

Results indicate that physical abuse of adolescents is typically long-term and ongoing, with a mean of 4.89 years of maltreatment (SD = 5.06 years, range 1-181 months). Site of identification was not a relevant or significant factor. Runaways did not differ from hospital and protective services subjects on any of the variables measured. From emotional/behavioral presentation to family structure and dynamics, the study could not differentiate between adolescents who ran and those who were labeled by health and community agencies as abused. Shaffer and Caton (1984) found abused adolescents who ran to be more emotionally dysfunctional than adolescents who were also runaways, but who had no histories of abuse. Abused runaways made more suicide attempts and threats, tended to have greater anxiety, poorer academic performance, and a higher incidence of previous runaway behavior. But Farber et al. (1984) demonstrated that over three-fourths of runaways had been maltreated, and that their level of maltreatment could not be differentiated from that of labeled child abuse victims. Thus it would appear that the findings for the group of abused adolescents would be similar to that of a substantial portion of the runaway population as a whole.

Analysis of the structured clinical assessment tool (Farber et al., 1984) resulted in the retention of components in which 45 of the 63 items examined were loaded high on at least one of the six components and simple structure was achieved. The patterns appeared distinct and independent. There were six relatively distinct patterns of reactions evident with the youths studied. These patterns were seen in the same proportion in those youths who had been labeled as runaways as those who had been labeled abused.

The first pattern, acting-out, had high statistical loadings on such adolescent problems as running, theft, drug abuse, provocative behavior, and school attendance refusal. A second

cluster, generalized anxiety, included the adolescent lacking trust in others, using rationalization and manipulative behaviors, having poor concentration and identity development, and demonstrating academic failure. The third component, depression, consisted of loadings on low activity, social isolation, fluctuations in weight, fatigue, and low self-esteem. The fourth cluster seemed to reflect an extreme of what could be expected in adolescent development, with positive loadings on alcohol use, misconduct in school, and inaccessibility to feelings, and negative loadings on eating disorders, auditory hallucinations, and problems with weight. The fifth component, emotional-thought disturbance, was composed of more serious dysfunctional behavior such as homicidal actions, disorders of speech, hypomanic symptoms, and disorders of thought. Finally, the sixth component, an expression of helplessness and dependency, included items with high positive loadings on homicidal and suicidal ideations, difficulty with siblings and family role models, and high negative loadings on inability to relate to the examiner and denial or minimizing of problems.

Just how severe these reactions are becomes evident in the youths' self-reports of frequency of behavioral difficulties. A majority of the adolescents (70 percent) had academic performance difficulties. Sleeping problems were evident in over half the subjects (52 percent), with 31 percent admitting drug abuse and 35 percent reporting aggressive behaviors. Many of the adolescents had homicidal ideation (41 percent) and 23 percent had engaged in self-destructive or reckless behaviors other than suicide attempts. Ten of the adolescents (13 percent) had made suicide attempts and an additional 38 percent had significant suicidal ideation.

Shaffer and Caton (1984) found similar results in runaways in New York City, with reports of great depression, low self-esteem, neurotic anxiety, poor interpersonal relationships, insecurity, impulsivity, trouble with the law, academic difficulties, excess of broken homes and reconstituted families, and a great level of unsatisfactory family relationships. Twenty percent had previously received mental health treatment, 24 percent had previously attempted suicide, and 25 percent had suicidal thoughts or threats. Twenty percent acknowledged having stolen in the 3 previous months, and 28 percent had previously been charged with a crime.

INTERVENTIONS

Little work has systematically examined the efficacy of various forms of therapeutic interventions for runaway adolescents. Reunification is sometimes, but not always, appropriate (Orten and Soll, 1980). Ostensen (1981) has used a family therapy approach successfully. Farber (in preparation) found high treatment drop-out rates in group counseling sessions for runaway adolescents, and somewhat more promising results for either structured family therapy approaches or a combination problem-solving and insight treatment. Mirkin et al. (1984) used family therapy processes to empower parents to take charge, to change

communication skills so parents could deal with the marital issues without adolescent involvement, and to facilitate family movement toward separation and individuation.

