

Predictors of Sexual Debut at Age 16 or Younger

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Abstract The present study examined the extent to which variables within the self system (i.e., symptoms of alcohol dependence and conduct disorder, gender, race, and metropolitan status) and the familial system (i.e., having an alcohol dependent biological parent or second-degree relative, religious background, educational background of parents, and being born to a teenage mother) were associated with sexual debut at 16 years old or earlier. Participants were 1,054 biological relatives, aged 18–25 years, of alcohol dependent probands who participated in the Collaborative Study on the Genetics of Alcoholism project. Comparison participants ($N = 234$) without alcohol dependent biological parents were also evaluated. Clinical and sociodemographic variables were assessed by structured, personal interviews.

Parental history of alcohol dependence was evaluated by direct interview of parents in most cases and family history in un-interviewed parents. In a multivariate survival analysis, increased risk of becoming sexually active at 16 years of age or earlier was significantly associated with 6 of the 10 predictor variables, including race, one or more alcohol dependence symptoms, and/or one or more conduct disorder symptoms. Having an alcohol dependent biological parent or second-degree relative (e.g., aunt, uncle, or grandparent), educational background of mother, and being born to a teenage mother were also significantly associated with increased risk. These results provide evidence that specific variables in the self and familial systems of influence are important in predicting sexual debut at 16 years old or earlier.

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Introduction

Early sexual debut has been linked with a number of detrimental health consequences. Young age of first sexual intercourse is correlated with unintended pregnancy due to reduced use of contraception (Raine, Minnis, & Padian, 2003). In addition, an immature cervix of teenage girls and young women may be particularly vulnerable to STDs linked to pelvic inflammatory disease (Westrom & Eschenbach, 1999). An underdeveloped cervix also appears to be more susceptible to HPV infection, the most common cause of cervical cancer (Moscicki, Burt, Kanowitz, Darragh, & Shiboski, 1999). A primary reason is because of cervical ectopy, which is distinguished by rapid physiologic changes in the cervical epithelium, or immature immune response to HPV infection (Duncan et al., 1990; Shew, Fortenberry,

Miles, & Amortegui, 1994). Early sexual debut is also associated with increased number of sexual partners (Cavazos-Rehg et al., 2007). Moreover, numerous social consequences have also been associated with early sexual activity, including compromised economic futures due to out-of-wedlock childbearing and adolescent parenting (Cates, 1990; Harvey & Spigner, 1995; Rosebaum & Kandel, 1990; Seidman & Riede, 1994).

Alcohol-related problems have been frequently identified as an important risk factor for early sexual activity (Carroll & Carroll, 1995; Fergusson & Lynskey, 1996; Graves & Leigh, 1995; Iacono & McGue, 2002; Mott, Fondel, Hu, Kowaleski-Jon, & Menaghan, 1996; Poulson, Eppler, Satterwhite, Wuensch, & Bass, 1998). Nearly 20% of youth report drinking alcohol the first time they had sexual intercourse (Cooper, Peirce, & Huselid, 1994), and approximately 25% of sexually active youth consumed alcohol or drugs the most recent the time they had sexual intercourse (Centers for Disease Control and Prevention, 2002). Past findings also link conduct disorder and substance use disorders with elevated rates of sexual intercourse that is unprotected or performed in exchange for money or drugs (Booth & Zhang, 1997; Mezzich et al., 1997; Whitmore, Mikulich, Ehlers, & Crowley, 2000).

Efforts to delineate the factors that motivate early sexual debut also underscore the importance of parenting practices and genetic influences as sources of risk. Lack of parental supervision and support, limited family connectedness, single parenthood, marital discord, and poor quality of parental-child relationship all have been correlated with negative behavioral outcomes, including early sexual activity among children and adolescents (Roche et al., 2005). The tumultuous relationship patterns and adverse childhood experiences caused by alcohol dependent parents are consistently linked with multiple deleterious emotional and behavioral problems in their adolescent offspring (American Academy of Pediatrics Committee on Substance Abuse, 2001). Similarly, adolescent and young adult parents constitute a high-risk group often connected with adverse parenting practices that may be associated with offspring's early sexual debut (Chassin, Flora, & King, 2004). Genetic effects may also influence the disinhibitory traits of individuals (i.e., sensation seeking, impulsivity, non-conformity) placing them at greater risk for early sexual onset (Iacono & McGue, 2002). Parental factors, both environmental and genetic, may play a large role in determining whether or not a youth decides to engage in early sexual debut; yet, there is a dearth of research that examines which specific risk factors actually impact this behavior.

