Substance use treatment outcomes for youth: Integrating personal and environmental predictors

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Abstract

This investigation examined personal and environmental predictors of substance treatment outcomes in youth. 424 adolescents (M = 15.9 years, SD = 1.3) completed comprehensive assessments, including substance use, environmental factors (e.g., family history, social supports), and person-centered variables (e.g., Axis I diagnosis, motivation, self-esteem), at study intake and throughout the year following inpatient treatment. Youth treatment outcomes were assessed by relapse status (abstaining, minor relapse, major relapse) and DSM-IV dependence symptoms at one year. Relapse status was predicted by demographic (age), environmental (social supports), and person-centered factors (diagnosis) while dependence symptoms were best predicted by substance use variables alone. Consideration of the general and specific nature of risk and protection within the adolescent developmental context were explored.

Keywords

Substance use; Treatment; Adolescents

1. Introduction

Drug and alcohol research examining treatment outcomes for adults with substance use disorders (SUDs) has identified various risk and protective factors including demographic characteristics, severity of drug use, involvement in risky behaviors, psychological disorders, and family problems (Leshner, 1997). These factors, however, may affect adolescents differently than adults due to social-developmental factors unique to adolescence (Brown et al., 1990; Brown, 2004). Since each individual exhibits different types and degrees of risk and protective factors for substance involvement (Cicchetti, 1999), an increased understanding of the role that environmental and personal factors present at intake play in functional outcomes of SUD adolescents following treatment will provide information useful to formulate interventions targeted for youth and the prevention of relapse.

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We considered four classes of pretreatment factors associated with substance use outcomes for adults and adolescents from the existing literature: background variables, pretreatment substance use, environmental influences and personal characteristics. *Background variables* focus on demographic characteristics like age, gender, ethnicity, and socio-economic status (SES). While studies have shown that girls are at less risk for post-treatment substance use than boys (Catalano et al., 1991; Latimer et al., 2000a), less consistent evidence has been found for the impact of age, ethnicity and SES (e.g., Brown et al., 1994; Jainchill et al., 1997). *Pretreatment substance use* has been implicated in adult substance treatment outcomes (Shuckit et al., 1998; Scott et al., 2003), but studies have shown that pretreatment substance use characteristics alone have not been predictive of relapse patterns up to 1 year following treatment (Brown et al., 1989; Richter et al., 1991; Latimer et al., 2000a).

Environmental influences capture the interpersonal and historical factors implicated in substance use outcomes. Family environment, the extent to which youth feel supported and connected to their family of origin, can have protective influences on treatment outcomes for teens (Friedman et al., 1995). However, a body of research has shown that family history of alcoholism can convey risk for poor substance-related decision-making in that children in families with alcoholics display higher levels of impulsiveness than their peers (Chassin et al., 2004). While general indices of peer support suggest a detrimental impact on teen substance use (Latimer et al., 2000b; Piko, 2000; Ashby Wills et al., 2004), having nonusing social supports in youth social networks has been shown to be predictive of abstinence post-treatment (Richter et al., 1991; McCrady, 2004). *Personal characteristics*, like personality, motivation, learning, self-esteem and psychiatric diagnosis and symptomatology, can impact youth trajectories post-treatment. For example, factors such as disinhibition (Brown et al., 1996; Caspi et al., 1996) and alcohol expectancies (Christiansen and Goldman, 1983; Stacy et al., 1991; Smith et al., 1995) have been implicated in the initiation and maintenance of use patterns across development. In addition, externalizing disorders and internalizing disorders have been associated with poorer prognosis for SUD teens (e.g., Brown et al., 1996; Tomlinson et al., 2004).

The goal of this investigation is to examine the relation between these putative risk and protective factors for youth decision making and consequent treatment outcomes following alcohol and drug treatment. Few, if any, investigations to date have been able to test this type of competitive model in a sample involving youth with and without concurrent psychopathology.

2. Methods

2.1 Participants

A sample of 424 youth, ages 12–18 years, was drawn from two cohorts of youth recruited from five inpatient adolescent mental health and substance abuse treatment programs in the San Diego area to investigate the impact of substance use diagnosis and comorbidity on treatment outcome. One set of youth ($N = 164$) were recruited into a long-term treatment outcome study of youth with substance use disorders. A comparison group was recruited into the study to investigate the impact of comorbid Axis I psychopathology on treatment outcome for adolescents with substance use disorders ($N = 260$). Demographic characteristics, including age, gender, ethnicity, and socioeconomic status as measured by the Hollingshead Index (Hollingshead, 1965) as well as substance use characteristics are displayed in Table 1.

