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THE EFFECTS OF PARENTAL SUBSTANCE ABUSE
ON THE BEHAVIOR OF SCHOOL CHILDREN

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The purpose of the present archival study was to investigate the relationship between parental substance abuse and the risk for maladjustment and psychopathology in children in a clinic sample. Children of alcoholic parents and children of drug-dependent parents were compared to children of non-substance abusing parents. The subjects were 83 boys age 6 to 12. Children of substance abuse parents had lower levels of adaptive functioning and higher levels of school behavioral problems. Although previous studies have reported a strong association between an adverse family environment and the risk of child maladjustment, the present study did not find that the addition of an adverse family environment increased the risk for maladjustment or school behavioral problems in children of substance abusers.

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THE EFFECTS OF PARENTAL SUBSTANCE ABUSE
ON THE BEHAVIOR OF SCHOOL CHILDREN

Numerous studies have documented the significant correlation between parental substance abuse and maladjustment and/or psychopathology in offspring (Bennett, Wolen, Reiss, 1988; Earls, Reich, Jung & Cloninger, 1988; Lahey, Piacentini, McBurnett, Stone, Hartdagen & Hynd, 1988; Rolf, Johnson, Israel, Baldwin & Chandra, 1988; West & Prinz, 1987; Steinhausen, Gobel & Nestler, 1984). Substance abuse has been defined in the Diagnostic and Statistical Manual of Mental Disorders (DSM III-R) as the following (American Psychiatric Association [APA], 1987):

A maladaptive pattern of psychoactive substance use indicated by a least one of the following:
(1) continued use despite knowledge of having a persistent or recurrent social, occupational, psychological, or physical problem that is caused or exacerbated by use of the psychoactive substance (2) recurrent use in situations in which use is physically hazardous. (p. 169)

There has been considerably more research on school-age children of alcoholics than has been done on school-age children living with parents whose primary drug of abuse is

not alcohol. The few studies that do compare children of drug-dependent parents to children of alcoholic parents tend to be based on clinical impression rather than empirical research. They make the implicit assumption that no differences exist between the children of drug-dependent parents and children of alcoholic parents.

The purpose of this study was to examine the effects of multiple family risk-factors: being the child of a drug-dependent parent, being the child of an alcoholic parent, and exposure to psychosocial risk-factors. The psychosocial risk-factors to be examined were as follows: marital discord, parental mental illness, parental criminality, low socio-economic status, and parent-child separation (Rutter & Quinton, 1977; Rutter & Quinton, 1984). Prior studies have examined risk-factors in isolation. The present study considered the combined contribution of each risk-factor to maladjustment in school-aged children. Three groups of children studied were: children of alcoholic parents, children of drug-dependent parents, and a comparison group of children of non-substance abusing parents. First, the literature related to the family risk-factors associated with being a child of an alcoholic was reviewed. Secondly, a review of literature related to risk-factors associated with being a child of a drug-dependent parent was examined. Finally, a summary of the family risk-factors found in

children of alcoholics and children of drug-dependent parents was given.

For purposes of this study, the term substance-abuser referred to the DSM-III-R definition and included both the abuse of alcohol and other drugs. The term drug-dependent, for purposes of this study, referred to a person whose primary drug of abuse was not alcohol and included those persons who abuse other drugs in combination with alcohol.

Prevalence of Problem

Several authors have estimated that there are between seven million (Stark, 1987) and twenty-eight million (Russell, Henderson, & Blume, cited in Rearden & Markwell, 1989) children under age 18 living in a home where one or both parents abuses alcohol. However, little epidemiological data exists on the number of children living with any other type of drug-abusing parent. Almost all of the research conducted on children of drug-abusers deals with either heroin- or cocaine-abusing mothers. These studies focused on the effects of prenatal exposure to drugs and little attention has been paid to interactions between the child and his or her family environment. Kumpfer (1987), in summarizing earlier studies, found that 67-73% of women entering treatment had been living with their children at the time they entered drug treatment. Deren, Frank, Frank, and Schmeidler (1990) conducted an epidemiological study restricted to New York State. They estimated that one

out of every ten children in New York State were children of substance-abusers. Their study included children of substance-abusers who were either in or out of treatment, or children living with a substance-abuser. If having a substance-abusing parent puts children at risk, then based on these estimates of prevalence, a substantial number of children are at risk.

Some researchers contend that the risk for development of psychological problems in children of substance-abusers comes from one or more of these three sources: genetic influences, gestational exposure, and environmental factors (Kumpfer, 1987; Steinhausen, Gobel & Nestler, 1984). A number of researchers have explained the development of psychopathology in children in terms of an interaction of the child with the environmental risk-factors (El-Guebaly & Offord, 1977; Kumpfer, 1987 Steinhausen et al., 1984). These researchers investigated biomedical and environmental risk-factors that increased the child's vulnerability to psychopathology. Among those environmental risk-factors were psychosocial risk-factors such as recent disruptive life changes or stressors, as well as family risk-factors that have been shown to be associated with child psychological disorders.

Children of Alcoholics Family Risk-Factors

Rutter and Quinton (1977) examined the effects of multiple risk factors such as marital discord, large family

size, low social status, and paternal criminality on the subsequent development of a psychiatric disorder. Rutter and Quinton (1977) developed the Family Adversity Index (FAI) as a way of measuring a combination of risk-factors. Rutter found that children with one risk factor were no more likely to develop psychiatric problems than children with no risk factors. However, with a second risk factor, the risk for a psychiatric disorder increased four times.

Researchers have shown that the children of alcoholics experienced more risk-factors which have been shown to be associated with child psychological disorders and maladjustment than children of parents who are not alcoholic (El-Guebaly & Offord, 1977; West & Prinz, 1987). They were more likely than children of non-alcoholics to have been physically abused, (Christozov & Toteva, 1989; El-Guebaly & Offord, 1977; Havey, 1991; Tarter, Hedgedus, Goldstein, Shelly & Alterman, 1984; Johnson & Montgomery, 1990). They were more likely to have fathers who were more rejecting and who used more harsh child-rearing practices than fathers in the control group (Udayakumur, Mohan, Shariff, Sekar & Chamundi, 1984). They were more likely to come from families in which there was marital discord or divorce (Havey, 1991; Rubio-Stipec, Hector, Canino, Bravo, & Alegria, 1991). Children of alcoholics were more likely than children of non-alcoholics to have been sexually abused (Havey, 1991). Johnson and Montgomery (1990) found they

were more likely to experience family violence and family disruption.

