Published in final edited form as:
Addict Behav. 2007 September ; 32(9): 1852–1862.

Do Personality Characteristics and Risk Taking Mediate the Relationship Between Paternal Substance Dependence and Adolescent Substance Use?

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Abstract

This longitudinal study examined whether adolescent personality characteristics and risk taking mediate the relationship between paternal substance dependence and adolescent substance use. At Time 1, the sample included 249 15–19 year-old adolescents and their fathers. These individuals also were assessed five years later (Time 2). Results indicated that paternal substance dependence directly and indirectly (via personality and risk taking) predicted adolescent substance use. Paternal substance dependence had significant direct effects on age when the adolescent first used marijuana and significant indirect effects on age when regular drinking began, age when first used marijuana, and frequency of drinking to get “high” or “drunk.” All of the indirect personality effects were via adolescent disinhibition. In addition, adolescent risk taking further mediated personality and adolescent substance use. Results from this study are discussed in relation to an epigenetic perspective of human development.

Keywords

adolescence; alcohol; drug; risk taking; personality; COAs

Numerous studies have shown that offspring of alcoholic parents are at an increased risk for early and heavy substance use and the subsequent development of alcohol and drug problems, in comparison to offspring of nonalcoholic parents (Chassin, Flora, & King, 2004; Chassin, Pitts, DeLucia, & Todd, 1999; Ohannessian & Hesselbrock, 1994; Russell, Cooper, & Frone, 1990). Previous research also has indicated that this link is at least partially genetic in nature (Cloninger, Sigvardsson, Reich, & Bohman, 1986; Goodwin, 1988; Heath, Madden, Bucholz, Nelson, Todorov, Price, Whitfield, & Martin, 2003; Schuckit, 2000). Moreover, theoretical perspectives suggest that an individual’s genetic predisposition for the development of substance abuse problems may be manifested via the individual’s temperament and personality

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characteristics (Tarter, 1988), which may further interact with the environment to decrease or increase an individual's risk for the development of alcohol or drug problems.

Research has indicated that offspring of alcoholic parents are more likely to possess certain temperament characteristics (dispositional characteristics that are believed to be highly heritable and to manifest themselves early in life; Buss & Plomin, 1984; Windle, 1989) in comparison to offspring of nonalcoholic parents. For example, offspring of alcoholics have been found to have higher levels of activity, emotionality, sociability, and impulsivity than offspring of nonalcoholics (Chassin et al., 2004; Saunders & Schuckit, 1981; Tarter et al., 1985, 1990).

As development progresses, temperament characteristics serve as a foundation for the development of more refined personality characteristics. Therefore, it is not surprising that personality characteristics also have been shown to differ between offspring of alcoholics and offspring of nonalcoholics. More specifically, offspring of alcoholics have been found to have higher levels of novelty seeking and openness to experience, and lower levels of reward dependence, conscientiousness, and agreeableness than offspring of nonalcoholic parents (Chassin et al., 2004; Loukas et al., 2000; Martin & Sher, 1994; Sher et al., 1991; Tarter et al., 1984).

In turn, temperament and personality characteristics have been found to be related to the onset of substance use and the development of alcohol and drug problems (Lerner & Vicary, 1984; LoCastro et al., 2000; Loukas et al., 2000; Tarter et al., 1985). More specifically, higher levels of disinhibition, novelty seeking, openness to experience, impulsivity, neuroticism, and harm avoidance; and lower levels of agreeableness and conscientiousness have been linked to heavy drinking and the development of alcohol problems (Chassin et al., 2004; Cloninger et al., 1995; LoCastro et al., 2000; Loukas et al., 2000).