The substance abuse components of the treatment programs were abstinence-focused, incorporated a 12-step model of substance abuse treatment and provided both group and individual therapy sessions directed at substance related problems for those with a history of

drug abuse/dependence. The length of time in treatment for youth varied from 5 days to 3 weeks. Consecutive admissions with parent/guardian consent (approximately 90%) were screened for study entry. Youth were excluded from the study if they lived more than 50 miles away from the research site, were unable to read English, exhibited psychiatric symptoms rendering them unable to participate (i.e., current hallucinations), had a history of head injury with loss of consciousness greater than two minutes, or did not have a resource person (parent or guardian) to provide corroborating background information. Between 20–30% of youth admitted to the treatment centers were found to be appropriate for the study based on these criteria.

2.2 Intake Measures

2.2.1 Background variables/Family history—Sociodemographic characteristics and other background information were gathered using the Structured Clinical Interview for Adolescents (SCI; Brown et al., 1989). Background questions included gender, ethnicity, socioeconomic status, age, grade, residence, and family characteristics including family history of alcohol and drug use disorders.

2.2.2 Self-esteem—Self-esteem was measured during inpatient treatment using a brief self-esteem questionnaire (SEQ; Labouvie and McGee, 1986). The SEQ consists of 18 interrogative items about the self (e.g., "How often do you feel that you are a good person?") with a five-point Likert scale response options (1= "never" to 5 = "almost always or always"). Ratings are summed to produce a single self-esteem score, with higher scores indicating greater self-satisfaction.

2.2.3 Substance involvement—Substance use history, including age of onset of use of alcohol and seven types of drugs (marijuana, amphetamines, cocaine, inhalants, barbiturates, hallucinogens, and opiates), quantity and frequency of alcohol as well as type and frequency of drug use in both lifetime and past three months, alcohol and drug withdrawal and DSM III-R and IV dependence symptoms (lifetime and past three months), were initially assessed using the lifetime version of the Customary Drinking and Drug Use Record (CDDR; Brown et al., 1998). This instrument incorporates a personalized calendar, addiction severity index (ASI) questions (McLellan et al., 1985), and composite ordinal categorization of current alcohol and drug use pattern (e.g., abstainer, infrequent drinker/user, problem drinker, etc. [Cisin and Cahalan, 1968]). This measure has well-documented reliability and validity for youth (e.g., Brown, et al., 1998)

2.2.4 Personality factors: Externalizing characteristics—The CDQ (Brown et al., 1996) described above was used as a measure of impulsivity/behavioral undercontrol characteristics in adolescents. Behavioral undercontrol score was calculated as the sum of 36 types of deviant behaviors that occurred at least once without the influence of drugs or alcohol before age 16.

2.2.5 Internalizing characteristics—The Hamilton Depression (HAM-D; Hamilton, 1960), Anxiety (HAMA; Hamilton, 1959) Rating Scales and a revised version of the Profile of Mood States Bipolar Form (POMS-BI; Lorr and McNair, 1984) were used to measure internalizing symptoms at intake in adolescents. The POMS-Revised was administered to adolescents in the first cohort. The POMS-BP included 12 items corresponding to the original 6 scales (e.g., Composed-Anxious scale became "Composed" and "Anxious"). Adolescents rated the extent to which each term described how they were feeling in the last week on a 4-point scale from 0 ("not at all like this") to 3 ("much like this") with the sum of internalizing symptoms z-transformed to reflect the severity of internalizing symptoms. The HAM-D and HAMA, reliable measures assessing the severity of depressive and anxiety

symptoms (Hamilton, 1959, 1960; Reynolds and Koback, 1995), were administered to those in the second cohort. Scores were summed and z-transformed to reflect the severity of internalizing symptoms.

2.2.6 Expectancies—Expectancies for alcohol use were measured using the Alcohol Expectancy Questionnaire-Adolescent Form (AEQ-A; Brown et al., 1987). The AEQ-A is a 100-item Likert scale, self-report instrument that measures alcohol expectancies in older children and adolescents. It is comprised of seven scales: Global positive changes, Changes in social behavior, Sexual enhancement, Cognitive and motor impairment, Improved cognitive and motor abilities, Relaxation and tension reduction, and Increased arousal, as well as a Total Expectancy Score. The AEQ-A has been shown to predict subsequent drinking among adolescents (Smith et al., 1995).

