This is to certify that the

thesis entitled

Patterns of Adaptation Among Drug

and Non-drug Involved Alcoholic Males

presented by

Fernando Gonzalez

has been accepted towards fulfillment
of the requirements for

Masters degree in Clinical Psychology

Major professor

Date 11/11/91

DATE DUE	DATE DUE	DATE DUE
JUN 1 8 1994		

PATTERNS OF ADAPTATION AMONG DRUG AND NON-DRUG INVOLVED ALCOHOLIC MALES

By

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A THESIS

Submitted to
Michigan State University
In partial fulfillment of the requirements
for the degree of

MASTERS OF ARTS

Department of Psychology

1991

ABSTRACT

PATTERNS OF ADAPTATION AMONG DRUG AND NON-DRUG INVOLVED ALCOHOLIC MALES

BY

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This study examines the characteristic psychological and demographic differences between drug-using and non-drug-using alcoholics in a systematically drawn, nonclinical sample of males from initially intact families. Alcoholic males in the study varied in the extent to which they were involved in drug use, and were categorized into one of three groups; Drug Abusing Alcoholics (DAA), Alcoholism plus Sub-Clinical Drug Use (ASCD) and Alcoholics without Drug involvement (ALC). DAAs reported the highest rates of antisocial behavior, depression, alcohol related problems and hassles and reported the lowest levels of mental health, global functioning, socio-economic status, education and income. ASCDs were more similar to the ALC group than to DAAs. Controls were the direct opposites of DAA suggesting a continuum with respect to substance use. There were no significant differences between groups for social support, uplifts and current age. Age of first drink and drug use were found to be inversely related to extent of current drug use.

To Chris, without whose help and support none of this would ever had been possible.

ACKNOWLEDGEMENTS

I want to express my gratitude to Robert A. Zucker for his guidance, support, and contribution to this work.

I want to express appreciation to my other committee members, Hiriam E. Fitzgerald, and Thomas M. Reischl, for their support, time, helpful comments and suggestions.

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Introduction

In reviewing the literature on conjoint alcohol and drug abuse from 1925 to 1972, Freed (1973) concluded that approximately 20% of alcoholics use at least one other addictive drug. Carroll, Malloy and Kendrick's (1977) later review of the literature reported the percentage of drug-abusing alcoholics as between 60 and 80%. Helzer, Burnam, and McEvoy (1991) found that 22% of individuals abusing or dependent on alcohol also made a drug diagnosis. Multiple substance abuse patterns have been associated with significant harmful medical and social sequelae sufficient to warrant concern (Carrol, Malloy, & Kendrick, 1980). Tuchfeld (1975) reports that, as a group, alcoholics involved in nonmedical or illicit drug abuse have lower rates of retention in alcoholism treatment programs than do their non-drug using counterparts.

Early literature on substance abuse treatment addressed the issue as either exclusively drug or alcohol-oriented; the concurrent use of drugs and alcohol was rarely addressed. Historically, the management of funds for research and treatment at the federal, state, and local level has been channeled through two federal agencies: the National Institute on Drug Abuse (NIDA), and the National Institute on Alcoholism and Alcohol Abuse (NIAAA). The NIAAA funds research on alcoholism and the NIDA funds research on drugs. Except for the few studies addressing the prevalence of conjoint drug and alcohol use, research in the field of substance dependence has tended to remain segregated along substance specific lines (Carroll, Malloy, & Kendrick, 1980). Because of limitations imposed by inadequate definitions, non-uniformity of terms and other methodological problems, past studies have often been difficult to interpret.

The present study examines the characteristic psychological and demographic differences between non-drug-using alcoholics (NDUA) and drug-using alcoholics (DUA) on the following dimensions: intelligence, social support, coping skills, social competence, depression, and anti-

social behavior. Subjects for the study are drawn from an ongoing, population-based longitudinal study of alcoholic families.

If the purpose of research in the field of drug and alcohol abuse is ultimately prevention and/or treatment, an understanding of the etiology of the problem is essential. Though researchers have reached a consensus that the etiology of substance abuse disorders is a complex and multidimensional process, a number of important questions remain. First, what characteristics differentiate NDUAs from DUAs? Can knowledge of these characteristics facilitate our understanding of how these differences originated? In turn, can such an understanding be used to facilitate intervention and/or treatment strategies? Fourth, what are the special treatment needs of DUAs? Numerous theories and models have been developed, but most have limited predictive value because of the interactive nature of the sequence of events leading to substance abuse. In the following review of the literature, substance abuse will be addressed as a biopsychosocial process (Zucker & Gomberg, 1986).

Much of the research follows from Kurt Lewin's (1951) equation B = f(P,E), whereby behavior is a function of person and environment. Using this framework, researchers have attempted to identify the causes of drug use by studying sociodemographic characteristics as well as the intrapersonal and interpersonal domains of drug users (Kandel, 1978). The work of Kandel and Faust (1975) and Kandel (1978) clearly established that alcohol use in adolescence precedes use of marijuana in the progression of drug involvement. Alcohol use may or may not progress to other drug involvement; but when it does, the typical sequence is beer and/or wine, followed by cigarettes, hard liquor, marijuana, problem alcohol use, and then the use of other harder drugs (See Figure 1).

On the basis of the sequence, it stands to reason that adult DUAs will have been more involved with marijuana in their teenage years than

NDUAs. Given that drug use typically begins during adolescence, this sequential continuum suggests that if an individual has problem alcohol use as an adult, they will have already moved through marijuana use in earlier years, and that if the individual is using only marijuana and alcohol in a non-problem way as an adult, they have probably initiated marijuana use later than has the DUA adult.

Figure. 1

The Continuum of Involvement with Drugs and Alcohol

ALCOHOL------>MARIJUANA------>PROBLEM DRINKING------>HARDER DRUGS

Adapted from Kandel, D. (1975). Stages in Adolescent Involvement in drug use. Science, 190, pp. 912-914. and Donovan, J. & Jessor, R. (1983). Problem Drinking and the dimensions of involvement with drugs: A Guttman Scalogram Analysis of Adolescent drug use. American Journal of Public Health, 73, pp. 543-552.

However, closer examination of these phenomena reveals a more complex, multifaceted dynamic that is only partially explained by the simple observation of drug sequencing. The next step is to understand the factors that contribute to or insulate the individual from progressing or continuing to harder drugs.

Although regular drug use is usually considered a problem manifestation and experimentation a normative behavior in our society, research on substance abuse is often fused with research on substance use. In the literature, onset and early use are both markers of level of involvement, but each phenomenon (onset, early use, and level of involvement) should be examined independently of the other. In addition, the adolescent data suggests that marijuana use is a more difficult marker to track because it may or may not be succeeded by problem alcohol use.

THE ADOLESCENT LITERATURE ON ONSET AND PROGRESSION

As background for understanding possible developmental antecedents for DUAs and NDUAs, the following review will address factors contributing to both problem alcohol use and marijuana use in adolescence. Marijuana, by far the most extensively used illicit drug, is the ideal agent for a study of factors leading to substance abuse. According to NIDA's 1985 National Household Survey, almost 62 million Americans, approximately one-third of the population over the age of twelve, have tried marijuana. Accordingly, rates of alcohol use are substantially higher. Fifty-five percent of the 12-17 age group, over 92% of the 18-34 age group, and 88% of the population 35 and older have tried alcoholic beverages at some time in their life (NIDA, 1985). Most research on marijuana use focuses on at-risk populations, allowing investigators to collect information on drug users in their natural settings prior to onset of use, and includes built-in comparison groups of non-users (Kandel, 1978).

Possibly the most stable and clinically important demographic factor correlated with marijuana use is age (Robins & Przybeck, 1985). Initial experimentation with tobacco, alcohol, marijuana and other illicit drugs occurs primarily during adolescence (Johnston, Bachman, & O'Malley, 1981; Kaplan et al., 1987). Studies of high school populations indicate that one-half of the polled senior classes have experimented with marijuana and/or used drugs regularly. Kaplan et al. (1986) also observe that age of onset "reflects earlier weakening of social control and involvement with delinquent peers, increasing both the opportunity and motivation to try marijuana and then to escalate use" (pp. 57). According to Kandel's (1980) review;

> Peak use of alcohol and illicit drugs occurs just when youths are entering young adulthood and must make commitments regarding family and work roles. Rates of use decline in the subsequent years as individuals become more fully established in these roles"(p.249).

Sherman, Chassin, Presson, and Olshavsky (1979) note that researchers focus on the causes of substance abuse among adolescents to construct more effective intervention programs. Zucker and Noll (1987) argue that if our understanding of acquisition and involvement phenomena is to be complete, the developmental frame of reference for drug use must be extended backward in time to considerably earlier periods of childhood. In a longitudinal study following subjects from preschool through age 18, Shedler and Block (1990) found that "problem drug use is a symptom, not a cause of personal and social maladjustment" and that "the meaning of drug use can be understood only in the context of an individual's personality structure and developmental history"(p.612). To date, the use of adolescent respondents has dominated research. Few studies include parent and adolescent peers, and an even smaller number address pre-adolescents.

Reporting on a five-year study of 2,249 high school and junior high school students using self-report and peer ratings, Smith and Fogg (1978) describe the following behavior patterns as good predictors of marijuana use: does not work hard and effectively; is not ambitious; exhibits low intellectual maturity; does not strive for achievement. Typically, nonusers achieve higher grade point averages than users. Johnston et al.'s (1988) study of high school seniors indicates that "college-bound" seniors display lower rates of illicit drug use than students not expecting to attend college. Multiple studies report that low grades and low attendance rates precede involvement with marijuana (Gold, 1989; Jessor & Jessor, 1977; Johnston, O'Malley & Eveland, 1978; Kandel, 1978; Kandel et al., 1978; Peterson, 1984; and Smith & Fogg, 1978). What is consistently evident from this research is that earlier marijuana involvement is associated with poorer achievement related behavior.

Attitudes, beliefs, and expectations about drugs also play a role in their use. Kandel (1978) notes that "a constellation of attitudes

and values favorable to deviance precedes involvement in illicit drugs"(1978, p. 23). This "constellation of favorable attitudes and values" represents reduced constraints on deviant behavior. Kandel et al. (1978) found that for adolescents, personal beliefs and values and peer influence are the most important class of predictors, with beliefs and attitudes accounting for 26% of the variance in initiation to marijuana.

Interpersonal Factors

Following from the contention that drug use is a cultural and societal phenomenon, Botvin and Willis (1985) posited that during adolescence "individuals typically experiment with a wide range of behaviors and lifestyle patterns as part of the natural process of separating from parents, developing a sense of autonomy and independence, and acquiring some of the skills necessary for effective functioning in the adult world" (p. 10).

To date, research on correlates and predictors of substance use has emphasized interpersonal determinants, particularly peer and parental influences (Chassin, 1984). In a review of the literature, Kandel (1978) cites peer influences as the most important predictors of adolescent drug use, with parental influences exercising differential effects depending on the stage of use. Two distinct social learning processes are posited to underlie the interpersonal influences and individual changes contributing to drug use (Kandel 1978; Kandel & Andrews, 1978, Kandel et al., 1977):

1. Social Reinforcement - when individuals respond to what significant others define as appropriate behaviors and values concerning a specific subject.

2. Imitation or modeling - when individuals model their behavior on the behavior of valued others.

Marijuana use closely parallels the use of marijuana by friends and siblings (Pennings & Barnes, 1982). Adolescents are unlikely to use marijuana if their friends do not, and users report that their behavior

is supported by friends (Jessor & Jessor, 1977). However, Pennings and Barnes (1982) found that substance users may overestimate similarity in friends' attitudes and behavior. Smith et al. (1985) observe that adolescent marijuana users have an average core network of 5.8 individuals with whom they use marijuana, suggesting that adolescents use marijuana as a social drug with their pattern of substance use depending on the others present. Although the results of the study by Smith et al.(1985) were significant, the small sample size of only 16 makes the representativeness of the findings questionable.

Weber, Graham, Hansen, Flay, and Johnson (1989) suggest that there are two types of substance abusers. Their study explores the "possibility that adolescents classified as having a problem behavior prone orientation (Type II) are predisposed to more rapid alcohol use onset than normally socialized (Type I) adolescents."(Weber et al., 1989, p.399) To explain the Type I abuser, Weber et al. refer to Huba, Winguard and Bentler (1978, 1980) and their argument that "previous substance use", the existence of social support systems, and drug availability are sufficient to explain substance use transition (Weber et al., 1989, p. 400). To explain Type II, they draw from Jessor and Jessor's Problem Behavior Theory (1977, 1980), whereby adolescent substance use is defined as "one type of an overall pattern of 'deviant' behavior such as early sexual experience, rebelliousness, stealing, and so on" (Weber et al, 1989, p. 400). Weber et al.'s findings support the hypothesis that there are two distinct pathways to substance use: one initiated by normally socialized adolescents and governed more heavily by interpersonal processes, and a second initiated by individuals prone to problem behavior.

Research indicates that early parental socializing influences contribute to early use patterns and the overall variance of onset. Children can learn cultural drinking norms and identify alcohol by sight and smell as early as 30 to 72 months of age (Zucker & Noll, 1987).

Research indicates that relative to its influence during later stages, parental modeling plays a stronger role at the initiation phase of drug use (Kandel & Andrews, 1987).

Prendergrast (1974) reports that parental drug-related attitudes, the quality of attachment in the child-parent relationship, and direct modeling effects all influence later use. Surveying 3,000 high school and junior high school students, Akers, Krohn, Lanza-Kaduce, and Radosevich (1979) observe that marijuana use is more common among adolescents who perceive their parents as adopting either extremely lenient or extremely punitive reactions to drug use. This is a pattern also commonly found among children who are socialized into more delinquent modes of adaptation (Glueck & Glueck, 1950).

It is generally acknowledged that a positive, functioning familial environment has insulating effects on adolescent deviance (Pennings & Barnes, 1982). Pennings and Barnes also note that regular marijuana users regard their families as less salient, less loving and more hostile. Jessor and Jessor (1977) found that a perception of lack of parental support is characteristic among deviance-prone adolescents. Dembo, Allen, Farrow, Schmeider and Burgos (1985) observed that adolescents who felt closer to their families identify less with drug-using adolescents and exhibit more positive attitudes toward school. Kandel et al. (1978) report that quality interaction with a father has greater importance for drug use than quality interaction with a mother.

