Childhood Behavior Problems Linked to Sexual Risk Taking in Young Adulthood: A Birth Cohort Study

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ABSTRACT

Objective: To study whether behavioral and emotional problems during childhood predicted early sexual debut, risky sex at age 21 years, and sexually transmitted infections up to age 21 years. Some possible mediational pathways were also explored. **Method:** Participants were enrolled in the Dunedin Multidisciplinary Health and Development Study (n = 1,037), a prospective, longitudinal study of a New Zealand birth cohort born in 1972–1973. Data obtained at ages 5, 7, 9, 11, 13, 15, and 21 years were used. Adjustment was made for gender, socioeconomic status, parenting factors, and residence changes. **Results:** High levels of antisocial behavior between age 5 and 11 years were associated with increased odds of early sexual debut (adjusted odds ratio [AOR] 2.17, 95% confidence [CI] 1.34–3.54) and risky sex (AOR 1.88, 95% CI 1.04–3.40). No relationship was observed between hyperactivity and later sexual health outcomes. In contrast, high levels of anxiety were associated with reduced odds of risky sex (AOR 0.45, 95% CI 0.25–0.80) and sexually transmitted infections (AOR 0.34, 95% CI 0.17–0.70). Involvement with delinquent peers explained some of the association between antisocial behavior and early sexual debut and risky sex. A poor relationship with parents also explained some of the association between antisocial behavior and early sexual debut. **Conclusions:** The findings demonstrate links between behavioral and emotional problems occurring early in life and later deleterious sexual health outcomes. Targeting antisocial behavior and teaching accurate appraisals of danger during childhood may help mitigate these negative consequences. *J. Am. Acad. Child Adolesc. Psychiatry*, 2007;46(10):1272–1279.

Key Words: antisocial, anxiety, risky sex, early sexual debut, sexually transmitted infections.

Studies among high-risk samples as well as cross-sectional general population studies show an association between mental and sexual health outcomes (e.g., Capaldi et al., 2002; Dishion, 2000; Donenberg et al., 2001; Lowry et al., 1994; Ramrakha et al., 2000; Stiffman et al., 1992; Tubman et al., 2003; Vener and Stewart, 1974). Some have interpreted these associations to suggest that poor mental health leads to high-risk sexual behaviors as well as sexually transmitted infections (STIs) and unwanted pregnancies (e.g., Capaldi et al., 2002; Kessler et al., 1997; Lehrer et al., 2006). Yet few rigorous examinations of these associations have been conducted using longitudinal prospective designs to establish temporality, or what may mediate relationships, if in fact they exist. To address these issues, we investigated the relationship between childhood behavioral and emotional problems and later sexual behavior and outcome in the Dunedin Multidisciplinary Health and Development Study, a community-based birth cohort.

Previous findings suggest that childhood and adolescent behavioral problems may be associated with specific sexual risk outcomes. For example,

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Woodward and Fergusson (1999) found that conduct problems at age 8 years were associated with increased rates of pregnancy by age 18 years. Females who scored in the top 10% for conduct problems were 5.3 times more likely to be pregnant by age 18 years compared with the lowest 50% on this measure. Furthermore, in the Dunedin Study, conduct disorder at age 15 years was linked to more lifetime sexual partners, high rates of STIs, early pregnancy, cohabitation with multiple partners by age 21 years (Bardone et al., 1996, 1998) and early sex (i.e., before age 16 years; Paul et al., 2000). With the exception of one weak association between adolescent depression and early pregnancy (Bardone et al., 1996), these findings point to the strong relationship between externalizing disorders and risky sexual behavior. Nevertheless, cross-sectional findings from this study at age 21 years also suggest a relationship with disorders from the internalizing spectrum (Ramrakha et al., 2000), which is consistent with the results of another population-based study that found associations with psychiatric disorder more generally (Tubman et al., 2003).