It is noteworthy that neuroticism and harm avoidance have consistently been found to be related to alcohol problems for older individuals, but not for younger individuals (Cloninger et al., 1995; LoCostra et al., 2000). In contrast, impulsivity, disinhibition, and novelty seeking have been found to be more consistently associated with alcohol problems in samples of younger individuals (e.g., adolescents, young adults) than older individuals (Chassin et al., 2004; Cloninger et al., 1995; LoCastro et al., 2000). A possible explanation for these differential relations is that older individuals are more likely to drink to reduce negative affect, whereas younger individuals are more likely to drink as a result of impulsive behavior, to reduce boredom, and to seek out exciting experiences (LoCastro et al., 2000).

Since parental alcoholism has been shown to be related to a number of temperament and personality characteristics and certain temperament and personality characteristics have been linked to substance use problems, investigators have begun to examine whether specific temperament and personality characteristics mediate the relationship between parental alcoholism and substance use problems. Recent studies have found neuroticism to significantly mediate the relationship between parental alcoholism or a family history of alcoholism and alcohol use and alcohol problems (including abuse and dependence) during adulthood (Loukas et al., 2000; LoCastro et al., 2000). Results from these studies indicate that individuals with an alcoholic parent or a family history of alcoholism have higher levels of neuroticism, which in turn, is associated with more alcohol problems. Among adolescents and young adults, agreeableness (Chassin et al., 2004; Loukas et al., 2000) and impulsivity (Chassin et al., 2004) have been found to partially mediate the relationships between parental alcoholism and heavy drinking/heavy drug use group membership (Chassin et al., 2004) and between parental alcoholism and alcohol abuse and dependence (Loukas et al., 2000). These findings indicate that individuals with an alcoholic parent have lower levels of agreeableness and higher levels

of impulsivity, which in turn, are related to heavier drinking and drug use and to alcohol problems. During adolescence, emotionality also has been found to significantly mediate the relationship between parental alcoholism and adolescent substance use (Chassin et al., 1993). Taken together, results from these studies are consistent with the notion that an individual's genetic predisposition for the development of substance abuse problems may be transmitted via the individual's temperament and personality characteristics. However, it should be noted that most investigations examining whether temperament or personality characteristics mediate the relationship between parental alcoholism and offspring substance use to date have used cross-sectional designs. Longitudinal research examining the temporal relations between these variables is needed to examine whether temperament and/or personality characteristics truly mediate the relationship between parental substance dependence and offspring substance use. Moreover, as indicated by the studies just discussed, it is crucial that this research be sensitive to the developmental stage of the offspring since certain temperament and personality characteristics appear to be more salient at specific developmental stages.

It is important to note that according to epigenetic theory (Wills et al., 2000), the effect that temperament has on substance use is not direct. Epigenetic theory predicts that the effects of temperament are mediated through epigenetic derivatives, which are attributes that are rooted in temperament, but are more complex manifestations of temperament characteristics since they develop over time and may be shaped by and individual's multiple interactions with the environment. Essentially, temperament characteristics may serve as a foundation from which more complex characteristics (epigenetic derivatives) develop. Accordingly, epigenetic derivatives by definition are more proximal to the dependent variable when examining individuals over time. One characteristic that could be considered to be a salient epigenetic derivative for substance use and abuse is risk-taking. An individual's degree of risk taking should stem from temperament characteristics such as impulsivity, disinhibition, and boredom susceptibility. Furthermore, risk-taking is more complex than these temperament characteristics since it is likely to be influenced by an individual's cognitive development, social development, and experiences with dangerous situations. Finally, risk taking may be considered to be a behavioral manifestation of temperament and personality characteristics.

Accordingly, a primary goal of the present study was to examine whether risk taking further mediates the relationship between parental substance dependence and offspring substance use. Since risk taking increases throughout adolescence and declines during early adulthood (Elliott, 1993; Millstein & Igra, 1995), the present study followed a group of adolescents as they transitioned from adolescence into early adulthood. Only temperament and personality characteristics that have been found to be related to substance use during adolescence and early adulthood and that also seem likely to serve as the foundation for risk taking behavior were examined. More specifically, the present study assessed whether parental substance dependence predicts offspring substance use indirectly via temperament and subsequent risk taking.

