Published in final edited form as:
J Sex Res. 2014 October ; 51(7): 721–730. doi:10.1080/00224499.2013.849652.

Sexual Risk Behavior in Young Adulthood: Broadening the Scope Beyond Early Sexual Initiation

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Abstract

A robust link between early sexual initiation and sexual risk-taking behavior is reported in previous studies. The relationship may not be causal, however, as the effect of common risk factors is often not considered. The current study examined whether early initiation is a key predictor of risky sexual behavior in the 20s and 30s, over and above co-occurring individual and environmental factors. Data were drawn from the Seattle Social Development Project, a longitudinal panel of 808 youth. Early predictors (ages 10–15) and sexual risk-taking (ages 21–24 and 30–33) were assessed prospectively. Early sexual initiation (before age 15) was entered into a series of probit regressions that also included family, neighborhood, peer, and individual risk factors. Although a positive bivariate relation between early sexual initiation and sexual risk-taking was observed at both ages, the link did not persist when co-occurring risk factors were included. Behavioral disinhibition and antisocial peer influences emerged as the strongest predictors of sexual risk over and above early sexual initiation. These results suggest that early sexual initiation must be considered in the context of common antecedents; public health policy aimed at delaying sexual intercourse alone is unlikely to substantially reduce sexual risk behavior in young adulthood.

Keywords

Early sexual initiation; Sexual risk-taking behavior; Family monitoring; Antisocial peers; Neighborhood disorganization; Substance use; Sexual abuse; Adolescence

Initiation of sexual activity and learning to navigate sexuality are developmental tasks of adolescence and early adulthood. In the United States and Europe, most adolescents initiate sexual intercourse in their 17th year, although there are variations by region, ethnicity, and gender (Avery & Lazdane, 2008; Finer & Philbin, 2013). As with any developmental transition (Elder, 1998), initiating sex off-time, especially early, has been associated with negative outcomes. For example, youth who initiate sexual activity early may lack

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knowledge about or have difficulty obtaining, using, or negotiating contraception and may put themselves at risk for unplanned pregnancy or sexually transmitted infection (STI) (Finer & Philbin, 2013; Sneed, 2009). Past research suggests that early initiators take more sexual risks, including having multiple sexual partners and having casual partners, both of which are risks for STI (Adimora, Schoenbach, Taylor, Khan, & Schwartz, 2011; O'Donnell, O'Donnell, & Stueve, 2001; Santelli, Brener, Lowry, Bhatt, & Zabin, 1998; Stueve & O'Donnell, 2005). Thus, although initiation of sexual activity during late adolescence is normative (Diamond & Savin-Williams, 2009; Savin-Williams & Diamond, 2004), sexual initiation ahead of the normative curve may increase the risk of negative outcomes.

In the United States, much of the sexual education and prevention funding aimed at adolescents focuses on preventing or delaying adolescent sexual intercourse (Kantor, Santelli, Teitler, & Balmer, 2008; Kirby, 2001). In 2007 in the United States, $178 million was been spent on abstinence-only education programs that pushed for later sexual initiation among adolescents (Advocates for Youth, 2007). Similar messages are pervasive in sexual education curricula in some European countries as well, although in general, comprehensive sexual education is much more widespread (Parker, Wellings, & Lazarus, 2009). Despite a lack of reliable evidence that abstinence-only programs effectively reduce rates of teenage pregnancy and sexual risk taking (Kantor et al., 2008; Kirby, 2007; Santelli, 2006), delay of sexual initiation remains a common prevention target.