The adolescent literature indicates that peer and parental influences coupled with one's own sense of self-worth, interact to either increase or decrease the probability of drug use. Having a general notion of what the antecedents or predictors of drug use may be, the next step is to try to understand the process by which an individual goes from legal substances such as cigarettes and beer to harder drugs and/or problem alcohol use.

Developmental Sequencing

Denise Kandel (1975; Kandel & Faust, 1975) bases her developmental model of drug involvement on a Guttman scale analysis of data from a longitudinal study of New York high school students. According to Kandel, five distinct developmental stages exist in the progression from legal to illegal drug use: (1) no use of any drug (2) beer and wine, (3) cigarettes or hard liquor, (4) marijuana, and (5) illicit drugs other than marijuana. Analyses were replicated on two different cohort samples (N = 5,468 and 985), and the data demonstrated that marijuana is a "necessary" pre-condition of later use of illicit drugs such as heroin and cocaine.

Yamaguchi and Kandel (1984) conducted follow-up interviews with 24-25 year-olds initially interviewed nine years earlier as 10th and 11th graders. They concluded that:

> For men, the pattern of progression is one in which the use of alcohol precedes marijuana; alcohol and marijuana precede other illicit drugs; and alcohol, marijuana and cigarettes precede the use of prescribed psychoactive drugs. Eighty-seven percent of men (87 percent not by chance) are characterized by this pattern.

Cohen (1981) and O'Donnel and Clayton (1982) corroborated Kandel's interpretations. Work by Donovan and Jessor (1983) adds to the progression, suggesting "that problem drinking may be seen as yet another step along an underlying dimension of involvement with both licit and illicit drugs" (p.543). Donovan and Jessor also posit that excessive use of licit drugs such as problem drinking is more indicative of drug involvement than marijuana use.

In reviewing the literature, Donovan and Jessor cite research by Single, Kandel and Faust (1974), O'Donnel, Voss and Clayton (1976), and Sinnet, Wampler and Harvey (1972), all demonstrating that a respondent's drug-using repertoire can be summarized by simply knowing the most "extreme" drug ever used.

> At each stage along this developmental dimension of drug involvement, use of drugs characteristic of that stage is accompanied by past as well as current experience with all the drugs marking the preceding stages of drug involvement. Use of the 'harder' drugs did not result in the substitution of these drugs for the drugs used earlier. Rather, the use of the harder drugs involved greater use of all categories of drugs (Donovan & Jessor, 1983, p.544).

Individuals using less common or prevalent drugs tend to have more experience with more commonly used drugs. The progression into illicit drug use can be seen as a pathological progression. The further one progresses, the more troubled the adaptation and the larger the field of complications.

Dealing with the issue of drug use should be viewed as a developmental task confronting the contemporary adolescent (Jessor, 1983). Focusing on the onset of drinking in adolescence, Jessor and Jessor (1975) describe it as "an age-graded, normatively regulated, transition-marking behavior." (p.31) In a follow-up study tracing subject development into young adulthood, the trend was away from problem drinking and back to conventionality in psychosocial variables (Donovan, Jessor & Jessor, 1983). Those classified as problem drinkers as adults had less involvement in school and church and fewer positive role models and were generally more prone to deviant behavior. These trends level off during the college years and revert back toward the direction of greater conventionality during the third decade in life (Donovan, Jessor & Jessor, 1983). Shedler and Block (1990) followed 101 subjects from preschool through age 18 and found that individuals who engaged in drug experimentation were the best adjusted individuals in the sample. In contrast, those subjects who used drugs frequently were maladjusted, displaying symptoms such as poor impulse control, interpersonal alienation, and manifest emotional distress. Surprisingly, subjects who by the age of 18 had never experimented with drugs were relatively anxious, emotionally constricted, and lacking in social skills. Experimentation and use are viewed as normative in

adolescence, with expectations that the individual will return to conventionality. Continuation or escalation of substance use can be viewed as non-normative development, and the prevailing evidence is that it is linked to greater levels of corollary psychopathology.

Non-normative development has been researched using at-risk populations and longitudinal studies. In reviewing longitudinal etiologic evidence, Zucker and Gomberg (1986) note the following cross-study commonalities: childhood antisocial behavior is consistently related to later alcoholic outcome; males who later become alcoholics are more loosely tied to others interpersonally; heightened marital conflict is reported with consistently greater frequency in pre-alcoholic homes; parent-child interactions in pre-alcoholic homes is characterized by inadequate parenting and the child's lack of contact with the parent(s); parents of pre-alcoholics are more often inadequate role models for later normality; parents of pre-alcoholics are more likely to be alcoholic, antisocial, or sexually deviant.

Though the majority of research on the etiology and development of substance abuse disorders has focused on adolescent populations, few studies have made the link projecting these findings to future patterns of use and dysfunction as adults. Using longitudinal data, Pandina, Labouvie, Johnson and White (1990) examined the predictive power of baseline and changing intensities of substance use on personal and social competence and the ensuing effect of changing levels of social competence on subsequent substance use. Data on 1308 youth at ages 12, 15 or 18 was collected and the youth were retested three years later. Pandiva et al.'s findings indicate that heightened levels of substance use are likely to perpetuate dysfunction across time, especially when substance use begins between the ages of 12 and 15. "In turn, the perpetuation of deficits in competence is likely to maintain drug use"(p.89).

On the basis of these data as well as theory, it is reasonable to

posit that the use of drugs during adolescent years negatively affects an individual's life trajectory by retarding development of personal and social competencies. Deficits in personal and social skills may subsequently lead to weakening of social controls and involvement with delinquent peers, increasing the number of role models, opportunity, and motivation for further substance use and thus leading to poorer adaptation as young adults and thereafter.

Age

In reviewing the literature on initiation into drug use, Kandel (1978) concludes that later age of onset is related to a greater likelihood of stopping and that the period of highest risk is age 18-22. In a survey of 1,012 university males, Schuckit and Russel (1983) report "that age at first drink varied inversely with alcohol consumption and frequency of drinking, incidence of alcohol-related problems, and incidence of drug use and associated problems." (p.1221)

Multiple substance abuse among alcoholics correlates with youthfulness and is usually found in populations under 30. Carroll, Santos, and Kendrick (1980) report the average age of the alcohol abuser as 40, compared to the average age of 26 for multiple substance users. In a prospective longitudinal study tracing a nationally representative sample of seven cohorts, Menard and Huizinga (1989) conclude that substance use, like delinquent behavior, is subject to Maturational Reform effects. The study reported a peak at approximately age 20. Possible explanations of difference in age may include cohort or cultural effect or a maturational process.

Drug Use in Alcoholic Populations

Alcohol consumption increased throughout the 50's, 60's, and 70's, but since 1981 an apparent downturn has occurred. At the same time, substance use patterns, especially multiple drug use, have increased

(6th Special Report to Congress, 1987). The increased prevalence of multiple substance use, especially the combined use of alcohol and drugs, has caused concern in academic, medical and political communities, and a number of studies have examined patterns of prevalence and correlates.

Sokolow, Welte, Hyen, and Lyons (1981) report drug use by 44% of 1,340 surveyed clients in alcoholism rehabilitation units. Their research indicates that drug-using alcoholics are more likely to be behaviorally and physiologically impaired than non-drug-using alcoholics. Physiological impairment included: hangovers, numbness in hands or feet, dizziness, etc. The behavioral scale used in the survey consisted of questions concerning drinking alone, missing work, having a drink upon waking up, etc. Sokolow et al. concluded that multiple substance use is predictive of a poorer outcome after treatment and that alcoholism rehabilitation facilities should improve their assessment for these clients.

In a study of NIAAA-funded alcoholism treatment programs conducted by the Research Triangle Institute (RTI), clinicians interviewed by RTI reported that 30% to 60% of all clients used drugs as well as alcohol at the time of admission and half of those were suspected drug abusers (Tuchfeld et al., 1975).

Hasin, Grant, and Endicott (1988) report that 54.5% of their sample of patients in an alcohol rehabilitation unit were additionally diagnosed as having a history of drug use disorders. Drug use disorders were second only to Major Depression (66.7%). Individuals with a history of drug use disorders were on average much younger and had begun their alcoholism earlier than other patients. Nearly a third of the drug using sample had no friends or had no friends or relatives outside their household to whom they felt close. "Many of these subjects spent much of their time outside the home drinking with people they did not know well"(p.835). Subjects with drug histories reported missing more

days of work in the previous five years than non-drug-using alcoholics.

Gender, religion, marital status, and education did not differ significantly between those with and without lifetime diagnose of a drug problem. It should be noted, however that the use of clinical populations may skew the findings of some studies since the self-selection process by which individuals enter the hospital affects the representativeness of the samples. More affluent individuals may seek treatment earlier in the alcoholism continuum process than their less comfortable counterparts.

In a socio-medical comparison of drug abusing and pure alcoholics, Ashley et al. (1978) observed that, in addition to being younger, drug-abusing alcoholics are more isolated, more disaffiliated, and sicker than are pure alcoholics. Lifetime frequencies for neurological, genitourinary, respiratory, and locomotor types of illnesses are also higher among drug-using alcoholics.

The National Drug/Alcohol Collaborative Project (NDACP), jointly sponsored by the NIDA and NIAAA and conducted from 1974 through 1978, explored psychosocial and medical backgrounds of a sample of 1544 drug/alcohol abusers (Carroll, Santo, & Hannigan, 1980). Though the NDACP represents a unique exploration of multiple substance abuse and the population investigated was large and both geographically and racially diverse, the selection and screening methods used somewhat limit the study's generalizability. Since subjects were chosen through already funded programs and no attempts at randomization were made, the sample was not representative of any substance-dependent group in the country. The project was further limited by its operational definition of alcohol abuse. In initial screening, respondents were asked two questions: (a) "Have you ever had a drink?" and (b) "Have you ever been drunk?" Respondents who answer yes to both questions met inclusion criterion for the initial screening. Though problems with selection and screening methods limit applicability of the NDACP research, the study

is not without value. It represents a unique exploration--the first systematic attempt to study the concurrent use of alcohol and drugs on a grand scale.

Carroll and his colleagues' (Carroll et al., 1980) analysis of the data examined the following factors: family history, education, employment, criminality, family life as an adult, and social network characteristics. The data reveals "a population whose members experienced many medical and psychosocial problems" (p.47). Family problems started at an early age, with 76% reporting at least one major family problem while growing up. Divorce occurred in the families of 40% of the respondents at subject mean age of 7.8 years. Slightly more than one-fifth of respondents reported serious or chronic illness in the family. Parental drug abuse and alcoholism were reported in 12% and 35% of the families, respectively. Fifty-five percent of subjects did not complete high school. Over 40% began full-time employment before the age of 18 and tended to remain unskilled workers. Multiple substance abuse was associated with increased criminality, especially crime unrelated to substance use (e.g., burglary). "As adults, the subjects experienced stressful, problem-filled family or personal lives, much as they did as children" (p.49).

To evaluate the quality or strength of social networks, Carroll and his colleagues asked respondents to list three people they would turn to for help. Respondents cited mothers most often (28%). Only 18% identified spouses or children, and 10% listed three other substance abusers. Carroll et al.'s (1980) findings support work by Gilbert and Lombardi (1967) demonstrating that addicts lack stable and warm interpersonal relationships. As a further indication of this lack, Gilbert and Lombardi note that "attempted suicide was reported by 18 percent of the respondents, perhaps reflecting both chaotic internal states and the poor impulse control which is characteristic of individuals with serious drug involvement" (p.50).

The Epidemiological Catchment Area (ECA) study is the largest general population survey of psychiatric disorders ever conducted (Regiers et al., 1984). The study involved face-to-face interviews with over 20,000 respondents in five sites across the nation ranging from major cities to rural areas. Working with data from the ECA study, Helzer and Pryzbeck (1988) and Regier et al.(1990) note that substance use disorders account for a very high proportion of detected illnesses, with alcoholism being the most prevalent diagnosis and drug abuse/dependence third. Thirty-four percent of the ECA multi-site sample of approximately 20,000 respondents met lifetime criteria for a core diagnosis. Of those 34%, 32% had a secondary psychiatric diagnosis (Helzer and Pryzbeck, 1988). Alcohol abuse/dependence was the most common disorder and accounted for 13.5% of all core diagnoses, and drug dependence-abuse disorders accounted for 6.1% (Regier et al, 1990). Of those 13.5%, 36.6% had a secondary psychiatric diagnosis, thus demonstrating that alcoholics are more at risk for a secondary or double diagnosis than non-alcoholic individuals. Of respondents meeting the diagnosis of alcohol abuse/dependence, 21.5% had a drug diagnosis, and half of those met the diagnosis of drug abuse/dependence on one or more hard drugs. Substance use disorders were also found to be very highly associated with other non-substance disorders (Spearman r= 0.98). The study by Helzer and Prybeck (1988) demonstrates the high comorbidity rates between alcoholism and other psychiatric disorders. Compared to non-alcoholics, alcoholics are more likely to have a psychiatric diagnosis.

Recent analyses of the ECA study by Helzer, Burnam, and McEvoy (1991) examined other diagnoses associated with alcoholism. Higher rates of alcoholism were found among users of harder drugs, ranging from 36% of cannabis users to 62% of stimulant users and 84% for cocaine users. Other areas examined included antisocial behavior, education, marital status, occupation, and income.

The diagnosis most often associated with alcoholism in the clinical literature is depression (Hesselbrock et al., 1985), a diagnosis only moderately elevated among the general population of alcoholics. Helzer and his colleagues posit that due to their depression, depressed alcoholics are more motivated to seek treatment than drug abusing or antisocial personality alcoholics, and thus are more likely to be uncovered in studies of treatment populations.