Werner (1986) reported that the family factors that distinguished children of alcoholics who developed serious coping problems from those who did not develop serious coping problems by age 18 were: (1) mother an alcoholic, (2) additional births into the family during the first 2 years of life, (3) the presence of conflict between the parents during the first 2 years of life, (4) being seriously ill or handicapped, and (5) having family relationship problems with either the mother or father. These risk-factors are similar to the factors in Rutter's Family Adversity Index (Rutter & Quinton, 1977). In Werner's study (1986), nearly 33% of children were in need of remedial education services and 8% of the children were in need of mental health care by age 10.

The present research examined the joint contribution of the following psychosocial risk-factors adapted from Rutter's Family Adversity Index to maladjustment in school-aged children (Rutter & Quinton, 1977; Rutter & Quinton, 1984): parental-child separation, marital discord or disruption, parental criminality, parental mental illness, and low socioeconomic status.

Parental-Child Separation

Parent-child separation has been shown to be associated with maladjustment in children (Rutter, 1971; Rutter &

Quinton, 1977). Koller & Castanos (1969) found children of alcoholics suffered more parental loss than did than the comparison group which was composed of children from the population at large. The comparison group had been matched for sex, age, and socioeconomic status. More children of alcoholics experienced the loss of a parent through either separation or divorce than children of non-alcoholics (Havey, 1991; Giglio & Kaufman, 1990). Among the qualities of the caretaking environment that distinguished children of alcoholics who developed problems from those who did not develop problems was no prolonged separation from the primary caretaker (Werner, 1986).

Marital Discord/Divorce

Several studies have shown a strong link between marital discord/divorce and child maladjustment (Rutter & Quinton, 1977; Rutter & Quinton 1984). Children of alcoholics were more likely to come from families in which there was marital discord and/or divorce (Havey, 1991; Rubio-Stipec, Hector, Canino, Bravo, & Alegria, 1991). Wives of alcoholics have been shown to be at high risk for spousal assault (Gondolf & Foster, 1991). Johnson and Montgomery (1990) found that 70% of children exposed to family disruption and violence in their study of women in a domestic abuse program had fathers who abused alcohol and other drugs. Rubio-Stipec et al. (1991) measured marital harmony on a scale designed to measure emotional support and

interpersonal closeness between the spouses. They found more marital discord among the alcoholic parents and psychiatrically disturbed parents than among the normal parents.

Moos and Moos (1984) found that families of relapsed alcoholics were characterized by more family arguments, less cohesion and expressiveness, less active recreational activities and more negative life events. Families of relapsed alcoholics showed more altered role functioning, with the alcoholic performing fewer household tasks and the spouse performing more tasks. Dinning and Berk (1989) found that many children of alcoholics reported that they had grown up in families characterized by high family conflict, low family cohesion, and low family support.

Parental Mental Illness

Several studies have shown that children of mentally ill parents are at greater risk for developing psychopathology than children of non-mentally ill parents (Rubio-Stipec et al., 1991; Rutter & Quinton, 1984). Rubio-Stipec and her colleagues (Rubio-Stipec et al., 1991) found that 29% of the alcoholic parents in their study met DSM-III diagnostic criteria for an additional mental disorder. Often mentally ill persons married other mentally ill persons, which increased the risk for children in these families (Cantwell & Baker, 1984). Bland and Orn (1986) investigated the relationship between family violence and

psychiatric disorders. They reported that 7.2% of the males and 1% of the females received concurrent diagnoses of antisocial personality disorder and alcoholism; 2% of the males and 10% of the females received concurrent diagnoses of recurrent depression and alcoholism; and 5% of the males and 5% of the females received all three diagnoses of alcoholism, recurrent depression, and antisocial personality. Family violence and child abuse were most likely to occur when there were two or more psychiatric diagnoses. Family violence was reported in 91.7% of those persons diagnosed with both alcoholism and recurrent depression.

Parental Criminality

Studies have shown that parental criminality and antisocial behavior is strongly associated with child maladjustment (Rutter & Quinton, 1977; Rutter & Quinton, 1984). Alcoholism has been shown to be associated with with increased antisocial and criminal behaviors (Bland & Orn, 1986; Gondolf & Foster, 1991; Guze, Wolfgram, McKinney, & Dennis Cantwel, 1968). Guze and his colleagues' study of first-degree relatives of convicted criminals found high rates of criminal behaviors and felony convictions among this group. Alcoholism was found to be associated with significantly higher rates of antisocial behaviors and convictions (Guze et al., 1968). In Bland and Orn's study (1986) on family violence, 92.9% of those persons who had

concurrent diagnoses of antisocial personality and alcoholism had engaged in family violence.

Socioeconomic Status

Being of low socio-economic status has been associated with psychopathology in children (Rutter & Quinton, 1977). Goodman and her colleagues (Goodman, Siegel, Craig, & Lin, 1983) investigated the in-treatment prevalence of three mental illnesses to socioeconomic status. Although the study's geographical area was predominately middle class, a higher incidence of alcoholism was related to low socioeconomic status (Goodman et al., 1983).

Deviant Behaviors Seen in Children of Alcoholics

Children of alcoholics have been found to be more at increased risk for disruptive behavior disorders, emotional disorders and maladjustment when compared to children of non-alcoholics. Steinhausen et al. (1984) found higher rates of conduct disorders and emotional disorders in children of alcoholics than in the control group of children whose parents were not alcoholic. Earls, Reich, Jung and Cloninger (1988) found a higher frequency of attention-deficit disorder with hyperactivity, oppositional defiant disorder, and conduct disorder in children of alcoholic parents than in children of non-alcoholic parents. Lahey et al. (1988) found that fathers of children with conduct disorder were more likely to meet the criteria for abuse of alcohol and other drugs and to also meet the DSM-III

criteria for anti-social personality disorder. Rolf et al. (1988) found higher levels of depressive symptoms in children of alcoholics than in children whose parents were not alcoholics. Bennett, Wolin, and Reiss (1988) found children with alcoholic parents exhibited less successful emotional functioning than did children of non-alcoholics. Rubio-Stipec et al. (1991) found children of alcoholics scored higher than children of non-alcoholic parents on three factors: Depression, Somatic Complaints, and Thought Disorder. Udayakumar et al. (1984) found higher levels of deviant behaviors and neurotic traits in children of alcoholic fathers when compared to children whose fathers were not alcoholic. Tarter et al. (1984) found that adolescent sons of alcoholics scored higher on the MMPI neuroticism triad scales.