SEXUAL MALTREATMENT AND RUNAWAY BEHAVIOR

While physical abuse has been addressed in some detail in this presentation, the sexual abuse of adolescents also plays an important etiological role in runaway behavior in adolescents. Gutierres and Reich (1981) reported on the frequent occurrence of runaway behavior in sexually abused females. Bach and Anderson (1980) found 63 percent of sexually abused adolescents had manifest psychosocial symptoms including delinquency, running away, and prostitution. The Itelson report (Shaffer and Caton, 1984) found that approximately one-quarter of runaway youth had been sexually maltreated. A pattern of reactions evident in nearly one-third of all sexually abused adolescents studied by Farber et al. (in review) included runaway behavior and drug and alcohol abuse.

CONCLUSIONS

The problems presented by runaway youth are severe. Runaways can no longer be seen as bad, unruly, or off to join the circus. They are likely to have been severely physically maltreated and/or sexually abused. Depression, suicide, psychotic thinking, and aggressive behavior will be evident. Alcohol and drug abuse will be substantial and extreme sexual activity and exploitation exist. Long histories of school failure and avoidance as well as inappropriate career/vocational skills and aspirations are also common. These are disturbed and troubled youths with few socially appropriate resources for successful adolescent growth and development. Prior to a successful family reconstitution, resolution of the physical and sexual maltreatment, substance abuse, and emotional and behavioral dysfunctioning will need to be conducted.

There is little evidence that early intervention at various stages of youth development would have a remedial impact on the behavioral/emotional difficulties outlined above. Complex, multiproblem families do not present with a discrete pattern of dysfunction. Runaway behavior, substance abuse, juvenile delinquency, foster care, physical maltreatment, and learning disability may all be evident in the same adolescent in a continuation of a familial pattern of chaos and dysfunction.

The "invulnerable youth" needs to be systematically examined. Why do some youths from the same biochemical gene pool who face the same socioenvironmental stressors and have dysfunctional parent-child interactions develop into nonchemical abusers with a socially appropriate sense of identity and a moral and ethical value system appropriate for growth and development? Comparisons need to be made at various stages of child development, not between the invulnerable cohort and the most extreme dysfunctional group, but between the invulnerables and the borderlines--the youths in the next quartile on our

continua. We should examine the youths who use drugs and alcohol, but not necessarily to the point where it comes to the attention of authorities, the ones who run away once, but only for a few hours. When extreme comparisons are made with a sufficient number of assessment instruments, a broad range of differences between clinical populations and controls will be discovered. By contrasting extreme groups with those of similar characteristics, but of less severity on longitudinal or time-span studies, the significant risk factors to these various dysfunctions may well be teased out.

Similar studies have been undertaken with hyperactive children, a group with whom school-year intervention is only rarely successful (Helper, 1980). Farber et al. (1985) tracked 18-month-olds who were at high risk for hyperactivity because of the presence of minor physical anomalies. A multimethod assessment procedure was utilized and repeated at 3 years of age, an age when hyperactivity becomes apparent. Initial findings indicate that a cluster of family variables do significantly predict activity level for both at-risk and control children. Similar, defined studies are necessary in the areas in which adolescents are at risk.

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AUTHOR

Edward P. Farber, Ph.D.
School of Medicine
George Washington University
Washington, DC

PANEL DISCUSSION OF FARBER'S PRESENTATION

Panel: How important is abuse to the decision to run away?

Farber: There appears to be no significant difference between self-reported level of violence directed toward adolescents who get labeled as runaways as contrasted with those who get labeled officially as being maltreated. This study indicates that there is a very high relationship between acts of violence and adolescents who seek runaway shelters. One finds over 75 percent of the adolescents have received some severe maltreatment prior to their running away from home, and while we're very sure that there are many other social and stress factors at work, it is suggested that familial violence is a critical factor in an adolescent's decision to run.

Panel: I wanted just one clarification on particular disorders for the kids in your study. The distribution on disorders, how did they really break out?

Farber: Seventy percent of the adolescents had academic performance problems, sleeping problems were evident with over half, 31 percent admitted to some kind of drug abuse, 41 percent had homicidal ideations. These kids really want to kill somebody. They're impulsive and they're angry and they want to kill somebody.