A narrow focus on delaying sex, however, is problematic in three ways. First, later initiators of sexual behavior may eventually "catch up" to their earlier initiating counterparts in terms of sexual risk-taking behavior. Thus, delaying initiation may only delay any negative outcomes, as opposed to preventing them. Consistent with this hypothesis, studies of long-term consequences of early sexual initiation show effects that are small or inconsistent (Else-Quest, Hyde, Goldsmith, & Van Hulle, 2006; Sandfort, Orr, Hirsch, & Santelli, 2008). Second, early sexual initiation may simply be a marker for common environmental antecedents that these behaviors share (DiClemente et al., 2008; King, Nguyen, Kosterman, Bailey, & Hawkins, 2012; Luster & Small, 1994; McGue & lacono, 2005; Zimmer-Gembeck & Helfand, 2008). Third, early sexual initiation may be a marker for co-occurring risk factors such as delinquent behavior, or for individual characteristics (e.g., behavioral disinhibition) that increase the probability of many types of risk behavior and their associated negative outcomes (Iacono, Malone, & McGue, 2008; McGee & Newcomb, 1992).

This study draws on Life Course Theory and the notion of off-time transitions (Elder, 1998) to examine the links between early sexual initiation and sexual risk behavior during the two developmental periods following adolescence: transition to adulthood and adulthood. It tests the association between early sex and sexual risk behavior at ages 21 – 24, a peak risk-taking time when adolescent influences are still proximal. It also tests links between early initiation and sexual risk behavior at ages 30 – 33, when the rate of engaging in risky sexual behavior has decreased, other developmental events have made adolescent influences more distal, and late initiators have had time to "catch up" to early initiators in their sexual behavior.

Early Sexual Initiation and Sexual Risk Taking in Adulthood Share Common Environmental Antecedents

A body of literature has documented that early sexual initiation co-occurs with other adolescent risk-taking behaviors such as early drug use and delinquency (Shafer & Boyer, 1991; Young, Rhee, Stallings, Corley, & Hewitt, 2006). Theoretical perspectives on adolescent development suggest that many of these risk behaviors share a broad set of environmental predictors which play an important role in the emergence and persistence of problem behaviors. The current research draws on the Social Development Model (SDM; Catalano & Hawkins, 1996; Hawkins & Weis, 1985), which posits that opportunities for involvement, rewards, skills, bonding, and beliefs in a given environmental domain (e.g., family, peer) predict prosocial or antisocial outcomes. Low levels of individual risk characteristics coupled with positive and nurturing environments foster positive youth development characterized by low levels of antisocial behavior. Conversely, negative influences promote antisocial behavior such as drug use, delinquency, and high-risk sexual behavior. The emphasis on early environmental factors such as family, school, peers, and neighborhood in the SDM is similar to other models of youth development and problem behavior (Belsky, 2012; Belsky, Steinberg, & Draper, 1991; Bronfenbrenner, 1977; Jessor et al., 2003).

Within the family domain, parental monitoring, in particular, has been linked to delayed sexual initiation and safer sexual practices (DiClemente, Crosby, & Salazar, 2006). In accordance with the Social Development Model, having parents who maintain knowledge and control over their children's social activities limits their children's opportunities to become involved in antisocial behavior, which then can delay the onset of sexual activity, reduce prevalence of STIs, and increase condom use (Crosby et al., 2006; DiClemente et al., 2001). In the school domain, the SDM posits that bonding to prosocial institutions can promote positive behavior through restructuring adolescents' free time and reinforcing prosocial norms and beliefs. Indeed, studies have found that academic performance and bonding to school (Armour & Haynie, 2007; DiClemente, Salazar, Crosby, & Rosenthal, 2005; Goodson, Evans, & Edmundson, 1997) can delay initiation of sexual activity and engaging in risky sexual practices among adolescents. Similarly, association with antisocial peers can introduce antisocial models of behavior and youth whose peers are sexually active tend to report earlier sexual initiation, greater number of sexual partners, and less consistent use of birth control (Santelli et al., 2004; Whitaker & Miller, 2000). Finally, in line with Bronfenbrenner's (1977) mesosystem, the SDM theorizes that community and neighborhoods are important sources of influence when it comes to adolescent risk behavior. In their overview of the SDM, Catalano and Hawkins (1996) note that neighborhood characteristics are related to opportunities for antisocial involvement and reinforce norms regarding risk behavior. Research has linked neighborhood poverty and disorganization (DiClemente et al., 2005; Small & Luster, 1994; Upchurch, Aneshensel, Sucoff, & Levy Storms, 1999), including teens' subjective perceptions of neighborhood instability, with adolescent risk-taking behavior. Additionally, family structure (e.g., being a child of a teen parent), pubertal timing, and childhood sexual abuse have also been related to adolescent sexual behavior (Goodson et al., 1997; Upchurch & Kusunoki, 2004).