Parental alcoholism in addition to an adverse family environment has been shown to increase the risk for maladjustment in children as measured by scores on the Child Behavior Checklist (Rubio-Stipec, Bird, Canino, Bravo & Alegria, 1991). When families of recovered alcoholics and families of community controls were compared to families of relapsed alcoholics, the children of relapsed alcoholics showed more symptoms of emotional disturbance and health problems than the children of controls (Moos & Billings, 1982). The perceived family environments of relapsed alcoholics showed less cohesion and expressiveness. They

also placed less emphasis on independence, moral-religious values, intellectual-cultural orientation, and active recreational orientation than families of community controls. Children in families of recovered alcoholics functioned as well as the control group.

Children of Drug-Abusers

Family Risk-Factors

Research in the area of children of parents whose drug of abuse is not alcohol has focused on consequences to children exposed to drugs (primarily heroin or cocaine) prenatally. The preponderance of literature on children of drug-abusers ignores children born before the mother became addicted. The majority of these studies is limited to pre-school-aged children. Very few studies have investigated the problems of older children who may or may not have been prenatally exposed to drugs but who live with drug-abuser parents. The literature is almost silent when it comes to children whose drug-abusing parent is the father rather than the mother. While the literature on children of alcoholics is replete with causal models which consider psycho-social factors as well as prenatal drug exposure to explain resulting maladjustment/psychopathology in offspring, the literature on children of drug-abusing mothers often fails to take into account psycho-social risk-factors that might contribute to maladjustment/psychopathology in offspring.

Parental-Child Separation

Parental separation has long been shown to be associated with increased maladjustment/psychopathology in children (Rutter, 1971; Rutter & Quinton, 1977; Werner, 1986). In Colten's (1982) study of heroin-addicted mothers only 48.7% of the mothers had all their children living with

them; 42% had none of their children living with them; and 9.3% had some, but not all, of their children living with them. Sowder and Burt (1980) reported that 13% of the heroin-abusing mothers with children aged three to seven and 30% of the mothers with children aged 8 to 17 had children in surrogate care.

Parental Criminality

Many of these children may face yet another risk-factor, criminality of a parent (Rutter & Quinton, 1977; Lashey et al., 1988). Numerous studies have shown an association between parental criminality and child maladjustment/psychopathology (Rutter & Quintin, 1977). In Estep's (1987) study of women who abused both alcohol and prescription depressants, 31% reported having been arrested for driving while under the influence and 49% reported other drug-related arrests. Sowder and Burt (1980) found that 68% of the respondents with children aged three to seven reported having been arrested since becoming a parent. Thirty-five percent of these arrests were for drug-related crimes. Only 56% of respondents with children in the 8 to 17 age group reported ever having been arrested since becoming a parent and only 29% of these arrests were for drug-related crimes. The rate of arrests in both of these studies were significantly higher than for the comparison groups.

When it comes to comparing the numbers of fathers arrested it becomes more difficult because many of the studies on male addicts do not report on their status as fathers. However, this information can be extrapolated from the available data. Gorelick (1992) investigated 45 men of lower socioeconomic status undergoing treatment for cocaine addiction at a large urban Veterans Hospital. He found that 28% had been arrested for cocaine possession or selling, 12% for a cocaine-related driving arrest, and 21% for other types of arrests. The study does not mention whether or not they had children, but it can be assumed that a large percentage of these men between 22 years of age and 59 years of age were fathers. In a study of Navy enlisted men, Bucky (1973) found that men who had used heroin more than five times differed from men in the control group in the numbers of arrests and court-martials. Eighty-two percent of these men had been arrested and 24% court-martialed.

Marital Discord/Divorce

Numerous studies have shown the association between marital discord/divorce and child maladjustment/psychopathology (Emery, 1982; Havey, 1991; Kalter, 1977; Rubio-Steipe et al., 1991; Rutter, 1977). Colten (1982) found that 49.6% of heroin-addicted mothers versus 24.1% of the comparison group had terminated a marriage. In Estep's (1987) study alcohol/depressants-abusing women had been married more times than the comparison group. Extensive

users of heroin in Bucky's (1973) study of enlisted Navy men had more divorces than the comparison group. Although no comparison group was used in Gorelick's (1992) study of cocaine-addicts, 38% of these men reported a divorce or separation within the 12 months prior to entering treatment. Another more serious form of marital discord is family violence. Fitch and Papantonio (1983) reported that 34% of the males in their study on men who batter women were drug-abusers.

Parental Mental Illness

Psychiatric disorders in parents have been shown to be associated with increased maladjustment in offspring (Canino, Bird, Rubio-Stipec, Bravo & Alegria, 1990; Keller, Beardlee, Dorer, Lavori, Samuelson & Klerman, 1986; Rubio-Stipec et al., 1991; Rutter & Quinton, 1977;). Smart (1991), in summarizing earlier studies, found that between 33% and 39% of the crack-cocaine addicts met the DSM-III criteria for major depression or dysthmic disorder. Weiss and Miren (1986), in their study on the subtypes of cocaine-abusers, reported that 53.3% of the cocaine-abusers met DSM-III criteria for concurrent affective disorders and 90% of the cocaine-abusers received an Axis II diagnosis.

Socioeconomic Status

Low socioeconomic status has been shown to be associated with child maladjustment and psychopathology (Canino et al., 1990; Costello, 1989; Rutter & Quinton,

1977). Since most of the studies of drug-dependent persons are limited to persons of lower socio-economic status, it is difficult to determine from the current research what effect this risk-factor has in determining child maladjustment.

Deviant Behaviors Seen in Children of Drug-dependent Parents

Recent patterns of poly- and concurrent- drug-abuse make it difficult to attribute children's maladjustment and/or behavioral problems to one specific drug. Kaufman's (1985) examination of family systems of alcohol and drug abusers found that alcohol abuse by primary drug-abusers and drug abuse by primary alcohol-abusers was on the increase. Roehrich and Gold (1988) reported that 89% of cocaine abusers in their study reported abusing at least one other drug. Sixty-six percent of the cocaine abusers surveyed in the Roehrich and Gold (1988) study also abused alcohol. Schmitz et al. (1987) reported similar findings with 50% of subjects seeking treatment for alcoholism also reporting regular use of an additional drug. Kosten and his colleagues (Kosten et al., 1985) found opiod addicts with alcoholic parents were more frequently concurrent alcholics. These studies support the assumption that families of drug abusers and/or alcohol abusers may be quite similar.