What is of concern is that as a group, these are very impulsive kids who don't have a lot of prosocial ideation. Many of them are suicidal, with 13 percent having attempted suicide prior to showing up at the runaway shelter. An additional 38 percent have what we defined as serious suicidal ideation. This was not just, "Yes, sometimes I think about killing myself." They needed to have a plan of action, or have written a last will and testament to qualify for this 38 percent loading. So these are some very, very troubled youth.

The New York study found very similar results, with a great deal of depression, neurotic anxiety, low self-esteem, poor interpersonal relationships, insecurity, impulsivity, trouble with the law, academic difficulties, excess of broken homes and reconstituted families. And 20 percent of their sample of youths had received previous mental health treatment. Twenty-four percent had previously attempted suicide, 25 percent had serious suicidal thoughts or threats--close to 50 percent overall--which was very comparable to our total for suicidal thoughts and threats. Twenty percent acknowledged having stolen in the 3 previous months and 28 percent had previously been charged with a crime.

Panel: With the exception of the crime figure, they all look like drug abuse admissions, those percentages.

Farber: I don't think this group of youths looks very different from any of the other populations that we've been discussing. I also think that there's an additional component that we really haven't addressed, and that is the component of severe physical or sexual maltreatment directed toward these kids at earlier ages which serves as a precipitating factor, a risk factor. I believe that much of the child abuse behavior precedes runaway behavior and precedes the drug abuse.

Panel: The analysis of a chronically delinquent youth cohort in Ohio that they've been studying for a number of years indicates an extremely high correlation of psychological abuse and abandonment to violent behavior.

Farber: Very few people have looked at psychological abuse. It is difficult to define. No one wants to look at it because it's opening up Pandora's Box with regard to the role of protective services. It is difficult enough keeping track of kids who have been severely maltreated physically or sexually and providing services for them. What happens when you start looking at the emotionally and psychologically maltreated youth as well?

Panel: The indication from this one study is that there is a significant jump in level of disturbance, particularly in terms of violent criminal behavior, for that group as opposed to the group exposed to physical abuse. They, in fact, are the most disturbed, most chronically violent of all the people who have been processed through the criminal justice system.

Farber: I've argued in other forums that the act of maltreatment itself, whether physical or sexual, is rather irrelevant to the impact of the maltreatment. The issues are much more family dynamics, trust within your own environment, and the need to grow up in an environment in which there is an ability to develop according to prescribed stages. That may be more important even than whether or not you got hit or you got raped.

Panel: In one analysis of 240 women on methadone maintenance programs who had infants, 93 percent of them were found to have been pregnant as teenagers. Of the 240, 54 percent had been subjected to physical abuse before the age of 11. The investigator considered that early child abuse was a very significant precipitant.

Farber: Any population that you want to look at in adult deviancy--criminal populations in prison, groups who have had poor work adjustment, drug-abusing adults, adult prostitutes, people who have difficulty adjusting to marital situations--you will find a higher proportion of abuse victims than one would expect in a control group. What it tells you, I don't really know.

Panel: I think it may tell you one very important thing in terms of criminality. The indication is that that population that has undergone severe abuse at an early age seems much more likely to graduate into the adult criminal population than other groups, and it appears that that group may be one that persists the longest.

Farber: There is a cycle of maltreatment, in that these abused children who are the delinquent adolescents are also the sexual maltreating adolescents of other younger children and they become abusive parents. That cycle, which the lay media have really picked up on, is in fact an accurate perception.

Panel: Some family therapists extend the thesis that the identified patient is a kind of scapegoat for family problems. The implication being that other sibs would not show the same kinds of problem behaviors. Is that the case in your own program?

Farber: We did not examine siblings who were displaying other kinds of behavioral, emotional, or social dysfunctions. But we found that the proportion of siblings who were also maltreated was the same as the youths examined. And this has been supported by work that has been done in New York a couple of years ago. So in this particular area it is not that one sib bears the brunt of the problem. Some of the earlier work suggested there is a special child who is being maltreated. That is because other investigators just found one child and did not examine whether other children at a particular age in that family were also being maltreated. Yes, the 3-year-old may not be abused while the 7-year-old is being battered. But when that 3-year-old is 7 years old, it appears that he or she too will be maltreated.