The same shared environmental antecedents have been identified as targets of prevention of sexual risk behavior later in life (Buffardi, Thomas, Holmes, & Manhart, 2008; DiClemente et al., 2005; Huibregtse, Bornovalova, Hicks, McGue, & Iacono, 2011; Shafer & Boyer, 1991). Thus, the link between early sexual initiation and later sexual risk taking may be due to this shared set of environmental antecedents.

Early Sexual Initiation, Alcohol Use, and Individual Risk Characteristics

In addition to common environmental antecedents, individual traits associated with impulsivity and sensation seeking may provide another link between early sexual initiation and later sexual risk behavior (Brook, Ning, & Brook, 2006; Spitalnick et al., 2007; Stanton, Li, Cottrell, & Kaljee, 2001; Udell, Sandfort, Reitz, Bos, & Dekovic, 2010). The co-occurrence of early sexual initiation and early alcohol use has been particularly well documented (for review, see Cook & Clark, 2005). In his theory of risk and protective factors, Jessor (2003) pointed to *vulnerability risks* and low levels of *controls protection* as individual-level risk factors for involvement in problem behavior. Problem behavior comorbidity continues into adulthood (McGue & lacono, 2005), potentially driven by the stability of the tendency toward low impulse control referred to as behavioral disinhibition. For example, Epstein et al. (2013) showed that the effect of adolescent behavioral disinhibition on problem behavior, including sexual risk taking, extended into the early 30s. It is thus plausible that the link between early sexual initiation and later sexual risk behavior reflects this continuity in general problem behavior. However, an additive model of risky sex that includes both early sexual initiation and behavioral disinhibition has not been empirically tested.

There is also a growing interest in examining the degree to which environmental risk and protective factors interact with individual characteristics. Studies of person-environment interaction have shown that consistent supportive parenting may ameliorate the risk of behavioral disinhibition for developing problem behavior (e.g., Hill et al., 2010). It is thus possible that other environmental influences, such as peers and schools, interact with behavioral disinhibition in predicting risky sexual behavior. Accordingly, the current work tests the degree to which pre- and co-occurring environmental and individual risk factors explain the relationship between early sexual initiation and later sexual risk-taking behavior. That is, this work challenges the notion that early initiation poses a broad and unique risk for later sexual risk behavior, rather than serving as a marker of other risk variables that predict both early sex and later sexual risk behavior (Santelli, 2006). Our investigation is guided by the following questions:

1. Does early initiation of sexual activity predict sexual risk-taking behavior beyond adolescence?
2. Does early sexual initiation independently predict later sexual risk taking, or can this relationship be explained by common environmental and individual risk factors and their interaction?

Methods

Participants

The present study used data from the Seattle Social Development Project (SSDP), a longitudinal study of youth development that began in 1985 (Hawkins, Kosterman, Catalano, Hill, & Abbott, 2005). All youth attending fifth grade (N = 1,053) in 18 public schools in Seattle serving high-crime neighborhoods were invited to participate in the study; 808 (77%) of these youth and their parents consented to participate in the study. The sample is gender balanced (49% female) and ethnically diverse (47% European American, 26% African American, 22% Asian American, and 5% Native American). Of these, 5% of the participants reported being of Hispanic ethnicity (White-Hispanic, Black-Hispanic, etc.). A substantial proportion of participants were from low-income households; 52% received free or reduced-price lunch in fifth, sixth, or seventh grade. Participants were surveyed at ages 10, 11, 12, 13, 14, and 16; follow-up surveys were collected every 3 years from age 18 to 33. Retention rates for the sample have remained above 90% since 1989. Parent interviews were collected annually when youth were ages 10 to 16. The current study draws on data from interviews from ages 10 to 15, 21, 24, 30, and 33. In the early years, youth received non-monetary rewards (e.g., cassette tape with music); monetary compensation was added in the adult years. All research was conducted with approval from the University of Washington Institutional Review Board.

