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Substance Abuse in a National Study of Disadvantaged
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Lisa C. Jordan

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**FAMILIAL AND SELF-CONCEPT VARIABLES RELATED TO SUBSTANCE
ABUSE IN A NATIONAL STUDY OF DISADVANTAGED YOUNG ADULTS**

By

Lisa C. Jordan

A THESIS

**Submitted to
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ABSTRACT

FAMILIAL AND SELF-CONCEPT VARIABLES RELATED TO SUBSTANCE ABUSE IN A NATIONAL STUDY OF DISADVANTAGED YOUNG ADULTS

By

Lisa C. Jordan

This study tested a model of self-concept as a "buffer" between exposure to substance abuse in the family system and outcomes of substance abuse in children of alcoholics. Descriptive analyses were conducted with data from the National Longitudinal Survey of Youth (NLSY). The analyses focused on a supplemental sample from the NLSY ($n = 4,777$) including African American, Hispanic, and low-income Caucasian youth.

It was anticipated that high self-concept (as measured by indices of self-esteem, locus of control, and level of aspirations/ expectations for academic success) would act as a "buffer," decreasing rates of substance abuse in high risk youth. This study found minimal support for the "buffer" model. The only confirmatory evidence was obtained from analyses using the self-esteem measure with females aged 24-27. While the evidence for the other groups was less conclusive, some interesting gender and age effects were identified. The findings suggested that self-concept may exert variable effects on substance use depending on the age and gender of the individual.

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INTRODUCTION

There has been considerable documentation and national attention to the relatively high rates of substance abuse among low-income and other disadvantaged populations. Lex's (1987) review of the literature on demographics and patterns of drug use among ethnic groups indicated that disadvantaged populations do not necessarily engage in more substance abuse across the board. Moreover, ethnic groups may be quite heterogeneous in their patterns of drug use and abuse. Membership in a disadvantaged group does not appear to be a sufficient cause for substance abuse (Lex, 1987; Windle, 1990). Intervening variables may significantly contribute to the decision to abuse substances.

These findings seem to indicate a need for broader analyses of the underlying phenomena in substance abuse. Studies that control for between-group differences and/or encompass within-group designs would be helpful in this regard. Because it provided a large subsample of low-income Caucasians, African Americans, and Hispanics, the National Longitudinal Survey of Youth (NLSY, conducted by the Center for Human Resource Research at Ohio State University) was of particular interest.

Prevalence of Substance Abuse among Young Adults

Data from national surveys on adolescent substance use indicate that, by the end of their senior year in high school, 93% of students have tried alcohol, 69% report having used alcohol in the past 30 days, and 37% drank heavily (five or more drinks at once) on at least one occasion during the past two weeks (Johnston, O'Malley, & Bachman, 1986). The same authors' Monitoring the Future Study found the following lifetime prevalence rates for drug use among 18-year-olds: 56% for marijuana, 23% for stimulants, 17% for cocaine, 11% for tranquilizers, 8% for opiates, and 8% for barbituates. Prevalence rates were substantially higher for a comparison group of 27- to 28-year-olds.

The National Institute on Drug Abuse (NIDA, 1986) found that rates of alcohol use were highest among young adults aged 18-25, with 72% of those surveyed indicating that they drank alcohol during the past month. Other studies indicate that, while this may be the period associated with the heaviest rates of alcohol abuse among Caucasians, drinking patterns among other ethnic groups may vary (e.g., African Americans and Hispanics, Brown & Tooley, 1989; Office for Substance Abuse Prevention, 1990).

Oetting and Beauvais (1990) reviewed the data on alcohol and drug use from national epidemiological studies, including the 1986 National Senior Survey and the 1988 American Drug and Alcohol Survey. Their analysis revealed that while reported

drug use by Mexican American youth was similar to that of Caucasian American youth, reported rates of use were significantly lower for African Americans. In these studies, 93-94% of white youth, 84-91% of Mexican Americans and 83% of African American youth indicated that they had drank alcohol and gotten drunk at least once in their life.

The National Longitudinal Survey of Youth (NLSY) data show that 75.6% of youth aged 17-24 in a cross-sectional sample reported drinking alcohol during the past month, with the rate being higher for males than females. Approximately 48% were categorized as heavy drinkers (Grant, Harford, & Grigson, 1988). Other investigations revealed that the heaviest drinking was reported by males between the ages of 20-23; for females, the heaviest drinking group were 19-year-olds (Crowley, 1983; 1985a).

Regarding alcohol-related problems, NIDA (1990) reported that the most common negative experiences from drinking were feeling aggressive (26%) and getting into heated arguments while drinking (19.8%). Less commonly reported problems were: fear of becoming an alcoholic (11%), difficulty stopping (9%), and nearly losing a job because of drinking (2%). Rates of problems experienced were significantly related to the number of the times respondents reported getting drunk over the past year. The prevalence rates for negative alcohol-related consequences in the NLSY sample are comparable to those reported by NIDA (see Crowley, 1985a). Negative consequences

were correlated with each other and also with level of alcohol consumption.

Many constructs have been posited to be associated with the use of illicit substances during adolescence and young adulthood; these include both environmental and intrapsychic processes. Self-concept and exposure to norms of social deviance are prominent among the reasons posited. The present study attempts to test a longitudinal model that incorporates both environmental exposure (in the family system) and the intrapsychic construct of self-concept to predict young adults' drug usage.

Theoretical Background

The following section includes a development and rationale for the intrapsychic constructs of self-esteem, locus of control, and aspirations/expectations of future success in relation to substance abuse among children of alcohol-abusing parents.

Self-Esteem

Many theories on the etiology of substance abuse propose at least an indirect link between self-esteem level and the tendency to use mood-altering substances destructively. For example, Kaplan (National Institute on Drug Abuse [NIDA], 1980) hypothesized a central role of self-rejecting attitudes (resulting from previous negative experiences with important norm groups, such as same-age peers) in his Self-derogation theory of substance abuse. According to this theory, substance

use is usually initiated in an attempt by the individual to reduce the experience of negative, self-rejecting attitudes.

Steffenhagen (NIDA, 1980) further elaborated on this concept in his Self-esteem theory of substance abuse. Steffenhagen contended that while low self-esteem may serve as an impetus for drug initiation, especially for those seeking immediate gratification (or relief), low self-esteem alone is insufficient to account for drug initiation. The individual's social milieu (e.g., peer group, family environment) provides the opportunities for, and approval of, drug initiation. In essence, low self-esteem may be a moderator variable that makes the individual more prone to social pressures to use drugs or increases the probability that drug use will be seen as a viable coping mechanism. This would explain the failure of many studies to find direct and strong correlations between self-derogation and substance abuse.

The reasons for initiation (intrapsychic and interpersonal) may make the person with low self-esteem more vulnerable to move quickly to drug abuse after initiation. Steffenhagen posited that drug use provided immediate gratification, a defense against personal insecurities and feelings of inferiority, and some degree of freedom from social responsibility (NIDA, 1980). In essence, this theory suggests that the abuse of substances is an attempt to deal with painful emotions or conflicts by using the mode of adaption most readily available in the person's ego

functioning at that moment (Krystal & Raskin, 1970).

Due to the dysfunctional relationship patterns in families of substance abusers, and the modelling of maladaptive coping mechanisms, children of these families may develop defensive structures that make them more vulnerable to self-devaluing experiences. Their family dysfunction may also leave them devoid of means of dealing with negative experiences in ways other than the abuse of substances. Ultimately, children of substance abusers may be expected to have poorer self-concepts.

There is a body of literature, including empirical studies, that supports the self-esteem or self-derogation model of substance abuse. Several studies have found that substance-abusing youth score lower on measures of self-concept and self-esteem than their peers (Pandina & Schuele, 1983; Parish & Parish, 1991; Yanish & Battle, 1985).

In a study comparing adolescents in treatment for substance abuse with non-treatment controls, treatment group members reported that low self-concept and inability to cope were factors that precipitated their drug use (Svobodny, 1982). Similarly, Newcomb, Bentler and Collins' (1986) longitudinal study of 640 adolescents found a correlation between self-derogation and later alcohol use. This study corroborated Kaplan's theory by showing that use of alcohol during adolescence was significantly related to decreases in reported self-derogation during young adulthood.

Locus of Control

Ego/Self theory (Khantzian, cited in NIDA Research Monograph 30; 1980) also highlighted the role of disturbances in self-concept as related to substance abuse and other lapses in self-care. According to Khantzian, drug use is one way in which the "addiction-prone" person may use the external world to fulfill the need for a sense of well-being, security, and pleasure. Poor defenses and low self-esteem were considered as underlying factors in the "addiction-prone" individual's heavy reliance on the external environment for satisfaction of intrapsychic needs and desires. Substance abuse also was posited as a general failure in self-protective functions that deterred persons from dangerous and/or self-destructive behaviors. The self-protective mechanisms were considered to be related to self-esteem in that a person must have "sufficient self-esteem to feel oneself to be worth protecting" (Khantzian & Mack, 1983, p. 210).

If this theory is correct, there is reason to believe that drug initiation and progression to abusive usage is affected by predisposing intrapsychic factors, such as low self-esteem and high externality. Given such predisposing factors, one would expect that persons who abused drugs would score lower on measures of self-esteem and be more externalizing than nonabusers or nonusers. This hypothesis has been corroborated by the results of several empirical studies. Jurich and Polson (1984) surveyed a paired sample of

48 drug-using and drug-abusing high school students and found that the drug users were more likely to report recreational reasons for use. Drug abusers were more likely to report using drugs to ameliorate feelings of distress and disillusion, and to cope with low self-concept or external locus of control. Martin and Pritchard (1991) reported that, among 8,661 college students aged 20-21, White males from higher socioeconomic classes, with weak family orientations and external locus of control, tended to drink more frequently and consume more alcohol per drinking episode than other students.

Aspirations and Expectations

Closely related to self-esteem are the individual's hopes and expectations for the future. Much research documents the negative correlation between academic involvement, high aspirations, or hopefulness regarding future success and the tendency to engage in deviant behavior, like substance abuse (Bechtel & Swisher, 1992; Jessor & Jessor, 1977; Labouvie & McGee, 1986; Newcomb, Bentler, & Collins, 1986; Newcomb & Bentler, 1988a; Newcomb, Fahy, & Skager, 1988). Jessor and Jessor (1977) posited this relationship as a social control factor, and subsequent research has supported this hypothesis. It has been found that attachment to the family and school, and a commitment to traditional values decreases the likelihood of engaging in deviant behavior (Kaplan, Martin, & Robbins, 1984).

Regarding educational aspirations and substance abuse, Jessor and Jessor (1977) found that students who had strong attachments to school, valued academic achievement, and had high academic aspirations and expectations of success were less likely to abuse substances. The academic involvement measures were significantly correlated with rates of alcohol consumption over the past year and marijuana use. On repeated measures of substance abuse, those students who shifted from nonuse to use during a one year period had previously assigned less value to academic achievement than those who did not become substance users.

Similarly, Newcomb and Bentler's (1986) study of 479 high school students revealed that educational plans (i.e., how much school do you expect to complete?) and a measure of Academic Potential (including Grade Point Average) were negatively correlated with self-reported use of drugs over the past six months. The authors concluded that "a negative perception of one's future opportunities is significantly predictive of increased alcohol use from adolescence to young adulthood" (p.492).

Donovan, Jessor and Jessor (1983) found that adolescent problem drinkers had lower expectations of academic recognition and placed less value on academic achievement prior to excessive drinking. In a study linking self-derogation, general deviance and academic involvement, Kaplan, Martin, and Robbins (1984) found a direct path between

perceived rejection by people at school, the perceived self-enhancing potential of deviant behavior, and subsequent alcohol or marijuana use.

REVIEW OF THE LITERATURE

Although several researchers have explored the relationship between self-esteem/self-concept and substance abuse, the findings have been mixed. The mechanisms by which perceptions of self relate to deviant responses, such as drug abuse, remain unspecified. Some researchers have found negative correlations between alcohol consumption patterns and self-esteem or feelings of self-worth (Yanish & Battle, 1985). These studies have typically compared alcoholics with nonalcoholic drinkers and consistently shown that the latter scored higher on measures of self-esteem. Other investigations, however, have failed to yield significant correlations between self-esteem or self-concept and measures of substance use (Jessor & Jessor, 1977; Labouvie & McGee, 1986; Martin & Pritchard, 1991; Wells & Rankin, 1983).

A noted concern with this literature is the fact that many studies have been cross-sectional, precluding determination of the direction of causality between self-derogating experiences and substance abuse (Newcomb, Bentler, & Collins; 1986). Additionally, most studies have examined the direct link between self-concept and substance use without considering other risk factors, such as the family history of

substance abuse, which also contribute to the respondents' use of substances.