Panel: Has anybody surveyed the "general population" to have baseline data on what physical and sexual abuse norms are in our society? Or have we always asked the question in the context of a treatment population?

Farber: One national study indicates that about 1 out of 11 people will have been sexually maltreated by the time they reach the age of 21--I'm not quite sure what that maltreatment covers. Another survey, in the San Francisco area, reports about 20 percent of women either have been raped or had rape attempted, and an additional 20-odd percent had other inappropriate forms of sexual activity directed toward them. The percentages are correct and astounding. Other studies have said 1 out of every 5 women has inappropriate sexual activity directed toward her by the time she reaches 18, and 1 out of 11 men. Men are sexually maltreated as well, very severely; that's a whole other ballgame. And for young children, boys are probably sexually maltreated as much if not more than girls because for men it appears that there is an issue of power.

It's really been considered a very important etiological factor in runaway behavior as well. Depending on the definition, estimates are that about one-third of runaways have been sexually maltreated.

Panel: Is that both boys and girls?

Farber: One-third is the total. The percentage of girls is much higher--probably 50 or 60 percent of runaway girls. The Shaffer and Caton study in New York found that one-quarter of the runaway youth claimed they'd been sexually maltreated; we found in a later study that about one-third of sexually abused adolescents that we followed displayed significant runaway behavior as well as drug and substance abuse.

Panel: What about hyperactivity?

Farber: Even within the high-risk population, what appears to discriminate between those high-risk kids who are more and less likely to have problems is the development of symptoms of hyperactivity. However, by 18 months of age, we don't see any differences between groups of high-risk kids, at least on the index behaviors we're studying. Parents don't see any difference between the kids who later turn out to be hyperactive and the kids who don't turn out to be hyperactive. So we're hypothesizing, and I respect your argument, that while there is an

interaction effect, we perhaps also have a parental, child-guidance style that does have some influence on the development of the behavior. With kids who did not develop hyperactivity at 3 years of age, the child-guidance technologies used at home were similar to the technologies for control kids who also did not develop hyperactivity. The hyperactive control kids, of which there were a few, and the larger group of high-risk hyperactive kids, had offbeat kinds of child rearing practices.

Panel: You're saying that you could set up a predictive model?

Farber: Yes, we tried to, and clearly there is an interaction. In the 3-hour videotape, we don't pick up the fine-tuned things that a parent will pick up in relationship to a child. Perhaps by 18 months of age, a parent is already picking up that this child is difficult to manage; therefore, parents have to use more physical discipline to control the child. Or sometimes he's better and sometimes he's worse, so that's why sometimes parents yell and sometimes parents just ignore the behavior.

Panel: That whole view was rooted in old schizophrenigenic thinking. You know what I mean, the origins of early differences in schizophrenic kids really resulting in large differences because of the way parents interact with them over time. So that we see the sickness by age 4, which started out as a difference, but not as a sickness.

Farber: Let me just say that we need to break the cycle of dysfunctional behaviors and I believe that the intervention approaches that focus on a new parent or even a very young parent are probably already too late to implement those child guidance techniques. I compare it to giving driving lessons after kids already have their licenses. They already have a child; what are we doing giving child guidance lessons then? It may well be a bit too late. I believe we need very much earlier, high-school-based training in child rearing. Surveys of high school seniors, mostly done in Iowa, show that seniors who are baby-sitters and soon to be parents have a terrible knowledge of child rearing practices. About 30 percent say that you should slap or hit a 1-year-old when he or she cries. About 40 percent express role reversal expectations so that the 2-year-old is supposed to know when mommy and daddy are upset and had a hard day, and should know to play quietly. These are high school seniors who are about to have children. I think we need to teach youths in high school to have a degree of empathy, love, consistency, and to teach appropriate technical approaches for child rearing practices.