Antisocial personality was found to be associated with alcoholism more than with drug abuse. Antisocial alcoholics have exceptionally early onset around 20 versus 24 years of age for non-antisocial alcoholics. Antisocial alcoholics also have a higher alcohol symptom count and longer duration of alcoholism. Some form of substance abuse was identified in 83.6% of individuals with antisocial personality (Regier et al., 1990).

Helzer et al. (1991) found that there is a downward trend in lifetime prevalence of alcoholism with higher levels of education. Surprisingly, the final level of educational attainment is not as important as whether an individual finished an educational program. College graduates followed by eighth grade and high school graduates had the lowest lifetime prevalence, while high school drop-outs had the highest.

Marital status was found to definitely be related to lifetime prevalence. The lowest lifetime prevalence (9%) was found among those with stable marriages, followed by the never married non-cohabitating (15%), then less stable marriages (16-24%) and the highest among those who cohabitate without marrying (30%).

The lowest one year current rate of alcoholism are found among professionals and managers with the highest among laborers. Additionally, there was an association between income and alcoholism, with fewer alcoholics among the well paid.

The ECA study is the most definitive epidemiological study on

alcoholism, assessing alcoholism on a large population using objective definitions agreed upon for use by both researchers and clinical practitioners (Helzer, Burnam & McEVoy, 1991). The ECA study also allows the study of the structure of alcoholism and associated consequences.

Statement of Problem

The literature shows that a substantial subset of alcoholics also use and/or abuse drugs. Though significant evidence suggests that drug-using alcoholics are more damaged psychologically, socially, and medically than NDUAs, current research offers no clear explanation for the differences. The research to date suffers from numerous methodological inadequacies. First, interpreting research is complicated by the nonconformity of terms. Without agreement on definitional criteria, the common frame of reference necessary for comparison across studies does not exist. In addition, most studies use inadequate control groups or small and/or unrepresentative samples and lack replication.

Second, and equally important, questions relating to the proximal as well as distal causes of this association remain unclear. A great deal of the literature has attempted to describe differences in this population while using very limited variable networks for characterizing domains of variation. Thus, although patterns of progression into drug-involved alcoholism appear fairly well mapped out as they relate to actual drug use, the extent to which non-drug factors (compared to alcohol or drug specific factors) mark or drive this progression is not at all clear.

The purpose of this study is to more carefully describe patterns of adaptation among non-drug and drug-involved alcoholics using a variety of measures allowing simultaneous evaluation of numerous psychological and sociological domains. This has not previously been

done. Building on the adolescent and adult literature and operating within the limits of a currently retrospective and cross-sectional data set, the study examines the psychopathological and psychosocial differences among these groups to determine the extent to which varying degrees of substance use effects non-substance specific factors. In addition, the availability of a socially comparable sample that is involved in neither alcohol nor drugs allows for analyses of the extent to which male NDUAs are more similar to DUAs or to non-alcoholic men, or vice versa. The present study is unique in that subjects are drawn from a heterogeneous, non-clinical population of families in early stages of the alcoholic process.

Hypotheses

In addition to escalation of use, the process experienced by users of alcohol and/or other drugs manifests itself in a wide variety of co-occurring symptoms and drug-nonspecific etiologic factors that interact to create multiple pathways in and out of risk. Evidence suggests that levels of psychopathology associated with use of illicit drugs by alcoholics are higher than those exhibited by NDUAs or non-alcoholic control groups. In other words, it is anticipated that DUAs will be more dysfunctional than both NDUAs and the control sample in a variety of areas. The following hypotheses are identical for both lifetime and current substance use.

1) DUAs will demonstrate lower levels of adaptive functioning and mental health as measured by the Global Assessment of Functioning Scale and Composite Psychological Health Q-sort.

2) DUAs will report a higher incidence of antisocial behavior than NDUAs and controls, as measured by the Antisocial Behavior Checklist.

3) Given the adolescent data on progression, it is also reasonable to anticipate that DUAs will show more problematic alcohol involvement than NDUAs and controls. This will be assessed via developmental index

of lifetime alcohol involvement, the Lifetime Alcohol Problem Score (LAPS).

As an extension of the work by Helzer and Pryzbeck (1988), it is anticipated that:

4) DUAs will report higher levels of depression, both historically (ever in their lives) and currently, as assessed by the Hamilton Rating Scale (coded for worst ever experience of depression) and the Beck Depression Inventory, respectively.

5) The research on adolescent populations (Smith & Fogg, 1978; Johnston et al., 1988) indicates that drug users achieve lower grades and exhibit lower intellectual maturity. On these grounds it is anticipated that the more damaged DUA group will exhibit lower educational attainment and possibly also lower I.Q. scores than NDUAs and controls.

It follows from the above cited literature (Ashley et al., 1978; Carroll, Santos, & Kendrick, 1980; Hasin, Grant, & Endicott, 1988; Kandel, 1978; Schuckit & Russel, 1983) that:

6) DUAs will be younger and report having been younger at the age of first use of alcohol and illicit drugs.

On the basis of NDACP findings on personal and family problems (Carroll et al. 1980), it is anticipated that:

7) DUAs will report more hassles (in terms of overall frequencies and intensity on the Hassles Scale) and fewer uplifts (in terms of overall frequency and intensity) than NDUAs and control subjects.

On the basis of research conducted by Ashley et al.(1978), Carroll et al. (1980), and Hasin, Grant, and Endicott (1988), there is reason to expect that:

8) DUAs will report contact with fewer less supportive networks as measured by the Social Support Interview.

METHOD

SUBJECTS

Subjects are 193 adult males from families participating in the Michigan State University Longitudinal Study (Zucker, 1987; Zucker, Noll, & Fitzgerald, 1986), a study examining risk and coping among children of alcoholics and their families, and comparing these factors among a group of non-substance-abusing control families drawn from the same neighborhoods. Of the 193 subjects, 44 are non-alcoholic controls (Table 1). Subjects are recruited from a population of males convicted in local district courts for driving while impaired (DWI) or driving under the influence (DUIL). Inclusion criterion for males include: 1) a blood alcohol level(BAL) of at least .15% (150 mg/ 100 ml) upon arrest, or multiple drinking related arrests with a BAL of at least 0.12%, 2) current cohabitation or marriage in an intact family at time of initial contact, 3) parentage of biological son(s) between the ages of 3.0 and 6.0 years, and 4) qualification under the Feighner criteria (Feighner, Robins, Guze, Woodruff, Winokur, and Munoz's 1972) for probable or definite alcoholism. Court personnel conduct initial screenings and at that time ask potential candidates for permission to release their names to project staff. If candidates agree, project staff schedule a home visit to further screen for suitability and request family involvement. If a family continues to meet the inclusion criteria, they are then recruited into the project. Previous experience with this group indicates that more than 80% of fathers so recruited will meet standard diagnostic criterion (Feighner et al., 1972) for a diagnosis of "definite alcoholism", with the remaining 20% meeting a diagnosis of "probable alcoholism." Screening items from the SMAST (Selzer, 1975) are used during initial visits to verify that potential candidates meet inclusion criteria, and the diagnosis is later verified through a "Drinking and Drug History" questionnaire (Zucker & Noll, 1980; Zucker et al., 1988).

Table 1.

Demographic Differences between Alcoholics and Controls

	Alcoholic (n=149)	Controls (n=44)	F	p
(Multivariate F(5,187) = 7.03 *)				
AGE				
Mean	31.99	32.32	.12	.72
SD	5.37	5.19		
Years of Education				
Mean	12.57	14.07	21.49	.00
SD	1.90	1.82		
Socio-Economic Status-Duncan's Code				
Mean	25.56	38.95	23.15	.00
SD	14.94	20.19		
Attendeance at Religious Service[a]				
Mean	3.0	2.38	8.24	.00
SD	1.25	1.22		
Income[b]				
Mean	6.41	7.34	7.48	.00
SD	2.11	1.44		

a 2 = weekly; 3 = 2-3 month; 4 = monthly; 5 = never.

b 6 = $16,00 - 20,000; 7 = $21,000 - 30,000.

* p. < .001

Community control families of similar family structure are recruited from the same census tract using door-to-door survey methods. These families are yoked to the alcoholic families. The children must be of like age to the children in the alcoholic families (within 6 months, but no younger than 3 years of age). Control families are also screened for absence of alcoholism/drug abuse/dependence.

DATA COLLECTION PROCEDURES

Data collection took place in the respondents' home and involved a nine session sequence of assessments, questionnaires, ratings and structured tasks (Zucker, Noll,& Fitzgerald, 1986; Zucker 1987). Families participating in the study receive monetary compensation, currently set at two hundred and fifty dollars for participation in the first wave of data collection.

INSTRUMENTS

The particular instruments used examine each parent's level of adaptation with respect to psychological and sociological measures addressing current and past substance use, demographic background, anti-social behavior, depression, social support network, intellectual abilities, coping skills, and conflict.

(A) Past and present drinking and drug history:

Drinking and Drug History and Current Use Pattern.(Zucker & Noll, 1980a; Zucker, Noll & Fitzgerald, 1988) The instrument consists of items proven in a variety of survey and clinical settings (Johnson et al., 1979; Cahalan, Cisson, & Crossley, 1969; Schuckit, 1978) including information about quantity, frequency and variability of alcohol use, as well as variety and extent of drug use and extent of substance-related trouble or consequences.

Using data collected from the Drinking Drug History, a composite measure of alcohol related difficulty, the Lifetime Alcohol Problems Score (LAPS) is computed (Zucker 1991). The LAPS provides a measure of extent

of alcohol related difficulty over a lifetime and takes into account beginning, variety, and extent of impact of alcohol problems over life course.

B) Demographic Background:

The Demographic Background Questionnaire assesses basic background characteristics of self and family of origin. Information about religion, education of self and parents, along with an occupationally based measure of socio-economic status are obtained from this instrument (Mueller & Parcel, 1981).

(C) Antisocial Behavior:

Antisocial Behavior Checklist The Antisocial Behavior Checklist assesses prior antisocial history. This measure is a modified version of an earlier antisocial behavior inventory used in the Rutgers Community Study (Zucker & Fillmore 1968; Zucker & Barron, 1973). It consists of a self-administered inventory of forty-six items which address a variety of adult antisocial behaviors and activities (Zucker & Noll, 1980b). Three measures are derived from the instrument: 1) childhood antisocial behavior, 2) adult antisocial behavior score, and 3) a total score. The Antisocial Behavior Checklist has been shown to have adequate test-retest reliability (.81) over four weeks and a coefficient alpha of .84 (Zucker & Noll, 1980).

(D) Depression:

Beck Depression Inventory (BDI) (Beck, Ward, Mendelson, & Erbaugh, 1961). The short form of the BDI is a 13 item paper and pencil self-report measure that assesses cognitive, emotional, motivational and physical manifestations of depression. The validity of this measure has been extensively tested by researchers since its conception (Caroll et al., 1973). In a meta-analysis of the literature for the years 1961 to 1986, internal consistency estimates yielded a mean coefficients alpha of 0.81 for non-psychiatric samples (Beck, Steer, & Garbin, 1988). Scores on the long and short form have been found to correlates .89 to .97.

Table 2.

Summary of Study Instruments

(A) Past and Present Drinking and Drug History
Drinking and Drug History (Zucker, Noll, Fitzgerald, 1988)
Demographic Background Questionnaire
(B) Antisocial behavior
Antisocial Behavior Checklist (Zucker & Noll, 1980b)
(C) Depression
Beck Depression Inventory (Beck, Ward, Mendelson & Erbaugh, 1961)
Hamilton Rating Scale (Hamilton, 1967)
(D) Intellectual Evaluation
WAIS-R Subtests: Information & Digit Symbol Subtests (Wechsler, 1981)
(E) Coping and Conflict
Hassles Scale and Uplift Scale (Kanner, Coyne, Schaefer & Lazerus, 1981)
(f) Social Support
Expanded Norbeck Social Support Questionnaire (Weil & Zucker, 1985)
(g) Social Competence
Global Assessment of Functioning Scale (Axis V of DSM-IIIR, 1987)
Composite Psychological Health Q-Sort (Lison & Peskin, 1967; 1981).

Hamilton Rating Scale(HRS) The HRS, developed by Max Hamilton in (1960) and revised in 1967, obtains information about "current" and "worst-ever" depression. The HRS assesses severity of depression among individuals who have already been diagnosed as depressed. The scale consists of 17 items rated on either a 3-point or 5-point scale. The HRS is a survey of essential symptoms of depression. Excellent inter-rater reliability has been reported by Hamilton ranging from .80 to .90 (1969). The HRS is administered by an interviewer during the affective disorders section of the Diagnostic Interview Schedule. Two ratings of depression are made: one of current level and the other of worst-ever depression during the individual's lifetime. The inter-rater reliability in this project is .93.

The meta-analysis conducted by Beck, Steer, and Garbin (1988) attained mean correlations for the BDI and the Hamilton Rating Scale of 0.74 with non-psychiatric samples.

(E) Intellectual Evaluation:

The Intellectual Evaluation consists of two subtests of the Wechsler Adult Intelligence Scale - Revised Edition (WAIS-R) (Wechsler, 1981): the Information and Digit Symbol subtests. The WAIS-R Information subtests correlates 0.87 with the full scale score at ages 25 to 34; ages 35 to 49 = 0.71 (Matarrazzo, 1979). The Digit Symbol subtest correlates 0.67 with the full scale score at age 25 to 34; ages 35 to 49 = 0.69. The scores on the two subtest will be prorated to derive Full Scale, Performance, and Verbal intelligence quotient scores.

(F) Coping Skills and Conflict Scales:

Hassles Scale and Uplifts Scale.(Kanner, Coyne, Schaefer, & Lazerus, 1981). Two lists, one consisting of 117 hassles and the other of 135 uplifts, are endorsed for occurrence and intensity in the previous month by respondents. "Hassles are irritating, frustrating, distressing demands that to some degree characterized everyday transactions with the environment"(Kanners et al., 1981). Daily uplifts are "positive

experiences such as joy derived from manifestations of love, relief at hearing good news, the pleasure of a good night's rest, and so on," (Kanner et al., 1981). This measure has been found to be a better predictor of both current and subsequent psychological symptoms than the standard life events approach.