Due to the transitional nature of the period between adolescence and young adulthood, the likelihood of naturally occurring changes in self-esteem and feelings of self-derogation must also be considered when using constructs related to self-concept. Kaplan, Robbins, and Martin (1984) cited research which suggested that between the ages of 13 and 14 marking the transition from junior high school to high school, there is a slight decrease in ratings of global self-esteem. Self-ratings were found to increase between the ages of 14 and 15, and stabilize by age 18 (Kaplan, Robbins, & Martin, 1984). These factors will be taken into consideration by this study as the relationship between family alcohol abuse and self-esteem of the participants is examined.

Children of Alcoholics

The literature on the vulnerability of children of alcoholics is equivocal, much like that on self-concept and substance abuse. In a well-cited metanalytic review of the literature on family incidence of alcoholism, Cotton (1979) concluded that compared to relatives of non-alcoholics, the rates of alcoholism were substantially higher among those with alcoholic relatives. Similarly, in regards to adolescent substance use, Kandel and Jessor and Jessor suggested that "prior association with users of a particular drug is the strongest predictor of an individual's use of that drug"

(Kaplan, Martin, & Robbins, 1984, p.279).

Research on children of substance abusers indicates that use of illicit drugs among adolescents is correlated with parental use of the same substances and attitudes towards drug use in general (Fawzy, Coombs, & Gerber, 1983; Johnson, Shontz, & Locke, 1984; Prendergast, 1989). Kandel (1978) reported that 82% of drinking families had youth who drank also, while 72% of abstaining families produced abstainers. Of the families with parents who drank hard liquor frequently, 76% had substance using children. Barnes, Farrell, & Cairns (1986) reported similar results although lower percentages with a sample of 124 families. Other studies on children of alcoholics have corroborated the hypothesis of a strong relationship between having alcoholic parents and abusing substances later in life (Coombs & Paulson, 1988; Drake & Vaillant, 1988; Gfoerer, 1987; Gross & McCaul, 1991; Hyphantis, Koutras, Liakos, & Marselos, 1991; Kandel, Kessler, & Margulies, 1978; McDermott, 1984; Newcomb & Bentler, 1988b; Sher, Walitzer, Wood, & Brent, 1991).

Contrarily, Alterman, Searles, and Hall (1989) failed to find significant differences in alcohol involvement between male college students in a sample of 83 respondents with and without alcoholic parents or second degree relatives. These authors cited previous studies (e.g., Knop, Teasdale, Schulsinger, & Goodwin, 1985; Schuckit & Sweeney, 1987) that also failed to find the hypothesized differences in problem

substance use for children of alcoholics. In a study of 1,308 youth, Pandina and Johnson (1989) found that some indicators of problem alcohol use were more prevalent among children of alcoholics (e.g., experiencing negative consequences of drinking), while others were not (e.g., early onset of drinking, frequent intoxication, and drinking for escape reasons). Respondents from alcohol abusing families were slightly more likely to use marijuana heavily, but this effect only held for the oldest age group in the sample. These authors suggested that the level of problem use among youth from substance abusing families may be partly determined by the time frame during which substance use is assessed. The most reliable window was the period between late adolescence and early adulthood (e.g., 18 to 21 years of age).

In a re-evaluation of this study, Pandina & Johnson (1990) concluded that the vast majority (88%) of the respondents with a family history of substance abuse could not be classified as having alcohol or drug-related problems. Additionally, they noted that a small percentage (6%) of respondents with no reported family history of substance abuse were found to have problems as severe as those with a family history. This was interpreted as evidence that having alcoholic parents was not a sufficient predictor of adult vulnerability to substance misuse. Conversely, not having a family history of substance abuse was not a sufficient protector against later substance abuse.

Some researchers have reported gender differences in substance use by children of alcoholics. For instance, Sher, Walitzer, Wood, and Brent (1991) found that in a group of 253 children of alcoholics, male children of alcoholics reported heavier alcohol consumption, more negative consequences of drinking, and more dependency symptoms than females.

In terms of psychosocial characteristics it has been postulated that children of alcoholics may have distinctive personality deficits, including lower self-esteem and more external locus of control (Barnard & Spoentgen, 1986; Berkowitz & Perkins, 1988; Cermak & Rosenfeld, 1987; Kern, et al., 1981; McNeill & Gilbert, 1991; Rearden & Markwell, 1989; Wallace, 1987). Some researchers have found evidence of specific adjustment problems in children of substance abusers. For instance, Berkowitz and Perkins' (1988) study of a group of 860 late-adolescent and young adult children of alcoholics found that these children, although similar to their peers by most personality measures, were more likely to report feelings of self-depreciation. McNeill and Gilbert (1991) found that being external orientated was significantly related to having a parent who drank heavily.

Regarding academic involvement, Hyphantis, Kourtras, Liakos, and Marselos' (1991) investigation of 8,000 high school students found that children of alcoholics had considerably poorer school performance than did their same-aged peers. This finding has been corroborated by other

studies (e.g., Sher, Walitzer, Wood, & Brent, 1991). As discussed above, the relationship between academic involvement, social deviance, and substance use has been explicated by other researchers.

Resilience as a Protective Mechanism

These studies indicate the importance of modelling of deviant behaviors within the family system, as well as the role of family socialization in determining an individual's self-concept and coping abilities. However, it has been noted that while children of substance abusers may be at a greater risk for negative outcomes including poor self-concept and substance abuse, not all children of alcoholics become substance abusers. Certain protective mechanisms seem to insulate or "buffer" some individuals from even the most dysfunctional families. Several theoretical approaches have been developed to address this issue of resilience.

Rutter (1985) noted that it is unusual for more than half of children of dysfunctional families to succumb and repeat the dysfunction. He hypothesized that protective mechanisms could be found in the environment, in the individual's constitution, or some combination of both. Rutter defined protective mechanisms as "influences that ameliorate, or alter a person's response to some environmental hazard that predisposes to a maladaptive outcome" (1985, p. 600). Thus, these protectors may not make the person healthy, or invulnerable, but may instead mediate responses to situational

adversity. Protection is posited to develop as a result of experiencing appropriate social controls, positive role models, or at least one good interpersonal relationship.

The work of Kaplan and Jessor and Jessor highlighted the importance of social control, school involvement, and attachment to traditional values as protective factors. Marston et al. (1988) also found that resilient children of alcoholics reported higher academic achievement. Perhaps a connection with positive role models outside the family underlies the protective nature of attachment to conventional values and aides the person in developing a positive self-concept, despite family dysfunction.

Positive self-concept has been noted by several authors as a protective mechanism against negative outcomes. Advocates of containment theory suggest that a positive self-concept may serve as an "insulator against deviance" (Reckless, et al., 1956; Reckless, 1967; Schwartz & Tangri, 1965; Voss, 1969; cited in Kaplan, Robbins, & Martin, 1984, p. 78). This mechanism may be particularly effective when the factors necessary social controls and socialization are inhibited, as with children of substance abusers.

Garmezy (1985, cited in Rutter, 1987) reviewed the literature on stress-resilient children and concluded that protection was due to three broad factors: 1) personality features, such as self-esteem, 2) family cohesion and lack of discord, and 3) the availability of external support systems

that encouraged or reinforced the child's coping efforts (p. 316).

Similarly, Werner and Smith (1982) found that in a longitudinal study of Kauai children, protection from family dysfunction was associated with having a supportive kin relationship, being dispositionally good-natured (as assessed during infancy), and having a positive self-concept among other factors. Werner (1986) suggested that self-esteem moderated for the effects of family alcoholism. The resilient children of alcoholics tended to do well in school, had realistic expectations for the future, had internal loci of control and higher self-esteem. They were also predominantly (72%) female.

STATEMENT OF THE PROBLEM

Although it has been documented that children of alcoholics are at risk for a number of psychological problems, including poor self-concept and a propensity towards substance abuse, it is also acknowledged that many children of alcoholic parents escape these negative outcomes. Studies on resilient children have been limited and the nature of protective or moderator factors has not been explored sufficiently to understand their operation. The available literature has tended to focus on the effects of either self-concept or family history of substance abuse in isolation as opposed to examining their interactive nature.

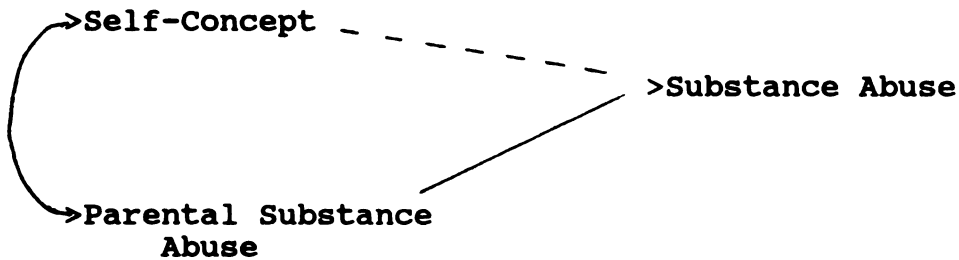
As discussed above, one hypothesis is that children of dysfunctional families who have the benefit of self-enhancing experiences outside the home, are able to develop positive self-concepts and are thus protected from negative outcomes. There is reason to believe that social class may be confounded with availability of self-enhancing experiences. For the purposes of this study, parental educational level will be used as a controlling factor in analyses comparing children of alcoholics and children of non-alcoholics. Previous literature has established this measure as a marker of social

class (e.g., Richman, Clark, & Brown, 1985). Additionally, parental educational level has been found to be correlated with self-esteem (Richman, Clark, & Brown, 1985) and substance use (Fawzy, et al., 1987; Schinke, et al., 1992; Zucker & Harford, 1983).

The literature on substance abuse among youth shows fairly consistent gender differences in both patterns of use and experience of negative consequences of use (e.g., Bachman, Johnston, & O'Malley, 1981; Cervantes, Gilbert, de Snyder, & Padilla, 1991; Donovan, Jessor, & Jessor, 1983; Humphrey, Stephens, & Allen, 1983; Lex, 1987). These studies indicate that males generally engage in heavier substance use and experience more problems as a result of drug and alcohol use. Previous studies with the NLSY data have corroborated these gender differences within this sample (Crowley, 1983, 1985a, 1985b; Windle, 1990a). Gender effects will be addressed in this study by separate analyses of drug and alcohol use measures by age and by gender.

The present study will attempt to draw connections between the literature on self-concept, family history, and outcomes of substance abuse. Self-concept will be tested as a "buffer" or moderator of the relationship between exposure to substance abuse in the family system and outcomes of substance abuse in the children of these families (see Figure 1).

Figure 1. The "Buffer" Model



*Note dotted lines indicate negative correlations

Since some of the literature reviewed suggested that parental substance abuse leads to deficits in personal adjustment, the issue of whether there is a significant relationship between parental substance abuse and respondents' self-concept will be addressed first. Secondly, the extent to which self-concept moderates the relationship between family history and respondents' substance use will be tested. The relationship between parental substance use and substance use by their offspring has been fairly well established by previous literature and will not be the major focus this study. The focus will be on exploring the moderating effects of self-concept. If children of alcoholics are indeed found to have poorer self-concepts and self-concept is found to moderate the relationship between family substance abuse and respondents' substance use, this will provide evidence for the

"buffer" model and add to the understanding of factors related to risk and resilience among children of alcoholics. Findings from this study will be generalizable to U. S. ethnic minorities (particularly African and Hispanic Americans) and low-income populations, due to the nature of the NLSY sample. It also will not be biased by school attendance, as the data were collected from a stratified national sample.

HYPOTHESES

Previous findings have suggested that different measures of self-concept (particularly self-esteem and locus of control) are likely to be correlated although they may represent conceptually distinct realms of personality (Churchill, Broida, & Nicholson, 1990; McNeill & Gilbert, 1991; Werner & Broida, 1991).

In light of this, I propose to test the following hypotheses related to self-esteem/self-concept and substance abuse:

(1) measures of self-esteem, aspirations of future academic success, and locus of control will be correlated positively; that is, respondents with high scores on the self-esteem scale will be more likely to report higher aspirations of future success and endorse more items reflecting internalization on the locus of control measure. The opposite will be expected for respondents who score low on the self-esteem scale. Conversely, each of these three facets of the self-concept is predicted to be negatively correlated with the reported discrepancy between aspirations and expectations of academic success.

(2) children of substance abusers will score lower on measures

of self-esteem, aspirations for academic success, and have higher externality scores and larger aspiration-expectation discrepancies than children of nonabusers,

(3) the "buffer" hypothesis will be supported, as evidenced by significant interaction effects of the self-concept variables with family history of alcohol abuse in the prediction of substance use by the respondents, and

(4) the relationship between family history and self-concept will be stronger in older adolescents and young adults than in younger adolescents due to the stabilization of the self-concept measures in late adolescence.