Methodological limitations in previous research have prevented strong conclusions about the nature of the association between psychiatric disorders and sexual health outcomes. Limitations include use of nonstandardized measures of psychiatric disorder, measurement of a restricted range of disorders, cross-sectional, retrospective designs, and overreliance on clinic or high-risk samples. The present study aimed to address these limitations by examining sexual outcomes for those with childhood problems, assessed prospectively on multiple occasions between the ages of 5 and 11 years. Specifically, we tested whether a range of early behavioral problems between the ages of 5 and 11 years were associated with the likelihood of engaging in sexual intercourse before age 16 years, risky sexual behavior at age 21 years, and STIs by age 21 years. Furthermore, where associations were found, we investigated whether these were mediated by involvement with delinquent peers or a poor relationship with parents during adolescence.

METHOD

Participants

Participants were members of the Dunedin Study, which has investigated the health and behavior of a cohort born during a 1-year period between April 1, 1972 and March 31, 1973 in Dunedin, a city of approximately 120,000 on New Zealand's South Island. The cohort was established at age 3 years when the children were traced for follow-up and 91% (n = 1,037) of the eligible children (i.e., those still resident in the province; n = 1,139) participated in the assessment. The study members were assessed at 2-year intervals until age 15 and thereafter at ages 18 and 21. The numbers seen at each assessment phase are as follows: age 5, n = 991/1,037 (96% of living sample); age 7, 954/1,035 (92%); age 9, 955/1,035 (92%); age 11, 925/1,033 (90%); age 13, 850/1031 (82%); age 15, 976/1,029 (95%); age 18, 993/1,027 (97%); and age 21, 992/1,020 (97%). Ethical approval was obtained from the Otago Ethics Committee and confidentiality was ensured for each component of the assessment.

Measures

Childhood Behavior. At the age 5-, 7-, 9-, and 11-year assessments, parents and teachers were asked to complete the Rutter Child Scales (Rutter et al., 1970). These scales consist of the 31-item parent and 26-item teacher scales about the child's behavior, with the parents responding to additional questions about behaviors occurring in the home. The items are scored on a 3-point scale: 0 (does not apply), 1 (applies somewhat), and 2 (certainly applies). These items were used to form subscales measuring antisocial behavior defined as fighting, bullying, irritability, not being liked, disobedience, and destructiveness (e.g., frequently fights or is extremely quarrelsome with other children); hyperactivity defined as restlessness, squirminess, poor concentration, inability to settle (e.g., restless, has difficulty staying seated for long), and anxiety (worry/fearful) defined as worry, fearfulness, being miserable, fussy, and solitary (e.g., often worried, worries about many things). Reliability and validity of this scale in the Dunedin Study has been described by McGee et al., 1985. The intraclass correlation coefficients across the four assessment phases were as follows: for antisocial, parents = 0.84, teachers = 0.77; for hyperactivity, parents = 0.82, teachers = 0.80; and for anxiety, parents = 0.80, teachers = 0.55. An intraclass correlation coefficient of 0.55 (anxiety for teachers) is regarded as fair to good reliability and >0.75 (for all other measures) excellent (Fleiss, 1986). A single index was generated for each child by averaging the parent and teacher reports across the four assessments. Aggregated scores were used because they are more stable and representative than single reports (Rushton et al., 1993) and also because parents and teachers provide complementary information as informants (Loeber et al., 1990).

Sexual Health Outcomes. Sexual behavior was assessed at age 21 years with a questionnaire based on the 1990 British National Survey of Sexual Attitudes and Lifestyles (Johnson et al., 1994). Questions were presented by computer, with an interviewer present who could not see the study members' responses, but was available to assist. The following measures were used to assess sexual health outcomes:

1. Early Sexual Intercourse: Study members were asked about their age at first intercourse (hereafter "early sexual debut"). Study members who had sexual intercourse before age 16 years were considered to have had early sexual debut. This cutoff was chosen because age 16 is the legal age for consent for sexual intercourse in New Zealand. Of the sample, 32.9% (27.5% males and 31.7% females) reported having sex before 16 years.
2. Risky Sexual Behavior: At age 21 years, those who reported having sexual intercourse with three or more different partners