As noted previously, the majority of studies that have examined the relations between parental substance abuse or dependence, temperament/personality, and offspring substance use have been cross-sectional. Longitudinal investigations are necessary for exploring whether temperament and personality characteristics truly mediate the relationship between parental substance abuse or dependence and offspring substance use. In order to test for mediation, the hypothesized mediating variables need to precede the dependent variable. Ideally, the relations between the independent variable, hypothesized mediating variable, and the dependent variable should be examined across time. Moreover, the examination of these relations should be conducted with a statistical technique that allows for the simultaneous estimation of multiple paths and mediating variables. Therefore, the present study used structural equation modeling (SEM) to examine the direct and indirect relations between paternal substance dependence

(maternal substance dependence was not assessed because the overarching research project focused on paternal substance dependence) and offspring substance use over time in order to address the following research questions: 1) Do adolescent temperament and personality characteristics (disinhibition, agreeableness, and boredom susceptibility) significantly mediate the relationship between paternal substance dependence and adolescent substance use? and 2) Does adolescent risk taking further mediate this relationship?

Method

Participants

The sample included 249 15–19 year-old adolescents (60% girls) and their fathers.[1] Data were not available from mothers because the original goal of the overarching project was to compare the adjustment of adolescents who had fathers with substance dependence problems to those who had fathers with no substance dependence problems. At Time 1, the mean age of the adolescents was 16.70 (SD=1.36). The majority of the adolescents were Caucasian (62%) or African-American (25%). All of the participants were from working class families from central Connecticut. Slightly over one half of the fathers (53%) had a high school diploma. The mean reported household gross income was 4.69 (SD=2.42) on a scale ranging from 1=0–$9,999/year to 9=$150,000/year or more, which was the equivalent of approximately $40,000/year.

Measures—At both times of measurement, all participants were administered a clinical psychiatric interview (The Semi-Structured Assessment for the Genetics of Alcoholism) to obtain psychiatric diagnoses and information relating to substance use. In addition, the offspring also completed a series of self-report questionnaires at both times of measurement. With the exception of the administration of the SSAGA to the fathers (which was used to obtain diagnoses of substance dependence), all of the measures were administered to the adolescents. The specific measures used in the present study are discussed in detail below.

Paternal Substance Dependence—*The Semi-Structured Assessment for the Genetics of Alcoholism (SSAGA)* was administered to obtain lifetime diagnoses of alcohol dependence and drug dependence. The SSAGA is a clinical, diagnostic psychiatric interview. It measures 17 axis I psychiatric diagnoses and antisocial personality disorder. Importantly, the SSAGA allows for psychiatric diagnosis across multiple diagnostic systems. DSM-III-R and DSM-IV diagnoses from the SSAGA are derived by using computer algorithms. In the present study, paternal lifetime diagnoses of alcohol and drug dependence were obtained from the SSAGA. Previous studies have demonstrated that the SSAGA is a reliable (Bucholz et al., 1994) and valid (Hesselbrock, Easton, Bucholz, Schuckit, & Hesselbrock, 1999) psychiatric diagnostic instrument. Based on the diagnoses obtained from the SSAGA, in the present study, fathers were classified as having no history of alcohol or drug dependence (44%), alcohol dependence only (27%), or alcohol dependence and drug dependence (29%).

Temperament and Personality—*The NEO-Five Factor Inventory – Form S* (Costa & McCrae, 1992) was used to assess adolescent agreeableness. The NEO is a self-report measure based on the five factor model of personality. The agreeableness scale includes 12 items that are responded to on a 5-point scale ranging from 1=strongly disagree to 5=strongly agree. Higher scores reflect higher levels of agreeableness. A representative item from the NEO agreeableness scale is “I would rather cooperate with others than compete with them.” The NEO scales have been shown to possess strong discriminant and convergent validity characteristics (McCrae & Costa, 1992; Scandell, 2000) and to have high levels of internal consistency (Costa & McCrae, 1992; Loukas et al., 2000).