Measures

Sexual risk behavior (SRB, ages 21 – 24 and 30 – 33)—We chose to include outcomes with clinical significance in order to distinguish factors that predict sexual risk from those that predict sexual behavior more generally. We also chose to construct an outcome measure that would be identical at both ages and that could be replicated exactly in future studies. For these reasons, we represented our outcome as an additive index of clinically meaningful behaviors in the past year: multiple sexual partners, having sex while intoxicated, inconsistent condom use, and involvement in prostitution (possible range 0 – 4). This approach is in line with previous work documenting cumulative risk (e.g., Appleyard, Egeland, Van Dulmen, & Sroufe, 2005; Herrenkohl et al., 2001).

Multiple sexual partners—According to the CDC National Study of Family Growth (Martinez, Copen, & Abma, 2011), fewer than 20% of 20- to 24–year-old men (< 10% women) reported having three of more sexual partners in the past year (Chandra, Martinez, Mosher, Abma, & Jones, 2005; Martinez et al., 2011). Reports of multiple partners for all other age groups were lower, suggesting that, in a nationally representative sample, having three or more partners in the past year is non-normative. (Sensitivity analyses varying the cutoff point to 1+, 2+, and 4+ partners yielded similar results). Accordingly, having three or more sex partners was scored as risky (score of 1). *Inconsistent use of condoms* introduces the risk of STI; using condoms less than “always” (score of 0) on a 5-point scale (1 *always* to 5 *never*) was coded as risky (1).

Prostitution—Being involved in prostitution was also coded as risky if participants reported giving or receiving money for sex in the past year.

Sex under the influence—Because having sex under the influence of drugs and alcohol has been linked with engaging in risky sexual practices and contracting STIs (Cook & Clark, 2005; National Research Council and Institute of Medicine, 2004), a risk score was also applied to drinking while having sex the majority of the time (score of 3 or more on a 5-point scale, 1 *never* to 5 *most of the time*) and/or ever using illicit drugs while having sex. This coding aimed to capture excessive or habitual use of substances prior to sexual activity rather than the occasional combination of having a drink before having sex.

Measure scoring—Having multiple partners and involvement in prostitution were scored regardless of marital status. Condom nonuse and sex after alcohol or drug use were not considered risky for married participants with one sexual partner in the past year, but were scored for married participants with more than one sexual partner in the past year (n = 52). Sexual risk was computed separately for each time point; the maximum value across each set of two time points (e.g., 21, 24) was used in the analyses.

Early sexual initiation—Participants were asked “Have you ever had sex with a boy [girl]?” and “How old were you the first time you had sex?” starting at age 14. At ages 14–16, participants were only asked about having sex with opposite-gender partners. Starting at age 18, participants were asked whether they had sex “with another person”. Sexual intercourse was not defined. Retrospective accounts of first consensual sex were used to account for data missing in prospective interviews. Due to concern regarding ability to consent for sexual activity, engaging in sexual intercourse below age 10 (n = 11) was coded as missing data. Participants who reported first sexual intercourse before age 15 were coded as early initiators (n = 298, 36%). This cutoff is commonly used in the literature to indicate off-time initiation of sex, including a recent review of adolescent sexual behavior (Zimmer-Gembeck & Helfand, 2008). This cutoff is also over 2 years younger than the national mean in 1988, when participants would have been 10 years old (Forrest, 1993).

Environmental factors (ages 10 – 13)—Six items measured *Family management*, including parents’ monitoring, rules, discipline, and reward practices. Reliability across adolescence was high (average reliability across time points $\alpha = .74$). *School bonding* was assessed through six items that reflected positive affect for school, classes, teaches, and school assignments ($\alpha = .80$). Response options for family management and school bonding were 1 *YES!*, 2 *yes*, 3 *no*, and 4 *NO!*

Antisocial friends—Participants reported on problem activities of their three closest friends and of other peers they were aware of who had been in trouble with teachers, police, were suspended or expelled from school, or belonged to gangs. Items were standardized prior to averaging at each age (average reliability across time points $\alpha = .63$). *Neighborhood disorganization* was assessed as “lots of kids in my neighborhood get in trouble.” Responses ranged from 1 *YES!* to 4 *NO!*.