Most of the studies on children of drug-abusers document the effects of prenatal exposure prior to age six. Upon perinatal evaluation, crack-exposed babies were found

to have abnormal neurobehavioral symptoms (Cherukuri, Minkoff, Feldman, Parekh, & Glass, 1988; LeBlanc, Parekh, Naso, & Glass, 1987). These symptoms included tremulousness, irritability, and muscular rigidity. Studies have shown that as these children mature difficulties persist. Pre-school aged prenatally exposed children tend to be hypersensitive and to withdraw from intimacy and stimulation (Elliot & Coker, 1991). They tend to have interactional difficulties with both peers and adults and to exhibit hyperactive behavior (Allen, Polomares, DeForest, Sprinkle, & Reynolds, 1991). They differ from normal children in their patterns of play. Crack-exposed children tend to engage in less representational play, show less variation in play, and show more disorganization of play (Allen et al., 1991). An exhaustive search of the literature resulted in finding only one study of school-aged children who had been prenatally exposed to crack cocaine. Ellis' (1990) study had a sample size of four students classified as having a severe behavior handicap. Two students who had not been prenatally exposed to cocaine served as the comparison group. She reported no observable difference in the learning and behavior patterns between these children and the comparison group.

Children exposed to other drugs appear to share some of the same symptoms as children of crack-exposed children. Children prenatally exposed to phenylcyclidine hydrochloride

(PCP) tended to appear tremulous, to show increased sensitivity to touch and sound, and to show increased muscle tone and abnormal eye movements during the neonatal period (Van Dyke & Fox, 1990). At 18 to 24 months of age, these infants tended to have fine motor, adaptive, and language scores in the low normal range (Van Dyke & Fox, 1990). During the first year of life, prenatally drug-exposed children tended to be more hyperactive and less consolable, and they tended to have attention impairment and more sleep and feeding problems (Kumfer, 1987).

Sowder and Burt (1980) conducted the largest study of older children of heroin addicts. Subjects age 8 to 17 were selected from children of parents in drug treatment centers across the country. When compared to children of non-drug abusers, children of addicts were found to be at greater risk for learning and/or school adjustment problems and behavioral/delinquency problems. These children were more likely than the comparison group to have parents who viewed their child-rearing practices as "not strict at all." Their teachers were three and a half times more likely to indicate that these children required protective services.

Summary

Parental alcoholism or parental drug-dependence does not occur in a vacuous environment. Several risk-factors frequently co-occur. It is important to research the effect that a combination of family risk-factors has on children's

maladjustment. Research on children of alcoholics has shown that while parental alcoholism increases children's risk for maladjustment it does not automatically insure the development of problems within children. While there is substantial research on children of alcoholics across the lifespan, current literature tells us little about children of drug-dependent parents after age five. Most research on this neglected group has been centered on pre-school aged children prenatally exposed to drugs. Older children and those children who were not necessarily prenatally exposed to drugs have been severely ignored. The present study added to the body of knowledge on children of drug-abusers, giving much-needed information about the older children and children who were not exposed to drugs in-utero.

Statement of the Problem

The primary purpose of this study was to examine the effect of multiple family risk-factors: being the child of a drug-dependent parent, being the child of an alcoholic parent, and exposure to family adversity as defined by Rutter & Quinton (1977). Most prior studies have examined risk-factors in isolation. The present study considered the combined contribution of risk-factors to maladjustment in school-aged children. The risk-factors investigated were marital discord, parental mental illness, parental criminality, and low socio-economic status. Three groups of children were studied: children of alcoholic parents,

children of drug-dependent parents, and children of non-substance abusing parents. Although children of a drug-dependent parent or an alcoholic parent appear to be at risk, their vulnerability may reflect the effect of experiencing multiple psychosocial risk-factors rather than parental alcoholism or parental drug-dependence per se. Comparing the children of alcoholics to children of drug-dependent parents allowed a test of the specific hypothesis that parental drug-dependence predicted increases in child maladjustment and behavioral problems. The presenting problems of these three groups of children were compared and clinical implications for treatment were also explored.

Hypotheses

Hypothesis 1

Family risk-factors as measured by the FAI will be more important than parental substance-abuse status (either alcoholic parent or drug-dependent parent) in determining the risk for maladjustment and behavioral problems in children.

Hypothesis 2

There will be higher levels of child maladjustment as measured by the GAF scale in the children of drug-dependent parents than in either the children of alcoholics group or the children of non-substance abusing parents group.

Hypothesis 3

There will be higher levels of child maladjustment as measured by the GAF scale in the children of alcoholics parents than in the children of non-substance abusing parents.

Hypothesis 4

There will be a significant difference in the severity of child behavioral problems as measured by the Problem Rating Form in the children of drug-dependent parents than in either the children of alcoholics group or the children of non-substance abusing parents.

Hypothesis 5

There will be a significant difference in the severity of child behavioral problems as measured by the Problem Rating Form in the children of alcoholic parents than in the children of non-substance abusing parents.

Hypothesis 6

There will be a significant difference in the number of family risk-factors faced by the children of drug-dependent parents as measured by FAI than in either of the other two groups.

Hypothesis 7

There will be a significant difference in the number of family risk-factors faced by the children of alcoholic parents as measured by FAI than in the children of non-substance abusing parents group.

Assumptions

Cases selected came from a clinical population and the following assumption provided the basis for procedures used in this study and the interpretation of results: Parents or guardians, if provided a reasonable assurance of confidentiality, would disclose truthful sensitive information about personal family issues and illegal drug use. The rationale for using this information is presented in the Limitations section of this paper.

Operational Definitions

For purposes of this study, the following operational definitions were used.

Alcoholic. The first criterion was that the person had been treated for alcoholism (Steinhausen et al., 1984). When the first criterion was not met, then the Diagnostic Criteria for Use in Research criteria for a probable or definite alcoholic was used (Feighner, Robins, Guze, Woodruff, Winokur, & Munoz, 1972). Parents who did not meet the criteria for either probable or definite alcoholic but who had one or more symptoms in only one of the four criterion groups were considered together with the children of parents who fulfilled the criteria for either definite or probable alcoholics (Martin, R.L., Cloninger, C. R., & Guze, S. B., 1985).