[1]After the initial wave of testing (Time 1), individuals were followed up approximately five years later (Time 2).

The Sensation Seeking Scale (SSS-V5, Zuckerman et al., 1984) was used to measure adolescent disinhibition and boredom susceptibility. The disinhibition scale measures the need to reduce inhibition in social behaviors, whereas the boredom susceptibility subscale measures aversion to repetitive or dull experiences (Roberti, Storch & Bravata, 2004). Both the disinhibition and the boredom susceptibility scales of the SSS-V5 consist of 10 items that are summed to create a scale score. When responding to items, individuals are asked to choose one of two options according to which one best describes them. For example, a sample item from the disinhibition scale is "I am not interested in experience for its own sake" or "I like to have new and exciting experiences and sensations even if they are a little frightening, unconventional or illegal." A representative item from the boredom susceptibility scale is "There are some movies I enjoy seeing a second or even a third time" or "I can't stand watching a movie that I've seen before." Previous research has shown that the SSS-V5 scales are psychometrically sound. Both of the SSS-V5 scales used have been found to be reliable and valid measures of sensation seeking behavior (Roberti, Storch, & Bravata, 2004; Zuckerman, 1985; Zuckerman et al., 1978; Zuckerman et al., 1980).

Adolescent Risk Taking—*The Risk Taking Questionnaire* (RTQ; Busen, 1991) was used to assess risk taking during adolescence. The RTQ consists of 51 items that are summed to create a total score. Representative items include "Have you ever engaged in reckless driving (speeding, weaving, etc.)?" and "Have you ever snuck out of the house without your parents' knowledge?" The RTQ has been shown to demonstrate content validity and a fair degree of internal consistency (Busen, 1991). In the present sample, the Cronbach alpha coefficient was . 92.

Adolescent Substance Use—All of the adolescents were asked how often in the past six months they drank enough to "get high" (enough to cause drowsiness, lightheadedness, etc.) and to "get drunk" (enough to cause loss of control of physical abilities, unsteadiness, aggressiveness or nausea). The response scale for these items ranged from 1=never to 8=nearly every day or more often. Since these two variables were skewed, they were linearly transformed and then summed.

The adolescents also were asked how old they were when they began drinking regularly and when they first used marijuana (these variables were obtained from the adolescent version of the SSAGA). The distributions of these variables were fairly skewed. Therefore, participants were classified into the categories that follow (since the distributions for the variables differed, the classifications across variables differed slightly). For regular drinking, the categories were 0=have not begun to drink regularly, 1=19–22 years of age, 2=17–18 years of age, 3=15–16 years of age, 4=14 years of age or younger. For age first used marijuana, the categories were 0=never used, 1=19–22 years of age, 2=17–18 years of age, 3=15–16 years of age, 4=13–14 years of age, 5=11–12 years of age, and 6=10 years of age or younger.

Procedures

All of the adolescents and fathers participated in a larger longitudinal study (the RISK project). The RISK project (Houston, Ceballos, Hesselbrock, & Bauer, 2005; Averna, & Hesselbrock, 2001) was designed to follow offspring of alcohol and drug dependent fathers over time as the offspring progress from adolescence into adulthood. The RISK project began in 1993 and is currently ongoing. The present study is based on Time 1 data (collected between 1993–1998) and Time 2 data (collected between 1998–2003).

Adolescents were recruited directly through the community (e.g., YMCA/YWCA, presentations at high schools, information provided by guidance counselors) and indirectly via their parents (e.g., newspaper advertisements, presentations at alcohol/drug treatment

programs). Interested adolescents or parents were invited to call a research assistant for further information and screening. If they were still interested after the initial phone call, they were asked to visit the university to provide informed consent and to complete a psychiatric interview. The adolescents also completed a set of psychosocial self-report questionnaires, a neuropsychological battery, and an electrophysiological battery (the neuropsychological and electrophysiological batteries were not examined in the present study). Upon completion of data collection, each participant received a payment of $100.