(G) Social Support:

Norbeck Social Support Questionnaire (NSSQ) (Norbeck et al., 1981). The NSSQ is based on the conceptual definition of social support and network theory (Barnes, 1972) set forth by Robert Kahn (1979), who defined social support as an "interpersonal transaction that includes one or more of the following: the expression of positive affect of one person towards another; the affirmation or endorsement of another person's affirmation or endorsement of another person's behavior, perception, or expressed views; the giving of symbolic or material aid to another"(p.85). The NSSQ was designed to measure multiple dimensions of social support using three main variables -- total network, total functional, and total loss -- each with three subscales. The measure has a test-retest reliability of .85-.92 and internal consistency above .85 (coefficient). An expanded version including additional items that assess network density, interpersonal similarity, and organizational support is used for this study (Weil & Zucker, 1985).

(H) Social Competence:

Global Assessment of Functioning Scale (GAF Scale) (Axis V, DSM-IIIR, American Psychological Association, 1987). Highest level of adaptive functioning as conceptualized by DMS-IIIR is based on a composite of three major areas of functioning: social, psychological, and occupational. The measure is rated by the DIS interviewer after the interview is completed. Scores range from zero to ninety. Ninety is minimal or absent symptoms and good functioning in all areas; 60 is moderate symptoms; and one is the expectation of death. The GAF Scales contain scores for both current functioning and highest level of adaptive functioning for the past year.

Inter-rater reliability with this measure has been evaluated and is an acceptable .85 (Zucker et al., 1986).

Composite Psychological Health Q-Sort (Lison & Peskin, 1967; 1981). This measure utilizes the Block California Q-Sort (Block 1961) and is used to provide an index of overall mental health. The Q-sort consists of 100 statements that attempt to cover the domain of behavior in social settings and the psychological processes that may regulate social behavior. The deck is used by the DIS administrator to describe the respondent. A measure of psychological health is derived by correlating the actual distribution of each individual with a composite, expert sort for the psychologically healthy personality. The correlation coefficient between the two sorts is the measure, so scores range between -1.00 to 1.00. Inter-rater reliability for this instrument has been calculated at .78 or higher on the current project (Zucker et al., 1986).

RESULTS

Before beginning analyses, a thorough screening was done for outliers and missing data. Missing data were estimated by way of regression analyses on available data. At maximum only six percent of the sample required this procedure. Outliers were defined as nonadjacent values falling outside a normal distribution superimposed on the frequency distribution histogram. Each outlying value was assigned a value adjacent to the closest non-outlying value while maintaining the rank order of subjects on each variable.

Categorizing the Subjects

The overall design of the study is cross-sectional with a sample composed of 193 men who vary in their drinking and drug-taking behavior from abstainers to individuals abusing or dependent on both alcohol and non-alcoholic drugs. The current report examines the characteristic psychological and demographic differences between individuals with varying degrees of substance use. A substance use index was developed to classify the subjects into one of five categories depending on the severity of substance use (See appendix A). Inter-rater reliability has been calculated at .** for the project. The first group consists of community controls who use neither alcohol nor drugs at clinical levels. The second group consists of individuals who reported problems related to drug use but not alcohol. The third group consists of non-drug using alcoholics, and the fourth group consists of individuals who abuse alcohol and other drugs at sub-clinical levels (ASCD) . The last group is composed of individuals who abuse or are dependent on both alcohol and other drugs (DAA). Both DAA and ASCD are considered drug-using-alcoholic or DUAs (Table 3). Alcohol diagnoses and cross diagnoses may be found in Table 4.

We first examined the between-group differences for all dependent

variables using ANOVA and MANOVA procedures of SPSS-X. The analyses were conducted two ways: for lifetime use, and for substance use in the current year. Regressions estimating the level of substance use and group membership are also presented as a means of beginning to model the processes determining substance use.

Analyses Based on Lifetime Substance Use

Group Differences as a Function of Substance Use

To control for overall type I error, comparisons were first conducted using multivariate analysis of variance (MANOVA) for all variables in each domain. If the MANOVAs were significant, univariate analyses of variance (ANOVAs) were then conducted. Least Significant Difference tests (LSD) were then conducted to determine which specific group's means differ significantly from one another.

The sociodemographic data for the groups, presented in Table 5, shows that significant differences were found for years of education, socio-economic status (SES), and attendance at religious services. Age and income were not significant. Inspection of the means suggested linear functions were present; this was tested via the polynomial trend analysis. Trend analysis shows significant linear trends ($p.<.05$) for all demographic variables except age. In addition, analyses shows a significant quadratic trend for education ($p.<.05$). Individual differences were present for SES and education. The three alcohol using groups were significantly lower than the community controls for SES, and significantly lower than controls and the drug-only group for years of education. The pure alcoholic group had the fewest years of education.

Adaptive Functioning and Adaptation

The first four hypotheses examined the question of whether adaptive functioning and mental health would be inversely related to substance

Table 3.

Substance Use Index

DAA (n=50)	ASCD (n=77)	ALC (n=22)	DRUG (n=16)	CONTROL (n=28)
ALCOHOLISM + DRUG ABUSE or DEPENDENCE	ALCOHOLISM + SUBCLINICAL DRUG USE	ALCOHOLISM	SUBCLINICAL DRUG USE	NO ALCOHOL or DRUG RELATED SYMPTOMS

N = 193

Table 4.

Alcohol Diagnosis in Relation to Drug Diagnosis

Drug Diagnosis	Alcohol Diagnosis Using DSM III R Criteria: Dependence Severe (n=55)	Dependence Moderate (n=52)	Dependence Mild (n=21)	Abuse (n=21)
Alcohol + Drug Abuse or Dependence (n=50)	32 64%	15 30%	1 2%	2 4%
Alcohol + Sub-clin. Drug Use (n=77)	19 24%	27 35%	15 19%	16 21%
Alcohol Only (n=22)	4 18%	10 45%	5 23%	3 14%

consumption. The first hypothesis predicted that DUAs would have lower levels of adaptive functioning and mental health as measured by the Composite Psychological Mental Health Q-Sort and DSM-III R Global Assessment of functioning (Table 6). The results supported both parts of the hypothesis. Individual group mean differences were noted between community controls and all four substance using groups, and drug-abusing alcoholics (DAA) were also significantly different from the drug only group for the Mental Health Q-sort. The means of the five groups on the Mental Health Q-sort followed a linear progression with the highest level of mental health in the community control sample and the lowest in the DAAs (Linear Term is significant at $p.< .05$). Similar results were found for the Global Assessment of Lifetime Functioning (DSM-III R), while the data on Global Assessment of Current functioning were not significant.

The second hypothesis predicted that DUAs would have a higher incidence of anti-social behavior (Table 7). As predicted, the highest levels of anti-social behaviors were reported by individuals abusing both drugs and alcohol, and the lowest by the community control. Significant group differences were found between DAAs and the other four groups. Closely related to the second hypothesis, the third hypothesis dealt with problematic alcohol involvement assessed through a Table 5. developmental index of lifetime alcohol involvement, the Lifetime Alcohol Problems Score (LAPS). LAPS are highest for DAAs, while lowest for the community control, indicating higher levels of dysfunction among individuals abusing both alcohol and drugs (Table 7). Both anti-social behavior and LAPS follow a linear progression with alcohol and drug abusers having the highest scores and community controls the lowest. (The linear term is significant at $p.< .05$). Significant differences between groups suggest three distinct subgroups: the first consisting of DAAs; the second, ASCD and alcoholic groups; and the third, community controls and the drug-only group.

The fourth hypothesis stated that higher levels of depression, both

Table 5.

Demographic Differences Among groups varying in extent of drug and alcohol involvement--Classification based on Lifetime Diagnosis (N=193)

	1 DAA (n=50)	2 ASCD (n=77)	3 ALC (n=22)	4 Drug (n=16)	5 Controls (n=28)	F[a]	p
	(Multivariate F(20,748) = 748***)						
AGE							
MEAN	32.78	31.48	33.31	31.58	32.78	.71	.58
SD	5.55	4.25	7.96	5.20	5.22		
Years of Education							
MEAN	12.56	12.66	12.27	13.43	14.42	6.24	.00
SD	1.41	1.94	2.64	1.93	1.68		
Grp.Dif.^	3,4,5	3,4,5	4,5		1,2,3		
Socio-Economic Status-Duncan's Code							
MEAN	24.50	26.18	25.95	32.41	42.75	7.05	.00
SD	11.48	14.65	21.91	18.42	20.50		
Grp.Dif.^	5	5	5		1,2,3		
Attendance at Religious Services @							
MEAN	2.64	3.28	2.81	2.50	2.32	4.42	.00
SD	1.28	1.19	1.18	1.26	1.21		
Grp.Dif.^		5			2		
Income[b]							
MEAN	6.12	6.55	6.54	7.31	7.35	2.25	.06
SD	2.16	2.13	1.96	1.57	1.39		

Note. DAA = Alcohol + drug abuse or dependence; ASCD = Alcohol + subclinical drug Use; Alcohol = Only alcohol use; Drug = Only drug use; Control = Non alcohol or drug use

[a] Univariate Analyses of Variance with (4, 188) Degrees of Freedom

^Group differences: numbers denote pairs of groups that are significantly different from each other at $p \leq .05$. Based upon Modified Least Significant Difference Analyses.

@ 2 = weekly; 3 = 2-3 month; 4 = monthly; 5 = never

[b] 6 = $16,000 - 20,000; 7 = $21,000 - 30,000; 8 = $31,000 - 50,000

*** $p < .001$, ** $p. < .01$, * $p. < .05$.

Table 6.

Competency Differences Among groups varying in extent of drug and alcohol involvement--Classification based on Lifetime Diagnosis (N=193)

	1 DAA (n=50)	2 ASCD (n=77)	3 ALC (n=22)	4 Drug (n=16)	5 Controls (n=28)	F[a]	p
	(Multivariate F(20, 748) = 2.64 ***)						
Mental Health Q-Sort							
MEAN	-.23	-.03	-.06	.17	.41	17.88	.00
SD	.27	.34	.39	.29	.26		
Grp.Dif.^	4,5	5	5	1,5	1,2,3,4		
Global Assessment of Functioning-Current (Axis-V)							
MEAN	45.12	46.83	44.09	46.06	48.67	.26	.90
SD	15.15	19.77	17.78	20.29	20.46		
Global Assessment of Functioning-Lifetime (Axis-V)							
MEAN	48.50	56.01	54.09	64.25	66.67	17.89	.00
SD	10.20	9.60	10.49	10.60	10.04		
Grp.Dif.^	4,5	4,5	4,5	1,2,3	1,2,3		

Note. DAA = Alcohol + drug abuse or dependence; ASCD = Alcohol + subclinical drug Use; Alcohol = Only alcohol use; Drug = Only drug use; Control = Non alcohol or drug use

^Group differences: numbers denote pairs of groups that are significantly different from each other at $p \leq .05$. Based upon Modified Least Significant Difference Analyses.

[a] Univariate Analyses of Variance with (4, 188) Degrees of Freedom

*** $p_{.} < .001$, ** $p_{.} < .01$, * $p_{.} < .05$

Table 7.

Psychopathological Differences Among groups varying in extent of drug and alcohol involvement--Classification based on Lifetime Diagnosis (N=193)

	1 DAA (n=50)	2 ASCD (n=77)	3 ALC (n=22)	4 Drug (n=16)	5 Controls (n=28)	F	p
	(Multivariate F(12, 564) = 6.63 ***)						
Anti-Social Behavior							
MEAN	30.88	19.64	16.72	14.00	9.64	17.51	.00
S.D.	16.01	12.20	10.73	7.93	4.68		
Grp.Dif.^	2-5	1,5	1	1	1,2		
Lifetime Alcohol Problem Score							
MEAN	11.65	10.03	10.04	7.86	6.84	40.56	.00
S.D.	1.67	1.92	1.83	1.91	1.09		
Grp.Dif.^	2-5	4,5	4,5	1-3	1-3		
Beck Depression Inventory							
MEAN	4.10	2.29	3.68	1.43	1.25	6.47	.00
S.D.	3.56	2.38	4.55	1.31	1.37		
Grp.Dif.^	4,5		4,5	1,3	1,3		
Hamilton Depression Rating Scale -Current Depression							
MEAN	8.06	4.94	4.36	4.93	2.25	5.93	.00
S.D.	7.00	4.54	4.70	5.31	2.56		
Grp.Dif.^	5				1		
Hamilton Depression Rating Scale-Worst/Ever Depression							
MEAN	19.92	13.77	11.54	15.31	8.53	7.12	.00
S.D.	11.89	8.89	9.33	11.64	6.25		
Grp.Dif.^	3,5		1		1		

Note. DAA = Alcohol + drug abuse or dependence; ASCD = Alcohol + subclinical drug Use; Alcohol = Only alcohol use; Drug = Only drug use; Control = Non alcohol or drug use

^Group differences: numbers denote pairs of groups that are significantly different from each other at $p \leq .05$. Based upon Modified Least Significant Difference Analyses.

ª Univariate Analyses of Variance with (4, 188) Degrees of Freedom

*** p. < .001, ** p. < .01, * p. < .05

Table 8.

Competency Differences Among groups varying in extent of drug and alcohol involvement--Classification based on Lifetime Diagnosis (N=193)

	1 DAA (n=50)	2 ASCD (n=77)	3 ALC (n=22)	4 Drug (n=16)	5 Controls (n=28)	F*	p
	(Multivariate F(12, 564) = 3.26 ***)						
Performance Intelligence Quotient							
MEAN	93.40	90.49	93.31	97.68	104.14	4.72	.00
SD	13.32	14.23	18.83	15.36	14.20		
Grp.Dif.^		5	5		2,3		
Verbal Intelligence Quotient							
MEAN	93.42	92.14	84.45	93.68	103.14	4.51	.00
SD	11.57	16.53	14.70	12.46	18.44		
Grp.Dif.^			5		3		
Full Scale Intelligence Quotient							
MEAN	92.63	90.37	86.84	91.38	103.71	5.99	.00
SD	11.09	14.56	16.72	9.60	14.26		
Grp.Dif^	5	5	5	5	1-4		

Note. DAA = Alcohol + drug abuse or dependence; ASCD = Alcohol + subclinical drug Use; Alcohol = Only alcohol use; Drug = Only drug use; Control = Non alcohol or drug use.