2.2.7 Motivation—Motivation to abstain from substances was assessed with the following question: "On a scale of 1 to 10, how likely do you think it is that you will stop using drugs after you are done with the program?"

2.2.8 Social support—Participants were administered a modified version of the Social Support Questionnaire short- form (short SSQ; Pierce et al., 1986, May) to assess the proportion of social supports in each adolescents' social network who did not use alcohol or drugs. The short SSQ has been shown to be a valid instrument, with good psychometric properties (Pierce et al., 1986, May), including correlations with measures of personality and social competence that are similar to the original Social Support Questionnaire (Sarason et al., 1983).

The short SSQ consists of six situations in which social support might be important and up to nine individuals can be identified for each. Our modified version subsequently categorizes each individual listed by current alcohol and drug use pattern from 1 ("nonuser") to 5 ("abuser"; Cisin and Cahalan, 1968) or 6 ("recovering abuser"). The social support quality is computed as the proportion of "nonusers" or "infrequent users" among identified supports.

2.2.9 Family connectedness—Family characteristics were assessed in the interview through four items originally used by Donovan and Jessor (1978). These items assess each youth's connectedness with parents via questions about strictness, and reliance on parents vs. friends in making decisions/generating values. Items were scored based on how much influence parents have in participants' lives with higher values indicating greater parental influence. The four items were summed and z-transformed to make a total perceived environment system score.

2.2.10 Psychopathology—Diagnoses were assessed at intake using the Diagnostic Interview Schedule for Children-Computerized Version (DISC-III-R: Piancentini et al., 1993; DISC-IV: Shaffer et al., 2000) with supplementary age of symptom onset questions (Aarons et al., 1999). The DISC was separately administered to each adolescent and resource person; results from the two interviews were composited in a well standardized procedure to determine maximally valid diagnoses of youth (Breton et al., 1998). Specifically, if the adolescent or parent reported the youth met a criterion, this was counted toward the diagnosis.

Conduct disorder diagnoses were determined using the Conduct Disorder Questionnaire (CDQ; Brown et al., 1996). This questionnaire assesses lifetime behavior of each adolescent as related to the DSM-III-R (APA, 1987) and DSM-IV (APA, 1994) diagnostic criteria for CD and ASPD. For each CD behavior reported, participants were queried: age of initiation, extent to which this was directly related to alcohol or drug use (e.g., during use episodes),

indirectly related to use (e.g., in an effort to obtain money to buy drugs) or if the behavior occurred independent of any substance involvement (i.e., prior to alcohol/drug involvement or during periods of abstention). Data from teen and parent assessments were compared to determine the incidence of these behaviors and their occurrence independent of alcohol or other drug involvement. For diagnostic purposes, only CD behaviors that occurred prior to age 16 and prior to the onset of alcohol or drug abuse and independent of alcohol/drug use were considered independent of alcohol or drug abuse.

Using information from the DISC and the CDQ, youth were classified as having a substance use disorder-only (SUD-only), SUD and either externalizing disorder (e.g., conduct or oppositional defiant disorder) or an internalizing disorder (e.g., depression, anxiety) but not both (SUD +1), or SUD and both internalizing and an internalizing disorder (SUD/Both).

2.4 Treatment Outcome Measures

2.4.1 Relapse Status—To determine substance use outcomes, youth and their parents were interviewed six months and 1-year after treatment using the follow-up SCI (Brown et al., 1994) and the "current" version of the CDDR (Brown et al., 1998). The same substance use characteristics were assessed as at intake. Additionally, the overall percent of youth who used during the first year following treatment was determined for each group. The percent of youth who had "major" and "minor" use episodes was calculated using previously specified criteria for youth. Individuals were defined as *abstainers* if they demonstrated no more than one use episode without intoxication (days/month at 1 year = 0.43 [*sd* = 3.13]). A relapse was considered *minor* if the youth used substances for less than 3 consecutive days on one occasion and did not return to intake levels of substance use (days/month at 1 year = 3.66 [*sd* = 6.34]). A *major relapse* constituted a single episode of use greater than 3 days duration or more than one alcohol and/or drug use episode in a six month assessment period following treatment or reverted to the pre-treatment pattern of abuse (days/month at 1 year = 26.93 [*sd* =21.35]; Brown et al., 1989, 1994).