Child of teen parent—Parent age at birth of target child was computed by subtracting the child’s age from the parent’s age. If either the child’s mother or father was age 19 or

younger at the time the target child was born (n = 127), child of teen parent was coded as 1 (0 otherwise).

Sexual abuse—Retrospective accounts of childhood sexual abuse, including sexual touching, forced watching of sexual acts, sexual molestation, and whether someone believed they were sexually abused were obtained at age 24 (Bernstein et al., 2003). Following research indicating that perceived severity of abuse is greater for younger ages when abuse occurred (Kaplow & Widom, 2007; Manly, Kim, Rogosch, & Cicchetti, 2001), sexual abuse was coded as 1 (n = 76) if occurring before age 10 (prior to initiation of consensual sex) and 0 if no abuse was reported.

Individual factors—*Behavioral disinhibition (BD)* was measured by five items that assessed the frequency of risky or impulsive behavior (Hill et al., 2010) at age 14, the first age the measure was administered. Items were assessed on a 5-point scale anchored at 1 *never* and 5 *2 – 3 times a month* (α = .76). Example items asked how many times in the past year did you "do what feels good, regardless of the consequences?" and "do something dangerous because someone dared you to do it?" *Early alcohol use (ages 10 – 13).* Prospective accounts of past-month alcohol drinking were measured on a 4-point scale (1 *never* to 4 *more than four times*). A measure of average early alcohol use was computed.

Pubertal age—Age at puberty was self-reported retrospectively at ages 18 and 24.

Demographic control variables—Gender and ethnicity were self-reported. Childhood socioeconomic status was assessed by eligibility for the National School Lunch/School Breakfast program at any time in Grades 5, 6, or 7, and was taken from school records (scored as 0 "not eligible" 1 "eligible").

Data Analysis

Analyses were performed in Mplus 6.1 (Muthén & Muthén, 1998–2007). To account for the non-normal distribution of the dependent variables, sexual risk behavior was analyzed as ordered categorical. Amount of missing cases in the dependent variables was 2.5% for age 21 – 24 and 8.5% for age 30 – 33; in the independent variables, cases with missing data ranged from 0 to 11%. Missing data was estimated using Full Information Maximum Likelihood (FIML).

We conducted a series of probit regressions with sexual risk behavior (SRB) at ages 21 – 24 and 30 – 33 as dependent variables. In accordance with our first hypothesis, we considered early sexual initiation as a predictor (Step 1), then added demographic characteristics (Step 2). To test our second hypothesis, we examined whether environmental (Step 3) factors (family management, school bonding, antisocial friends, neighborhood disorganization, child of teen parent, and childhood sexual abuse), or individual (Step 4) characteristics (including behavioral disinhibition, early alcohol use, and early puberty) common to both early sexual initiation and sexual risk taking account for the relationship. Finally, in Step 5 we tested for interactions between individual and environmental variables. Multiplicative interactions were tested on variables with significant main effects. We used an extension of

the Johnson-Neyman technique for computing regions of significance (Hayes & Matthes, 2009).

Results

Table 1 contains correlations between all variables in the model; most predictors were highly correlated with the outcome variables. Descriptive analyses suggest that sexual risk taking decreased over time (see Table 2) with twice as many participants reporting no sexual risk taking in their 30s (37%) as in their 20s (18%).