^Group differences: numbers denote pairs of groups that are significantly different from each other at $p \leq .05$. Based upon Modified Least Significant Difference Analyses.

* Univariate Analyses of Variance with (4, 188) Degrees of Freedom

*** $p. < .001$

historically (ever in their lives) and currently, would be found among DUAs on both the Hamilton Depression Rating Scale (Current and Worst/Ever) and the Beck Depression Inventory. All three measures fully supported the hypothesis. Trend analyses were also significant at the 5 percent level (Table 7).

Educational Attainment

The fifth hypothesis is based on the work of Smith & Fogg (1978) and Johnston et al. (1988) which showed that substance users achieve lower grades and exhibit lower intellectual maturity. Results from IQ scores were significant for verbal, performance and full scale IQ scores, but were slightly different than expected (Table 8). The alcohol-only group proved to have the lowest verbal and full scale IQ suggesting a possible deficit in verbal abilities, while the alcohol and drug abusing group had the second highest full scale IQ, second only to the community controls. Significant group differences were found between controls, alcoholics and ASCD for performance IQ, and between controls and alcoholics for verbal IQ. Controls were significantly different from all other groups on the full scale IQ. Significant quadratic trends were found for verbal, performance and full scale IQ scores.

AGE

The first part of the sixth hypothesis predicts that DUAs will report having been younger at age of first drink. The data, summarized in Table 9, support the hypothesis. DAAs started drinking at a mean age of 14.16, where as the community controls started at a mean age of 16.85. Individuals who mainly used drugs were the next youngest group, starting at a mean age of 14.56. The drug and DAA groups have significantly different means from the controls. The second part of the hypothesis, which predicted that DUAs were younger at age of first non-alcoholic drug use, was not supported.

Hassles and Uplifts, and Social Support

The seventh hypothesis, that DUAs will report more hassles and fewer uplifts than NDUAs and community controls as measured by the Hassles and Uplifts measure, received partial support. Significant group differences were observed for severity and overall number of hassles, but not for intensity of hassles (Table 10). There were no significant differences for uplifts (Table 11).

The eighth hypotheses, that DUAs report fewer, less supportive networks as measured by the Social Support interview, received no support. This is contrary to the findings of Ashley et al.(1978), Carroll et al. (1980), and Hasin, Grant, and Endicott (1988) (Table 12).

Analyses Based on Substance Use Within Last Year

The overall number of subjects involved in the analyses using current substance use as the dependent variable dropped by two, down to 191, because only two individuals met the criteria for the "Drug" only group. Table 13 shows the changes in diagnosis from lifetime to current diagnosis.

Sociodemographic Differences

The sociodemographic data categorized by level of substance use as reported for the past year differed slightly from data categorized according to lifetime patterns of use. Significant differences were found for years of education, socio-economic status, attendance at religious services, and income, while the groups did not differ in age (Table 14). The three alcohol using groups were significantly less educated than controls. Alcohol using groups averaged about a half a year of post-secondary schooling, while controls averaged a little over two years of education after high school. Similar results were found for socio-economic status, with the control group having the highest SES, suggesting that the differences may be only a function of alcohol use.

Table 9.

Differences in Age & Number of Drugs Used Among groups varying in extent of drug and alcohol involvement--Classification based on Lifetime Diagnosis (N=193)

	1 DAA (n=50)	2 ASCD (n=77)	3 ALC (n=22)	4 Drug (n=16)	5 Controls n=28)	F[a]	p
Age of First Non-alcoholic Drug Use							
MEAN	16.42	16.76	0.0	18.25	0.0	1.77	.17
SD	5.03	2.66	0.0	3.66	0.0		
Age of First Alcoholic Drink							
MEAN	14.16	15.05	15.05	14.56	16.85	5.58	.00
SD	2.56	2.09	2.69	3.28	2.39		
Grp.Dif.^	5			5	1,4		
Number of Drug Types Used							
MEAN	4.84	2.10	0.0	1.75	0.0	52.20	.00
SD	2.40	1.68	0.0	1.57	0.0		
Grp.Dif.^	2-5	3,5	1,2,4	3,5	3,4		

Note. DAA = Alcohol + drug abuse or dependence; ASCD = Alcohol + subclinical drug Use; Alcohol = Only alcohol use; Drug = Only drug use; Control = Non alcohol or drug use

^Group differences: numbers denote pairs of groups that are significantly different from each other at $p \leq .05$. Based upon Modified Least Significant Difference Analyses.

[a] Univariate Analyses of Variance with (4, 188) Degrees of freedom.

Table 10.

Hassles: Differences among groups varying in extent of drug and alcohol involvement--Classification based on Lifetime Diagnosis (N=168)

	1 DAA (=45)	2 ASCD (n=69)	3 ALC (n=19)	4 Drug (n=12)	5 Controls (n=23)	F[a]	p
			(Multivariate F(12, 489) = 1.53)				
Number of Hassles							
MEAN	24.66	17.52	16.36	18.33	13.08	3.44	.00
SD	18.69	9.97	15.53	15.11	7.12		
Grp.Dif.^	5				1		
Severity of Hassles							
MEAN	42.17	26.98	25.52	33.08	19.13	3.45	.00
SD	39.63	18.21	31.09	34.23	14.08		
Intensity of Hassles							
MEAN	1.57	1.48	1.38	1.58	1.39	1.08	.36
SD	.523	.403	.544	.433	.391		

Note. DAA = Alcohol + drug abuse or dependence; ASCD = Alcohol + subclinical drug Use; Alcohol = Only alcohol use; Drug = Only drug use; Control = Non alcohol or drug use

^Group differences: numbers denote pairs of groups that are significantly different from each other at $p \leq .05$. Based upon Modified Least Significant Difference Analyses.

[a] Univariate Analyses of Variance with (4, 188) df

*** p. < .001, ** p. < .01, * p. < .05

Table 11.

Uplifts: Differences among groups varying in extent of drug and alcohol involvement--Classification based on Lifetime Diagnosis (N=168)

	1 DAA (=45)	2 ASCD (n=69)	3 ALC (n=19)	4 Drug (n=12)	5 Controls (n=23)	F[a]	p
		(Multivariate F(12, 489) = .43)					
Number of Uplifts							
MEAN	36.53	33.05	36.26	38.75	29.60	.51	.73
SD	24.95	20.29	32.10	27.36	21.22		
Severity of Uplifts							
MEAN	69.13	59.59	65.94	75.00	63.26	.68	.60
SD	52.76	39.58	63.47	73.21	38.64		
Intensity of Uplifts							
MEAN	1.82	1.81	1.83	1.79	1.80	.02	.99
SD	.505	.413	.483	.495	.343		

Note. DAA = Alcohol + drug abuse or dependence; ASCD = Alcohol + subclinical drug Use; Alcohol = Only alcohol use; Drug = Only drug use; Control = Non alcohol or drug use

^Group differences: numbers denote pairs of groups that are significantly different from each other at $p \leq .05$. Based upon Modified Least Significant Difference Analyses.

[a] Univariate Analyses of Variance with (4, 188) Degrees of Freedom

*** $p_{.} < .001$, ** $p_{.} < .01$, * $p_{.} < .05$

Table 12.

Differences in Social Support in groups varying in extent of drug and alcohol involvement--Classification based on Lifetime Diagnosis (N=163)

	1 DAA (n=50)	2 ASCD (n=77)	3 ALC (n=22)	4 Drug (n=16)	5 Controls (n=28)	F	p
			(Multivariate F(20, 624) = .153)				
Club Memberships							
MEAN	.58	.78	.94	1.63	.81	2.07	.08
SD	.85	1.22	1.12	1.50	.95		
Number of Males in Network							
MEAN	3.19	3.98	2.52	4.63	4.39	2.48	.07
SD	1.98	2.80	2.14	3.61	3.29		
Number of Females in Network							
MEAN	.11	.21	.26	.55	.00	2.07	.08
SD	.48	.58	.45	1.21	.00		
Spouse in Social Support Network							
MEAN	.91	.91	.84	1.0	1.0	1.18	.32
SD	.28	.28	.37	.00	.00		
Total Density of Network							
MEAN	3.32	3.50	3.50	3.45	3.69	.86	.49
SD	.69	.67	1.07	.85	.69		

Note. DAA = Alcohol + drug abuse or dependence; ASCD = Alcohol + subclinical drug Use; Alcohol = Only alcohol use; Drug = Only drug use; Control = Non alcohol or drug use

^Group differences: numbers denote pairs of groups that are significantly different from each other at $p \leq .05$. Based upon Modified Least Significant Difference Analyses.

* Univariate Analyses of Variance with (4, 188) Degrees of Freedom

*** $p. < .001$, ** $p. < .01$, * $p. < .05$

Table 13.

Changes in Diagnosis where Classification is based upon Lifetime Symptomatology vs. Current (Last Year) Symptomatology and Use (N=193)

		Current Diagnosis			
Lifetime Diagnosis		DAA	ASCD	ALC	CONTROL
DAA (N) Percent	50 100%	21 42%	2 4%	27 54%	0 0%
ASCD (N) Percent	77 100%	0 0%	22 29%	55 71%	0 0%
ALC (N) Percent	22 100%	0 0%	0 0%	22 100%	0 0%
DRUG (N) Percent	16 100%	0 0%	0 0%	0 0%	14* 88%
CONT.(N) Percent	28 100%	0 0%	0 0%	0 0%	28 100%

Note. * Two additional respondents who fell in the lifetime Drug only group, remained in the group when classified on the basis of current symptoms. Because of the low n, they were dropped from the current diagnosis analysis. The remaining 14 with a lifetime Drug only classification fell into the control classification when using last years symptomatology.

Trend analysis showed significant quadratic trends for attendance at religious services, education and socio-economic status and significant linear trends for all demographic variables except age ($p.<.05$).

Income was the only variable which changed from previous analyses using the lifetime index. Present levels of substance use are more indicative of current income than lifetime use patterns are. Though not significantly different, controls had the highest income, $23,300, followed by the Alcoholic and ASCD groups, $18,400, and the DAA groups, $15,000.

Adaptive Functioning and Adaption:

Similar to previous findings based on lifetime substance use, the first four hypotheses were intended to demonstrate that adaptive functioning and mental health are inversely related to substance consumption. The first hypothesis predicted that DUAs will demonstrate lower levels of adaptive functioning and mental health as measured by the Composite Psychological Mental Health Q-Sort and DSM-III R Global Assessment of functioning (Table 15). The results supported both parts of the hypothesis. The means of the five groups on the Mental Health Q-sort followed a linear progression with the highest level of mental health found in the community control sample and the lowest in drug-abusing-alcoholics. (The linear and quadratic terms are significant at $p >.05$) Significant group differences were found between community controls and the three other substance using groups. Similar results were found supporting the second part of the hypothesis which predicted that Global Assessment of Lifetime Functioning (DSM-III-R) is highest for controls and lowest for DAAs. The data on Global Assessment of Current Functioning were not significant.

The second hypothesis predicted that DUAs will have a higher incidence of anti-social behavior (Table 16). As predicted, individuals abusing both drugs and alcohol reported the highest level of anti-social

Table 14.

Demographic Differences Among groups varying in extent of drug and alcohol involvement--Classification based on Diagnosis in Last Year (N=191)#

	1 DAA (n=21)	2 ASCD (n=24)	3 ALC (n=104)	4 Controls (n=42)	F[a]	p
AGE						
MEAN	31.19	29.79	32.66	32.47	2.20	.08
SD	5.18	3.59	5.62	5.24		
Years of Education						
MEAN	12.52	12.20	12.66	14.14	7.95	.00
SD	1.12	1.69	2.06	1.82		
Grp.Dif.^	1		1	1,2,3		
Socio-Economic Status-Duncan's Code						
MEAN	23.90	24.64	26.10	40.01	8.76	.00
SD	12.17	11.26	16.20	20.10		
Grp.Dif.^	1		1	1,2,3		
Attendance at Religious Services@						
MEAN	2.66	3.45	2.96	2.35	4.59	.00
SD	1.35	1.31	1.19	1.22		
Grp.Dif.^		4		2		
Income[b]						
MEAN	5.66	6.62	6.50	7.33	3.54	.01
SD	2.05	1.73	2.19	1.44		

Note. DAA = Alcohol + drug abuse or dependence; ASCD = Alcohol + subclinical drug Use; Alcohol = Only alcohol use; Control = Non alcohol or drug use.

^Group differences: numbers denote pairs of groups that are significantly different from each other at $p \leq .05$. Based upon Modified Least Significant Difference Analysis.

a Univariate Analyses of Variance with (3, 187) Degrees of freedom

@ 2 = weekly; 3 = 2-3 month; 4 = monthly; 5 = never

b 6 = $16,000 - 20,000; 7 = $21,000 - 30,000; 8 = $31,000 - 50,000

Drug only group dropped because only two individuals qualified

behavior and community controls reported the lowest.

The third hypothesis predicts that DUAs will show more problematic alcohol involvement assessed via LAPS. As predicted, significant differences were found for LAPS. Similar to findings in the previous analyses of lifetime diagnosis, there appear to be three distinct groups for both anti-social behavior and LAPS: (1) the first, consisting of the DAA group; (2) the second, the ASCD and alcoholic groups; and (3) the third, the community controls. Significant linear and quadratic trends were present for LAPS.

The fourth hypothesis predicts that higher levels of depression both historically (ever in their lives) and currently will be reported by DUAs on both the Hamilton Depression Rating Scale (Current and Worst/Ever) and the Beck Depression Inventory. All three measures fully supported the hypotheses. Trend analyses were also significant at the $p < .05$ level (Table 16). DAAs experienced the highest levels of depression and controls the lowest. Significant mean differences between DAAs and controls were noted on both current and worst/ever depression as measured by the Hamilton Depression Rating Scale (HDRS). Similar results were found for the Beck Depression Inventory (BDI) with the addition of significant differences between DAAs and ASCDs.