In sum, biological, behavioral, and environmental factors have been consistently identified as sources of influence on adolescent sexual behavior (for reviews, see Brooks-Gunn & Furstenberg, 1989; Goodson, Evans, & Edmundson, 1997; Kotchick, Shaffer, Forehand, & Miller, 2001; Miller &

Moore, 1990). In a review of recent literature on adolescent sexual behavior, Kotchick et al. (2001) organized the findings into a multisystemic perspective to summarize the correlates of adolescent sexual risk behaviors within the self, familial, and extrafamilial systems. Our study was guided by this multisystemic perspective of adolescent sexual risk-taking, which emphasizes the reciprocal relationship among the self system, the familial system, and the extrafamilial system as primary sources of influence on adolescent sexual behaviors (Kotchick et al., 2001). We hypothesize that variables within the self system (i.e., gender, race, metropolitan status during childhood, symptoms of alcohol dependence and conduct disorder) and the familial system (i.e., having an alcohol dependent biological parent or second-degree relative, religious background, educational background of mother and father, being born to a teenage mother) significantly predict sexual debut. Although extrafamilial system influences were not directly assessed due to their unavailability in the dataset, symptoms of conduct disorder, a disorder marked by chronic conflict with parents, teachers, and peers, were included in the analyses as indicators of relationship difficulties (American Psychiatric Association, 2000). We recognize that a plethora of factors have been linked with adolescent sexual behavior in past studies (Kotchick et al., 2001); however, the predictor variables in the present study were chosen to correspond with the self and familial systems of influence on sexual debut and because of their availability within the context of a research project examining the genetics of alcoholism.

Method

Participants

The participants included in the present study were 18- to 25-year-old relatives of alcohol dependent probands who participated in the Collaborative Study on the Genetics of Alcoholism (COGA) project. COGA is a multicenter, longitudinal project that began in 1989 with recruitment at six centers (Indiana University, Indianapolis; State University of New York at Brooklyn; University of California-San Diego and Scripps Institute, San Diego; University of Connecticut, Farmington; University of Iowa, Iowa City; and Washington University, St. Louis, Missouri). The goal of COGA is to identify the genes that impact risk for alcoholism and alcohol-associated characteristics and behaviors (Edenberg, 2002). Adults receiving treatment for alcohol dependence were identified through public and private treatment centers. Biological relatives of alcohol dependent probands aged 7–25 years were targeted for recruitment and reassessment. The present analyses focused on the young adult sample,

aged 18–25. Individuals younger than 18 years of age were not queried on items related to sexual history and were thus excluded from the present study. Because the focus of COGA was on systematic ascertainment of alcohol dependent participants followed by interviews of their relatives, the sample studied here was not matched for SES.

Comparison participants were also examined in the present study. Comparison families were recruited from the community without regard for alcohol status using a variety of sources, including randomly ascertained driver's license records, attendance at medical/dental clinics, and mailings to randomly selected university students. Alcohol dependence in any of the family members was not grounds for exclusion; however, only those comparison participants whose biological parents were not alcohol dependent were included in the current analyses.

Procedure

Participants who provided informed consents were administered the Semi-Structured Assessment for the Genetics of Alcoholism (SSAGA) (Bucholz et al., 1994; Hesselbrock, Easton, Bucholz, Schuckit, & Hesselbrock, 1999). This reliable and valid interview is designed to assess the physical, psychosocial, and psychiatric manifestations of alcohol abuse and dependence and related psychiatric disorders.