METHOD

This study was based on data available from the National Longitudinal Surveys of Labor Market Experience (Center for Human Resource Research, 1990) which collected information on substance abuse and self-concept as it related to labor market participation in youth. The survey involved three different age cohort groups ($N = 12,686$). This study focused on the youth sample (National Longitudinal Survey of Youth, NLSY).

Sample

The analyses for this study utilized data from a supplemental sample of the NLSY youth cohort (original $n = 5,295$; number interviewed at the last survey year $n = 4,777$), which consisted of Hispanic ($n = 1,480$), African American ($n = 2,172$), and economically disadvantaged Caucasian youth ($n = 1,643$). The NLSY sampling design was based on a stratified national probability sample of people born between the years of 1957 and 1964, with moderate oversampling for African American, Hispanic and low-income Caucasian youth. The selected youths aged 14-22 were interviewed through personal household contacts or telephone interviews beginning in 1979 and surveyed annually thereafter with a 90% retention rate.

From this sample, all respondents who reported having

one or more problem-drinking or alcoholic parents were selected as a high risk group. In the analyses, this sample of youth with one or two alcohol-abusing parents was compared on the self-concept and substance use measures to the youth who did not report having alcohol-abusing parents.

Procedures

Table 1 lists the collection dates of the NLSY variables used in this study and ages of respondents at the time of collection. The files that provided these selected data were:

(1) the Alcohol and Substance Use file in which data was collected during 1982-5 and 1988 and focused on measures of alcohol use (last 7 days and last 30 days), developmental drinking patterns, and impact of alcohol use on school and/or job behavior for the period of 1982-5. The 1988 survey also collected information regarding relatives of respondents who were alcoholic or problem drinkers, including the relationship of the respondent to the relative and the amount of time the respondent resided with these relatives. Many of the alcohol questions were adapted from the National Health Interview Surveys conducted by the U.S. Bureau of Census.

Grant, Harford, and Grigson (1988) conducted a reliability study using the NLSY alcohol measures. Although no reliability data existed previously for the self-report alcohol measures, these authors found that answers to lifetime prevalence questions (collected in 1982 and 1983)

Table 1. Selected NLSY Variables, Dates Collected, and Respondents Age

Years Collected	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Respondents' Age	14-22	15-23	16-24	17-25	18-26	19-27	20-28	21-29	22-30	23-31
Common Demographic Information	(X)									
Ethnic self Identification										
Highest grades completed by parents										
Educational Aspirations and Expectations	(X)			X						
Rotter I-E scale		(X)								
Rosenberg S-E scale		(X)							X	
Alcohol Use										
Ever had a drink				X	X	(X)	X			X
Q/F* - last month				X	X	(X)	X			X
A/D* symptoms						(X)	X			X
Family history of Alcohol abuse										(X)
Drug Use										
Lifetime use of marijuana						(X)				X
Lifetime use of other drugs						(X)				
Age of first use						(X)				X

Note: Circled values indicate the data used for this study.

*Q/F = Quantity/Frequency

*A/D = Abuse/Dependency

were fairly consistent. Only 2% of the youth who had reported having ever drank in 1982 denied this in 1983. This mild degree of error could be attributed to normal memory processes and suggested little intentional bias in the reporting. Respondents' reports of having "ever used" alcohol showed acceptable consistency across years.

Responses to problem drinking items were less stable over time. Mensch and Kandel's (1988) review of the NLSY alcohol and drug use data found that of respondents who reported having drinking-related problems in 1982, only half reported having such problems during their lifetime in 1983.

(2) The Drug use file included data from the 1984 and 1988 surveys and provided information on age at first use and extent of use of cigarettes, marijuana, and all other illicit and non-prescription drugs used during those years, including a retrospective account of respondents' use of marijuana/hashish during 1979-1984. Frequencies of lifetime use, recency of use over the last year, and frequency of use in the last month were asked for each drug classification. For the purposes of this study, lifetime frequencies were used. The most comprehensive drug data were collected during the 1984 survey year, so all analyses were based on those data. For consistency, the alcohol use data from 1984 were also used.

It should be noted that respondents' confidentiality was maintained by coding all responses from the alcohol and drug files with identification numbers only. The refusal rates to

these questions was less than 1%. This did not insure that respondents were completely comfortable answering the questions or that they were always honest. A comparison of responses by NLSY participants with those of other national drug surveys, such as the Monitoring the Future study and the General Household Survey, revealed evidence of underreporting in the NLSY sample (Mensch & Kandel, 1988). For example, the reported frequencies of lifetime and current use of marijuana were lower than expected based on population norms and developmental progression of drug use. NLSY respondents were generally less likely to admit to heavy use of marijuana. Lifetime prevalence for illicit drug use was also lower than expected, with underreporting of inhalants being the most substantial. However, reported lifetime frequencies of illicit drug use were higher in the NLSY sample. Mensch and Kandel indicated that nonreporting of drug use was twice as likely for African Americans and Hispanics as for Caucasians.

While the issue of underreporting of drug use among minorities has been identified by previous epidemiological studies, few researchers have dealt with the matter directly. The reasons for nonreporting by minorities remains somewhat of a mystery; however, some authors (e.g., Johnson, Bachman, & O'Malley, cited in Mensch & Kandel, 1988) have suggested that minority group members are less likely to trust the research process. Feeling threatened by sensitive survey items, minorities may have a tendency to underreport socially

undesirable behaviors.

There is also considerable debate in the psychological literature over the validity of self-report and questionnaire data for sensitive topics, such as substance abuse. However, self-report and questionnaire data are commonly the most readily available sources of data. The NLSY study relied primarily upon participant's verbal responses to items regarding their own and their relatives' substance use. While the NLSY data revealed patterns of underreporting and overreporting of certain drug categories, overall it was found that respondents reported their substance use with an acceptable level of reliability (Crowley, 1985b; Grant, Harford, & Grigson, 1988). Previous researchers (e.g., Gfoerer, 1985; Mensch & Kandel, 1988; Polich, 1982) have also concluded that self-report information regarding respondents' own substance use is generally valid and reliable. In a review of studies using self-report measures of substance use, Gfoerer (1985) found that most studies of young adults concluded that reliable and valid self-report measure could be obtained, given the appropriate conditions (e.g., maintenance of privacy).

The substance abuse literature has identified certain biases associated with use of participants' ratings of parental drinking patterns. This method usually does not address problem severity or allow the researcher to differentiate among different subtypes of alcoholism.

Additionally, ratings of parental alcoholism by their offspring tend to result in more false negatives than false positives (Sher, Walitzer, Wood, & Brent, 1991). Most research indicates that relatives are much better at determining who was not an alcoholic than who was. Thus, reports of family alcoholism are considered to be fairly reliable (Rogosch, Chassin, & Sher, 1990; Russell, 1990).

3) The Attitude file provided information on locus of control, self-esteem, and aspirations/expectations (see discussion below). These were collected in the 1979 and 1980 surveys.

(4) The Common Demographic Information file provided information on the respondents' race, gender, and family background which were primarily collected during the initial survey year, except for the respondents' annual income, marital status, and whether they had completed high school or received a GED. The latter information was collected during the 1984 survey year.

Measures

Rotter Locus of Control Scale

Locus of control was assessed using four selected items from the Rotter Internal-External Locus of Control scale (LOC; Rotter, 1966) administered in 1979. Items on the Locus of Control scale were forced choices between two statements reflecting either an internally or externally oriented personality style. Respondents are asked to choose the

statement that best applied to them, then to indicate whether the chosen statement corresponded closely or slightly to their true opinion.

At this time, no information is available on the reliability or validity of the abbreviated Rotter LOC scale used in this survey. Studies using the full 23-item scale indicate that the Rotter scale has adequate test-retest stability, however; the validity of the unidimensional construct of locus of control that this scale attempts to measure is questionable. Several researchers have noted problems interpreting the internal-external factor based on item endorsements, due to the fact that item alternatives are not symmetrical and have not been proven to measure opposite constructs (e.g., Little, 1977; Roberts & Reid, 1978; Tyler, Gatz, & Keenan, 1979).

Rotter (1966) reported test-retest stability coefficients ranging from .49 to .83 for the 23-item Rotter LOC scale with various samples and with intervals of one week to two months. Internal consistency coefficients ranged from .65 to .79. Subsequent studies have generally supported the full scale's reliability. In a study of 247 recent graduates of a liberal arts college, Little (1979) reported stability coefficients of .64 for the Rotter LOC scale over a thirty-month interval.

Factor analytic studies using the Rotter LOC scale have established its multi-dimensionality, with different studies identifying between two and five independent factors on the

measure. Tyler, Gatz, and Keenan's (1979) item analysis revealed a structural imbalance of the test in that certain domains were more highly represented than others.

Marsh and Richards (1986) tested the scale on 71 participants (mean age = 22) in a 26-day Outward Bound program designed to alter Locus of Control, among other personality factors. Criterion validity of Rotter's LOC scale was modestly supported with a correlation of .34 between self- and observer-responses. Construct validity was supported somewhat in that participants scored significantly higher on the Rotter LOC scale after completion of the program. A study comparing the Rotter LOC scores of 541 high school students with their scores on the MacDonald-Tseng test (which was based on a factor analysis of the Rotter LOC items) supported its concurrent validity by a .42 intermeasure correlation.

A discussion by Omizo, Omizo, and Michael (1987), noted that the Rotter LOC scale may not be appropriate for younger individuals, because they are subject to the controlling influence of various institutions of authority (e.g., parental, educational, legal). Thus, scores on the Rotter LOC scale may have different connotations for adolescents than for adults. However, these authors also noted that, despite the problems with the Rotter scale, no similar questionnaires have been proven valid for adolescents. Some researchers have found different factor loadings of the Rotter LOC scale between ethnic groups and suggest that cultural values and

experiences may significantly influence responses (Roberts & Reid, 1978; Garza & Widlak, 1977). These issues are particularly relevant to the present study.

Rosenberg Self-Esteem Scale

Self-esteem was measured using the Rosenberg Self-Esteem (S-E; Rosenberg, 1965) scale administered in 1980. The measure consisted of ten items rated on a four-point Likert scale of strongly agree to strongly disagree. Seven of the items are worded in a positive direction, indicating high self-esteem; three of the items are worded in a negative direction.

The validity and reliability of the Rosenberg S-E scale are consistently supported in the literature. Rosenberg (1965) originally tested the measure on a sample of 5,024 randomly sampled high school students in the U.S. and reported a scale reproducibility coefficient of .92. Subsequent studies have examined the internal consistency and test-retest reliability of the measure and found it to be reasonably stable.

Goldsmith (1986) found internal consistency values of .96 with a sample of 97 college students and .90 with a sample of 87 adults from the general population. Byrne (1983) administered the Rosenberg S-E scale to 929 high school students and found a stability coefficient of .62 over seven months. Convergent validity was supported by a .58 correlation between the Rosenberg S-E scale and the General

Self subscale of the Self-Esteem Inventory (Eagly, 1967; cited in O'Brien, 1985). O'Brien found support for the unidimensionality of the scale in a sample of 206 female college students. However, Goldsmith (1986) cited studies that extracted two to three independent factors from the Rosenberg S-E items.

Aspirations and Expectations

Expectations of future educational and occupational attainment were measured in 1979 and 1982. The 1979 data were used in this study. For educational obtainment, respondents were asked "what is the highest grade or year of regular school, ..., college, or graduate school that you would like to complete?" and "what is the highest grade or year you think you will actually complete?" (rated on a scale of 1-13, 1 = first grade; 13 = more than five years of college). The difference between these two measures provided an index of contrast between aspirations and expectations or a sense of hope for one's future.

For the purposes of this study, the independent variables fell into categories related to family history of problem drinking and the proposed moderating measures of self-concept. The specific measures used were as follows:

I. Family History

A. Family Alcoholism

The extent of exposure to familial substance abuse was measured by selecting respondents who indicated in the 1988

survey that they had a biological parent who was a problem drinker. Analyses were conducted based on three groups: those who denied having a parent with a drinking problem, those who reported having one parent with a drinking problem, and those who reported having two parents with drinking problems.

B. Length of Exposure

The level of exposure to an alcoholic parent was measured by the amount of time the respondent reported living with a problem-drinking parent. Responses to the 1988 survey item "For how many years did you live with your (relative) while (he/she) was an alcoholic or problem drinker?" were selected for respondents with problem drinking parents. A mean number of years was computed for those who reported having lived with two alcoholic parents.

II. Self-Concept

A. Rotter LOC scale

Coded responses to the four items of the Rotter LOC scale from the 1980 survey were summed to form a total score for LOC of each respondent, with high scores indicating high internality.

B. Rosenberg S-E scale

Endorsements on the ten items from the Rosenberg S-E scale administered in 1980 were summed to form a total Self-Esteem score for each respondent, with high scores indicating high self-esteem.

C. Educational Aspirations

Educational aspirations were assessed using the response to one questionnaire item from the 1979 survey, as discussed above.