All of the participants agreed to being contacted for a follow-up interview and additional testing five years after the initial testing. At Time 2, the offspring (now young adults) were administered a battery of tests similar to those administered at Time 1. However, they did not complete an electrophysiological battery. At the completion of data collection at Time 2, each participant received $150. The attrition rate between Time 1 and Time 2 was 15%. Of note, individuals who declined participation at Time 2 did not significantly differ from those who participated at Time 2 on any of the demographic variables (age, gender, and ethnicity) or substance use variables.

Results

Structural equation modeling (SEM) was used to examine whether personality characteristics and risk taking mediate the relationship between paternal substance dependence and adolescent substance use. SEM is ideal for the examination of potential mediating variables since it allows for the simultaneous examination of both indirect and direct relationships. Moreover, multiple hypothesized mediating variables and dependent variables may be included within the same model.

In the current study, paternal substance dependence, personality, and risk taking were assessed at Time 1 and offspring substance use was assessed at Time 2. All direct and indirect paths were simultaneously included in the model. Direct paths were estimated along with indirect paths because other studies examining the relations between parental alcoholism, temperament, and offspring alcohol problems have found support for both indirect and direct relations (e.g., Chassin et al., 2004; Loukas et al., 2000).

The errors within the temperament and personality measures and within the adolescent substance use measures were allowed to correlate with one another. In addition, paths that were initially non-significant were subsequently set to 0.

Table 1 shows the correlations, means, and standard deviations between the variables examined. As shown, paternal substance dependence was negatively related to adolescent agreeableness, but positively related to boredom susceptibility. In addition, paternal substance dependence was related to (lower) age when regular drinking began and (lower) age at first marijuana use among the adolescents. The majority of the adolescent personality and risk taking measures also were significantly correlated with the adolescent substance use measures (see Table 1).

Figure 1 illustrates the results obtained for the SEM model. The SEM model fit the data extremely well $X^2(9)=8.91$, $p=.45$ (NFI=.98; CFI=1.00, RMSEA=.00). The SEM model accounted for 21% of the variance for age when regular drinking began, 27% of the variance for age first used marijuana, and 10% of the variance for drinking to get “high” or “drunk.”

As shown in Figure 1, paternal substance dependence directly and indirectly (via adolescent temperament/personality and risk taking) predicted adolescent substance use. However, paternal substance dependence only had significant direct effects on age first used marijuana ($\beta=.16$, $p<.01$), indicating that adolescents with substance dependent fathers used marijuana

earlier than those with non-substance dependent fathers. In contrast, paternal substance dependence had significant indirect effects on all of the adolescent substance use measures. More specifically, adolescents who had substance dependent fathers had significantly higher levels of disinhibition (β=.13, $p<.05$); and those with higher disinhibition levels began to regularly use alcohol earlier (β=.32, $p<.001$), use marijuana earlier (β=.21, $p<.01$), and drank more frequently to get "high"/"drunk" (β=.30, $p<.001$) in comparison to those with non-substance dependent fathers.

In addition to the mediational effects observed for personality, risk taking during adolescence was found to consistently mediate the temperament/personality and substance use variables. More specifically, adolescents with substance dependent fathers had significantly lower levels of agreeableness (β=−.18, $p<.01$) and higher levels of disinhibition (β=.13, $p<.05$) and boredom susceptibility (β=.15, $p<.05$) than adolescents with non-substance dependent fathers. These variables significantly predicted higher levels of risk taking (β=−.23, $p<.001$; β=.47, $p<.001$; β=.12, $p<.05$, respectively), which in turn, significantly predicted younger age when regular drinking began (β=.20, $p<.01$), and younger age at first marijuana use (β=.31, $p<.001$).