Drug-Dependent Person. According to Feighner's (Feighner et al., 1972) criteria a person who manifested at

least one the following symptoms: a history of withdrawal symptoms, hospitalization for drug abuse or its complication, or indiscriminate prolonged use of central nervous system active drugs.

Maladjustment. A score of 60 or less on Axis V, the Global Assessment of Functioning Scale (GAF Scale) in the DSM-III-R.

Non-substance Abuser. A person without a present or past history of psychoactive substance abuse.

Parent. The biological parents, step-parents, adoptive parents, guardians, or custodial grandparents.

METHOD

This was an archival study and only the information contained in the clinic's files was used to answer the research questions. The clinic is a United Way Agency located in Fort Worth, Texas. Each year the clinic provides services to between 3,000 and 4,000 children in Tarrant County who have serious developmental, emotional or behavioral problems. Fees for services are determined on a sliding fee scale based on income.

Measures

The child's level of functioning was assessed using the Global Assessment of Functioning Scale (GAF scale) Axis V of the DSM-III-R. Licensed and certified psychologists were instructed to rate the child's highest level of functioning at the time of evaluation based on DSM-III-R criteria from

information contained in the child's clinic record (see Appendix A). Reliability for Axis V was reported as .80 for joint interviews and .69 for separate interviews for the DSM-III field trials (Spitzer & Forman, 1979). Subsequent reliability studies reported reliability correlations lower than those of the DSM-III field trials. Later studies' interclass correlations were .58 (Rey, Plapp, Stewart, Richards and Bashir, 1987), .61 (Mezzich, Mezzich and Coffman, 1985) and .49 (Fernando, Mellso, Nelson, Peace, & Wilson, 1986).

The types and severity of the children's school behavior problems were measured by the Problem Rating Form (see Appendix B) completed by the child's school. The problem rating portion of the form asks the teacher to rate the student's behavioral problems on a scale of 1 (meaning no problem) to 4 (meaning a severe problem). The child's score was the summation of the severity ratings on the Problem Rating Form.

Family Adversity (FAI) was measured by an adaptation of Rutter's Family Adversity Index (Rutter & Quinton, 1977; Rutter & Quinton, 1984). Rutter's original index included the following: (1) marital discord, (2) parental criminality, (3) father in unskilled job, (4) paternal-child separation, (5) a maternal mental illness, and (6) four or more children in the family. Subjects were considered at risk if two or more risk-factors were present. Rutter &

Quinton (1984) used a similar family adversity index in a later study except for the following changes: criminality or mental illness of either parent as a risk-factor and head of household in low skill job instead of father in unskilled job. The child's score on the Family Adversity Index was the summation of each risk-factor present. In the present study the factors included were as follows:

Marital discord/divorce. This risk-factor was scored as present when the child's clinic file indicated either marital problems or divorce.

Parent-child separation. This was scored as present when the child's clinic file indicated that the child has ever been placed in surrogate care for a period of at least a week.

Parental mental illness. This risk-factor was scored as present when the child's clinic file indicated that a parent had ever suffered from a mental illness.

Parental criminality. This risk-factor was scored as present when the child's clinic record indicated that a parent had a history of criminal behavior.

Low socioeconomic status. This risk-factor was considered present when the child's clinic record and Child and Family Information Form indicated a score of 29 or less on the Hollingshead Four Factor Index of Social Status (Hollingshead, 1975). The Four Factor Index bases the family's socioeconomic status on occupation, years of

schooling, sex and marital status. Hollingshead reported a .927 coefficient of correlation between the nine-step occupational scale of the National Opinion Research Center and occupations on his index.

Subjects

Subjects were 83 boys age 6 to 12 from an out-patient child clinic. The criteria for selection was that the child was male, between 6 and 12 years of age and clinic records indicated that his mother had not abused drugs or alcohol during her pregnancy. In addition to the age and sex criteria, subjects included in the two groups of children of substance abuse parents had to have an indication in their records that a parent had abused drugs or alcohol. Presenting problems of the sample are listed in Table 1.

The three groups were composed of 11 children of alcohol-dependent parents, 40 children of drug-dependent parents and 32 children of non-substance abuse parents. There was no significant difference in age between the three groups. Refer to Table 2 for a description of the three groups.

Of the 51 children of substance-abuse parents, only 11 parents abused alcohol exclusively. Six of the eleven alcohol-dependent parents fulfilled the criteria for either definite or probable alcoholic. The five parents who did

Table 1

Presenting Problems of Children Classified by Parental
Substance Abuse

Presenting Problem	Drug	Alcohol	Non-substance Abuse
	<u>n</u>	<u>n</u>	<u>n</u>
Academic Problem	10 (25.0%)	5 (45.5%)	8 (25.0%)
Attention Problems	13 (32.5%)	4 (36.4%)	18 (56.3%)
Behavior Problems	8 (20.0%)	0	1 (3.1%)
Family Turmoil	1 (2.5%)	0	0
Firesetting	1 (2.5%)	0	0
Hyperactive	3 (7.5%)	0	0
Poor Language Production	0	1 (9.1%)	0
Withdrawn	0	1 (9.1%)	0
Developmental Delay	0	0	1 (3.1%)
Missing Data	4 (10.0%)	0	4 (12.9%)

not meet the criteria manifested definite alcohol-related problems but did not have symptoms in more than one of the four criterion groups. In the present study children of parents who fulfilled only one of the criteria for

Table 2

Demographic Characteristics of Children Classified by
Parental Substance Abuse

	Drug	Alcohol	Non-substance Abuse
Age (yrs. and mo.)			
mean	8-6	8-11	9-0
SD	1-9	2-0	2-2
Ethnicity	<u>n</u>	<u>n</u>	<u>n</u>
Black	7	0	4
White	30	10	26
Hispanic	3	1	2

alcoholism were considered together with the children of parents who fulfilled the criteria for either definite or probable alcoholic. Of the 40 drug-dependent parents, 25 abused both drugs and alcohol, therefore the drug-dependent group and the alcohol group were confounded. All of the drug-dependent parents fulfilled the Feighner criteria for drug-dependent. Refer to Table 3 for the diagnostic criteria met by the parents.