Educational Attainment

The fifth hypothesis predicts that DUAs will exhibit lower educational attainment and lower IQ scores based on the work of Smith & Fogg (1978) and Johnston et al. (1988), which showed that substance users achieve lower grades and exhibit lower intellectual maturity. The results from the IQ scores were significant for verbal, performance and full scale IQ scores. Additionally, quadratic trends were significant for the three scores. These results varied from those attained using Lifetime Diagnosis as the dependent variable. The ASCD group scored lowest and community controls scored highest in all three categories (Table 17).

Table 15.

Differences in Competency Among groups varying in extent of drug and alcohol involvement--Classification based on Diagnosis in Last Year (n=191)

	1 DAA (n=21)	2 ASCD (n=24)	3 ALC (n=104)	4 Controls (n=42)	F[a]	p
(Multivariate F(9, 561) = 7.56 ****)						
Mental Health Q-Sort						
MEAN	-.20	-.03	-.10	.32	20.18	.00
SD	.28	.33	.35	.28		
Grp.Dif^	4	4	4	1-3		
Global Assessment of Functioning-Current (AxisV)						
MEAN	45.71	43.12	46.50	47.26	.28	.84
SD	15.23	21.49	17.71	20.53		
Global Assessment of Functioning-Lifetime (AxisV)						
MEAN	46.61	55.33	54.04	66.09	21.10	.00
SD	12.20	7.17	10.28	10.17		
Grp.Dif.^	2-4	1,4	1,4	1-3		

Note. DAA = Alcohol + drug abuse or dependence; ASCD = Alcohol + subclinical drug Use; Alcohol = Only alcohol use; Control = Non alcohol or drug use.

^Group differences: numbers denote pairs of groups that are significantly different from each other at $p \leq .05$. Based upon Modified Least Significant Difference Analysis.

[a] Univariate Analyses of Variance with (4, 188) Degrees of freedom

*** p. < .001, ** p. < .01, * p. < .05

AGE

AGE

The sixth hypothesis states that DUAs report being younger at age of first drink and age of first non-alcoholic drug use. The results of the analyses, summarized in Table 18, support both parts of the hypothesis. The DAA group started drinking at a mean age of 13.25, while the community controls started at a mean age of 16.25. Using the Least Significant Differences (LSD) Analyses, it was found that DAAs start drinking significantly earlier than both alcoholics and controls, and that the ASCD group also starts drinking significantly earlier than controls. The DAA group started using drugs at an average age of 15.5, while controls did not try drugs until a mean age of 18.5. According to the LSD analyses, the DAAs were significantly younger than controls when they started using drugs.

These results support the work of Kandel (1978) who concluded that the later the age of onset, the greater the likelihood of stopping. The results also support Schuckit and Russel (1983) who report that age of first drink varies inversely with alcohol and drug consumption and their associated problems.

Hassles and Uplifts, and Social Support

The seventh hypothesis, that DUAs report more hassles and fewer uplifts than NDUAs and community controls as measured by the Hassles and Uplifts measure, received no support when current diagnosis was used as the dependent variable (Table 19 & 20). This is surprising since this hypothesis received partial support when lifetime use was used as the dependent variable. Since Hassles and Uplifts measures hassles and uplifts for the previous month, it would follow logically that current substance use pattern would be a better indicator than lifetime patterns.

As with the results using lifetime diagnosis as the dependent variable, the eighth hypothesis that DUAs report fewer less supportive networks as measured by the Social Support interview received no support. The results are contrary to the findings of Ashley et al.(1978), Carroll

Table 16.

Psychopathological Differences Among groups varying in extent of drug and alcohol involvement--Classification based on Diagnosis in Last Year (N=191)

	1 DAA (n=21)	2 ASCD (n=24)	3 ALC (n=104)	4 Controls (n=42)	F.	p
	(Multivariate F(15, 555) = 7.38 ****)					
Anti-Social Behavior						
MEAN	32.38	21.04	21.53	10.88	15.67	.00
SD	13.40	9.84	14.03	6.23		
Grp.Dif.^	2-4	1,4	1,4	1-3		
Lifetime Alcohol Problem Score						
MEAN	12.00	10.65	10.27	7.125	49.57	.00
SD	1.72	1.44	1.93	1.26		
Grp.Dif.^	2-4	1,4	1,4	1-3		
Beck Depression Inventory						
MEAN	4.66	2.62	2.90	1.21	6.94	.00
SD	4.27	2.48	3.16	1.27		
Grp.Dif.^	2,4	1		1		
Hamilton Depression Rating Scale-Current Depression						
MEAN	7.95	5.12	5.67	2.92	4.70	.00
SD	7.89	4.37	5.39	3.79		
Grp.Dif.^	4			1		
Hamilton Depression Rating Scale-Worst/Ever Depression						
MEAN	17.66	15.95	14.97	10.28	3.33	.02
SD	12.73	9.75	10.21	8.63		
Grp.Dif.^	4			1		

Note. DAA = Alcohol + drug abuse or dependence; ASCD = Alcohol + subclinical drug Use; Alcohol = Only alcohol use; Control = non alcohol or drug use.

^ Group differences: numbers denote pairs of groups that are significantly different from each other at $p \leq .05$. Based upon Modified Least Significant Difference Analysis.

* Univariate Analyses of Variance with (4, 188) Degrees of freedom *** p. < .001, ** p. < .01, * p. < .05

Table 17.

Differences in Competency Among groups varying in extent of drug and alcohol involvement--Classification based on Diagnosis in Last Year (n=191)

	1 DAA (n=21)	2 ASCD (n=24)	3 ALC (n=104)	4 Controls (n=42)	F[a]	p
	(Multivariate F(9, 561) = 2.77 **)					
Performance Intelligence Quotient						
MEAN	92.38	90.20	92.17	102.47	5.79	.00
SD	12.67	14.70	15.13	14.54		
Grp.Dif.^	4	4	4	1,2,3		
Verbal Intelligence Quotient						
MEAN	93.00	87.25	92.29	100.04	4.04	.00
SD	12.64	12.07	15.83	17.30		
Grp.Dif.^		4		2		
Full Scale Intelligence Quotient						
MEAN	92.42	86.83	91.63	100.47	6.31	.00
SD	11.98	11.11	14.27	13.92		
Grp.Dif.^		4	4	1,2		

Note. DAA = Alcohol + drug abuse or dependence; ASCD = Alcohol + subclinical drug Use; Alcohol = Only alcohol use; Control = Non alcohol or drug use.

^Group differences: numbers denote pairs of groups that are significantly different from each other at $p \leq .05$. Based upon Modified Least Significant Difference Analysis.

[a] Univariate Analyses of Variance with (4, 188) Degrees of Freedom

Table 18.

Differences in Age & Number of Drugs Used Among groups varying in extent of drug and alcohol involvement--Classification based on Diagnosis in Last Year (N=191)*

	1 DAA (n=21)	2 ASCD (n=24)	3 ALC (n=104)	4 Controls (n=42)	F[a]	p
(Multivariate F(9, 387) = 2.78 **)						
Number of Drug Types Used						
MEAN	4.71	3.08	2.22	.57	18.94	.00
SD	2.34	2.43	2.32	1.23		
Grp.Dif.^	2-4	1,4	1,4	1-3		
Age of First Alcoholic Drink						
MEAN	13.25	14.09	15.19	16.28	9.258	.00
SD	2.73	1.85	2.26	2.55		
Grp.Dif.^	4,3	4	1	1,2		

(N=135)	DAA (n=21)	ASCD (n=23)	ALC (n=77)	Drug (n=14)	F	p
Age of First Drug Use						
MEAN	15.47	16.00	17.12	18.57	3.09	.02
SD	4.43	2.33	2.76	5.31		
Grp.Dif.^	1			4		

Note. DAA = Alcohol + drug abuse or dependence; ASCD = Alcohol + subclinical drug Use; Alcohol = Only alcohol use; Control = Non alcohol or drug use.

^Group differences: numbers denote pairs of groups that are significantly different from each other at $p \leq .05$. Based upon Modified Least Significant Difference Analysis.

[a] Univariate Analyses of Variance with (4, 188) Degrees of Freedom.

*** $p. < .001$, ** $p. < .01$, * $p. < .05$

Table 19.

Hassles: Differences among groups varying in extent of drug and alcohol involvement--Classification based on Diagnosis in Past Year (N=168)

	1 DAA (=19)	2 ASCD (n=22)	3 ALC (n=92)	4 Controls (n=33)	F[a]	p
		(Multivariate F(9, 387) = 2.78 **)				
Number of Hassles						
MEAN	22.47	19.59	18.90	13.87	2.20	.08
SD	11.15	10.44	14.24	8.97		
Severity of Hassles						
MEAN	35.85	33.95	30.39	20.75	1.76	.15
SD	18.30	21.50	30.93	16.04		
Intensity of Hassles						
MEAN	1.60	1.65	1.44	1.40	2.16	.09
SD	.37	.46	.47	.36		

Note. DAA = Alcohol + drug abuse or dependence; ASCD = Alcohol + subclinical drug Use; Alcohol = Only alcohol use; Control = Non alcohol or drug use.

^Group differences: numbers denote pairs of groups that are significantly different from each other at $p \leq .05$. Based upon Modified Least Significant Difference Analysis.

[a] Univariate Analyses of Variance with (4, 188) Degrees of freedom

*** $p. < .001$, ** $p. < .01$, * $p. < .05$

Table 20.

Uplifts: Differences among groups varying in extent of drug and alcohol involvement--Classification based on Diagnosis in Past Year (N=168)

	1 DAA (=19)	2 ASCD (n=22)	3 ALC (n=92)	4 Controls (n=33)	F[a]	p
		(Multivariate F(9, 486) = 1.94 *)				
Number of Uplifts						
MEAN	36.00	29.36	35.63	32.39	.52	.66
SD	26.44	18.96	24.02	23.53		
Severity of Uplifts						
MEAN	65.68	54.68	65.48	58.90	.39	.76
SD	48.36	39.79	49.90	51.94		
Intensity of Uplifts						
MEAN	1.83	1.86	1.80	1.77	.20	.8967
SD	.42	.45	.46	.39		

Note. DAA = Alcohol + drug abuse or dependence; ASCD = Alcohol + subclinical drug Use; Alcohol = Only alcohol use; Control = Non alcohol or drug use.

^Group differences: numbers denote pairs of groups that are significantly different from each other at $p \leq .05$. Based upon Modified Least Significant Difference Analysis.

[a] Univariate Analyses of Variance with (4, 188) Degrees of Freedom

*** $p. < .001$, ** $p. < .01$, * $p. < .05$

Table 21.

Social Support Differences Among groups varying in extent of drug and alcohol involvement--Classification based on Diagnosis in Last Year (N=163)

	1 DAA (n=20)	2 ASCD (n=22)	3 ALC (n=99)	4 Controls (n=32)	F^	p
	(Multivariate F(15, 462) = 1.08)					
Club Memberships						
MEAN	.45	.52	.85	1.06	1.713	.17
SD	.60	1.08	1.17	1.24		
Number of Males in Network						
MEAN	3.40	4.37	3.35	4.59	2.095	.10
SD	2.23	2.97	2.43	3.39		
Number of Females in Network						
MEAN	.25	.18	.17	.18	.099	.96
SD	.71	.39	.52	.73		
Percent who Include Spouse in Social Support						
MEAN	.90	.86	.91	1.00	1.32	.26
SD	.30	.35	.28	.00		
Total Density of Social Support Network						
MEAN	3.41	3.33	3.48	3.59	.522	.68
SD	.79	.69	.82	.71		

Note. DAA = Alcohol + drug abuse or dependence; ASCD = Alcohol + subclinical drug Use; Alcohol = Only alcohol use; Control = Non alcohol or drug use.

^Group differences: numbers denote pairs of groups that are significantly different from each other at $p \leq .05$. Based upon Modified Least Significant Difference Analysis.

Univariate Analyses of Variance with (4, 188) Degrees of Freedom

*** p. < .001, ** p. < .01, * p. < .05

Table 22.

Pearsons Correlations for Psychopathology and Adaptation (N=193)

	ASB	LAPS	HAMW	HAMC	QSORT	GARHIGH
ASB	--					
LAPS	.64	--				
HAMW	.34	.40	--			
HAMC	.28	.30	.64	--		
QSORT	-.44	-.45	.28	-.36	--	
GAR HIGH	-.42	-.45	.49	-.54	.61	--

ASB = Antisocial Behavior Checklist
LAPS = Lifetime Alcohol Problem Score
HAMW = Hamilton Rating Scale - Worst ever
HAMC = Hamilton Rating Scale - Current
QSORT = Composite Psychological Health Q-Sort
GAR HIGH = Global Assessment of Functioning Scale (AxisV, DSM III-R)

et al. (1980), and Hasin, Grant, and Endicott (1988) (Table 21).

Multiple Regression

Multiple regression analyses (MRA) were conducted to study the relationship between the dependent variable (drug use diagnosis) and the non-substance specific indepndent variables. Before beginning these analyses, a strategy using composite variables was developed to resolve problems related to multicollinearity. Variables in the regression equation were intercorrelated, with Pearson's r's ranging from .28 to .64 (Table 22). Independent variables that were highly correlated were converted to z-scores and then added together with equal weighting into a single variable. This approach was justified since variables combined into the composite variables were multiple indicators of the same theoretical concept (Berry & Feldman, 1987, p. 48). A principal components factor analysis utilizing a varimax rotation was used to determine which variables would be appropriate for use in the regression equation. Using an eigenvalue of 1.0 as a cut-off, two composite variables were developed: (1) general psychopathology, which accounted for forty-seven percent of the variance, and (2) depression, which accounted for nineteen percent (Table 23).

Results from the regression analyses substance pertaining to use classification as the dependent variable are summarized in Table 24. The General (Lifetime) Psychopathology factor accounted for forty-seven percent of the variance of the dependent variable lifetime substance use patterns and thirty-two percent for current patterns. The second factor, depression, did not reach the entry criterion level required for inclusion into the regression equation. Further analyses were conducted examining the predictability of only the alcohol using groups. R^2 for these regressions were substantially lower, at seventeen percent for lifetime use, and seven percent for current use patterns. The lower score for the alcohol using groups is explainable since the variation within the sample

was reduced by reducing the number of subject in the analyses. Additionally it would be expected that lifetime psychopathology should be more strongly related to lifetime diagnosis and less strongly related to current diagnosis because lifetime diagnosis is a combination of past and present while current diagnosis is only for substance use in the past year.