D. Aspiration-Expectation Discrepancy

The difference between the respondents educational aspirations and expectations was computed by subtracting the reported grade the respondent expected to complete from what they wanted to complete. These measures were both collected in 1979.

III. Dependent Variables

The outcome measures consisted of eight variables derived from the 1984 survey data. These variables measured the level of substance use and indices of negative consequences of drug involvement. They were:

A. Ever Had a Drink

This measure consisted of responses to one item which was "Have you ever had drink of an alcoholic beverage?" This was a dichotomous measure. For respondents who indicated that they had not had never drank, the other alcohol use items were not administered.

B. Average Daily Quantity (ADQ)

The ADQ of alcohol consumption during the last month was computed by summing across six alcohol frequency items (e.g., number of days had one drink, ... number of days had six or more drinks) and dividing by 30 days. This measure was used

previously by Windle et. al (1989, 1990a, 1991) and Miller-Tutzauer, Leonard, and Windle (1991) for the NLSY data set. Respondents who denied having drunk in the last month were not asked the following questions about frequency of heavy drinking, alcohol-related problems, or dependency symptoms.

C. Frequency of Heavy Drinking (FHD)

The FHD during the last month was computed by summing across two items assessing the number of times the respondent had five, six, or more drinks per day during the last month. This measure was used by Miller-Tutzauer, Leonard, and Windle (1991).

D. Alcohol-Related Problems

A measure of alcohol-related problems was derived by summing across ten dichotomous items assessing alcohol-related aggression or interference with work and/or school (e.g., "During the past year, have you gotten into a fight while drinking?"). This scale was constructed by Miller-Tutzauer, Leonard, and Windle (1991). These authors reported internal consistency (Cronbach's alpha) of .65 for the scale using the 1984 data of 10,594 NLSY respondents.

E. Alcohol Dependency Symptoms

A measure of self-reported alcohol dependency symptoms was derived by summing across eight dichotomous items assessing the extent of dependence on alcohol (e.g., "During the past year, have you sometimes kept on drinking after promising yourself not to?"). This scale was used previously

by Windle et. al (1989, 1990a, & 1991) and by Miller-Tutzauer, Leonard, and Windle (1991). Windle (1989) reported internal reliability (Kuder-Richardson) of .68 for the 1985 NLSY data. Miller-Tutzauer, Leonard, and Windle reported a Cronbach alpha coefficient of .66 using the 1984 data for 10,594 NLSY respondents.

F. Lifetime Use of Marijuana

This measure was assessed by the following item: "In your lifetime, on how many occasions have you ever used marijuana or hashish?"

G. Lifetime Use of Illicit Drugs

Lifetime use of other drugs was computed by summing across nine variables assessing the number of times the respondent had ever used the specified drugs. This summation of lifetime frequencies was divided by the total number of years the respondent had been using drugs. The resulting index was a measure of the average number of times the respondent used illicit drugs during each year since the earliest reported use.

H. Level of Drug Experimentation

This index was constructed by summing across the dichotomous "ever used" items for each of the ten specified drug categories. The resulting index was a measure of the number of different drugs a respondent had used during his or her life.

RESULTS

Data Analysis Strategy

In testing the relationship between parental alcohol abuse, self-concept, and substance use by study participants, age and gender effects were controlled for by analyzing the data separately for four different groups: males aged 19-23, females aged 19-23, males aged 24-27, and females aged 24-27 in 1984. Although identical analyses were conducted for the full sample (see Appendix, Tables 7A-10A), this section will focus on the results for the four groups.

Hypotheses I and II were tested with Pearson product-moment and partial correlation coefficients. Hypothesis III, the test of the "buffer" model, was tested by two methods of analysis. The first consisted of a Multivariate Multiple Regression test for the main effects of Family Alcoholism on the eight dependent variables. The second step involved a series of hierarchical regression analyses testing the main effects of Family Alcoholism, Family Alcoholism with each moderator variable, and the interactions between them. The hierarchical regression analyses were run for each possible combination of Family Alcoholism, moderator variable, and dependent variable. For each test, the main effects of Family

Alcoholism were entered on step 1; the main effects for the moderator variable were entered on step 2; and the interaction (the product of the independent variable and the moderator variable) was entered on step 3.

This method of testing for moderator effects was based on the work of previous authors (e.g., Barron & Kenny, 1986; Rogosch, Chassin, and Sher, 1990; Jaccard, Turrisi, & Wan, 1990). According to Barron and Kenny (1986), a moderator is a "qualitative or quantitative variable that affects the direction and/or strength of the relationship between an independent or predictor variable and a dependent or criterion variable" (p. 1174). Conceptually, moderators serve to buffer the impact of a known vulnerability (in this case, family history of alcohol abuse). Statistically, this relationship can be represented as an interaction between the independent variable and the proposed moderator variable. The moderator hypothesis would be supported if the independent and moderator variables each showed significant main effects and the interaction term, or the product of the two variables, was significant. Moderator variables must account for an additional percent of the variance which is statistically significant. Jaccard, Turrisi, and Wan (1990) suggested that hierarchical tests are most appropriate for partialling out the additional effects of moderator variables.

Demographic Characteristics

Table 2 depicts the sociodemographic characteristics of the NLSY respondents. The respondents' age and parental education levels were collected in 1979; the annual income, marital status, and completion of high school or GED were collected in 1984. The information is presented by the scores on the Family Alcoholism variables. For subsequent analyses, the three groups were treated independently, except when the two groups with alcoholic parents were combined. As Table 2 indicates, notable discrepancies between the groups were identified on annual income, marital status, and high school completion. Children of alcoholics tended to have lower annual incomes, were more likely to be married and less likely to have completed high school or received a GED than children of non-alcoholics.

Descriptive Statistics

Tables 3, 4, and 5 display the correlations among the independent and dependent variables (also see Appendix, Tables 1A & 2A). Table 6 shows the means and standard deviations for each of the dependent variables. These analyses revealed that Family Alcoholism and Length of Exposure to alcoholism were highly correlated ($r = .74$). The Length of Exposure variable did not contribute significantly to the prediction of the outcome variables beyond what was accounted for by Family Alcoholism. Thus, in order to avoid redundancy and the problems of multicollinearity, the Length of Exposure variable

Table 2. Sociodemographic Characteristics of the Sample by Family Alcoholism

	FAMALCH=0 ^a (N=3497)	FAMALCH=1 (N=830)	FAMALCH=2 (N=72)
Respondent's Age in 1979	<u>M</u> = 17.71 <u>SD</u> = 2.27	<u>M</u> = 17.68 <u>SD</u> = 2.34	<u>M</u> = 18.08 <u>SD</u> = 2.18
Mother's Education Level ^b	<u>M</u> = 9.04 <u>SD</u> = 4.47	<u>M</u> = 9.14 <u>SD</u> = 4.28	<u>M</u> = 9.36 <u>SD</u> = 4.3
Father's Education Level	<u>M</u> = 7.52 <u>SD</u> = 5.74	<u>M</u> = 7.71 <u>SD</u> = 5.28	<u>M</u> = 8.43 <u>SD</u> = 5.22
Respondents Aged 19-23 in 1984			
Annual Income ^c	Median = 2,000	Median = 1,500	Median = 2,000
Marital Status	Never Married=79% Married = 14% Separated = 2% Divorced = 1%	Never Married=79% Married = 16% Separated = 2% Divorced = 1%	Never Married=79% Married = 21% Separated = 0% Divorced = 0%
Completion of High School or GED	Yes = 62% No = 33%	Yes = 56% No = 43%	Yes = 41% No = 59%
Respondents Aged 24-27 in 1984			
Annual Income ^c	Median = 6,000	Median = 4,400	Median = 3,250
Marital Status	Never Married=53% Married = 33% Separated = 4% Divorced = 3%	Never Married=49% Married = 37% Separated = 6% Divorced = 7%	Never Married=35% Married = 43% Separated = 9% Divorced = 9%
Completion of High School or GED	Yes = 71% No = 23%	Yes = 68% No = 30%	Yes = 61% No = 35%

^aNumber of Alcoholic Biological Parents^bHighest Grade Completed by Respondent's Parent^cRespondent's Total Income in Wages and Salary for 1984

Table 3. Correlations Among Family Alcoholism and Self-Concept Variables in 1979/1980 (ns range 4931 - 5287)

	ALCHEXP ^b	ASP ^c	DIFF ^d	LOC ^e	S-E ^f
FAMALCH ^a	.74**	-.04**	.02	-.02	.02
ALCHEXP		-.04*	.01	-.01	.02
ASP			.32**	.19**	.08**
DIFF				-.07**	-.01
LOC					.09**

*p < .05, ** p < .01, two-tailed

^aFamily Alcoholism (1988 survey)

^bLength of Exposure (1988 survey)

^cEducational Aspiration

^dAspiration-Expectation Discrepancy

^eRotter Locus of Control Scale

^fRosenberg Self-Esteem Scale

Table 4. Correlations Among Dependent Measures at Ages 19-28 (ns range 4385 - 5034)

	ALCPROBS ^b	ADQ ^c	FHD ^d	ALCHDEP ^e	AVEDRUGS ^f	VARDRUGS ^g	MJ ^h
DRANK ^a	.11	.16	.10	.11	.08	.18	.19
ALCPROBS		.39	.34	.56	.21	.30	.15
ADQ			.89	.48	.18	.30	.15
FHD				.44	.15	.22	.12
ALCHDEP					.19	.26	.15
AVEDRUGS						.66	.14
VARDRUGS							.40

Note. p < .01 for all entries

^aEver Had a Drink

^bAlcohol-Related Problems

^cAverage Daily Quantity

^dFrequency of Heavy Drinking

^eAlcohol Dependency Symptoms

^fAverage Yearly Use of Illicit Drugs

^gLevel of Drug Experimentation

^hLifetime use of Marijuana

Table 5. Correlations Between Independent Variables, Moderator Variables, Alcohol-Related Problems, Alcohol Dependency Symptoms, and Drug Experimentation

	FAMALCH ^a	ALCHEXP ^b	ASP ^c	S-E ^d	LOC ^e	DIFF ^f
Females Aged 19-23 (<u>ns</u> range 985 - 1166)						
ALCPROBS ^g	.13**	.07**	-.03	.00	.00	.05
ALCHDEP ^h	.14**	.07*	-.09**	-.02	.01	.01
VARDRUGS ⁱ	.23**	.13**	-.11**	-.04	-.00	.00
Males Aged 19-23 (<u>ns</u> range 1036 - 1247)						
ALCPROBS	.11**	.11**	-.07*	-.04	.01	.01
ALCHDEP	.14**	.11**	-.09**	-.12**	-.06*	.03
VARDRUGS	.19**	.18**	-.03	.03	.01	.01
Females Aged 24-27 (<u>ns</u> range 1206 - 1430)						
ALCPROBS	.13**	.07**	.02	-.09**	-.01	.03
ALCHDEP	.12**	.08**	-.03	-.10**	-.04	.04
VARDRUGS	.15**	.08**	.11**	-.06*	.06*	.03
Males Aged 24-27 (<u>ns</u> range 999 - 1189)						
ALCPROBS	.05	.02	.01	.00	-.04	.03
ALCHDEP	.09**	.09**	-.11**	-.09**	-.13**	-.01
VARDRUGS	.08**	.05	.07*	.02	.01	.09**

* $p < .05$, ** $p < .01$, two-tailed

^aFamily Alcoholism

^bLength of Exposure

^cEducational Aspiration

^dRosenberg Self-Esteem Scale

^eRotter Locus of Control Scale

^fAspiration-Expectation Discrepancy

^gAlcohol-Related Problems

^hAlcohol Dependency Symptoms

ⁱLevel of Drug Experimentation

Table 6. Descriptive Statistics for Dependent Variables at Ages 19-28 ($n = 4576$)

	M	<u>SD</u>
Ever Had a Drink ^a	.92	.26
Alcohol-related Problems ^b	.32	1.05
Alcohol dependency Symptoms ^c	.41	.89
Average daily Quantity ^d	.44	.80
Frequency of heavy Drinking ^e	1.16	3.33
Lifetime use of Illicit drugs ^f	50.70	164.04
Level of drug Experimentation ^g	1.12	1.54
Lifetime use of Marijuana ^h	381.72	457.59

^aEver Had a Drink (yes/no%)

^bAlcohol-Related Problems (sum of ten dichotomous items)

^cAverage Daily Quantity (drinks per day)

^dFrequency of Heavy Drinking (5+ drinks per day)

^eAlcohol Dependency Symptoms (sum of eight dichotomous items)

^fAverage Yearly Use of Illicit Drugs (mean of nine items, range = 0 - 1,000 or more Occasions; 0 = Never Used, 1 = 1-9 Occasions, 2 = 10-39 Occasions, 3 = 40-99 Occasions, 4 = 100-999 Occasions, 5 = 1,000 or more Occasions)

^gLevel of Drug Experimentation (sum of ten dichotomous items)

^hLifetime use of Marijuana (one item, coding same as for Average Yearly Use of Illicit Drugs)

was dropped from the remaining analyses.