Discussion

The primary aim of the present investigation was to examine whether temperament and personality characteristics during adolescence significantly mediate the relationship between paternal substance dependence and offspring substance use. Consistent with prior research examining adolescents and young adults (Chassin et al., 2004; Loukas et al., 2000; Martin & Sher, 1994), offspring of substance dependent fathers were found to have lower levels of agreeableness and higher levels of disinhibition than those of non-substance dependent fathers. Similarly, offspring of substance dependent fathers were found to have higher levels of boredom susceptibility in comparison to those with non-substance dependent fathers. Moreover, disinhibition was found to partially mediate the relations between paternal substance dependence and *all* of the dependent variables assessed (age when regular drinking began, age at first marijuana use, and frequency of drinking to get "high"/"drunk").

The results from this study are consistent with those from Chassin et al.'s (2004) study examining trajectories of substance use in offspring of alcoholic parents. In their study, Chassin et al. found impulsivity (a similar indicator of behavioral undercontrol) to partially mediate the relationship between parental alcoholism and heavy drinking/heavy drug use group membership. Both Chassin et al.'s study and the present study followed a group of adolescents into early adulthood. Taken together, results from these studies indicate that temperament and personality characteristics that reflect behavioral undercontrol (e.g., impulsivity, disinhibition, novelty seeking) are associated with substance use problems in samples of young individuals (Chassin et al., 2004; Cloninger et al., 1995; LoCastro et al., 2000).

Prior research examining adolescents and young adults also has suggested that agreeableness may partially mediate the relationship between parental alcoholism and offspring substance abuse (Chassin et al, 2004; Loukas et al., 2000). Consistent with prior research, paternal substance dependence was negatively related to agreeableness in the present study indicating that adolescents who had a substance dependent father were less agreeable than those who did not. However, in the present study, agreeableness was not found to significantly mediate the relationship between paternal substance dependence and adolescent substance use because agreeableness was not significantly associated with any of the dependent variables assessed. The differences observed across these studies may simply reflect differences in the indicators of substance use and abuse that were examined. Both Chassin et al. (2004) and Loukas et al. (2000) examined indicators of more serious substance abuse and dependence (e.g., DSM-III-R diagnoses), whereas the present study focused more on indicators of early substance use

(e.g., age at first use). It also should be noted that in the present study, agreeableness was assessed during adolescence (at the first time of measurement) and the indicators of substance use were assessed five years later, during early adulthood. In constrast, Chassin et al. (2004) and Loukas et al. (2000) assessed agreeableness and the substance abuse measures at the same time of measurement during early adulthood. Therefore, the failure to find significant relations between agreeableness and the substance use measures in the present study may simply reflect the fact that it is relatively more difficult to detect significant findings when variables are examined longitudinally (especially over a long period of time) than when they are examined unitemporally (as was done in the Chassin et al. and Loukas et al. studies).

Another primary goal of the present study was to explore whether adolescent risk taking further mediates the relationship between paternal substance dependence and adolescent substance use. According to the epigenetic perspective, the relations between temperament/personality and substance use should be mediated by epigenetic derivatives (e.g., behavioral/developmental manifestations of temperament or personality characteristics). Results from the present study are consistent with this theoretical perspective. In the present study, paternal substance dependence both directly and indirectly predicted adolescent substance use. However, the majority of significant effects were indirect via adolescent personality, particularly disinhibition. In accordance with epigenetic theory, adolescent risk taking served as an epigenetic derivative by further mediating these relations. For example, lower levels of agreeableness and higher levels of disinhibition and boredom susceptibility significantly predicted higher levels of risk taking; and higher levels of risk taking, in turn, significantly predicted earlier regular drinking and marijuana use. These results highlight the usefulness of using an epigenetic approach when examining the relations between parental substance dependence and adolescent problem behaviors.