Participants' sexual history was characterized by two questions. The first, "Have you ever had sexual intercourse with someone?", if answered positively, was followed by an additional question, "How old were you when you had sexual intercourse for the first time (voluntarily)?" Participants' religious status was assessed by the question, "What religion were you raised in?" Those who did not provide a religion were characterized as "Not affiliated" while those who provided a religion were classified as having a religious background. Participants' metropolitan status during childhood was assessed by the question, "Was the home that you lived in (the longest) from age 6 to 13 in a large metropolitan area (population is at least 100,000), a suburb of a large city, a small city (population is 25,000–100,000), a small town (population is <25,000), or out in the country?"

Design

We performed a multivariate survival analysis by using the Cox proportional hazards regression procedure program from the SPSS software package version 13 (SPSS Inc., Chicago, IL). This procedure allows for both time-independent and time-dependent predictors (independent variables). The event of interest was onset of sexual intercourse and the time variable was age at first consensual intercourse if less than or equal to 16 years old. Those not yet sexually active at age 16 or younger were considered to be censored and the

time variable was 16. In a survival analysis, the participant's survival time is taken into account even if the individual does not yet experience the event(s) of interest. We selected age 16 as a cutoff for sexual debut since past research has classified sexual debut at age 17 or older as "late initiation" (Rosenthal et al., 2001).

The predictor variables were composed of variables within the self system (i.e., gender, race, metropolitan status during childhood, symptoms of alcohol dependence and conduct disorder) and the familial system (i.e., having an alcohol dependent biological parent or second-degree relative, religious background, educational background of mother and father, being born to a teenage mother).

The ages of the earliest alcohol dependence and conduct disorder symptoms were also included in the analyses if present. Alcohol dependence was defined by three or more of the following seven symptoms, including tolerance, the withdrawal syndrome or drinking to relieve or avoid withdrawal symptoms, drinking larger amounts or over a longer period than intended, persistent desire or unsuccessful efforts to cut down or control alcohol use, spending a great deal of time obtaining alcohol, drinking, or recovering from hangovers, giving up or reducing important social, occupational, or recreational activities in favor of drinking, and continued drinking despite physical or psychological problems worsened by drinking (American Psychiatric Association, 2000). Conduct disorder was defined as a disruptive behavior diagnosis in which children repeatedly violate the personal or property rights of others and the basic expectations of society (American Psychiatric Association, 2000). It is manifested by the presence of three or more of the following symptoms, including aggression directed to people or animals, destruction or damage of property, deceitfulness or theft, and serious violations of rules. Of note, there were no symptoms of conduct disorder and alcohol dependence that are directly indicative of sexual promiscuity or sexual debut.

We opted to examine subdiagnostic levels of alcohol dependence and conduct disorder in order to assess risk of early sexual debut among individuals who exhibited some of these problems without necessarily meeting full diagnostic criteria. The age at which the earliest symptom of alcohol dependence first occurred was treated as a time dependent covariate, and counted only if it occurred prior to age of first sexual intercourse. Age at which the earliest conduct disorder symptom first occurred was also considered as a time dependent covariate, and counted only if the symptom occurred prior to age of first sexual intercourse. All other independent variables were treated as time independent covariates. *p*-values were estimated by Wald's tests.

The dataset contained multiple members from some families; in such cases, data from family members were not truly independent observations. The SPSS procedure does not account for clustering within families. Therefore, the

possible effect of clustering was assessed by using the Huber-White sandwich (Rogers, 1993) estimator available in the STATA version 7.0 (Stata Corp., College Station, TX) `stcox` command. Unequal selection probabilities, clustering, and weighting adjustments for non-response will result in design effects >1 . However, no evidence of a design effect >1 was found, thus justifying the use of the SPSS procedure.

Results

Participants were 1,054 biological relatives of alcohol dependent probands who participated in the COGA project. Comparison participants ($N = 234$) without alcohol dependent biological parents were also included in the analyses. Additional information is provided in Table 1. Biological relatives of alcohol dependent probands were more likely to be non-high school graduates, $\chi^2(1) = 47.65, p < .001$, of lower income, $\chi^2(2) = 8.46, p < .001$, and African American, $\chi^2(1) = 48.02, p < .001$, than comparison participants.