Another important finding from these exploratory analyses was that Family Alcoholism was most consistently and highly correlated with three of the outcome measures: Alcohol-related problems, Alcohol Dependency Symptoms, and Level of Drug Experimentation. This section will focus on the results with these outcome measures. Correlations and regression tests with the remaining outcome variables are reported in the Appendix.

Other preliminary analyses with the independent measures revealed that the reported mother and father educational levels were correlated positively ($r = .64$, $p < .01$). The parents' educational level and the educational aspirations and expected level of attainment reported by the respondents were also correlated positively (r s ranging from .28 to .33, $p < .01$). Thus, the parents' educational level was pooled and used as a controlling factor in the correlation of between-group differences on self-concept. Parental education level is considered to be an index of socio-economic status and was used to control for the possible effects of familial social class on the respondents' reported self-concept.

Hypothesis I: Correlation of self-concept measures

It was predicted that the four measures of self-concept would be correlated positively: high self-esteem, high internality, high educational aspirations, and low difference scores would be correlated as would low scores on the same

indices. Table 3's positive correlations between the Self-Esteem, Locus of Control, and Educational Aspiration indices and negative correlations between the Aspiration-Expectation Discrepancy score and the other measures supported this hypothesis. All correlations were significant at the .05 level of confidence, except between the Aspiration-Expectation Discrepancy score and Self-Esteem. Except for the .32 correlation between Educational Aspirations and Discrepancies, these associations were relatively small, ranging from $-.07$ to $.19$. Educational aspirations and expectations were highly correlated ($r = .84, p < .01$).

Hypothesis II: Family alcoholism and respondent's self-concept

The second hypothesis predicted that children of alcoholics would score lower on the measures of self-concept, that is, they would report lower self-esteem, higher externality, lower educational aspirations, and a larger discrepancy between their educational aspirations and expected level of attainment. This hypothesis was tested using partial correlations that controlled for the reported educational level of the respondents' parents.

The results partially support this formulation, as the number of alcoholic parents was significantly negatively correlated with the reported Educational Aspiration level ($r [df = 4663] = -.06, p < .01$) and the Discrepancy score ($r [df = 4663] = -.03, p < .05$). No significant correlations were found between Family Alcoholism and Self-Esteem or Locus of

Control.

Hypothesis III: Moderator effects of self-concept measures

In Hypothesis III it was predicted that a moderator effect would be found between familial problem drinking or alcoholism and indices of substance use by the respondents. This hypothesis was tested by two methods, as noted earlier.

Table 7 shows the results for the first part of this analysis, the Multivariate Multiple Regression. The overall multivariate model using Family Alcoholism as a predictor of the eight substance use measures with the entire sample was significant.

While the results for the overall model were significant, Family Alcoholism only accounted for a small percent of the variance in the outcome measures. The largest percent (2.1) accounted for was in Level of Drug Experimentation. Level of Drug Experimentation increased .14 units for each one-unit increase in Family Alcoholism.

Tables 8, 9, 10, and 11 present the independent hierarchical regression analyses by age and gender. These analyses tested for the main effects of Family Alcoholism and the four moderator variables in predicting Alcohol-Related Problems, Alcohol Dependency Symptoms, and Level of Drug Experimentation. (See Appendix, Tables 3A-6A, for the hierarchical regression results for the remaining outcome measures).

Table 7. Summary Results of Multivariate Multiple Regression Analysis Predicting Substance Use Variables (N = 4068): The Main Effects of Family Alcoholism on the Outcome Measures

Predictor	Outcome Variable	Beta	R ²	F	p
Family Alcoholism	Level of drug experimentation	.144	.021	85.72	<.01
	Lifetime use of marijuana	.102	.010	42.64	<.01
	Alcohol-related problems	.097	.009	38.74	<.01
	Alcohol dependency symptoms	.095	.009	36.99	<.01
	Lifetime use of illicit drugs	.077	.006	24.43	<.01
	Ever had a drink	.065	.004	17.24	<.01
	Average daily quantity	.037	.001	5.58	<.05
	Frequency of heavy drinking	.030	.001	3.60	.05

Table 8. Hierarchical Regression Analyses Predicting Outcomes from Family Alcoholism, Self-Esteem, and their Interactions

Outcome Variable	Family Alcoholism		W/ Self-Esteem		Interaction	
	R ²	Beta	R ² /Ch	Beta	R ² /Ch	Beta
Females aged 19-23 (n = 677)						
Alcohol-related Problems	.016** F=15.2	.128** t=3.90	.000 F=.28	.129** t=3.92	.000 F=.38	-.087 t=-.25
Alcohol dependency Symptoms	.021** F=19.29	.144** t=4.39	.000 F=.12	.145** t=4.40	.000 F=.01	.183 t=.52
Level of drug Experimentation	.060** F=58.04	.245** t=7.62	.000 F=.48	.243** t=7.55	.003 F=2.43	-.290 t=-.85
Males aged 19-23 (n = 661)						
Alcohol-related Problems	.017** F=15.48	.130** t=3.94	.000 F=.44	.130** t=3.93	.006* F=5.63	.902** t=2.76
Alcohol dependency Symptoms	.017** F=15.73	.131** t=3.97	.014** F=12.77	.130** t=3.96	.000 F=.38	.330 t=1.01
Level of drug Experimentation	.029** F=27.29	.171** t=5.22	.004 F=3.42	.172** t=5.25	.001 F=1.29	-.196 t=-.60
Females aged 24-27 (n = 1343)						
Alcohol-related Problems	.013** F=14.36	.114** t=3.79	.009** F=9.66	.111** t=3.68	.000 F=.11	.21 t=.68
Alcohol dependency Symptoms	.022** F=24.38	.148** t=4.94	.007** F=7.28	.145** t=4.84	.000 F=.34	.323 t=1.06
Level of drug Experimentation	.026** F=28.66	.160** t=5.35	.004* F=4.77	.158** t=5.28	.000 F=.52	.378 t=1.24
Males aged 24-27 (n = 1133)						
Alcohol-related Problems	.002 F=2.12	.049 t=1.45	.000 F=.15	.049 t=1.45	.000 F=.08	.166 t=.39
Alcohol dependency Symptoms	.001 F=.85	.031 t=.92	.005* F=4.75	.032 t=.95	.001 F=1.24	-.434 t=-1.0
Level of drug Experimentation	.003 F=2.65	.055 t=1.63	.001 F=.79	.055 t=1.62	.002 F=1.50	-.458 t=-1.1

Note: These Beta weights are for Family Alcoholism only.

*p < .05, **p < .01, two-tailed.

Table 9. Hierarchical Regression Analyses Predicting Outcomes from Family Alcoholism, Educational Aspiration, and their Interactions

Outcome Variable	Family Alcoholism		W/ Educational Aspiration		Interaction	
	R ²	Beta	R ² /Ch	Beta	R ² /Ch	Beta
Females aged 19-23 (n = 677)						
Alcohol-related Problems	.016** F=15.2	.128** t=3.90	.000 F=.09	.128** t=3.88	.003 F=2.91	.018 t=.25
Alcohol dependency Symptoms	.021** F=19.29	.144** t=4.39	.000 F=.17	.143** t=4.37	.001 F=1.19	.073 t=1.02
Level of drug Experimentation	.060** F=58.04	.245** t=7.62	.005* F=5.08	.241** t=7.52	.006* F=6.14	.086 t=1.23
Males aged 19-23 (n = 661)						
Alcohol-related Problems	.017** F=15.48	.130** t=3.94	.006* F=5.51	.128** t=3.88	.003 F=2.51	.218** t=3.32
Alcohol dependency Symptoms	.017** F=15.73	.131** t=3.97	.013** F=12.06	.128** t=3.90	.000 F=.32	.160* t=2.45
Level of drug Experimentation	.029** F=27.29	.171** t=5.22	.002 F=1.50	.171** t=5.19	.003 F=3.21	.272** t=4.16
Females aged 24-27 (n = 1343)						
Alcohol-related Problems	.013** F=14.36	.114** t=3.79	.001 F=.91	.116** t=3.84	.003 F=3.22	.008 t=.12
Alcohol dependency Symptoms	.022** F=24.38	.148** t=4.94	.000 F=.29	.149** t=4.96	.000 F=.16	.125 t=1.86
Level of drug Experimentation	.026** F=28.66	.160** t=5.35	.018** F=19.90	.168** t=5.64	.000 F=.05	.154* t=2.31
Males aged 24-27 (n = 1133)						
Alcohol-related Problems	.002 F=2.12	.049 t=1.45	.000 F=.162	.049 t=1.46	.001 F=.50	.096 t=1.29
Alcohol dependency Symptoms	.001 F=.85	.031 t=.92	.013** F=11.07	.032 t=.95	.000 F=.07	.015 t=.20
Level of drug Experimentation	.003 F=2.65	.055 t=1.63	.006* F=5.27	.054 t=1.61	.001 F=1.14	-.017 t=-.23

Note: These Beta weights are for Family Alcoholism only.

*p < .05, **p < .01, two-tailed

Table 10. Hierarchical Regression Analyses Predicting Outcomes from Family Alcoholism, Educational Aspiration-Expectation Discrepancy, and their Interactions

Outcome Variable	Family Alcoholism		W/ Discrepancy Score		Interaction	
	R ²	Beta	R ² /Ch	Beta	R ² /Ch	Beta
Females aged 19-23 (n = 677)						
Alcohol-related Problems	.016** F=15.2	.128** t=3.90	.002 F=1.96	.127** t=3.87	.007** F=6.91	.085 t=2.33
Alcohol dependency Symptoms	.021** F=19.29	.144** t=4.39	.000 F=.03	.144** t=4.38	.001 F=1.19	.126** t=3.46
Level of drug Experimentation	.060** F=58.04	.245** t=7.62	.000 F=.01	.245** t=7.61	.004 F=3.47	.215** t=6.02
Males aged 19-23 (n = 661)						
Alcohol-related Problems	.017** F=15.48	.130** t=3.94	.000 F=.35	.131** t=3.95	.000 F=.44	.142** t=3.81
Alcohol dependency Symptoms	.017** F=15.73	.131** t=3.97	.001 F=.52	.132** t=3.99	.000 F=.25	.140** t=3.77
Level of drug Experimentation	.029** F=27.29	.171** t=5.22	.000 F=.00	.172** t=5.22	.003 F=2.30	.146** t=3.95
Females aged 24-27 (n = 1343)						
Alcohol-related Problems	.013** F=14.36	.114** t=3.79	.001 F=.99	.113** t=3.73	.005* F=5.43	.076* t=2.24
Alcohol dependency Symptoms	.022** F=24.38	.148** t=4.94	.000 F=.33	.147** t=4.90	.001 F=1.59	.127** t=3.76
Level of drug Experimentation	.026** F=28.66	.160** t=5.35	.001 F=.86	.159** t=5.30	.001 F=1.49	.140** t=4.14
Males aged 24-27 (n = 1133)						
Alcohol-related Problems	.002 F=2.12	.049 t=1.45	.001 F=.76	.048 t=1.42	.001 F=.08	.060 t=1.57
Alcohol Dependency Symptoms	.001 F=.85	.031 t=.92	.000 F=.00	.031 t=.93	.000 F=.08	.026 t=.69
Level of Drug Experimentation	.003 F=2.65	.055 t=1.63	.008** F=6.89	.052 t=1.54	.000 F=.00	.052 t=1.37

Note: These Beta weights are for Family Alcoholism only.