Table 3

Diagnostic Criteria for Parental Substance Abuse

Criteria	Number of Parents Meeting Criteria
Alcoholism	<u>n</u>
1 or more symptoms in 1 group	5
2 symptoms in 2 different groups	2
3 symptoms in 3 different groups	1
Received treatment for alcoholism	3
Drug Dependent	
1 symptom	31
2 symptoms	2
Received treatment for drug-abuse	7

Procedure

None of the subjects were seen by the investigator and only the information contained in their clinic files was examined. Cases admitted between January 1, 1991 and May 31, 1992 were examined in order of admittance for evidence of either parental drug-dependence or alcoholism. A total of 83 records were screened by the author and given to clinicians to make the diagnosis of parental substance abuse. Licensed and certified psychologists made the diagnosis of parental alcoholism or parental drug-dependence

based on the Feighner criteria (1972); they also rated the severity of dependence from mild to severe based on DSM-III-R criteria for severity of psychoactive substance abuse (APA, 1987). Feighner et al. (1972) reported agreement on diagnosis ranging from 86% to 95% and validity, as determined by correctly predicting diagnosis at follow-up, as from 92% to 93%.

When respondents failed to answer questions on either the Child and Family Information Form or the Problem Behavior Form the missing data was coded with the mean for the data present. Three cases with missing values on the dependent variables Problem Behavior Score and GAF were deleted from the analyses when data was missing on the dependent variable used in that specific analysis.

Statistical Analyses

A power analysis (Cohen & Cohen, 1983) indicated that a sample size of 83 subjects was sufficient for the statistical tests chosen for this study. To test the hypotheses of between-group differences the data was subjected to one-way analysis of variance (ANOVA). The dependent variables were the children's scores on the GAF scale, children's scores on the Problem Rating Form, and the children's score of FAI. In addition regression analyses employing dummy coding designating the groups of children were performed to determine whether family risk-factors were more important than parental substance-abuse status in

determining the risk for maladjustment and behavioral problems in children. Scores from the GAF scale and Problem Rating Form were the dependent variables in the regression analyses. Regression variables were entered in the following steps: (1) Family risk-factors (FAI), (2) Parental substance abuse status.

Limitations

Possible Threats to Internal Validity

The first threat to validity involved the increasing number of substance abusers who abuse multiple drugs. Several researchers have reported on the tendency of drug-abusers to admit to only alcohol abuse when in fact later medical tests revealed the use of multiple drugs (Grant & Harford, 1990; Kaufman, 1982; Kaufman, 1976 Schmitz, 1991; Smart, 1991). Since this was an archival study it was impossible to verify the accuracy of the types of substances abused from information in the files. A second threat to internal validity concerns the School Problem Rating Form. The form's reliability has not been established. It is not known if respondents would answer the questions in the same way upon retest.

Possible Threats to External Validity

The population sampled included only those subjects who came for treatment. It is possible that these subjects and subjects' families may not be representative of families of substance-abusers who have not come in for treatment.

Consequently, results of this study must be considered tentatively generalizable to other populations, but may be representative only of populations that come in for treatment.

RESULTS

Hierarchical regressions were employed to determine if addition of information regarding parental substance-abuse improved predictions of child maladjustment and child behavioral problems beyond that afforded by differences in family adversity. Analyses were performed using SPSS Regression with an assist from SPSS Examine in evaluation of assumptions. Two cases with missing values on the dependent variables were excluded from the analyses.

Results of evaluation of the assumptions of normality of sampling distribution, linearity, homogeneity of variance, and univariate outliers were satisfactory. With the use of a $p < .001$ criterion for Mahalanobis distance no multivariate outliers among the cases were identified.

Hypothesis 1

Family risk-factors as measured by the FAI will be more important than parental substance-abuse status (either alcoholic parent or drug-dependent parent) in determining the risk for maladjustment and behavioral problems in children. This hypothesis was not supported. Family risk-factors (as measured by FAI) were not significant in predicting the risk for maladjustment or behavioral

problems. Nevertheless, the association between parental drug-dependence and behavioral problems was significant (see Table 5).

The first regression analysis was performed with Global Assessment of Functioning as the criterion variable and Family Adversity (FAI) and Parental Substance-Abuse Status as Predictors.

After step 1, with FAI in the equation, $R^2 = .005$, $F_{inc} (1, 80) = .43$, $p = .51$. The addition of parental alcohol-dependence to the equation on step 2 did not result in an increment in R^2 . After step 3, with parental drug-dependence in the equation, $R^2 = .088$, $F_{inc} (3, 78) = 2.50$, $p = .065$. R for the regression coefficient was not significantly different from zero, $R = .296$, $F = 2.50$, $p = .06$ (see Table 4).

The second regression analysis was performed with School Problem Score as the criterion variable and FAI and Parental substance-abuse status again serving as predictors.

Step 1, with FAI in the equation, $R^2 = .008$, $F_{inc} (1, 81) = .65$, $p = .65$. Again, the addition of parental alcohol-dependence to the equation on step 2 did not result in an increment in R^2 . After step 3, with parental drug-dependence in the equation, $R^2 = .112$, $F_{inc} (3, 79) = 3.32$, $p < .02$. After the entry of all independent variables into the equation R was significantly different from zero, $R^2 = .335$, $F (3, 79) = 3.32$, $p < .02$. The regression coefficient for

Table 4

Regression of Family Adversity and Parental Substance Abuse Variables on Global Assessment of Functioning

Variables	GAF (DV)	Drug	Alcohol	FAI	β (incremental)	sr^2
FAI	-.074	.511	-.050	.11	.005	
Alcohol	.045	-.375		-.08	.0	
Drug	-.275			-.36	.08	
Means	59.00	.476	.134	.427		
<u>SD</u>	8.75	.50	.34	.50		

$R = .30$ (nonsignificant)

$R^2 = .09$

parental-drug dependence was the only regression coefficient that was significantly different from zero. The 95% confidence limit for parental drug-dependence was 2.456 to 12.620 (see Table 5).

Hypothesis 2

There will be higher levels of child maladjustment as measured by the GAF scale in the children of drug-dependent parents than in either the children of alcoholics group or the children of non-substance abusing parents group.