Certainly one way of looking at all the topics we have discussed is the degree of internal control that these children have as compared to external control. Everyone is saying when you control these youths, as in a foster placement setting where there is a positive role model for the youth as well as environmental demands, they tend to do pretty well. And when they don't have someone watching over them, they tend to do rather poorly. These are youths who have not developed any kind of internal control for the impulsive behavior style. What appears from a clinical perspective to be very effective are many of the

cognitive behavioral mechanisms that have been discussed the last few days--teaching alternative problem-solving skills, teaching skills training. But also, and this is the problem for runaways, teaching them they can develop a competency that can substitute for their competency on the street or in the runaway shelters. And that becomes extremely difficult. Most runaway shelters are not very successful in doing that.

Panel: I think that's a good recommendation--earlier intervention, earlier teaching. I would add role-modeling initiatives in addition to cognitive behavioral techniques, and not simply skills training of those kids. I think they have to see people doing certain things in a certain way--which highlights another point. In a lot of our experience in treatment with adolescents, the techniques that are suggested here, like cognitive behavioral skills training techniques, seem to be considerably enhanced if they are embedded in an interpersonal and social context. The idea that you would sit kids down and teach them things, even as good teachers, is somewhat naive. Kids are much more likely to pay attention and to rehearse in cognitive behavioral steps if there is present an accepting interpersonal social context. And I know that's not well operationalized. But I'm concerned that we run off into the sunset with technologies and don't respect the fact that there is yet another set of variables that have to do with acceptance and feeling approved of and feeling safe, among other factors. And also the absolute credibility of the teacher not only in terms of what they know, but who they are and how they walk and talk. Now these are to me rather subtle variables that have yet to be operationalized. But I'm very impressed with their power, particularly coming out of therapeutic community work. In a way these are kind of readiness variables.

Panel: It's a reason to want to change.

Panel: Can it be argued that if social competency is increased, then acceptance and empathy on the part of others is going to be shown to the individual?

Panel: All those kids got angry the first time around because of that, because the signal to them was, if I'm something, then I'll get something. And that's a lot of what they're angry about and why they didn't learn or rejected what they did learn, because it was one of those terrible contingencies that were built into early relationships. "If you're good, if you'll do, if you'll perform, if, then you'll get...." And they've translated that in negative ways. I'm just saying that the demand characteristics and the training approaches that we're talking about absolutely require the technologies that were so well developed in recent years. But they have to be done in a kind of a social-humane context which I think still needs operationalizing. I don't think we should be naive about the cost of this because it takes time to establish the strength of those parameters which are interpersonal and social.

Panel: I ended my project because it's very expensive. You know, using highly trained therapists to do all the children's skills training, to do social skills training with them, and to work with the family to do training. So I thought it

would probably be cost effective, and you could get a more long-term social context if we could get other families, or Big Brothers, Big Sisters, to be willing to work with these kids.

Panel: Let me raise one of the things I said as an aside earlier. Ask your aunts and uncles and your parents, if they're from rural backgrounds, how many of them were farmed out to another family throughout their adolescence to work in another household, literally working for their room and board to deal with the economic stress of big families in rural settings. But then they say, "I learned an awful lot about life from Mr. So-and-So while I was working on his farm." Whereas if your own dad had put that kind of restriction on you when you were 11 or 12 or 13 years old...

Panel: You don't even have to talk about farming out. A generation ago we had fathers and sons working alongside each other in a lot of things. And today they spend 15 minutes a day at most talking to each other over the dinner table. And you know what they're talking about usually isn't too positive. So the whole experiential environment we had one generation ago, to say nothing of two generations ago, is completely different.

Panel: I'd be curious about a point Karol Kumpfer raised in the discussion. What data do exist in terms of the experience of kids who are exposed to Big Brothers, Big Sisters? Growing out of what's been stated here, one could posit that that should be a useful resource in some kinds of programming.

Panel: There's father, mother data. Some of Judy Brooks' data and some data that we developed over the years, but unfortunately never published, have shown consistent differences between drug abusers, neurotics, and college kids in how they perceive their fathers. And large differences. And if you get into good clinical interviews with drug abusers--adolescents and otherwise--invariably they will point to more problems with the father than the mother.

Panel: There's a little bit of evidence from a prevention initiative that OJJDP funded on Big Brothers, Big Sisters, and a number of community groups. The major finding was that as a delinquency prevention strategy, although they operated in the right communities, they didn't really get high-risk kids. They ended up working with the easily amenable kids and didn't work with the tough kids, the kids in the same neighborhoods that you would expect them to work with. So although the potential would appear to be there in a Big Brother-Big Sister program, or a number of other kinds of programs that have that model available for the kids, the dilemma continues to be the screening that goes on in working with these kids.