*p < .05, **p < .01, two-tailed

Table 11. Hierarchical Regression Analyses Predicting Outcomes from Family Alcoholism, Locus of Control, and their Interactions

Outcome Variable	Family Alcoholism		W/ Locus of Control		Interaction	
	R ²	Beta	R ² /Ch	Beta	R ² /Ch	Beta
Females aged 19-23 (<i>n</i> = 677)						
Alcohol-related Problems	.016** F=15.2	.128** <i>t</i> =3.90	.000 F=.01	.128** <i>t</i> =3.90	.005* F=4.50	-.191 <i>t</i> =-1.24
Alcohol dependency Symptoms	.021** F=19.29	.144** <i>t</i> =4.39	.001 F=1.00	.144** <i>t</i> =4.40	.001 F=.71	.017 <i>t</i> =.11
Level of drug Experimentation	.060** F=58.04	.245** <i>t</i> =7.62	.000 F=.01	.245** <i>t</i> =7.61	.002 F=2.01	.036 <i>t</i> =.24
Males aged 19-23 (<i>n</i> = 661)						
Alcohol-related Problems	.017** F=15.48	.130** <i>t</i> =3.94	.000 F=.00	.130** <i>t</i> =3.93	.000 F=.22	.198 <i>t</i> =1.34
Alcohol dependency Symptoms	.017** F=15.73	.131** <i>t</i> =3.97	.001 F=.97	.130** <i>t</i> =3.94	.000 F=.26	.204 <i>t</i> =1.38
Level of drug Experimentation	.029** F=27.29	.171** <i>t</i> =5.22	.001 F=.69	.172** <i>t</i> =5.24	.002 F=1.71	.360** <i>t</i> =2.45
Females aged 24-27 (<i>n</i> = 1343)						
Alcohol-related Problems	.013** F=14.36	.114** <i>t</i> =3.79	.000 F=.36	.114** <i>t</i> =3.77	.003 F=3.14	-.123 <i>t</i> =-.90
Alcohol dependency Symptoms	.022** F=24.38	.148** <i>t</i> =4.94	.000 F=.37	.149** <i>t</i> =4.95	.000 F=.05	.120 <i>t</i> =.88
Level of drug Experimentation	.026** F=28.66	.160** <i>t</i> =5.35	.003* F=3.81	.162** <i>t</i> =5.40	.000 F=.15	.213 <i>t</i> =1.57
Males aged 24-27 (<i>n</i> = 1133)						
Alcohol-related Problems	.002 F=2.12	.049 <i>t</i> =1.45	.001 F=.98	.050 <i>t</i> =1.49	.000 F=.05	.016 <i>t</i> =.10
Alcohol dependency Symptoms	.001 F=.85	.031 <i>t</i> =.92	.013** F=11.88	.035 <i>t</i> =1.06	.000 F=.39	-.062 <i>t</i> =-.39
Level of drug Experimentation	.003 F=2.65	.055 <i>t</i> =1.63	.000 F=.29	.054 <i>t</i> =1.61	.001 F=1.10	-.109 <i>t</i> =-.68

Note: These Beta weights are for Family Alcoholism only.

p* < .05, *p* < .01, two-tailed

The hierarchical regression analyses revealed that while the main effects of Family Alcoholism were almost always significant, the self-concept variables did not consistently add to the variance accounted for by Family Alcoholism. Self-Esteem and Educational Aspiration accounted for significant additional variance in about half of the subsequent analyses (5/12 and 6/12, respectively). The Aspiration-Expectation Discrepancy measure and Locus of Control rarely accounted for any significant additional portion of the variance (1/12 and 2/12, respectively). As in the Multivariate Multiple Regression for the overall model, the percent of additional variance accounted for was very small. No moderator variable accounted for more than 2% of the variance in the outcome measures. Each of the interaction effects that was significant accounted for less than 1% of the variance.

Hypothesis IV: Age-related differences

It was predicted that significant moderator effects would be more likely for older respondents. This hypothesis was also partly supported. Some age differences in the effects of the moderators were identified in the regression results. For example, Self-Esteem contributed significantly to the variance accounted for in each of the outcome measures in the group of older females (see Table 9), but not for the other groups. Contrarily to what was hypothesized, Family Alcoholism had the least significant effects in the group of older males and no significant moderator effects were identified. Additionally,

the data from the younger females revealed more significant interaction effects overall than any of the other groups. Four of the six statistically significant interaction effects were for this group.

The analyses also revealed one other gender effect: Educational Aspirations accounted for significant additional variance more often for males than for females (4/6 and 2/6, respectively, see Table 10).

DISCUSSION

This study sought to identify linkages in the substance abuse literature on family history of alcoholism and self-concept as independent predictors of drug and alcohol use in a sample of disadvantaged young adults. Due to the fact that analyses were not run with the general sample, the results from this study may be specific to ethnic minority group members and low-income Caucasians, but not to the general population. Analyses revealed that while some of the specific hypotheses of this study were supported, generally the relationships were statistically significant, but not large enough to support interpretations of practical significance. The "buffer" model of self-concept as a moderator between family alcoholism and patterns of substance use by the respondents received only minimal support.

While some studies have identified personality variables that moderate the relationship between family risk factors and substance abuse (e.g., Rogosch, Chassin, & Sher, 1990), others have failed to find such moderator effects (e.g., Brook, Lukoff, & Whiteman, 1977). Brook, Lukoff, and Whiteman (1977) tested three models of relationships between personality variables and drug use among a sample of African Americans and West Indians. These authors found support for an independent

model, but not for a interdependent (i.e., moderator) or mediational model. They found that peer, family, and personality factors each contributed significantly to adolescent drug use, despite statistical control for variables in the other domains.

The results of Brook, Lukoff, and Whiteman's (1977) study and the present investigation suggest that among African Americans and other minority groups, as well as low-income Caucasians, personality factors such as self-concept may be weak moderators to substance abuse. The factors that serve as protectors for children from disadvantaged families need further exploration.

Regarding the multidimensionality of self-concept, this study partly corroborated previously reported positive correlations among different measures of self-concept. Statistically significant but quite weak (.19 to -.01) correlations were found among four measures hypothesized to reflect self-concept: self-esteem, locus of control, educational aspirations, and hopefulness about academic success. These limited values likely reflect psychometric weaknesses in at least some of the measures.

Consistent with major trends in the substance-abuse literature, only inconsistent findings were identified for between-group differences in self-concept based on family history of alcoholism. The prediction of lower self-concept for children of alcoholics was supported for Educational

Aspirations and the Aspiration-Expectation Discrepancy score, but not for Self-Esteem or Locus of Control. In the research literature, the negative relationship between academic involvement and substance use has been more consistently supported than that between self-esteem or locus of control and substance use. Findings from studies on locus of control and substance use are particularly inconsistent. Windle's review (1990b) of the substance abuse literature concluded that research findings generally only provided meager support for premorbid differences in personality characteristics.

A family history of alcoholism was consistently correlated positively with respondents' substance use, corroborating previous research. Interestingly, this relationship was not found for older males. Family alcoholism did not significantly predict substance use for this group. This could be due to social pressures for males to use alcohol and drugs recreationally or to the lesser social stigma associated with alcoholism in males. It might also reflect a tendency for older males to purposely avoid repeating patterns of familial substance abuse. Previous studies using the NLSY data and other samples have consistently reported higher rates of drug and alcohol consumption and more negative alcohol-related consequences for males. The finding of differences by age suggests need for further exploration.

Overall, the "buffer" model was only meagerly supported. The self-concept variables did not consistently add to the

variance accounted for by Family Alcoholism, although Self-Esteem and Educational Aspirations were somewhat better moderators than the measures of Locus of Control and hopefulness about academic success. Few significant interactions effects were found between Family Alcoholism and the self-concept measures.

There were some interesting age and gender differences in the moderator effects. Self-Esteem consistently added to the variance accounted for by Family Alcoholism only among the older females. This finding was in the predicted direction. For males, Educational Aspirations contributed the most additional variance to Family Alcoholism. This gender difference might be a reflection of societal gender roles, which place more emphasis on academic and professional success for males than females. Contrary to what was expected, significant interaction effects were more often identified among the group of younger females, suggesting that the self-concept measures were exhibiting stronger moderation effects for this group than the others. However, this effect is difficult to interpret since self-concept is thought to be a less reliable index for younger respondents.

Limitations of the Study

Several limitations of this study warrant discussion. Although the NLSY data were based on a nationally representative sample, there were major difficulties involved with using the data for a study that focused on the specific

factors related to substance abuse and self-concept. The NLSY surveys were very comprehensive; however, their main focus concerned factors related to labor market participation. Data on psychological well-being and substance use were less specific and were collected with less consistency (i.e., only during certain years). This contributed to what was perhaps the most critical problem, which was an inability to measure self-concept concurrently with substance abuse or to assess the reliability of the self-concept measures during the period from late adolescence to adulthood. This issue was partly addressed by conducting separate analyses for older and younger respondents. However, this method could not control for individual variation on the self-concept measures during the five-year interval between baseline and the measurement of the outcome variables.

Previous studies have suggested that self-concept may be unstable during adolescence and young adulthood (Block, 1971; cited in Bates & Pandina, 1991; Kaplan, Robbins, & Martin, 1984). While there may be naturally occurring changes in self-concept for a number of reasons, including role changes (e.g., Bachman, O'Malley, & Johnston, 1984; Hammer & Vaglum, 1990) and maturing, relatively few studies have examined how these naturally occurring changes relate to substance use. One longitudinal study (Bates & Pandina, 1991) found that changes in personality were related to increased substance use among males, especially those who were initially considered to

be at risk.

The inability to assess substance use and self-concept concurrently or to use repeated measures of self-concept in this study precluded determining the direction of the relationship between self-concept and substance use. Additionally, it is impossible to know if the lack of significant findings was due to low-order correlations between the selected variables or to the instabilities of the self-concept measures over the four-year delay between assessment of self-concept and assessment of substance use.

Other weaknesses of this study have been alluded to previously. These included: the lack of specificity of the self-concept and substance abuse measures and the reliance on self-report data obtained from interviews with the participants. Also, the Locus of Control scale employed in this study was a markedly abbreviated version of the original scale. This diminished the reliability of findings from this measure and likely contributed to the nonsignificant results.

Future Directions

The present findings suggest that precipitators of drug use in young adulthood may be different for males and females. The mechanisms that serve to protect children of alcoholics from abusing substances may also vary by gender. Studies on the etiology of substance use suggest that women tend to use alcohol for more escapist reasons (e.g., Beckman, 1980; Windle & Blane, 1989) than do men and to report more psychological

problems associated with their alcohol and drug use (Dawson & Grant, 1993). For instance, Hurley (1991) indicated that alcoholic women were more likely than alcoholic men to report having poor self-concepts, distorted self-images, and low self-esteem. Poor self-concept in these women was hypothesized to result from traumatic childhood experiences or stressful life events in adulthood, and to exacerbate the risk for alcoholism.

While there have been a few studies examining the experiences of female alcoholics, the specific variables that precipitate substance use or serve as protective mechanisms for female children of alcoholics seems to be fertile ground for future research. Previous studies of resilient children of alcoholics indicate that they are more likely to be female (Werner & Smith, 1982). Determining why and at what ages females are more likely than males to resist substance abuse seems a promising avenue for further research.

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APPENDIX

Table 1A. Correlations Between Independent and Dependent Measures (ns range 4249 - 5038)

	FAMALCH ^a	ALCHEXP ^b	ASP ^c	DIFF ^d	LOC ^e	S-E ^f
DRANK ^g	.07**	.05**	.06**	-.00	.03*	.06**
ALCPROBS ^h	.05**	.04**	.04**	.00	-.00	.18**
ADQ ⁱ	.04**	.04**	-.04**	-.00	.01	.01
FHD ^j	.07**	.07**	-.05**	.01	-.02	.10**
ALCHDEP ^k	.08**	.07**	.01	.01	-.04**	.19**
AVEDRUGS ^l	.09**	.05**	-.02	.04**	.02	.00
VARDRUGS ^m	.14**	.09**	.02	.03*	.03*	.01
MJ ⁿ	.12**	.07**	-.02	.04**	.04**	-.01

*p < .05, ** p < .01, two-tailed

^aFamily Alcoholism

^bLength of Exposure

^cEducational Aspiration

^dAspiration-Expectation Discrepancy

^eRotter Locus of Control Scale

^fRosenberg Self-Esteem Scale

^gEver Had a Drink

^hAlcohol-Related Problems

ⁱAverage Daily Quantity

^jFrequency of Heavy Drinking

^kAlcohol Dependency Symptoms

^lAverage Yearly Use of Illicit Drugs

^mLevel of Drug Experimentation

ⁿLifetime use of Marijuana

Table 2A. Correlations Between Independent Variables, Moderator Variables, Ever Drank, Average Daily Quantity, Frequency of Heavy Drinking, Use of Illicit Drugs, and Marijuana Use

	FAMALCH ^a	ALCHEXP ^b	ASP ^c	DIFF ^d	LOC ^e	S-E ^f
Females Aged 19-22 (ns range 985 - 1166)						
DRANK ^g	.09**	.08**	.04	-.04	.00	-.06
ADQ ^h	.13**	.12**	-.09**	-.02	-.02	-.06*
FHD ⁱ	.12**	.09**	-.11**	-.01	-.02	-.04
AVEDRUGS ^j	.14**	.09**	.08*	-.02	-.00	-.07*
MJ ^k	.13**	.07*	-.05	-.02	-.05	-.03
Males Aged 19-22 (ns range 1036 - 1247)						
DRANK	.08**	.05	.04	.02	-.01	-.03
ADQ	.07*	.06*	-.04	.01	.04	-.01
FHD	.07*	.07*	-.07*	.02	.04	-.00
AVEDRUGS	.08*	.09**	.00	.01	-.01	.05
MJ	.08**	.09**	-.07*	.03	.04	-.03
Females Aged 23-27 (ns range 1206 - 1430)						
DRANK	.08**	.08**	.12**	.02	.10**	.02
ADQ	.09**	.03	.05	-.02	.02	-.05
FHD	.08**	.02	-.02	-.02	-.03	-.05*
AVEDRUGS	.05	.01	.06*	.06*	-.04	-.06*
MJ	.11**	.03	.05*	.00	.04	-.01

Table Continues.