Sexual Debut

A total of 1,147 (89%) participants (including those from families with alcohol dependence and comparison subjects) had engaged in sexual intercourse by the time of interview. Among the sexually active participants, average age of sexual debut was 16, with a range from 7 to 24 years. Sexual debut occurred by age 16 for 58% and by age 19 for 94% for those who were sexually active.

Alcohol Dependence

From the entire sample, a total of 763 (59%) participants endorsed at least one symptom of alcohol dependence. Age of onset of first symptom of alcohol dependence ranged from 11 to 25. A total of 265 of these participants (21% of the total sample) endorsed one or more such symptom(s) prior to sexual debut.

Conduct Disorder

A total of 1,048 participants (81%) endorsed at least one conduct disorder symptom. Age of onset of conduct disorder symptoms ranged from 7 to 18. The majority of the participants (919; 71% of the total sample) endorsed one or more conduct disorder symptom(s) prior to sexual debut.

Multivariate Survival Analysis

To test the hypothesis that variables within the self system and the familial system significantly predicted sexual debut,

Table 1 Characteristics of the participants and parents ($N = 1,288$)

Variable	<i>N</i>	<i>M</i>	SD
Self system variables			
Age (18–25)		21.4	2.3
Sex			
Male	697	54%	
Female	591	46%	
Race			
Caucasian	1,026	80%	
African-American	262	20%	
Metropolitan status			
Suburb of a large city	335	26%	
Large city (>100,000)	332	26%	
Small city (25,000–100,000)	262	20%	
Small town (<25,000)	248	19%	
Rural	111	9%	
Age of first sexual intercourse (7–24) ^a		16.1	2.3
Familial system variables			
Level of alcohol involvement for familial groups			
Comparison group	234	18%	
Has an alcohol dependent second-degree relative	544	42%	
Only biological mother is alcohol dependent	146	11%	
Only biological father is alcohol dependent	308	24%	
Both biological parents are alcohol dependent	56	4%	
Religious background			
Endorsed a religious background	1,097	85%	
Endorsed a non-religious background	186	14%	
Educational background of biological mother			
College graduate	246	19%	
Some college education	274	21%	
High school graduate	538	42%	
Not a high school graduate	142	11%	
Unknown	88	7%	
Educational background of biological father			
College graduate	329	26%	
Some college education	158	12%	
High school graduate	321	25%	
Not a high school graduate	101	8%	
Unknown	379	29%	
Mother's age at time of participant's birth			
Mother's age ≤ 19 at participant's birth	1,099	85%	
Mother's age ≥ 20 at participant's birth	189	15%	

^a 141 of the 1,288 participants (11%) had not yet had sexual intercourse

all variables were entered into the equation simultaneously in the Cox Regression analysis. Exploratory analyses were conducted to assess the proportional hazards assumption. In

Table 2 Initial investigational (full) model

Variable	Hazard ratio	95% CI	<i>p</i>
Self system variables			
Sex			
Male	1.0		
Female	1.2	1.0–1.5	ns
Race			
Caucasian	1.0		
African-American	1.4	1.0–2.0	.04
Metropolitan status			
Suburb of a large city	1.0		
Large city	1.3	0.9–1.8	ns
Small city	1.1	0.8–1.5	ns
Small town	1.3	0.9–1.7	ns
Rural	1.1	0.7–1.5	ns
Symptoms of alcohol dependence			
No alcohol dependence symptom	1.0		
At least one alcohol dependence symptom ^a	1.6	1.1–2.1	.005
Symptoms of conduct disorder			
No conduct disorder symptom	1.0		
At least one conduct disorder symptom ^a	1.9	1.5–2.5	<.001
Familial system variables			
Level of alcohol involvement for familial groups			
Comparison group	1.0		
Has an alcohol dependent second-degree relative	1.6	1.1–2.2	.01
Only biological mother is alcohol dependent	2.1	1.1–4.0	.02
Only biological father is alcohol dependent	2.3	1.6–3.3	<.001
Both biological parents are alcohol dependent	2.1	1.1–4.0	.001
Religious background			
Endorsed a religious background	1.0		ns
Endorsed a non-religious background	1.0	0.8–1.4	ns
Educational background of biological mother			
College graduate	1.0		
Some college education	0.9	0.6–1.3	ns
High school graduate	1.2	0.9–1.7	ns
Not a high school graduate	1.4	0.9–2.2	ns
Educational background of biological father			
College graduate	1.0		
Some college education	0.9	0.6–1.3	ns
High school graduate	1.3	0.9–1.7	ns
Not a high school graduate	1.1	0.8–1.7	ns
Mother's age at time of participant's birth			
Mother's age ≤19 at participant's birth	1.0		
Mother's age ≥20 at participant's birth	1.2	0.9–1.7	ns