Panel: In Judy Brooks' work, she's finding that the role of the older sibling can be basically a surrogate, perhaps, for the parent, so that the siblings may have a much stronger role, sometimes almost a parental role.

Panel: There's a program called Partners Program in Denver, Colorado. And they have done something that's perfect for the times. They've managed to get very good public-private partnerships going on around the funding of their programs and activities, and it involves a good recreational program. They

have a Big Brothers Program, but it's called "Partners Program." They have evidence from nonequivalent comparison group studies which suggest a reduction in reoffending and referral for the kids who have partners. And the other thing is that they have an excellent replication package. It's one of the places where people have really thought about replication of the package and they can go into a community, getting the whole community involved from the top down. You've got to have something like $50,000 or $60,000 up-front capital raised in your community before you can get a program in place. And it really works to ensure that you've got the community support necessary to make it happen, to get the partners and all that stuff.

Panel: In a way this discussion says that we need to combine some of the important gains that we've made with cognitive behavior, skills training approaches--all of the behavioral training approaches--with humanistic formats.

Panel: To me it's really important to have the skills training notion. But then you should combine it with a humanistic surrogate parent for that child if there's no way to change the interaction with the parent. Or use another role model. Most kids can come back and think of some other adult, you know, who had a great impact on them for some reason. And helped to change their self-concept. They are not a joke. They are not so bad. Someone cares about me personally.

Panel: It seems to me that a lot of what's been said is that in many cases the parent is not going to be able to be shored up in the delivery of parental services and that the parent is going to have to be supplemented by another quasi-parental figure.

Panel: You just used a phrase that reminded me of a book called Appalachia's Children written by a psychiatrist working out of the University of Kentucky. He went up into Appalachia as an assignment in an NIMH research project to look at child development of the very destitute hill children of eastern Kentucky. And of course, if you say "I'm a psychiatrist from the University," you bet they're not going to talk to you. But there's a network of public health nurses that have been in eastern Kentucky for a hundred years and everybody talks to them. And so what he did was he started talking to them. They started identifying the children in the community who were in essence not being nurtured well by the young mothers. And he then started interviewing the older women in the community and between the public health nurses and himself they identified competent grandmothers whom they matched with incompetent mothers to teach mothering, to give the kids a different kind of experience growing up in these very isolated communities. And I don't believe there's any good evaluation of that. But there's a lot of clinical observation that came out of that. It was his business to use a competent person in the community to start to pass some of these skills on to break this cyclical thing. Because it wasn't just the grandmother that was coming in, it was another woman who could play that role and who had "raised a good family."

Panel: Another possibility in terms of ways to find some volunteers to deal with these difficult children would be those who have already raised their own kids, who had time and might be interested. It used to happen in more extended families. If the kids couldn't relate to their parents, they could relate to their grandparents. But not to the point where they would go to live with them. That would be too much. But once or twice a week a little extra care--anything's going to help.

Panel: Many of these kids are very temperamental from infancy on through their adolescence and are very difficult kids to get close to. They don't give back to you.

Panel: I don't mean just anybody to be volunteers. I think it requires an incredible amount of training.

Panel: Some of the settings, there was a reward, there was funding if the kids didn't steal stuff, or there was theft money given to the foster parents. You know, these are not kids whom Big Brothers really want to work with. These are not kids who are going to be amenable to someone making nice-nice fuzzy bear kinds of things once a week.

Panel: Volunteers are by definition a heavily self-selected group. I appreciate what you're saying, but I still wouldn't sell them short. It seems to me that they still become valuable resources. It's legitimate to assume for many of them that their frustration tolerance is significantly higher than the norm.

Panel: And I think the issue of getting good volunteers is what everybody has said. Screening is really important and training is really important and, finally, not asking them to do things that aren't appropriate for volunteers but are really appropriate for case managers. You can't have them serve as case managers. You can have them do the stuff we've been talking about, as reinforcers of certain kinds of positive activities.