Although the present study extends the literature, limitations of the study should be noted. One such limitation is that gender differences were not able to be examined because of the relatively small size of the sample. It would be important for future research to investigate whether the relations obtained in the present study are consistent across gender. Similarly, due to constraints from the design of the larger research project, only paternal alcohol dependence was assessed in the present study. However, previous research has indicated that the effects of parental alcoholism on offspring adjustment may differ depending on the gender of the parent (Luthar, Merikangas, and Rounsaville, 1993; Ohannessian, Hesselbrock, Kramer, Kuperman, Bucholz, Schuckit, & Nurnberger, 2005). Therefore, future studies should examine the possible differential effects that maternal and paternal substance dependence may have on temperament/personality, and substance use.

Nonetheless, the present study contributed to the current literature in many respects. Although previous studies examining the mediating role that temperament and personality play in the relationship between parental alcoholism and young adult substance abuse have shown temperament and personality to be significant mediators, the vast majority of research to date has been cross-sectional. The present study extended this literature by demonstrating that temperament and personality characteristics (e.g., disinhibition) significantly mediate the relationship between paternal substance dependence and offspring substance use, *over time*. Moreover, in accordance to epigenetic theory, results from the present study indicated that adolescent risk taking further influences this relationship. It is hoped that future research will replicate and extend the results from the present investigation by systematically examining the effects that both adolescent gender and parent gender have on the relations between parental substance dependence, temperament and personality, and substance use. Moreover, it would be important for future research to examine these relations as offspring develop beyond early adulthood.

Acknowledgements

We would like to thank all of the participants in the RISK study. We also are indebted to the RISK staff, particularly Cheryl McCarter, for continuous dedication to the project. Finally, we would like to acknowledge the funding that supported the study - NIH grants 5P50-AA03510 and 1K01-AA015059.

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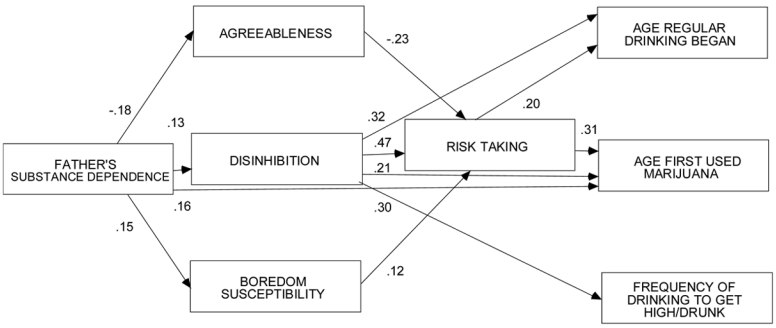

Figure 1.

Direct and Indirect Paths Between Substance Dependence and Adolescent Substance Use

Note. Standardized regression coefficients are presented. For ease of interpretation, only significant paths are displayed.

Table 1

Correlations, Means, and Standard Deviations Between the Study Variables

Measure	1	2	3	4	5	6	7	8
1. Paternal Substance Dependence								
2. Agreeableness	−.18**							
3. Disinhibition	.13†	−.29**						
4. Boredom Susceptibility	.15*	−.33**	.34**					
5. Risk Taking	.18**	−.40**	.61**	.34**				
6. Age Regular Drinking Began	.14*	−.10	.43**	.15*	.43**			
7. Age 1st Used Marijuana	.26**	−.17**	.41**	.20**	.49**	.47**		
8. Drinking to Get “High”/”Drunk”	.13†	.03	.28**	.11†	.22**	.42**	.22**	
Mean	.85	29.44	4.66	3.36	15.75	1.69	2.24	2.89
SD	.84	6.50	2.54	2.01	10.18	1.33	1.54	1.68

† $p<.10$;

* $p<.05$;

** $p<.01$;

*** $p<.001$.