^a Time dependent covariate

addition to theoretical reasons for selecting 16 as the cutoff age for sexual debut (Rosenthal et al., 2001), it was determined that the proportional hazard model fit the data well for age of sexual debut occurring up to age 16. After this age, as it became increasingly common for a participant to have experienced first sexual intercourse, the relationship of the

predictor variables to the hazard ratio was reduced. Earlier threshold ages of sexual debut were also explored; however, fewer participants had experienced sexual debut at younger ages thereby resulting in a loss of statistical power.

As seen in Table 2, the overall regression model was significant, $\chi^2(20) = 147.91, p < .001$. Six of the ten predictor

Table 3 Parsimonious (all variables significant) model

Variable	Hazard ratio	95% CI	<i>p</i>
Self system variables			
Race			
Caucasian	1.0		
African-American	1.7	1.4–2.0	<.001
Symptoms of alcohol dependence			
No alcohol dependence symptom	1.0		
At least one alcohol dependence symptom ^a	1.7	1.3–2.1	<.001
Symptoms of conduct disorder			
No conduct disorder symptom	1.0		
At least one conduct disorder symptom ^a	1.8	1.5–2.2	<.001
Familial system variables			
Level of alcohol involvement for familial groups			
Comparison group	1.0		
Has an alcohol dependent second-degree relative	1.8	1.3–2.4	<.001
Only biological mother is alcohol dependent	2.0	1.4–2.9	<.001
Only biological father is alcohol dependent	2.4	1.7–3.3	<.001
Both biological parents are alcohol dependent	2.6	1.6–4.2	<.001
Educational background of biological mother			
College graduate	1.0		
Some college education	1.1	0.8–1.5	ns
High school graduate	1.3	1.0–1.7	.021
Not a high school graduate	1.6	1.2–2.2	.004
Mother's age at time of participant's birth			
Mother's age ≤19 at participant's birth	1.0		
Mother's age ≥20 at participant's birth	1.4	1.1–1.8	.002

^a Time dependent covariate

variables were not predictive of sexual debut at age 16 or earlier including sex of participants, metropolitan status, religious background, educational background of mother, educational background of father, and having a teenage mother. The variables that were least predictive of sexual debut were removed from the final model to generate a parsimonious model.

As seen in Table 3, the overall parsimonious regression model was significant, $\chi^2(11) = 210.21$, $p < .001$. Significant higher hazard rates were obtained for six of the ten predictor variables including race, first alcohol dependence symptom, and first conduct disorder symptom. The presence of a biological alcohol dependent relative (aunt, uncle, or grandparent), an alcohol dependent biological father only, mother only, or pair of affected parents, educational background of mother, and mother's age at time of participant's birth were also significant predictors. Note that educational background of mother and having a teenage mother became significant in the parsimonious model once the other non-predictive variables were removed from the analysis. This is likely due to the collinearity among mother's educational background, being a teenage mother, and metropolitan status. That is, the standard errors of these three terms in the model were slightly inflated due to the collinearity among the

variables. Removal of the one variable, metropolitan status, by reducing standard errors and increasing slope estimates, resulted in the other two variables becoming statistically significant.