Discriminant Function

A multivariate discriminant functions analysis provided a way to test whether these variables in factors can discriminate among the different drug use categories. The same variables selected for the regression procedure were used for the discriminant procedure. Two significant functions were generated using the six variables. For lifetime use, the first function accounted for ninety-six percent of the eigenvalue and had a canonical correlation of .71. The second function accounted for four percent of the eigenvalue and had a canonical correlation of .20. For current use, the first function accounted for ninety-nine percent of the eigenvalue and had a canonical correlation of .66. The second function accounted for four percent of the eigenvalue and had a canonical correlation of .02.

The relative contribution of each factor to the two functions are indicated by the absolute values of the weights show in Table 26 & 27. Group Centroids and Multivariate F's after the final step of the analyses are shown in the same table. Together the two functions correctly identified 44% of lifetime users and 39% of current users. Controls and DAAs were clearly the most distinguishable among the five groups with 75% and 68%, respectively, correctly classified for lifetime use. (Table 28) For Current Use, 90.5% of controls and 62% of DAAs were correctly classified. (Table 29).

Due to the high rate of misclassifications among the alcoholic and ASCD group, further analyses were conducted to determine whether ASCD were

more similar to alcoholics or DAAs. Table 30 & 31 illustrates that ASCDs are consistently misclassified as alcoholics. When the Alcoholic and ASCD groups were combined, the percent of grouped cases correctly identified increased to 76% and 71% for lifetime and current use respectively (Table 31).

Table 23.

Factor Loadings of Varimax Factor Solution for Dependent Variables: Two-Factor Solution

Instrument	Loading	
Factor I: General Psychopathology		
Lifetime Alcohol Problems Score	.76	.14
Antisocial Behavior Score	.73	.12
Composite Psychological Health Q-Sort	-.79	.02
Global Assessment of Functioning (AxisV)	-.76	-.26
Factor II: Depression		
Hamilton Rating Scale-Worst/Ever Depression	.52	.53
Hamilton Rating Scale-Current Depression	.54	.48

Table 24.

Predicting Lifetime and Past Year Substance Use from Psychopathology Characteristics: Stepwise Multiple Regression

(N=193)

Factor Score	Adj. R^2	R^2	F	p
Dependent Variable = Lifetime Diagnosis				
1. General Psychopatholgy	.468	.471	170.4	.000
2. Depression	.001	.472	.0015	ns
Dependent Variable = Past Year Diagnosis				
1. General Psychopathology	.316	.320	89.0	.000
2. Depression	.01	.330	1.52	ns

Note. Factor1 - General Psychopthology = LAPS, Anti-Social Behavior, Mental Health Q-Sort, AxisV-Highest level of Global Functioning.

Factor2 - Depression = HRSD-Current, HRSD-Worst/Ever

Table 25.

Predicting Lifetime and Past Year Substance Use from Psychopathology Characteristics: Stepwise Multiple Regression Analyses for the three alcohol using groups (N=149)

Factor Score	ADJ R^2	R^2	F	p
Dependent Variable = Lifetime Diagnosis[a]				
1. General Psychopatholgy	.164	.169	30.0	.000
2. Depression	.016	.185	2.33	ns
Dependent Variable = Past Year Diagnosis[a]				
1. General Psychopathology	.067	.073	11.7	.000
2. Depression	.0007	.0745	.103	ns

Note. Factor1 - General Psychopthology = LAPS, Anti-Social Behavior, Mental Health Q-Sort, AxisV-Highest level of Global Functioning.

Factor2 - Depression = HRSD-Current, HRSD-Worst/Ever

[a]Predicting the three alcohol using groups.

Table 26.

Results of the Discriminant Functions Analysis for Lifetime Use

Variables	Standardized Coefficient Function 1	Function 2
General Pathology	1.02	-0.40
Depression	-0.06	1.10

	Group Centroids		Multivariate F Goal Category			
Goal Category	Function1	Function2	control	Drug	Alc	ASCD
Control	-1.82	0.00				
Drug	-1.13	0.45	3.47**			
Alc	0.08	-0.32	22.85*	9.55*		
ASCD	0.05	-0.10	36.13*	11.34*	0.40	
DAA	1.25	0.15	84.77*	34.84 *	12.21*	22.72*

** p < .05 * p. < .0001

2, 187 Degrees of Freedom

Table 27.

Results of the Discriminant Functions Analysis for Current Use

Variables	Standardized Coefficient Function 1	Function 2
General Pathology	1.08	-0.35
Depression	-0.22	1.12

	Group Centroids		Multivariate F Goal Category		
Goal Category	Function1	Function2	control	Alc	ASCD
Control	-1.54	0.01			
Alc	0.30	-0.01	50.09*		
ASCD	0.22	-0.00	23.84*	.006	
DAA	1.34	0.04	58.22*	9.47*	6.97*

* p. < .0001

2, 187 Degrees of Freedom

Table 28.

Discriminant Functions Analyses Predictions of Lifetime Diagnosis from Factors

Actual Groups	Predicted Group Membership				
	Controls	Drug	Alc	ASCD	DAA
Controls	21	5	0	2	0
(n=28)	75.0%	17.9%	0.0%	7.1%	0.0%
Drug	7	6	1	1	1
(n=16)	43.8%	37.5%	6.3%	6.3%	6.3%
Alcoholic	3	3	7	5	4
(n=22)	13.6%	13.6%	31.8%	22.7%	18.2%
ASCD	8	13	24	17	15
(n=77)	10.4%	16.9%	31.2%	22.1%	19.5%
DAA	0	1	8	7	34
(n=50)	0.0%	2.0%	16.0%	14.0%	68.0%

Percent of "Grouped " cases correctly classified: 44.04

Table 29.

Discriminant Functions Analyses Prediction of Current Diagnosis from Factors

Actual	Predicted Group Membership			
Groups	Controls	Alc	ASCD	DAA
Controls	38	0	4	0
(n=42)	90.5%	0.0%	9.5%	0.0%
Alcoholic	19	17	39	29
(n=104)	18.3%	16.3%	37.5%	27.9%
ASCD	4	7	7	6
(n=24)	16.7%	29.2%	29.2%	25.0%
DAA	0	4	4	13
(n=21)	0.0%	19.0%	19.0%	61.9%

Percent of "Grouped " cases correctly classified: 39.27

Table 30.

Discriminant Functions Analysis Predictions of Lifetime Diagnosis Within the Alcoholic Subset of Men (N=149)

Actual Groups	Lifetime Predicted Group Membership Alc	ASCD	DAA
Alcoholic	11	6	5
(n=22)	50.0%	27.3%	22.7%
ASCD	32	29	16
(n=77)	41.6%	37.7%	20.8%
DAA	8	8	34
(n=50)	16.0%	16.0%	68.0%

	Current Predicted Group Membership ALC	ASCD	DAA
Alcoholic	21	53	30
(n=104)	20.2%	51.0%	28.8%
ASCD	7	12	5
(n=24)	29.2%	50.0%	20.8%
DAA	4	4	13
(n=21)	19.0%	19.0%	61.9%

Percent of "Grouped" cases correctly classified for Lifetime Diagnosis: 49.66
Percent of "Grouped" cases correctly classified for Current Diagnosis: 30.87

Table 31.

Discriminant Functions Analyses Predictions of Lifetime Diagnosis Within DAAs and other Alcoholic Men

Actual Groups	Lifetime Predicted Group Membership: Alc+ASCD	DAA
Alc+ASCD	68	20
(n=88)	77.3%	22.7%
DAA	12	33
(n=45)	26.7%	73.3%

	Current Predicted Group Membership: ALC+ASCD	DAA
Alc+ASCD	93	35
(n=128)	72.7%	27.3%
DAA	8	13
(n=21)	38.1	61.9%

Percent of "Grouped" cases correctly classified for Lifetime Diagnosis: 75.94
Percent of "Grouped" cases correctly classified for Current Diagnosis: 71.14

Table 32.

Summary Table of Significant Differences

According to Lifetime Diagnosis

Years of Educations	DAA, ASCD < ALC < DRUG < Control
Socio-Economic Status	DAA, ASCD, ALC < Control
Attendance at Religious Services	ASCD < Control
Mental Health Q-Sort	DAA < ASCD, ALC < DRUG < Control
Global Assessment of Functioning-Lifetime (Axis-V)	DAA, ASCD, ALC < DRUG, Control
Anti-Social Behavior	DAA > ASCD > ALC, DRUG > Control
Beck Depression Inventory	DAA, ALC > DRUG, Control
Hamilton-Current	DAA > Control
Hamilton-Worst/Ever	DAA > ALC, Control
Performance IQ	ASCD, ALC < Control
Verbal IQ	ALC < Control
Full Scale IQ	DAA, ASCD, ALC, DRUG < Control
Age of First Alcoholic Drink	DAA, DRUG < Control
Number of drug types used	DAA > ASCD, DRUG > ALC, Control
Number of Hassles	DAA > Controls

According to Current Diagnosis

Years of Educations	DAA, ASCD, ALC < Control
Socio-Economic Status	DAA, ASCD, ALC < Control
Attendance at Religious Services	ASCD < Control
Mental Health Q-Sort	DAA, ASCD, ALC < Control
Global Assessment of Functioning-Lifetime (Axis-V)	DAA < ASCD, ALC < Control
Anti-Social Behavior	DAA > ASCD, ALC > Control
Beck Depression Inventory	DAA > ASCD, Control
Hamilton-Current	DAA > Control
Hamilton-Worst/Ever	DAA > Control

Table 32 (cont'd).

Performance IQ	**DAA, ASCD, ALC < Control**
Verbal IQ	**ALC < Control**
Full Scale IQ	**ASCD, ALC < Control**
Age of First Alcoholic Drink	**DAA, ASCD < ALC, Control**
Age of first drug use	**DAA < DRUG**
Number of drug types used	**DAA > ASCD, ALC > Control**
Number of Hassles	**DAA > Controls**

Note. Group differences denote groups that are significantly different from each other at $p \leq .05$. Based upon Modified Least Significant Difference Analysis.

DISCUSSION

The results presented in this study are numerous and for the most part consistent with existing theory and prior research. These results indicate that alcohol and drug use are clearly related to patterns of adaptation among various non-drug specific domains such as psychopathology and demography. The results are also consistent with the developmental data on progression of drug use, with subjects experiencing higher levels of difficulty with increasing levels of substance use. Although the results presented strongly support the majority of the hypotheses, the findings are nonetheless limited by the cross-sectional nature of the study's design. This discussion systematically reviews the results and places them in the context of recent work.

The generalizability of the present findings is limited to caucasian men who are racially homogenous and ethnically limited. Second, the sample is fairly homogeneous; the adults are largely in their 30's, and they predominantly have young children. This is not necessarily a limitation, because differences within a restricted range may still be indicative of a more general process. Though still significantly damaged, these men are still less damaged than would be expected of alcoholics without intact families. The majority of the studies reviewed earlier made little attempt to control for family composition, and appear to be drawn from clinical populations further along in the progression of alcohol and drug related difficulties as described by Jellinek (1952) and Mulford (1977). As a result, the findings from the present study would be expected to differ.
Before reviewing the hypotheses, I would first like to address the use of current versus lifetime substance use patterns and the major divisions developed using group classifications based on substance use patterns.

Lifetime vs. Current Patterns

Diagnoses adhered to DSM-III-R (1987) criteria with the information used to make the diagnoses coming from the Diagnostic Interview Schedule (DIS) and from the Drinking and Drug History questionnaire. For some disorders, DSM-III-R requires that diagnosis be based on a cluster of symptoms occurring together, but for substance use disorders, symptoms are not required to occur at the same time (Helzer, Burnam & McEvoy, 1991). The current diagnosis, which examines patterns of use over the previous year, is therefore a more precise indicator of the immediate relationship of drug involvement to psychosocial adaptation than is the lifetime diagnosis, that may be based on symptoms occurring several years apart. On the other hand, lifetime diagnosis is an indicator of cumulative involvement and therefore results may differ.

Overall, only a few significant differences were found between using Lifetime and Current diagnoses as independent variables. Among those individuals meeting the lifetime diagnoses for the 'Drug' category, only two still met the criterion for current use. According to Helzer and his associates, approximately 3.8 percent of the population have a positive drug diagnosis without meeting the criteria for alcohol abuse or dependence, while 21 percent of the alcoholic population have a positive diagnosis for another drug abuse-dependence disorder. With two-thirds of their drug only group, marijuana is the only drug abused.

The only other differences involve level of income, number and severity of hassles, and age of first drug use. Current drug use was a better indicator of (lower) income than was lifetime use, while hassles significantly differed only for lifetime use (more hassles were associated with greater involvement). Income bordered on significance for lifetime diagnosis ($p.< .06$), and would possibly be significant if the sample were increased to provide more power. The lack of significant results for severity and number of hassles may be related to

two alcohol-related phenomena: denial of the occurrence of unpleasant events, and the tendency for alcohol consumption to block out unpleasant stimuli and reduce stressors, even though the stressors still may exist. Additionally, the number of individuals in the DUA groups decreased (Table 13), reducing the cell size and power for current use.

Age of first drug use was only significant for current use, suggesting that earlier use of drugs during the adolescent years may negatively affect the life trajectory of an individual by retarding the development and sustaining the use of drugs as a form of dealing with the environment.

Categorizing the Subjects

The subjects were classified into one of five categories to discern if there were any meaningful differences between the groups that would require special attention in terms of intervention or prevention. From the five major categories (DAA, ASCD, ALC, DRUG, CONTROL), three groups emerged as most salient: the first group consists of the DAAs; the second of ASCD and ALC, and the third, of the DRUG and control groups.