Hypothesis 3

There will be higher levels of child maladjustment as measured by the GAF scale in the children of alcoholics

Table 5

Regression of Family Adversity and Parental Substance Abuse
Variables on Problem Behavior Score

Variables	Problem Behavior (DV)	Drug	Alcohol	FAI	β	sr^2 (incremental)
FAI	.089	.518	-.055		-.11	.008
Alcohol	.073	-.377			.22	.0
Drug	-.263				.40	.11*
Means	41.43	.482	.133	.434		
<u>SD</u>	9.45	.50	.34	.50		
<u>R</u> = .33						
<u>R</u> ² = .11						

* $p < .01$

parents than in the children of non-substance abusing parents.

Hypotheses 2 and 3 were supported in part. One-way analysis of variance revealed that children of drug-dependent parents differed significantly in terms of maladjustment, as measured by GAF, from children of parents who were not substance-abusers, $F(2, 79) = 3.42, p < .05$. Although the drug-dependent group differed from the nonsubstance abuse group, the Tukey HSD Post Hoc test

revealed that the two substance abuse groups did not significantly differ from each other (see Table 6).

Table 6

Mean Global Assessment of Functioning (GAF) of Children
Compared by Parental Substance Abuse

	<u>M</u>	<u>SD</u>
Parental Drug-dependence		
GAF score	56.49	8.41
Parental Alcoholism		
GAF score	60.00	5.50
Parental Nonsubstance Abuse		
GAF score	61.72	9.36

Hypothesis 4

There will be a significant difference in the severity of child behavioral problems as measured by the Problem Rating Form in the children of drug-dependent parents than in either the children of alcoholics group or the children of non-substance abusing parents.

Hypothesis 5

There will be a significant difference in the severity of child behavioral problems as measured by the Problem Rating Form in the children of alcoholic parents than in the children of non-substance abusing parents.

Hypotheses 4 and 5 were supported in part. Children of drug-dependent parents scored significantly higher than the children of non-substance abuse parents on a measure of child behavioral problems, $F(2, 80) = 4.64, p < .01$. The Tukey HSD Post Hoc test revealed that the drug-dependent group was significantly different from the non-substance abuse group. There was no significant difference between the alcohol-dependent group and the drug-dependent group (see table 7).

Hypothesis 6

There will be a significant difference in the number of family risk-factors faced by the children of drug-dependent parents as measured by FAI than in either of the other two groups.

Hypothesis 7

There will be a significant difference in the number of family risk-factors faced by the children of alcoholic parents as measured by FAI than in the children of non-substance abusing parents group.

Both hypotheses 6 and 7 were supported. Children of drug-dependent parents tended to be exposed to a greater number of family risk-factors as measured by FAI, followed by children of alcohol-dependent parents. Children of nonsubstance abuse parents had fewer risk-factors than either of the other two groups, $F(2, 81) = 30.53, p < .01$.

According to results of the Tukey HSD all three groups significantly differ from each other (see Table 8).

Table 7

Mean Problem Behavior Score of Children Compared by Parental Substance Abuse

	<u>M</u>	<u>SD</u>
Parental Nonsubstance Abuse		
Problem behavior score	37.63	9.21
Parental Alcoholism		
Problem behavior score	41.00	11.00
Parental Drug-dependence		
Problem behavior score	44.00	8.36

Table 8

Mean Family Adversity Index Score of Children Compared by Parental Substance Abuse

	<u>M</u>	<u>SD</u>
Parental Nonsubstance Abuse		
Family Adversity Index score	1.06	1.11
Parental Alcoholism		
Family Adversity Index score	2.18	0.98
Parental Drug-dependence		
Family Adversity Index score	3.00	1.02

DISCUSSION

The present study examined the relationship among parental alcohol-dependence, parental drug-dependence, and family adversity and their association with child maladjustment and behavioral problems. The study's main finding was that children of alcohol-dependent parents and children of drug-dependent parents were equally at risk for maladjustment (as measured by GAF) and school behavioral problems (as measured by Problem Rating Score).

Similar to other studies the present study found that the children of both the the substance abuse groups experienced more adverse family environments than the children of nonsubstance abuse parents (Rubio-Stipec et al., 1991; Moos & Billings, 1982; Moos & Moos 1984). However, the present study failed to confirm that the children of the two substance abuse groups were at greater risk for maladjustment and behavioral problems when both family adversity (as measured by FAI) and parental substance-abuse were present.

A possible explanation for the failure of family adversity to predict child maladjustment and behavioral problems might be that these children had learned to accommodate to family adversity. Unlike Rubio-Stipec's study (1991) in which an assessment of the family environment for the prior year was made, the present study assessed Family Adversity for the lifetime of the child.

Clinic records did not always reflect when an event happened during the life of the child. If family adversity had been assessed during the last year it is possible that it might have predicted maladjustment and behavioral problems in the children.

Another possible explanation for the failure of family adversity to predict child maladjustment and behavioral problems maybe because the population sampled was a clinic population. There was the possiblity that these subjects and subjects' families were not representative of families of substance-abusers who had not come in for treatment.

An incidental finding of the present study was the high number of substance abuse parents who were abusing at least one other drug. Sixty-two percent of those parents in the present study identified as drug-dependent also abused alcohol. Other drugs abused were amphetamines, opiates, cocaine, vicodin, cannabis and phencyclidine.

Methodological Issues

The present study has several methodological weaknesses. First, the diagnosis of either parental drug-dependence or parental alcoholism was made by clinicians based on information in the clinic record as well as the clinicians' personal recollections of the cases. The clinic intake form asked if a relative of the child was either an alcoholic or a drug abuser. The informant was required to check the item if appropriate and indicate the relationship

to the child. Because the clinic's primary focus was on the child, there was no systematic procedure for getting additional information about signs and/or symptoms of parental substance abuse. Because of the above reasons reliability of the parental diagnosis may have been severely compromised in the present study.

A second methodological weakness involves the validity and reliability of the Problem Rating Form. No reliability or validity study has been done on the instrument.

A third problem was that sixty-two percent of those parents identified as drug-dependent also abused alcohol. With the problem of overlapping drug and alcohol use it was impossible to separate out the effects of alcohol from effects of other drugs. The fact that parents in both substance abuse groups abused alcohol could account for the failure to find a difference between the two groups.