Table 2A (cont'd.)

	FAMALCH ^a	ALCHEXP ^b	ASP ^c	DIFF ^d	LOC ^e	S-E ^f
Males Aged 23-27 (ns range 999 - 1189)						
DRANK	.01	.00	.03	.01	-.03	-.02
ADQ	.01	.03	-.05	.03	-.04	-.09**
FHD	.01	.05	-.09**	.03	-.06*	-.08**
AVEDRUGS	.05	.01	.09**	.05	.03	.03
MJ	.10**	.07*	-.04	.04	-.04	-.06

*p < .05, ** p < .01, two-tailed

^aFamily Alcoholism

^bLength of Exposure

^cEducational Aspiration

^dAspiration-Expectation Discrepancy

^eRotter Locus of Control Scale

^fRosenberg Self-Esteem Scale

^gEver Had a Drink

^hAverage Daily Quantity

ⁱFrequency of Heavy Drinking

^jAverage Yearly Use of Illicit Drugs

^kLifetime use of Marijuana

Table 3A. Summary of Hierarchical Regression Analyses Predicting Outcomes from Family Alcoholism, Self-Esteem, and their Interactions

Outcome Variable	Family Alcoholism	W/ Self-Esteem	Interaction
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Females aged 19-23 ($n = 677$)

	R^2	Beta	R^2/Ch	Beta	R^2/Ch	Beta
Ever had a drink	.005* F=4.82	.073* $t=2.20$	.003 F=2.37	.069* $t=2.08$	.000 F=.32	.267 $t=.76$
Average daily Quantity	.027** F=25.55	.165** $t=5.06$	.002 F=1.57	.162** $t=4.96$	.001 F=.79	.472 $t=1.35$
Frequency of heavy Drinking	.030** F=27.81	.172** $t=5.27$	.002 F=1.42	.169** $t=5.18$	.001 F=1.14	.540 $t=1.55$
Lifetime use of Illicit drugs	.027** F=24.83	.163** $t=4.98$	.005* F=4.64	.158** $t=4.83$	.001 F=.62	-.116 $t=-.33$
Lifetime use of Marijuana	.016** F=14.87	.127** $t=3.86$	.000 F=.07	.127** $t=3.86$	.001 F=.61	-.145 $t=-.41$

Males aged 19-23 ($n = 661$)

Ever had a drink	.009** F=8.09	.094** $t=2.84$	.001 F=.64	.094** $t=2.84$	.000 F=.14	-.027 $t=-.08$
Average daily Quantity	.003 F=2.59	.054 $t=1.61$	.000 F=.17	.054 $t=1.61$	.000 F=.00	.054 $t=.16$
Frequency of heavy Drinking	.003 F=2.91	.057 $t=1.71$	.000 F=.10	.057 $t=1.71$	.001 F=.63	.317 $t=.96$
Lifetime use of Illicit drugs	.005* F=4.10	.067* $t=2.02$	.005* F=4.73	.068* $t=2.05$	.000 F=.00	.066 $t=.20$
Lifetime use of Marijuana	.008** F=7.60	.091** $t=2.76$	.000 F=.15	.091** $t=2.75$	.000 F=.26	-.076 $t=-.23$

Table Continues.

Table 3A (cont'd.)

Outcome Variable	Family Alcoholism	W/ Self-Esteem	Interaction			
Females aged 24-27 (<i>n</i> = 1343)						
	R ²	Beta	R ² /Ch	Beta	R ² /Ch	Beta
Ever had a drink	.008** F=8.68	.089** <i>t</i> =2.95	.000 F=.43	.090** <i>t</i> =2.97	.000 F=.12	-.016 <i>t</i> =-.05
Average daily Quantity	.003 F=2.76	.050 <i>t</i> =1.66	.004* F=4.56	.048 <i>t</i> =1.58	.001 F=1.28	.396 <i>t</i> =1.28
Frequency of heavy Drinking	.001 F=1.00	.030 <i>t</i> =1.00	.005* F=5.11	.028 <i>t</i> =.92	.002 F=2.48	.513 <i>t</i> =1.66
Lifetime use of Illicit drugs	.003 F=3.07	.053 <i>t</i> =1.75	.005* F=4.97	.050 <i>t</i> =1.67	.000 F=.41	.248 <i>t</i> =.80
Lifetime use of Marijuana	.014** F=15.68	.119** <i>t</i> =3.96	.000 F=.02	.119** <i>t</i> =3.95	.000 F=.13	.008 <i>t</i> =.03
Males aged 24-27 (<i>n</i> = 1133)						
Ever had a drink	.000 F=.00	.004 <i>t</i> =.03	.001 F=.89	.001 <i>t</i> =.04	.001 F=.60	.325 <i>t</i> =.77
Average daily Quantity	.000 F=.09	.010 <i>t</i> =.31	.002 F=2.18	.011 <i>t</i> =.33	.005* F=4.10	-.835* <i>t</i> =-2.0
Frequency of heavy Drinking	.000 F=.08	-.010 <i>t</i> =-.29	.002 F=2.09	-.009 <i>t</i> =-.27	.003 F=2.22	-.632 <i>t</i> =-1.5
Lifetime use of Illicit drugs	.001 F=1.24	.038 <i>t</i> =1.12	.003 F=2.78	.037 <i>t</i> =1.10	.000 F=.01	.068 <i>t</i> =.16
Lifetime use of Marijuana	.009** F=7.86	.094** <i>t</i> =2.81	.004 F=3.45	.095** <i>t</i> =2.83	.001 F=1.27	.565 <i>t</i> =1.35

Note: These Beta weights are for Family Alcoholism only.

p* < .05, *p* < .01, two-tailed.

Table 4A. Summary of Hierarchical Regression Analyses Predicting Outcomes from Family Alcoholism, Educational Aspiration, and their Interactions

Outcome Variable	Family Alcoholism	W/ Educational Aspiration	Interaction
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Females aged 19-23 ($n = 677$)

	R^2	Beta	R^2/Ch	Beta	R^2/Ch	Beta
Ever had a drink	.005* F=4.82	.073* $t=2.20$	.001 F=1.28	.074* $t=2.25$	.000 F=.41	.116 $t=1.60$
Average daily Quantity	.027** F=25.55	.165** $t=5.06$	.000 F=.20	.164** $t=5.03$	.000 F=.12	.142* $t=1.98$
Frequency of heavy Drinking	.030** F=27.81	.172** $t=5.27$	.001 F=.88	.171** $t=5.22$	.000 F=.26	.204** $t=2.84$
Lifetime use of Illicit drugs	.027** F=24.83	.163** $t=4.98$	.003 F=2.39	.161** $t=4.91$	.000 F=.01	.165* $t=2.30$
Lifetime use of Marijuana	.016** F=14.87	.127** $t=3.86$	.001 F=1.33	.125** $t=3.80$	.001 F=.76	.069 $t=.96$

Males aged 19-23 ($n = 661$)

Ever had a drink	.009** F=8.09	.094** $t=2.85$	.001 F=.67	.095** $t=2.86$	.000 F=.23	.123 $t=1.86$
Average daily Quantity	.003 F=2.59	.054 $t=1.61$	.001 F=.62	.053 $t=1.59$	.001 F=1.01	.110 $t=1.67$
Frequency of heavy Drinking	.003 F=2.91	.057 $t=1.71$	.001 F=.73	.056 $t=1.68$	.002 F=1.75	.132* $t=1.99$
Lifetime use of Illicit drugs	.005* F=4.10	.067* $t=2.02$	.000 F=.13	.068* $t=2.03$	.000 F=.04	.057 $t=.86$
Lifetime use of Marijuana	.008** F=7.60	.091** $t=2.76$	.000 F=.42	.091** $t=2.74$	.000 F=.22	.117 $t=1.78$

Table Continues.

Table 4A (cont'd.)

Outcome Variable	Family Alcoholism	W/ Educational Aspiration	Interaction
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Females aged 24-27 (n = 1343)

	R ²	Beta	R ² /Ch	Beta	R ² /Ch	Beta
Ever had a drink	.008** F=8.68	.089** t=2.95	.025** F=27.57	.098** t=3.27	.004* F=4.71	.227** t=3.41
Average daily Quantity	.003 F=2.76	.050 t=1.66	.008** F=8.33	.055 t=1.83	.000 F=.32	.021 t=.31
Frequency of heavy Drinking	.001 F=1.00	.030 t=1.00	.000 F=.13	.031 t=1.02	.001 F=1.26	-.037 t=-.55
Lifetime use of Illicit drugs	.003 F=3.07	.053 t=1.75	.007** F=7.43	.058* t=1.91	.002 F=1.69	.136* t=2.02
Lifetime use of Marijuana	.014** F=15.68	.119** t=3.96	.005* F=5.38	.123** t=4.09	.002 F=2.64	.221** t=3.28

Males aged 24-27 (n = 1133)

Ever had a drink	.000 F=.00	.004 t=.03	.000 F=.32	.004 t=.02	.000 F=.00	.004 t=.01
Average daily Quantity	.000 F=.09	.010 t=.31	.004* F=3.82	.011 t=.32	.001 F=1.18	.084 t=1.12
Frequency of heavy Drinking	.000 F=.08	-.010 t=-.29	.010** F=8.88	-.009 t=-.26	.001 F=1.11	.061 t=.82
Lifetime use of Illicit drugs	.001 F=1.24	.038 t=1.12	.010** F=8.92	.037 t=1.10	.002 F=1.66	-.049 t=-.66
Lifetime use of Marijuana	.009** F=7.87	.094** t=2.81	.001 F=.47	.095** t=2.81	.000 F=.03	.106 t=1.42

Note: These Beta weights are for Family Alcoholism only.

*p < .05, **p < .01, two-tailed

Table 5A. Summary of Hierarchical Regression Analyses Predicting Outcomes from Family Alcoholism, Educational Aspiration-Expectation Discrepancy, and their Interactions

Outcome Variable	Family Alcoholism	W/ Discrepancy Score	Interaction			
Females aged 19-23 (n = 677)						
	R ²	Beta	R ² /Ch	Beta	R ² /Ch	Beta
Ever had a drink	.005* F=4.82	.073* t=2.20	.004 F=3.37	.074* t=2.24	.000 F=.00	.073* t=1.98
Average daily Quantity	.027** F=25.55	.165** t=5.06	.000 F=.03	.165** t=5.06	.003 F=3.21	.137** t=3.75
Frequency of heavy Drinking	.030** F=27.81	.172** t=5.27	.000 F=.20	.172** t=5.26	.003 F=2.73	.145** t=4.00
Lifetime use of Illicit drugs	.027** F=24.83	.163** t=4.98	.001 F=.58	.163** t=5.00	.002 F=1.61	.143** t=3.93
Lifetime use of Marijuana	.016** F=14.87	.127** t=3.86	.000 F=.05	.127** t=3.86	.000 F=.05	.123** t=3.37
Males aged 19-23 (n = 661)						
Ever had a drink	.009** F=8.09	.094** t=2.85	.000 F=.27	.094** t=2.83	.000 F=.33	.104** t=2.78
Average daily Quantity	.003 F=2.59	.054 t=1.61	.000 F=.38	.053 t=1.59	.004 F=3.32	.084* t=2.25
Frequency of heavy Drinking	.003 F=2.91	.057 t=1.71	.000 F =.11	.056 t=1.69	.003 F=2.70	.085* t=2.26
Lifetime use of Illicit drugs	.005* F=4.10	.067* t=2.02	.000 F=.27	.066* t=2.01	.003 F=2.29	.041 t=1.09
Lifetime use of Marijuana	.008** F=7.60	.091** t=2.76	.001 F=1.19	.090** t=2.72	.000 F=.36	.080* t=2.15

Table Continues.

Table 5A (cont'd.)