Onset of first symptom of alcohol dependence was associated with an increased risk of becoming sexually active at age 16 or younger, $HR = 1.7$, $p < .001$. In addition, onset of first symptom of conduct disorder was linked with a greater risk of sexual debut at 16 or younger, $HR = 1.8$, $p < .001$. Greater risk of sexual debut at age 16 or younger was also associated with membership in families afflicted with at least one case of alcohol dependence disorder. Specifically, participants whose biological parents were not diagnosed with alcohol dependence but who had a biological alcohol dependent relative (aunt, uncle, or grandparent) were at greater risk of becoming sexually active at age 16 or younger than comparison participants, $HR = 1.8$, $p < .001$. Having one or more biological parents with alcohol dependence was associated with an increased risk of early sexual debut using as comparison, participants with no biological alcohol dependent parents as baseline, $HR = 2.0$, $p < .001$ (mother only is alcohol dependent), $HR = 2.4$, $p < .001$ (father only is alcohol dependent), $HR = 2.6$, $p < .001$ (both parents are alcohol dependent).

To further assess significant risk differences among the parental groups, six post hoc comparisons of all additional pairs of groups were performed. Participants with a biological alcohol dependent father only and those with two biological alcohol dependent parents were at greater risk of sexual debut at age 16 or younger compared with participants who had a second degree biological alcohol dependent relative (aunt, uncle, or grandparent) but whose biological parents were not diagnosed with alcohol dependence. No additional differences among parental groups were observed.

Being African American was associated with an increased risk of becoming sexually active at age 16 or younger when compared with Caucasians, Hazard Ratio (HR) = 1.7, $p < .001$. Participants whose biological mother was a non-high school graduate or a high school graduate only were at greater risk of sexual debut at age 16 or younger compared with participants whose biological mother was a college graduate, HR = 1.6, $p < .001$ and HR = 1.3, $p < .001$, respectively. Participants whose biological mother had some college were not significantly different than participants whose biological mother was a college graduate. Participants whose biological mother was a teenager at the time of their birth were at greater risk of sexual debut at age 16 or younger than were participants whose mothers were 20 years of age or older at the time of their birth, HR = 1.4, $p = .002$.

All two-way interactions were tested among the variables. Allowing for the multiplicity of tests using Bonferroni correction, no statistically significant interactions were found.

Discussion

The present study examined if variables within the self system and/or the familial system signaled risk for becoming sexually active at age 16 or younger. The mechanisms that influence early sexual debut are not yet well understood, and our study provided an overview of key factors that are correlated with, and in some cases may influence, this behavior. Of note, the results of the study should be interpreted with consideration that COGA did not collect information on other explanatory variables that would be needed for comprehensive analyses of the determinants of adolescent risky sexual behavior.

Our findings established a link between alcohol problems and/or conduct disorder problems and onset of sexual intercourse above and beyond familial factors and other demographic variables. Researchers have suggested that environmental factors, including peers who condone risk behavior, may be a mediating factor that contributes to the heightened risk of engaging in early onset of sexual intercourse though we have no data on this issue (Donenberg, Emerson, Bryant, Wilson, & Weber-Shifrin, 2001). It is also conceivable that this constellation of behaviors may be partly due to genetic

factors that influence a common underlying vulnerability to disinhibitory behavior (Iacono & McGue, 2002). Future research will be needed to delineate the pathways that contribute to this relationship.

Having an alcohol dependent biological father and/or mother was strongly associated with becoming sexually active at age 16 or younger. These effects persisted after controlling for other predictor variables. Alcohol dependence within a family is linked with a number of environmental factors (e.g., limited parental supervision, reduced family cohesion, marital discord, and dysfunctional parental–child relationships) which possibly influence the behavioral problems of children and adolescents, including early sexual activity (Anderson & Quast, 1983; Moos & Billings, 1982; Prewett, Spence, & Chaknis, 1981; Roche et al., 2005; Schuckit & Chiles, 1978). A shared genetic vulnerability to disinhibitory behavior could also play an important role. Regardless of the mechanisms explaining the association, the results from the current study lend further support to the existing literature on the link between parental alcohol dependence and potentially risky behavioral patterns exhibited by their children.