2.4.2 Dependence Symptoms—The number of DSM-IV dependence criteria met for substances were pooled to create a composite measure of dependence symptoms at one year post-treatment. Six DSM-IV dependence symptoms were counted for this measure (all except "continued use despite problems"). Youth were credited for one of each symptoms for alcohol and one of each symptom across all drugs within the composite. For example, if youth met criteria for withdrawal for alcohol, stimulants, and opiates, they received one point within the composite for alcohol and one point for drugs. The range on this measure was from 0– 12.

2.5 Procedure

Adolescents were screened for participation in the project while they were in inpatient treatment facilities for substance use and/or mental health disorders. Parents/guardians and youth independently provided University of California, San Diego IRB approved informed consent. Separate confidential interviews were then conducted with each adolescent and parent/guardian pair while youth were still in treatment. The structured research interviews with each adolescent and parent/guardian pair were conducted by different interviewers trained to criterion (see Brown et al., 1989 for details) in order to minimize the occurrence of information being inadvertently revealed to the other party and to provide independent corroboration of data.

The follow-up assessments were conducted at six months and one-year following discharge from treatment to assess post-treatment alcohol and drug use and functional outcomes. Follow-up adolescent interviews were completed in person at a research testing site or in the

participant's home. A portion of parent/guardian interviews were conducted over the phone. All youth were informed of possible toxicology screens at each follow-up interview, and a random sample of 15% of participants completed urine toxicology screens to corroborate substance use self-reports at outcome time points. No under reporting of drug use was identified through comparison of self report to toxicology test results. Participants were not paid for their initial interview; however youth and parent/guardians were paid for participating in the 6-month and 1-year interviews (youth received up to $160.00 and parent/ guardians received up to $40.00 for participation in all interview measures).

Interviewers were trained bachelor- and master-level research associates, graduate students, and postdoctoral psychologists. All interviewers were trained to administer the assessment instruments in a standardized sequence, which included recognition and clarification of discrepant data obtained during the interview. Interviewers viewed training tapes, observed senior interviewers, and were subsequently observed administering practice interviews and scoring was evaluated until consistent agreement was reached between the trainee and experienced interviewer. All interviews were reviewed to ensure accuracy and to prevent interviewer drift in weekly research meetings with the Principal Investigator of the study. Data were stored in locked file cabinets with all identifying information (e.g., name, phone number) stored separately from the interviews/assessment materials.

2.6 Missing data

Of the 424 participants recruited into the study, 5 provided no data at one year follow up. Of the remaining 419 participants, 345 (82%) had relapse data at both the six month and one year time points to categorize their relapse status (abstainer, minor or major relapser) and 305 (73%) provided information regarding their dependence symptoms for the last three months of the year. Participants with complete relapse information had significantly lower SES, $F(1, 344) = 12.59$, $p = .001$, higher self-esteem, $F(1, 238) = 8.47$, $p = .004$, less internalizing symptoms, $F(1, 339) = 10.22$, $p = .002$, and were more likely to be female, $\chi^2 = 7.23$, $p = .007$, than those whose across year relapse status could not be computed.

Multiple imputation was used to compensate for patterns of missing data within the predictor variables (Shafer and Graham, 2002). 13% of the data was estimated using this procedure. In this procedure, each missing value is replaced by a set of $m > 1$ plausible values to generate m complete data sets, and each estimate is combined to provide parameter estimates and standard errors (Sinharay et al., 2001). In our analyses, thirty-five data sets were generated in an effort to minimize the influence of between imputation variance on the final parameter estimates. Royston (2004) demonstrated that improvements in parameter estimation can be realized when m exceeds the general rule of thumb of calling for 2–5 imputation sets, in some scenarios. These sets were generated through multiple imputation using chained equations (van Buuren et al., 1999). When available, auxiliary variables not in the model were used to supplement the predictors of missing variables. Due to space constraints, we are unable to describe all of the auxiliary variables; but as an example, missing values on the alcohol expectancy measure at intake were estimated using values from data collected on that measure at 6 months and one year as well as concurrent substance use information.