Panel: You talked about breaking the cycle. We've got a project in Portland called "Grandmothers Against Drug Abuse" and these are grandmothers whose children are drug addicts who have children. And it has gotten to the point where these grandmothers' own children have stolen from them and just done everything to them. And they know these grandchildren are there. And they know they're being neglected. So the grandmothers have a support group, and they go to the adult family services, to the welfare office and they make sure that the ADC dollars go for the kid and not to buy more booze and more drugs. And they're now working with the Department to see to it that those dollars get channeled where they ought to be rather than continuing to go to the mother. So here is a volunteer who is committed to taking care of that very young child or in some cases early adolescent. A very invested volunteer for obvious reasons.

Panel: We work with those same grandparents with our delinquent populations sometimes. And those grandparents are people who are able to do child rearing with the grandchildren instead of the kids. And sometimes that worked. But other times they become grandparents in the true sense of the word. The kid comes to live with grandma because mom's a drug addict or whatever the problem, so the kid lives with grandma, and grandma doesn't want to have to discipline another child. And so they

just let them come and live there and the kids grow up like real weeds.

Panel: But you're talking about delinquent kids. And I'm not sure that these kids that I'm talking about are at that point.

Panel: Well, and your grandmothers might be a whole lot more dedicated and involved very differently.

POST-PANEL DISCUSSION

Chairman: I would like to thank the presenters. I think they gave us four excellent papers to respond to. I learned a lot from each of those papers.

Panel: I want to make a simple summary statement and see whether the paper presenters think what they presented in the last 2 days would support this: What I come away with is that all intervention or prevention strategies should address 100 percent of the population during the very early years, and I'll say kindergarten through grade four, anyway, that it's about grades four, five, six that you start to get some distinguishing strategies.

Panel: The reason I wouldn't agree with that is because you can identify these highly antisocial kids in kindergarten through second grade and I would really want to make sure that at that point we're providing services that remedy that behavior as a prevention strategy. And those services can be offered to all people in the form of parenting training. But they also could be offered, using intensive case management, through home-based services that we talked about. Conflict resolution kinds of services could be offered only to those extremely high-risk parents and children.

Panel: What I would like to see in any treatment program for the drug abuser and alcoholic, I would like to see some kind of case management services for the kids right away, just some sort of an assessment through the clinics to see that they're safe, that they're O.K. Some may not need anything. Some may need something.

Panel: I would suggest you can begin to have general population prevention programs very early. But I think that if you only have what we consider general population prevention programs, you will miss the opportunity to really do what's necessary in a preventive way with these high-risk populations.

Panel: You're saying that, in addition to generalized prevention strategies, you start your interventions as early as you can make an identification of risk.

Panel: And for drug abuse that still is, in a sense, primary prevention in that there is no indication of any drug abusing behavior at all. But you've got risk factors for drug abuse appearing at that point.

Panel: Your intervention would not be alcohol and drug specific.

Panel: No, not at all.

Panel: I would certainly concur. I do not think that one starts at the fifth or sixth grade. I think the behavioral dysfunction appears much earlier and we can catch it then.

Panel: I think those are important concepts because I think that speaks to the overall theme of the 2 days.

At-Risk Populations: Some Suggested Directions

Barry S. Brown, Ph.D. and Arnold R. Mills, M.S.W.

The identification of youthful populations at high risk for substance abuse, and the planning of programs appropriate to their needs, are issues that are properly receiving significant attention at this time. In that spirit, the papers included in this monograph have examined four youthful populations about which concern has been expressed. Information about these populations and their use of drugs is nonetheless extremely uneven. As described by Hawkins and his colleagues, considerable research, both epidemiologic and etiologic, surrounds the issue of juvenile delinquency. More recently, as reported by Kumpfer, a number of studies have been pursued examining children of substance abusers. Other adolescent populations have proven either more elusive or of less interest to the research field. Two, which are represented here, are runaways and children in foster care. As Farber and Weinrott make clear, there is good reason to believe that a significant number of children identified as troubled in one part of the service delivery system will likely exhibit related problems, e.g., substance abuse, when query is made about those behaviors. To these four groups of at-risk youth, the reader may wish to add still others: dropouts, youngsters showing psychiatric disturbance, unmarried pregnant adolescents, etc. The papers presented in this volume suggest that an understanding of both the behaviors and the issues that underlie those behaviors can permit better targeted and more effective services to youngsters. The papers further suggest a body of study that can be seen as appropriate at this time.