The DAAs were in most instances distinct and significantly different from the other groups, possessing the worst scores in the various domains addressed. Drug abusing or dependent alcoholics started their alcohol and drug using careers earlier, used a wider variety of drugs, were significantly more anti-social, had more alcohol related problems, suffered from higher levels of depression and reported more hassles. Additionally, DAAs had the lowest level of mental health, global functioning, SES and income. The majority of DAAs were diagnosed as severely dependent (64%) or moderately dependent (30%) on alcohol according to the DSM-III-R diagnostic criteria for substance abuse.

Alcoholics with sub-clinical drug use (ASCD) were grouped with the alcohol only group because they were more similar to non-drug using

alcoholics than to DAAs. In fact, discriminant function analysis incorrectly grouped the majority of ASCDs as Alcohol (Tables 28-31). Both sub-groups were significantly less anti-social, had fewer alcohol related problems and used a smaller array of drugs. The last group consisted of the controls and the drug only group. The drug only group was formed with controls that had had drug related symptoms during their lifetime, but never had enough to make a formal diagnosis of abuse or dependence. Although the drug only group was significantly different from the control group on mental health score and full-scale IQ, the Drug group was more similar to controls on the majority of the other measures.

Though the findings dictated the groupings in these different categories, they also present compelling evidence of a continuum with respect to substance use. For the majority of the data, trend analysis demonstrated that significant linear trends exist, with higher levels of psychopathology associated with greater consumption and abuse of substances. In addition, the likelihood of a more severe drug diagnosis increases with the severity of alcohol dependency. Of the 50 DAAs, 32 (64%) were diagnosed as severely dependent on alcohol (Table 3). Fifteen of the remaining eighteen DAAs were moderately dependent on alcohol. Only twenty-four percent of the ASCDs and eighteen percent of the alcohol only groups are severely dependent on alcohol. These findings clearly support the theory that substance use exists on a continuum, with higher levels of psychopathology associated with heavier substance use.

Social Support and Uplifts

All the hypotheses received support, except for the hypothesis predicting fewer uplifts for DUAs, and the hypothesis predicting fewer, less supportive networks for DUAs. For social support and uplifts, the lack of significant findings may be due to the homogeneity of the sample

in regard to the family's stage of development. Differences indicative of real decrements in social support may only appear further, if at all, in the process.

Earlier test may have been contaminated by potentially correlated variables. In addition to being married and having children, the subjects of the current study are all approximately the same age. Previous researchers have found age and marital status to affect the stresses an individual encounters and other individuals he interacts with (Helzer et al., 1991; Pachman & Foy, 1978; Steinglass, 1980). Age reflects the number of years of abusive drinking (Mulford, 1977) and drug use that will over time affect the physical health and types of symptoms related to an individual's experiences (Sokolow et al., 1981).

Adaptive Functioning and Mental Health

Similar to the study conducted by Carroll et al. (1980) which explored the psychosocial background of 1544 drug and alcohol abusers, the current study involved a population whose members had experienced many psychosocial problems. The subjects with higher levels of substance use displayed poorer global functioning and mental health, which may have resulted from the continuation or escalation of drug and alcohol use.

Antisocial Behavior and Alcohol Problems

Contrary to the findings of Helzer et al.(1990), antisocial behavior in this study was associated more with DUAs than with alcoholism alone. Helzer and his associates suggest that "in the past alcoholism was closely associated with other forms of social deviance, but as alcoholism has become more prevalent, less antisocial portions of the population have been affected by it" (p.101). The results of the current study, consistent with the NDACP study (Carroll et al, 1980), may reflect a more antisocial drinking population recruited from a

population of males convicted in local district courts for driving while under the influence (DWI) or driving under the influence (DUIL). Under these curcumstances (i.e., when a somewhat antisocial sample is recruited), the relationship may apply, but it may appear on the basis of the ECA data, to not be generally associated with alcoholism.

A second possible explanation for the inconsistency may be that DUAs are more antisocial than NDUAs. The DAAs, the majority of whom are severely alcohol dependent according to DSM-III (APA, 1980), were more prone to deviant behavior and had a higher lifetime alcohol problem score and a longer duration of alcoholism, as previously found by Helzer et al.(1990).

Depression

The results were consistent with the clinical literature and the study by Helzer et al.(1991) reporting higher levels of depression among alcoholics and highest among those further along in the continuum of alcohol and drug use.

Education and Demographic Variables

Overall, there was a downward trend in years of education as the level of substance abuse increased for both lifetime and current use. These findings are consistent with the work of Caroll et al.(1980) and Helzer et al.(1990). Closely related to educational level, socio-economic status and income were also lower for DUAs. Similar to the Helzer et al. study, level of substance use is inversely related to occupational status and income. Current income was found to be a better indicator of substance use, with DAAs earning on average $13,000-16,000 a year, ASCDs earned between $16,001-20,000, and controls earning $21,001-30,000.

Age

Contrary to the work of Carroll et al.(1980) and Menard and Huizinga, current age was not predictive of current or lifetime substance use. One possible explanation for the failure to replicate the results reported by Carroll et al. is related to the developmental differences between the samples being studied. Carroll et al. reported that alcoholics usually were around forty years of age and multiple drug users around twenty-six. Probably a better explanation is the restricted age range of the sample, which allows for a better analysis of group diffrences, except with respect to age. The NDACP study consisted of a clinical population, while the current study is unique in that the subjects are drawn from a non-clinical population of families in early stages of the alcoholic process.

Though current age was not significant, age of first drink and drug use are inversely related to level of current drug use. These findings support the findings of Hasin, Grant and Endicott (1988), Kandel (1978), Kaplan et al.(1986), Schuckit and Russel (1983), as well as work of Pandiva et al.(1990). Pandiva et al. posit that early substance abuse during the adolescent years negatively affects personal and social development with continued use perpetuating dysfunction across time, especially when substance use begins between the ages of 12-15.

Secondary Findings

Similar to the work of Kandel and Faust (1974), O'Donnel, Voss and Clayton (1976), and Sinnet, Wampler and Harvey (1972), all of which demonstrated that a respondent's drug-using repertoire can be summed up by simply knowing the most extreme drug ever used, lifetime DAAs on average have used five different drug types, while ASCDs used only two different drug types. As individuals progressed into higher levels of substance use, drugs became interchangeable with availability being the

primary criteria for use.

Future Directions

The results of this thesis clearly indicate that future research in the field of multiple drug use needs to differentiate between current and lifetime patterns of use, address the role of the family, and create an adequate composite index of multiple drug and alcohol use that is comprehensive and sensitive to the differences between drug types and patterns of use. As previously stated by Clayton (1986), research on multiple drug use should focus on the "development of a diagnostic tool that would allow clinicians to assess the problem of multiple drug use and use the information to link clients to appropriate treatment"(p.18).

The cross-sectional approach examines data at one moment across numerous groups in an attempt to discover how individuals' behaviors differ. It can not show the processes of change, although it may suggest clues about these processes (Baltes, Reese, & Nesselrode, 1977). The cross-sectional design is limited by cohort effects and the inability to show the process of development of the behaviors in question. However, this design permits the detection of putative developmental differences and gives direction for research on the longitudinal data base.

The scope of the current study should be increased to include spouses and children and allow for a better understanding of family ecology and the effects of alcohol and drug use on the family as a whole. Finally, as the Michigan State University Longitudinal Study progresses, longitudinal data collected on a larger sample will allow for a more definitive causal analysis of the processes that evolve as drug and alcohol involvement conjointly play themselves out over the life course.

Appendix A

November 1991

DRUG DIAGNOSIS SCORING MANUAL

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Michigan State University Longitudinal Study

General Instructions

The current algorithm for diagnosing drug use was adapted from the Handscoring Manual for the Diagnostic Interview Schedule (DIS) Version IIIA (1985), Feighner et al.'s (1972) criteria for drug dependence, and the DSM-III-R's (1987) diagnostic criteria for Psychoactive Substance Abuse.

Information for making the diagnoses is triangulated from the DIS (Structured Interview)(has been adapted by the MSU Longitudinal Study to provide additional information about age of first as well as most recent symptom for all items), and the Drinking and Drug History (DDHY) (self-administered questionnaire)(Zucker, Fitzgerald & Noll, 1990). See page 3, 4 and 5 of the manual for the items from the questionnaires.

In reviewing the questionnaires it was often noticed that the respondents underreported substance use during the DIS interview, while providing more information on questionnaires that they filled out on their own. In these cases, the more severe response was used in determining the diagnosis.

For the most part, the scoring algorithm (page 6-7) is self-explanatory. For the Lifetime Diagnosis, symptoms may occur at any point in time. For the Current Diagnosis, substance use must have been reported within the last twelve months, but the symptom need not have been present in the last twelve months. Diagnoses for the current study were based on overall drug use, but the score sheet allows for diagnoses by individual drug type. Information about specific drug types and ages for symptoms are provided by the DIS and DDHY.

Questions from the Diagnostic Interview Schedule (DIS)*

181. Now I'd like to ask about your experiences with drugs. Have you ever had any drugs on the list to get high or without a prescription, or more than was prescribed-that is on your own?

182. How old when you first used any of these drugs on your own?

183. Have you ever used (this drug/one of these drugs) on your own more than 5 times in your life?

184. Have you ever used one of these drugs or any other illicit drug every day for 2 weeks or more?

185. Have you ever used any of these drugs or any other illicit drug enough so that you felt like you needed it or dependant on it?

186. Have you ever tried to cut down on any drug but found you couldn't do it?

187. Did you find you needed larger amounts of these drugs to get high on the amount you used to use?

188. Have you ever has withdrawal symptom--that is, have you felt sick because you stopped or cut down on any of these drugs?

189. Did you have any health problems like fits, an accidental overdose, a persistent cough or infection as a result of using any of these drugs?

190. Did any of these drugs cause you considerable problems with family, friends, on the job, at school or with the police?

191. Did you have any emotional or psychological problems from using drugs--such as feeling crazy or paranoid or depressed or disinterested in things?

192. Did you ever tell a doctor about any problems with drug?
A. Did you talk to any other Professional about problems with drugs?
B. Did you use medication more than once for any of these problems with drugs?
C. Did any of these problems interfere with your life or activities a lot?

193. How old were you when you first had any of these problem with drugs?

194. When was the last time used daily or dependant or unable to cut down use?

* Questions numbers refer to the DIS Version IIIA.

Questions from the Drinking and Drug History

(Pages 9-12)

Use the followings scale to code items D to N:

0 occasions = 0	10-19 occasions = 4	100-1000 occasions = 7
1-2 occasions = 1	20-39 occasions = 5	More than 1000 = 8
3-5 occasions = 2	40-99 occasions = 6	
6-9 occasions = 3		

(D) 3. Marijuana	(E) 4. LSD	(F) 5. Psychedelics
Lifetime _____	Lifetime _____	Lifetime _____
Last 12 months _____	Last 12 months _____	Last 12 months _____
Last 30 days _____	Last 30 days _____	Last 30 days _____
(G) 6. Cocaine	(H)7. Ampethamines	(I) 8. Qualuudes
Lifetime _____	Lifetime _____	Lifetime _____
Last 12 months _____	Last 12 months _____	Last 12 months _____
Last 30 days _____	Last 30 days _____	Last 30 days _____
(J) 9. Barbituates	(K) 10. Tranquilizers	(L) 11. Heroin
Lifetime _____	Lifetime _____	Lifetime _____
Last 12 months _____	Last 12 months _____	Last 12 months _____
Last 30 days _____	Last 30 days _____	Last 30 days_____
(M) 12. Narcotics	(N) 13. Glue or spray	
Lifetime _____	Lifetime _____	
Last 12 months _____	Last 12 Months _____	
Last 30 days _____	Last 30 Days _____	

Questions from Drinking & Drug History (page 13) used for severity Criteria*

1. Missed school or time on job
2. Lost friends
3. Been divorced or separated
4. Been fired or laid off
5. Had a car accident when you were driving
6. Had to go to a hospital
7. Had to stay in hospital overnight
8. Had to see a doctor because of drug use (unintended overdose) or had doctor say drugs had harmed you health
9. Gone through physical withdrawal from drugs
10. Been arrested for possession or sales of drugs other than marijuana
11. Have you taken I.V. drugs (Y) (N) If yes, what kind_____

    Age first time_____ Age Last time_____

* Note. All item ask for number of times, age first time and most recent.

Respondent #_____ 84 DIS Age_____

Date of Scoring_____ Scorers Initials_____

DRUG DIAGNOSIS SCORESHEET

Number of Drug Types Used 0 1 2 3 4 5 6 7 8 9

A. HAS R USED DRUGS 5 TIMES? (DIS Q. 183 CODED 5) N Y

Circle drugs used and mark age of first use (FT) and most recent (MR).

Drug# 1)MJ 2)Amphet 3)Barb 4)Tranq 5)Coke 6)Heroin 7)Coke 8)Psyc 9)other

Age FT ____ ____ ____ ____ ____ ____ ____ ____ ____

Age MR ____ ____ ____ ____ ____ ____ ____ ____ ____

B. Pathological Use (3 or 5 coded on DIS) Circle N or Y; age listing after drug # indicates that symptom applies to that drug.

DIS Q.184A, 1-4,6 or N Y 1___ 2___ 3___ 4___ 6___ 7___

DIS Q.186A, 2-8 or N Y 2___ 3___ 4___ 5___ 6___ 7___

DIS Q.189A, 2,5-7 or N Y 2___ 5___ 6___ 7___

DIS Q.191A, 1,2,5,8 N Y 1___ 2___ 5___ 8___

C. Social Problem (3 or 5 coded)

DIS Q.190A, 1-8 N Y 1___ 2___ 3___ 4___ 5___ 6___ 7___ 8___

D. Severity (5 coded)

DIS Q.192, A,B, or C N Y 1___ 2___ 3___ 4___ 5___ 6___ 7___ 8___

or any Positive answers (yes) to Drinking Drug History pg. 13.

Items Number(s) answered Yes:_____

E. Tolerance or Withdrawal (3 or 5 coded)

DIS Q.187A, 1-4,6,7 or N Y 1___ 2___ 3___ 4___ 6___ 7___

DIS Q.188A, 2-4,6,7 N Y 2___ 3___ 4___ 6___ 7___