3. Results

At one year, 35.0 % of youth were abstainers, 19.4 % minor relapsers and 45.7 % major relapsers. Multinomial logistic regression was used to examine how the identified risk and protective factors at study intake predicted relapse status (abstainer, minor relapser, major relapser) at one year post-treatment. Four background variables (age, gender, ethnicity and SES), two pretreatment substance use variables (substance use days/month and substance

dependence symptoms) and six personal characteristics (externalizing and internalizing symptoms, motivation, self-esteem, alcohol expectancies, and diagnosis) and three environmental influences (family environment, family history, social support) were entered simultaneously into the regression equation. Parameter estimates (exponentiated betas) were examined using Wald statistics. Examination of the individual parameter estimates for these factors suggests that the odds of being within the abstainer versus major relapser category are different than that for the minor versus major relapser categories. For the abstainer vs. major relapse distinction, having a greater proportion of abstaining social supports in a teen's social network increased the odds of being in the abstaining category four fold (*Wald* = 2.62, *p* = .009; *OR* = 4.14; CI: 1.43 – 11.98). Conversely, youth chances of being an abstainer were reduced to about a third if they had both an internalizing and externalizing diagnosis (*Wald* = −2.65, *p* = .008; *OR* = 0.32; CI: 0.14 – 0.74). When comparing major vs. minor relapse status, age was the most relevant. Younger teens were more likely to be minor relapsers than major relapsers (*Wald* = −2.04, *p* = .042; *OR* = 0.75; CI: 0.58 – 0.99).

Only 38.7% of youth met full DSM-IV diagnostic criteria for substance dependence at one year. The impact of the risk and protective factors at treatment intake also predicted substance dependence symptoms at one year post-treatment using linear regression. Examination of the parameter estimates suggests that substance use characteristics, higher 30-day rates of substance use and more dependence symptoms at intake, best predict a greater number of dependence symptoms one year later (Table 2).

4. Discussion

This paper provides initial support for the integration of the pretreatment person-centered, environmental factors and substance use factors in predicting youth substance use outcomes at one year post-treatment. Entering treatment without concomitant Axis I disorders and a larger proportion of abstaining social supports in the peer network were associated with abstention at one year post-treatment. Among youth who relapsed during the year following treatment, younger adolescents exhibited less severe relapses. These findings support the notion that both personal and environmental factors contribute to the substance use treatment outcomes for youth. However, a different pattern emerged for substance dependence symptoms at one year. Pretreatment substance use and dependence symptoms at treatment intake predicted DSM-IV substance dependence symptoms at one year. While 61% of treated youth did not meet diagnostic criteria for dependence at one year, only 35% were abstaining at one year. These finding suggest that how we measure treatment outcome greatly determines what is considered central to success or failure after substance use treatment.

The general factors identified at the outset of this investigation (background variables, substance use, environmental influences, personal characteristics) all contributed in some way to the prediction of substance use outcomes one year after treatment. However, not all of the specific, research identified variables predicted outcome. Among background variables, age was implicated in treatment outcome while gender was not. This finding is somewhat surprising given the consistent relation between male gender and substance use patterns and relapse. It is possible that this commonly found effect was masked by the inclusion of diagnosis and psychiatric symptomatology within the model. Gender based differences in the expression of psychopathology, particularly along the internalizing-externalizing dimension, might have better explained the differences in outcome over gender. For other personal characteristics, the lack of relation between self-esteem and early treatment outcomes is consistent with other findings from this lab (Richter et al., 1991). However, the lack of associations between alcohol expectancies and treatment outcomes were surprising. While some authors have questioned the influence of expectancies on early

treatment outcomes (Jones et al., 2001), support has been found for targeting expectancies in treatment (Brown et al., 1988; Darkes and Goldman, 1998).

The environmental influences of family history and family environment were not predictive of substance-related outcomes at one year. While family history has been found to be associated with substance use in adolescence and adulthood (Chassin et al., 2004), investigations in this laboratory have not found family history to contribute to our understanding of treatment outcomes. However, this might be a function of the dichotomous index of family history used here. A more continuous measure of family history that incorporates the degree to which substance abuse exists in families might better convey risks associated with genetic factors (e.g., Comtois et al., 2005). Additionally, the inclusion of nonusing social supports in our model might have mitigated the impact of family environment. As our social support measure includes families and peers, the impact of family through the mechanism of support and increased connectedness might have been overshadowed.