Epidemiologic/Etiologic Study

While some information exists with regard to each of these populations, there is nonetheless a need for increased understanding of the histories, functioning and current patterns of substance abuse in virtually all of them and in other at-risk adolescent populations as well. Such study is needed to clarify risk for drug use in different populations and to explore etiologic issues in the development of dysfunctional behaviors. Findings from those studies will have consequences for the

development of new interventions and the refinement of existing programs.

Specifically, epidemiologic study can be undertaken of youngsters located in runaway house settings, of samples of recently emancipated foster care youth and/or of adolescents still in foster care, of school dropouts, psychiatrically disturbed youngsters, etc. Etiologic study undertaken with these several populations will need to embrace the range of psychosocial and psychobiological issues that may help to differentiate behavior-disordered youngsters from their normal peers and differentiate between subgroups of behavior disorders. While this suggests efforts in cross-sectional research, it is apparent that ultimately factors identified through cross-sectional work should be studied for their prognostic significance in longitudinal research.

Early Intervention Programs

The papers presented by Kumpfer and Hawkins indicate there is already a capacity for identifying early some youngsters at risk for later dysfunctional behaviors (including but not restricted to substance abuse). Techniques for identifying youngsters at risk typically have emphasized a repeated pattern of aggressive, acting-out behavior by children in early grades. Recent study has made an effort to differentiate between children showing evidence of attention deficit disorder/hyperactivity and children showing evidence of aggressive conduct disorder with the latter group seen as having far greater likelihood of showing behavior disorder in adolescence (Hinshaw, 1986). The increasing capacity to target children at risk lends special impetus to study of the various skills training strategies developed for child, parent, and/or teacher as described by both Hawkins and Kumpfer. It is worth noting that the greater malleability of younger as opposed to older children can be seen as stimulating a greater willingness on the part of parents and teachers to invest themselves with those children.

While obviously more complex, community restructuring in high-risk neighborhoods, as exemplified by the Perry Pre-School Project, may also play a significant role in early intervention. In this initiative, based in the Ypsilanti inner-city, effort was made to broaden the range of opportunities and prosocial behaviors available to preschool youngsters and involve their parents in efforts to support the children's enhanced functioning. Findings indicated the greater adoption of a wide range of effective behaviors by the group receiving the intervention than was seen with the randomly assigned controls (Berrueta-Clement et al., 1984). Programs such as this that are targeted to a portion of the community, not to individuals on the basis of specific behaviors, have obvious expense built into them. Nonetheless, the success of this program in reducing adolescent arrests and pregnancies and in increasing academic performance may well permit benefits significantly in excess of costs.

Identifying and Treating Adolescents/Preadolescents At Risk

As noted above, it is apparent from the papers presented in this volume that older youngsters, who come to the attention of community agencies for a variety of behavior problems, are frequently at risk for substance abuse as well. Strategies must be developed for identifying those youngsters in need of drug abuse services and for coordinating the work of agencies treating substance abuse with that of agencies treating other dysfunctional behaviors. Interventions may make use of existing staff at the community agencies treating the presenting problem or may involve referral to drug abuse treatment programs. In either case innovative programming using skills training and/or other psychosocial strategies will need to be developed and evaluated, and agency staff will need to receive the training necessary to allow the identification of drug abusers and appropriate response to their needs.

Concluding Note

The capacity to make early identification of youngsters at risk for later dysfunctional behavior needs further study and refinement. Nonetheless, there is now a real capacity in this area and, in conjunction with the schools in particular, there is an ability to intervene with youngsters on their own behalves. By focusing on children who, at an early age, show evidence of aggressive conduct disorder, we both avoid labeling (since children's behaviors will have already labeled them) and increase the likelihood of the intervention being effective. At the same time, significant numbers of adolescents whose dysfunctional behaviors have brought them to the attention of community agencies are at risk for substance abuse as well. Study is needed both to clarify the nature and degree of risk and to explore intervention strategies which may prove useful.

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