Implications

Findings from the present study indicate that parental alcoholism and parental drug-abuse are significant risk factors for child maladjustment and school behavioral problems. Although the children of drug-dependent parents and children of alcoholic parents experienced higher levels of family adversity, these risk factors were not strongly associated with child maladjustment or school behavioral problems. This lack of a strong association between maladjustment and family adversity may indicate that other

variables serve to reduce the effects of family adversity on child maladjustment. Although parental substance abuse is a risk-factor it may be only one of a number of risk-factors. A large amount of the variance is unexplained in the present study. Only 11% of the variance was explained by parental drug-dependence. Not every child who has a substance abusing parent develops behavioral problems or become maladjusted. The mechanism by which child maladjustment and behavioral problems are transmitted to children is not clearly known. Although parental substance has been associated with child maladjustment or behavioral problems, this does not mean that parental substance abuse leads to these problems. The fact that parental substance abuse often co-occurs with child maladjustment can not be taken as support that parental substance leads to problems in children. Recent research points to a complex interaction between the child's genetic/biological makeup, the child's psychological makeup, and environmental stressors as variables contributing to child maladjustment (Kumpfer, 1987). Further research should be done to try to identify the genetic/biological variables and psychosocial variables that may contribute to child maladjustment and behavioral problems. The identification of these variables might lead to formulation of an intervention that could play a role in prevention or treatment of these children.

Future studies of children of substance abuse parents can be improved methodologically by having clinicians and researchers utilize reliable diagnostic criteria for identification of children of substance abusers. Also more information needs to be collected regarding the types of drugs abused as current research indicates that a substantial number of substance abusers are poly- or concurrent-substance abusers. Future research should also investigate the increase in family adversity associated with poly- or concurrent-substance abuse and how these factors relate to child maladjustment.

The children in the present study were from a clinic population and therefore may not be representative of children of substance abusers in the general population. It is possible that children from the clinic population may have had more severe problems than might be found in the general population. Nevertheless, the present study confirms what has been found by other researchers. That is, that children of substance abusers are more likely to be maladjusted and to have behavioral problems. Future studies should include samples of children from both the general population as well as children from the clinic population so that the two groups could be directly compared.

APPENDIX A
INSTRUCTIONS FOR RATING GAF

Instructions for Rating GAF

We would like your help in determining the level of functioning of each child based on the information contained in the clinic record. Ratings are to be made based only on information in the clinic record using the criteria for rating Global Assessment of Functioning (GAF scale) in the DSM-III-R. Please rate the level of functioning at the time of the evaluation and do not discuss your rating with anyone else.

APPENDIX B
PROBLEM RATING

Problem Rating

For each question that follows, circle the number which describes the child's functioning. If the child has a moderate or severe problem, please provide a brief comment about the child's behavior.

Problem Rating: No Problem 1, Mild Problem 2, Moderate Problem 3, Severe Problem 4

1. Does child have problems with attention? (1 2 3 4)

2. Is child distracted? (1 2 3 4)

3. Does child act or speak before thinking?

(Impulsive) (1 2 3 4)

4. Does child have trouble sitting still? (1 2 3 4)

5. Is child disruptive in classroom or on playground?

(1 2 3 4)

6. Does child have difficulty waiting his turn in group activities? (1 2 3 4)

7. Does child need a lot of one-to-one attention/supervision?

(1 2 3 4)

8. Does child have difficulty organizing and/or keeping up with school work or material? (1 2 3 4)

9. Does child complete/turn in homework assignments?
(1 2 3 4)

10. Does child respond well to discipline? (1 2 3 4)

11. Does child have physical limitations or coordination problems? (1 2 3 4)

12. Does child have excessive physical complaints? (1 2 3 4)

13. Does child get tearful, appear sad or withdrawn more than others his age? (1 2 3 4)

14. Does child seem to understand and follow instructions?
(1 2 3 4)

15. Does child have problems expressing thoughts or speaking clearly? (1 2 3 4)

16. Does child have problems with attendance, truancy or tardiness? (1 2 3 4)

APPENDIX C
INSTRUCTIONS FOR DIAGNOSTIC CRITERIA

INSTRUCTIONS FOR DIAGNOSTIC CRITERIA

We would like your help in assigning cases to either children of alcoholics group or to children of drug-dependent group using the information contained in the child's clinic record and/or from your interview with the parents or parenting figure. If the either a parent or a parenting figure has been treated for alcoholism or drug-dependence no other criteria needs to be met to make the assignment to the appropriate group. In those cases where treatment is not indicated, please use the criteria below to make assignment. Please do not discuss your diagnoses with anyone.

Diagnostic Criteria

Alcoholism- Please indicate if the person manifested symptoms in at least one, two, or three of the symptom groups listed below. If the person had symptoms in at least one group please rate the severity as following:

Mild: Please rate mild when there is impairment in occupational functioning or in usual social activities or relationships with others.

Moderate: Please rate severity moderate when impairment is between mild and severe.

Severe: Please rate severe when symptoms markedly interfere with occupational functioning or with usual social activities or relationships with others.

Alcoholism

A. Group One: (1) Any manifestation of alcohol withdrawal such as tremulousness, convulsions, hallucinations, or delirium. (2) History of medical complications, e.g. cirrhosis, gastritis, pancreatitis, myopathy, polyneuropathy, Wernicke-Korsakoff's syndrome. (3) Alcoholic blackouts, i.e., amnesic episodes during heavy drinking not accounted for by head trauma. (4) Alcoholic binges or benders (48 hours or more of drinking associated with default of usual obligations: must have occurred more than once to be scored as positive).

B. Group Two: (1) Patient has not been able to stop drinking when he wanted to do so. (2) Patient has tried to control drinking by allowing himself to drink only under certain circumstances, such as only after 5:00 PM, only on weekends, or only with other people.

(4) Drinking nonbeverage forms of alcohol, e.g. hair oil, mouthwash, Sterno, etc.

C. Group Three: (1) Arrests for drinking. (2) Traffic difficulties associated with drinking. (3) Trouble at work because of drinking. (4) Fighting associated with drinking.

D. Group Four: (1) Patient thinks he drinks too much. (2) Family objects to his drinking. (3) Loss of friends because of drinking. (4) Other people object to his drinking. (5) Feels guilty about drinking.

Drug Dependence (Excluding Alcoholism)- This diagnosis is made when at least one of the symptoms listed below are present.

- A. History of withdrawal symptoms.
- B. Hospitalization for drug abuse or its complication.
- C. Indiscriminate prolonged use of central nervous system active drugs.

If the person had at least one symptom please rate the severity of drug-dependence from mild to severe using the same criteria as that for rating severity of alcoholism.

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