Findings from the survival analysis showed that second-degree biological relatives of alcohol dependent individuals (nieces, nephews, or grandchildren) were at greater risk for sexual debut at age 16 or younger than comparison participants. These relatives, along with the children of alcohol dependent parents, may be exposed to multiple adverse environmental conditions within their homes and/or neighborhoods that place them at heightened risk for early sexual debut and potentially other negative behavioral outcomes. This relationship is also likely to reflect the shared genetic vulnerabilities noted above.

Race was significantly associated with becoming sexually active at age 16 or younger in the survival analysis. Our findings lend support to previous studies which document the differences among racial and ethnic groups and early initiation of sexual intercourse (Blum et al., 2000; Furstenberg, Morgan, Moore, & Peterson, 1987; Miller, Benson, & Galbraith 2001; Upchurch, Levy-Storms, Sucoff, & Aneshense, 1998). The observed differences in age of first sexual intercourse may emerge from socially and culturally determined understandings of what is appropriate for and expected of African Americans and Caucasians. In addition, race may be a proxy for socioeconomic status or other unmeasured variables. Gender and religious background were non-significant predictors of sexual debut. These unexpected findings may be due to our inclusion of key variables into the survival analysis which may be assessing the risk for early sexual intercourse more precisely than past studies. They could also relate to the nature of the families studied.

Lower educational attainment of mother was significantly linked with participants' greater risk of becoming sexually

active at age 16 or younger. In addition, children born to teenage mothers were also at heightened risk of becoming sexually active at age 16 or younger than those whose mothers were 20 or older at the time of their birth. These variables are likely to be confounded with the socioeconomic status and social position of the family. As well, our findings were consistent with previous studies that document an increased risk for early sexual activity among children of adolescent parents (Nord, Moore, Morrison, Brown, & Myers, 1992). In fact, researchers estimate that at least one-third of parenting adolescents were themselves born to adolescent parents, thereby perpetuating the risk for such consequences as low birth weight and prematurity, poverty, growing up without a father, and poor school performance (Klein, 2005).

The findings of this study were limited by several factors. We used an existing dataset designed to explore alcohol dependence and not sexual debut. As a result, there were a number of psychosocial factors that this study did not examine, including family structure and/or support and relationships with friends, intimate partners, and peers, which may have had an impact on participants' initiation of sexual intercourse. Previous studies have linked parental alcohol dependence with problematic parenting behaviors, including inadequate child monitoring and discipline (Loukas, Fitzgerald, Zucker, & von Eye, 2001; Patterson, 1982; Patterson & Capaldi, 1991) and these potential confounders were not assessed in the present study. As well, participants' current income and educational status were not included in the analyses because these variables correspond with indications of socioeconomic status following sexual debut for the majority of participants. For instance, 75% of the sample had experienced sexual debut before age 18, which means that a high school diploma would not be an appropriate predictor of sexual debut. Because of the ascertainment procedures, we did not know which comparison participants had a biological alcohol dependent second-degree relative (e.g., aunt, uncle, or grandparent). In addition, we relied on participants' self-report for all of the data. Self-report data are subject to response bias such as social desirability, recall bias, and reporter bias (Hardt & Rutter, 2004; Henry, Moffit, Caspi, Langley, & Silva, 1994; Huang, Liao, & Chang, 1998; Sales, Milhausen, & Diclemente, 2006). Due to the cross-sectional and non-experimental design of our study, we are unable to make any definitive conclusions about the direction and nature of relationships. Because participants were not asked whether first intercourse occurred in the context of drinking, we cannot be certain if alcohol directly affected such behavior.

Nonetheless, our results suggest that preventive efforts must be multifaceted with involvement at the familial and individual levels. Specifically, the current study provided evidence that parental alcohol dependence is associated with

early sexual debut. Thus, it appears advantageous for clinical treatments and prevention efforts to be family-focused and include both parents. Furthermore, the current study suggests that programs that target conduct disordered and substance abusing youth should incorporate such issues as STD/pregnancy prevention within their interventions because individuals with these conditions may initiate sexual intercourse earlier, which can place them at risk for these conditions.

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