Outcome Variable	Family Alcoholism	W/ Discrepancy Score	Interaction
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Females aged 24-27 ($n = 1343$)

	R^2	Beta	R^2/Ch	Beta	R^2/Ch	Beta
Ever had a drink	.008** F=8.68	.089** $t=2.95$	.001 F=.84	.088** $t=2.89$	.003 F=2.87	.114** $t=3.35$
Average daily Quantity	.003 F=2.76	.050 $t=1.66$	.000 F=.50	.051 $t=1.70$	.001 F=.57	.063 $t=1.85$
Frequency of heavy Drinking	.001 F=1.00	.030 $t=1.00$	.000 F=.47	.031 $t=1.04$	.000 F=.28	.040 $t=1.16$
Lifetime use of Illicit drugs	.003 F=3.07	.053 $t=1.75$	.006** F=6.92	.049 $t=1.61$	.000 F=.44	.059 $t=1.74$
Lifetime use of Marijuana	.014** F=15.68	.119** $t=3.96$	.000 F=.05	.120** $t=3.96$	.002 F=1.76	.140** $t=4.13$

Males aged 24-27 ($n = 1133$)

Ever had a drink	.000 F=.00	.004 $t=.03$	.000 F=.07	.004 $t=.02$	.002 F=1.74	-.023 $t=-.60$
Average daily Quantity	.000 F=.09	.010 $t=.31$	.002 F=1.49	.009 $t=.26$	.001 F=1.28	.029 $t=.76$
Frequency of heavy Drinking	.000 F=.08	-.010 $t=-.29$	.002 F=1.56	-.011 $t=-.33$	.001 F=.91	.006 $t=.15$
Lifetime use of Illicit drugs	.001 F=1.24	.038 $t=1.12$	.002 F=2.14	.036 $t=1.06$	.000 F=.12	.030 $t=.79$
Lifetime use of Marijuana	.009** F=7.87	.094** $t=2.81$	.002 F=1.54	.093** $t=2.76$	.001 F=1.03	.075* $t=1.98$

Note: These Beta weights are for Family Alcoholism only.

* $p < .05$, ** $p < .01$, two-tailed

Table 6A. Summary of Hierarchical Regression Analyses Predicting Outcomes from Family Alcoholism, Locus of Control, and their Interactions

Outcome Variable	Family Alcoholism	W/ Locus of Control	Interaction
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Females aged 19-23 ($n = 677$)

	R^2	Beta	R^2/Ch	Beta	R^2/Ch	Beta
Ever had a drink	.005* F=4.82	.073* $t=2.20$	.000 F=.10	.073* $t=2.20$	.000 F=.05	.040 $t=.26$
Average daily Quantity	.027** F=25.55	.165** $t=5.06$	.000 F=.12	.165** $t=5.05$	.003 F=2.82	-.087 $t=-.56$
Frequency of heavy Drinking	.030** F=27.81	.172** $t=5.27$	.000 F=.13	.172** $t=5.27$	.001 F=1.16	.011 $t=.07$
Lifetime use of Illicit drugs	.027** F=24.83	.163** $t=4.98$	.000 F=.03	.163** $t=5.00$	.001 F=1.01	.012 $t=.08$
Lifetime use of Marijuana	.016** F=14.87	.127** $t=3.86$	.002 F=1.76	.127** $t=3.85$	.001 F=1.31	-.046 $t=-.30$

Males aged 19-23 ($n = 661$)

Ever had a drink	.009** F=8.09	.094** $t=2.85$	.000 F=.15	.095** $t=2.85$	.000 F=.00	.097 $t=.66$
Average daily Quantity	.003 F=2.59	.054 $t=1.61$	.006* F=5.15	.055 $t=1.67$	.000 F=.28	.132 $t=.89$
Frequency of heavy Drinking	.003 F=2.91	.057 $t=1.71$	.009** F=8.48	.059 $t=1.79$	.000 F=.02	.081 $t=.54$
Lifetime use of Illicit drugs	.005* F=4.10	.067* $t=2.02$	.000 F=.06	.068* $t=2.03$	.000 F=.03	.093 $t=.63$
Lifetime use of Marijuana	.008** F=7.60	.091** $t=2.76$	.003 F=2.73	.093** $t=2.80$	.000 F=.38	.004 $t=.03$

Table Continues.

Table 6A (cont'd.)

Outcome Variable	Family Alcoholism	W/ Locus of Control	Interaction
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Females aged 24-27 ($n = 1343$)

	R^2	Beta	R^2/Ch	Beta	R^2/Ch	Beta
Ever had a drink	.008** F=8.68	.089** $t=2.95$	.013** F=14.39	.092** $t=3.05$	.004* F=3.92	.355** $t=2.60$
Average daily Quantity	.003 F=2.76	.050 $t=1.66$	.003 F=3.44	.052 $t=1.71$	.000 F=.45	-.038 $t=-.28$
Frequency of heavy Drinking	.001 F=1.00	.030 $t=1.00$	.000 F=.00	.030 $t=1.00$	.001 F=1.45	-.131 $t=-.95$
Lifetime use of Illicit drugs	.003 F=3.07	.053 $t=1.75$	.001 F=1.23	.052 $t=1.73$	.000 F=.05	.081 $t=.59$
Lifetime use of Marijuana	.014** F=15.68	.119** $t=3.96$	.004* F=4.09	.121** $t=4.01$	.000 F=.33	.043 $t=.32$

Males aged 24-27 ($n = 1133$)

Ever had a drink	.000 F=.00	.004 $t=.03$	.001 F=.59	.002 $t=.05$	.001 F=.45	.106 $t=.66$
Average daily Quantity	.000 F=.09	.010 $t=.31$	.000 F=.10	.011 $t=.32$	.000 F=.01	.023 $t=.14$
Frequency of heavy Drinking	.000 F=.08	-.010 $t=-.29$	.001 F=.46	-.009 $t=-.26$	.001 F=.84	.134 $t=.84$
Lifetime use of Illicit drugs	.001 F=1.24	.038 $t=1.12$	.002 F=1.75	.036 $t=1.07$	.003 F=2.32	-.201 $t=-1.26$
Lifetime use of Marijuana	.009** F=7.87	.094** $t=2.81$	.000 F=.31	.095** $t=2.82$	.000 F=.01	.080 $t=.51$

Note: These Beta weights are for Family Alcoholism only.

* $p < .05$, ** $p < .01$, two-tailed

Table 7A. Summary of Hierarchical Regression Analyses Predicting Outcomes from Family Alcoholism, Self-Esteem, and their Interactions for Total Sample ($N = 3778$)

Outcome Variable	Family Alcoholism		W/ Self-Esteem		Interaction	
	R^2	Beta	R^2/Ch	Beta	R^2/Ch	Beta
Ever had a drink	.004** F=15.27	.063** $t=3.91$	.001 F=2.06	.063** $t=3.87$	.000 F=.00	.052 $t=.30$
Alcohol-related Problems	.008** F=29.97	.089** $t=5.47$	.001 F=3.54	.088** $t=5.43$	.001 F=2.15	.34* $t=1.98$
Average daily Quantity	.001 F=3.07	.028 $t=1.75$	.002** F=6.69	.027 $t=1.69$	.000 F=.54	-.098 $t=-.57$
Frequency of heavy Drinking	.001 F=2.09	.024 $t=1.45$	.002* F=5.87	.023 $t=1.39$	.000 F=.07	.067 $t=.39$
Alcohol dependency Symptoms	.007** F=26.09	.083** $t=5.11$	.006** F=24.32	.081** $t=5.00$	.000 F=.06	.040 $t=.24$
Lifetime use of Illicit drugs	.005** F=20.43	.073** $t=4.52$	.000 F=.02	.073** $t=4.51$	.000 F=.12	.131 $t=.77$
Level of drug Experimentation	.019** F=73.72	.138** $t=8.59$	.000 F=.09	.138** $t=8.57$	.000 F=1.49	-.068 $t=-.40$
Lifetime use of Marijuana	.010** F=37.35	.099** $t=6.11$	.000 F=1.83	.098** $t=6.08$	.000 F=.72	-.045 $t=-.27$

Note: These Beta weights are for Family Alcoholism only.

* $p < .05$, ** $p < .01$, two-tailed.

Table 8A. Summary of Hierarchical Regression Analyses Predicting Outcomes from Family Alcoholism, Educational Aspiration, and their Interactions for Total Sample ($N = 3778$)

Outcome Variable	Family Alcoholism		W/ Educational Aspiration		Interaction	
	R^2	Beta	R^2/Ch	Beta	R^2/Ch	Beta
Ever had a drink	.004** F=15.27	.063** $t=3.91$	.004** F=15.85	.065** $t=4.03$	.001 F=2.62	.115** $t=3.31$
Alcohol-related Problems	.008** F=29.97	.089** $t=5.47$	.001 F=3.16	.088** $t=5.42$	.000 F=.10	.078* $t=2.24$
Average daily Quantity	.001 F=3.07	.028 $t=1.75$	.001 F=2.10	.028 $t=1.71$	.000 F=.12	.039 $t=1.11$
Frequency of heavy Drinking	.001 F=2.09	.024 $t=1.45$	.003** F=10.55	.022 $t=1.36$	.000 F=.60	.046 $t=1.31$
Alcohol dependency Symptoms	.007** F=26.09	.083** $t=5.11$	.006** F=23.58	.081** $t=4.98$	.000 F=.25	.065 $t=1.87$
Lifetime use of Illicit drugs	.005** F=20.43	.073** $t=4.52$	.001 F=2.65	.074** $t=4.57$	.000 F=.05	.081* $t=2.31$
Level of drug Experimentation	.019** F=73.72	.138** $t=8.59$	.001 F=4.57	.139** $t=8.65$	.000 F=.71	.028 $t=1.57$
Lifetime use of Marijuana	.010** F=37.35	.099** $t=6.11$	.000 F=.02	.099** $t=6.10$	.000 F=.23	.114** $t=3.26$

Note: These Beta weights are for Family Alcoholism only.

* $p < .05$, ** $p < .01$, two-tailed

Table 9A. Summary of Hierarchical Regression Analyses Predicting Outcomes from Family Alcoholism, Educational Aspiration-Expectation Discrepancy and their Interactions for Total Sample (N = 3778)

Outcome Variable	Family Alcoholism		W/ Discrepancy Score		Interaction	
	R ²	Beta	R ² /Ch	Beta	R ² /Ch	Beta
Ever had a drink	.004** F=15.27	.063** t=3.91	.000 F=.11	.064** t=3.92	.000 F=.55	.070** t=3.83
Alcohol-related Problems	.008** F=29.97	.089** t=5.47	.000 F=.89	.088** t=5.44	.001 F=2.33	.076** t=4.15
Average daily Quantity	.001 F=3.07	.028 t=1.75	.000 F=.30	.028 t=1.73	.001 F=1.98	.040* t=2.18
Frequency of heavy Drinking	.001 F=2.09	.024 t=1.45	.000 F=.49	.023 t=1.42	.000 F=1.69	.034 t=1.86
Alcohol dependency Symptoms	.007** F=26.09	.083** t=5.11	.000 F=.20	.083** t=5.12	.000 F=.60	.077** t=4.21
Lifetime use of Illicit drugs	.005** F=20.43	.073** t=4.52	.001 F=2.71	.072** t=4.46	.001 F=2.06	.060** t=3.32
Level of drug Experimentation	.019** F=73.72	.138** t=8.59	.001* F=3.20	.137** t=8.52	.001* F=4.15	.121** t=6.67
Lifetime use of Marijuana	.010** F=37.35	.099** t=6.11	.000 F=.67	.098** t=6.08	.000 F=.00	.099** t=5.43

Note: These Beta weights are for Family Alcoholism only.

*p < .05, **p < .01, two-tailed.

Table 10A. Summary of Hierarchical Regression Analyses Predicting Outcomes from Family Alcoholism, Locus of Control and their Interactions for Total Sample ($N = 3778$)

Outcome Variable	Family Alcoholism		W/ Locus of Control		Interaction	
	R^2	Beta	R^2/Ch	Beta	R^2/Ch	Beta
Ever had a drink	.004** F=15.27	.063** $t=3.91$	.002* F=7.42	.064** $t=3.94$	.000 F=1.76	.055* $t=3.03$
Alcohol-related Problems	.008** F=29.97	.089** $t=5.47$	.000 F=.22	.089** $t=5.47$	.000 F=1.70	-.005 $t=-.06$
Average daily Quantity	.001 F=3.07	.028 $t=1.75$	.002** F=7.99	.029** $t=1.78$	.000 F=.04	.014 $t=.20$
Frequency of heavy Drinking	.001 F=2.09	.024 $t=1.45$	.001 F=3.35	.024 $t=1.46$	.000 F=.08	.044 $t=.60$
Alcohol dependency Symptoms	.007** F=26.09	.083** $t=5.11$	.001 F=2.34	.083** $t=5.10$	.000 F=.17	.053 $t=.73$
Lifetime use of Illicit drugs	.005** F=20.43	.073** $t=4.52$	.000 F=.02	.073** $t=4.52$	.000 F=.05	.057 $t=.78$
Level of drug Experimentation	.019** F=73.72	.138** $t=8.59$	.002** F=7.28	.139** $t=8.62$	.000 F=.01	.147* $t=2.01$
Lifetime use of Marijuana	.010** F=37.35	.099** $t=6.11$	.001 F=2.99	.099** $t=6.13$	.000 F=1.66	.017 $t=.96$

Note: These Beta weights are for Family Alcoholism only.

* $p < .05$, ** $p < .01$, two-tailed.

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