There are a number of procedural explanations for inconsistencies in the present findings and those of other studies. Our focus was on a competitive model whereby model components were considered simultaneously. Using this analytic strategy may mask significant value of factors that, when considered independently, may predict outcome or function as moderators. Testing this model from a process-oriented perspective requires a larger sample size. The addition of moderators capturing the impact of environmental influence across the year following treatment might significantly change the implications of these pretreatment variables on substance use outcomes. Secondly, for some variables of interest, the operationalizations used in this investigation may not have been optimal. For example, internalizing and externalizing symptoms were considered proxies for having a more harm avoidant and impulsive behavioral style. While harm avoidance and impulsivity have been consistently associated with internalizing and externalizing symptom expression, respectively (Cloninger et al., 1998; Cooper et al., 2003), these proxies may not sufficiently capture the trait-like characteristics of these personality styles. In addition, the use of a single measure of motivation might have limited its influence on the model.

This study has a number of strengths. First, this sample provides the opportunity to simultaneously examine a range of personal and environmental variables, assessed from the developmental perspective of adolescents, among youth after inpatient treatment for substance use disorders. In addition, the inclusion of research-supported risk and protective variables associated with substance use outcomes for SUD youth provided the opportunity to examine these factors in a sample with concomitant mental health disorders.

Given the positive impact of abstention on longer term psychosocial functioning in treated youth (Brown et al., 1994), interventions targeting decreasing the impact of concurrent psychopathology and increasing non-using social supports could have the greatest impact on general functioning in youth. However, further research is necessary to identify the specific factors associated with treatment outcomes beyond substance use patterns. While the present study provides important information regarding predictors of youth treatment outcome, other factors beyond those in traditional treatment outcome models are needed to account for the success and failure of youth following substance abuse treatment. Many factors incorporated in these models derive from adult studies of SUD or SUD teens without concomitant psychopathology. Future investigations pitting competing developmental models for youth relapse against one another are necessary to guide model development in the future.

The overarching goal of this research is to help enhance a theoretical framework for designing relapse prevention programs for youth with substance use disorders. By better

understanding the impact of risk and protective factors on substance-related outcomes, embedded within the developmental framework of adolescence, we improve the design and implementation of treatments for youth. The next step is to better understand the processes underlying how predictive factors and their interaction to impact outcomes for alcohol and drug disordered youth.

Acknowledgments

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Table 1

Sample demographics, diagnosis and use patterns (N=424)

Sex	
Male	49.5%
Female	50.5%
Age	
Mean	15.88 (SD = 1.25)
Range	12.00–18.00
Ethnicity	
Caucasian	74.5%
Hispanic-American	14.5%
African-American	5.0%
Other	5.8%
Socioeconomic Status	
Hollingshead Index Mean	34.23 (SD = 14.94) – Middle class
Diagnosis	
SUD-only	24.5%
SUD +1	47.9%
SUD/Both	27.6%
Substance use characteristics	
Substance using episodes/month	42.99 (SD = 29.12)
Substance-related problems	1.65 (SD = 1.68)
DSM-IV Dependence Symptoms	5.93 (SD = 2.33)

Note: Diagnosis was determined by DISC interviews and the Conduct Disorder Questionnaire.

Table 2

Factors predicting substance dependence symptoms at one year after treatment (N=305)

Variable	B	SE	p-value
Background Variables			
Age	−0.08	0.02	.70
Ethnicity[a]			
African-American	−1.14	1.13	.31
Caucasian	−0.64	0.67	.34
Other	−0.27	1.13	.81
Gender	−0.26	0.45	.56
SES	−0.02	0.02	.32
Substance Use - Intake			
Substance using episodes/month	0.02	0.01	.02
DSM-IV Dependence Symptoms	0.28	0.11	.01
Environmental Factors			
Family Environment	0.06	0.13	.53
Family History	0.68	0.56	.22
Social Support	0.73	1.03	.48
Person Variables			
Conduct disorder symptoms	−0.01	0.01	.39
Diagnosis[b]			
SUD+1	−0.65	0.57	.25
SUD/Both	−0.92	0.75	.23
Internalizing Symptoms	−0.05	0.14	.69
Motivation	−0.07	0.08	.42
Self-esteem	−0.02	0.04	.62
Alcohol Expectancies	0.02	0.03	.47

Note:

[a]Hispanic-Americans were the reference group in coding this variable.

[b]SUD-only participants were the reference group in coding this variable