



## Early age of first sexual intercourse and affiliation with deviant peers predict development of SUD: A prospective longitudinal study<sup>☆</sup>

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### Abstract

*Objective:* A recent study has reported that early sexual behavior predicts the development of substance use disorders (SUD). However, that relationship was considered by its authors to be only tentative, because it was based on cross-sectional data rather than longitudinal data. Another recent study reported that deviant activities of peers predict development of SUD, although that relationship has not yet been confirmed. The objective of this study was to assess whether early onset of sexual intercourse and affiliation with deviant peers serve as predictors of the development of SUD, using a prospective longitudinal study design.

*Method:* We conducted a prospective longitudinal study of adolescents. These subjects were recruited at the age of 10–12 years, with follow-up evaluations at ages 14, 16, 19, 22, and 25. The sample included 136 male subjects. Cox regression analyses were performed, with age of first intercourse, neurobehavioral disinhibition, exposure to drugs in the neighborhood, and deviant activities of peers as factors in the analyses.

*Results:* Earlier age at first intercourse and deviant activities of peers each predicted a significantly higher risk of subsequently developing a SUD (Wald=8.3,  $df=1$ ,  $p=0.004$ ; Wald=7.5,  $df=1$ ,  $p=0.006$ , respectively).

*Conclusions:* The results of this study confirm that early onset of sexual intercourse and affiliation with deviant peers predict the early development of substance use disorders, using a prospective longitudinal study design.

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*Keywords:* Early sexual behavior; Substance use disorders (SUDs); Deviant peers

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## 1. Introduction

Recently, McGue and Iacono (2005) reported that five early adolescent problem behaviors, including sexual intercourse, smoking, alcohol use, illicit drug use, and police trouble, were associated with a high risk for developing adult substance use disorders and major depressive disorder. However, the authors of that study concluded that clarifying the etiology of the various outcomes would require multiple longitudinal observations rather than the single 3-year follow-up assessment at age 20 that was utilized in their own cross-sectional study. Also, Moss, Lynch, and Hardie (2003) reported that affiliation with deviant peers predicted the development of substance use disorders. The objective of this study was to determine whether early onset of sexual intercourse and affiliation with deviant peers serve as predictors of the development of SUD, using a prospective longitudinal study design. We hypothesized that early onset of sexual intercourse and affiliation with deviant peers would serve as predictors of the subsequent development of SUD.

## 2. Method

The study design has been extensively described in multiple recent papers (Clark, Cornelius, Kirisci, & Wood 2005; Clark, Cornelius, Wood, & Vanyukov, 2004; Cornelius, Pringle, Jernigan, Kirisci, & Clark, 2001; Tarter et al., 2002, 2003), including comprehensive descriptions of the participants, recruitment procedures, research procedures, research instruments, rater training, inter-rater reliabilities, and data analyses. Consequently, only the major methodological points will be mentioned in this section.

The sample included 136 male subjects. Female subjects were not included in the current analyses because of an inadequate sample size of female subjects. Of those subjects, 107 (78.7%) were Caucasian, 27 (19.9%) were African-American, and 2 (1.5%) were other. The mean current age was 20.1 ( $\pm 2.7$ ), and the mean age of first sexual intercourse was 16.1 ( $\pm 2.4$ ). About one-third ( $n=45$ , 33.1%) of the subjects developed a substance use disorder during the fifteen year period that they were followed for this study. The two common substance use disorders in this population were cannabis use disorders ( $n=38$ , 27.9%) and alcohol use disorders ( $n=35$ , 25.7%). Of the total sample, 58 subjects (42.6%) had a paternal history of having a substance use disorder. All of the subjects reported having participated in sexual intercourse during the course of the study. The average age for first sexual intercourse was  $15.5 \pm 2.2$  for those who did develop SUD, and was  $16.4 \pm 2.5$  for those who did not develop SUD.

Prior to participation in the study, written informed consent was obtained from fathers and mothers, and assent was obtained from minor children. The study was approved by the University of Pittsburgh Institutional Review Board. These subjects were recruited at age 10–12, and follow-up evaluations were conducted at ages 14, 16, 19, 22, and 25, which covered the peak years for initiation of sexual intercourse and for the development of SUDs. Diagnostic evaluation of the subjects was conducted with an expanded version of the Structured Clinical Interview for DSM-III-R (SCID) (Spitzer, Williams, & Gibbon, 1987), which was the most recent DSM edition when the study was initiated. Diagnoses were determined in a consensus conference using the best estimate diagnostic procedure (Kosten & Rounsaville, 1992). Sexual behavior was assessed using the 16-item Risky Sexual Behavior section of the CEDAR Outcome Questionnaire (Bailey, Camlin, & Ennet, 1998; Bailey, Gao, & Clark, 2006). That questionnaire provides the age of first sexual intercourse as well as related data such as times and number of partners and types of birth control.

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