Our first hypotheses aimed to replicate the effect of early sexual initiation on later sexual risk behavior. Consistent with previous findings, initiating sexual intercourse before age 15 predicted a significant increase in sexual risk behavior in the early 20s and early 30s (bivariate correlation $r = .28$ and $r = .23$, respectively). At both ages, initiation timing significantly predicted later sexual risk taking, suggesting that the association between early sexual initiation and later sexual risk behavior continues into adulthood. This association was attenuated by demographic factors in Step 2 but remained statistically significant. Men reported more risky sex than women at both ages, and Asian Americans reported significantly less than European Americans in the early 20s.

With the addition of environmental (Step 3) and individual (Step 4) factors, the strength of the association between early sexual initiation and sexual risk behavior was no longer nonsignificant at $p < .05$ in the early 20s or 30s (in the early 20s the relationship was reduced to a trend level). The presence of antisocial friends and behavioral disinhibition in childhood and early adolescence (ages 10 – 14) significantly raised the likelihood of engaging in risky sex in the early 20s and 30s. At ages 30 – 33, being a victim of childhood sexual abuse predicted greater sexual risk behavior.

The interaction between behavioral disinhibition (BD) and exposure to antisocial peers is illustrated in Figure 1. At both ages, there was a main effect for behavioral disinhibition and the presence of antisocial friends, each predicting greater sexual risk. The effect of antisocial peers on sexual risk behavior was greater at lower levels of BD compared to those who scored high on BD, although absolute levels of sexual risk behavior were higher for high-BD individuals.

Discussion

Age of sexual initiation has consistently been shown to predict adolescent and young adult sexual risk behavior in extant literature. The view of adolescent sexuality as inherently dangerous is echoed in sexuality education curricula that promote delaying sexual activity for adolescents until marriage or a committed relationship later in life (Diamond & Savin-Williams, 2009). The current study sought to critically examine whether early sexual initiation posed a unique risk for later sexual risk-taking behavior by contrasting its effect against other known correlates.

When we considered common pre- and co-occurring individual characteristics and environmental risk factors, early sexual initiation no longer predicted sexual risk behavior in

the early 20s and 30s. Adolescent behavioral disinhibition and antisocial peers emerged as the strongest predictors of sexual risk-taking behavior in the 20s and the 30s, over and above early sexual initiation. The effect of these risk factors persisted even when related individual and environmental correlates were accounted for, suggesting that, unlike early sexual initiation, individual predisposition toward impulsivity and the presence of risk-taking peers carries long-term risks for future sexual risk behavior. Our results also indicate that adolescents who exhibited *less* behavioral disinhibition may be more vulnerable to peer influence than their more disinhibited peers. Adolescents with high behavioral disinhibition may be more likely to engage in risk-taking behavior on their own and are likely to seek out antisocial peers with similar behavioral patterns. Those who are less intrinsically driven to impulsive behavior may, however, engage in risks under the influence of antisocial peers. The interaction between behavioral disinhibition and antisocial peers, although found at both time points in this study, needs to be investigated further and replicated in another sample.

We also found a significant influence of early sexual abuse on age 30 – 33 sexual risk behavior but not on risky sex in the early 20s. Given the well-documented long-term effects of childhood sexual abuse, it is not surprising to find that its influence continues into the early 30s. Because of the high rate of sexual risk taking in the early 20s more generally, it may be that victims of abuse are indistinguishable from other youth until later. The current study supports the need for ongoing prevention efforts to reduce the incidence of child abuse.

The strengths of this study include a longitudinal design spanning over 20 years, inclusion of predictors from multiple developmental contexts and their interaction, and a multifaceted operationalization of sexual risk. In addition to testing the relationship between early sexual initiation and sexual risk behavior beyond the usual time frame (i.e., adolescence) into adulthood, we provided a rigorous test of the relationship against competing hypotheses. The study's limitations, however, should also be acknowledged. The community sample may not be generalizable to geographically diverse populations, including non-U.S.-based groups. Although the sample was ethnically diverse, the group of Native Americans was relatively small and conclusions regarding this population should be treated with caution. Finally, while this is an ethnically diverse sample, replication of study findings using samples from Hispanic populations are warranted. Another limitation concerns the specificity of the questions regarding sexual intercourse, which did not define "sex" and did not account for possible same-sex partners during the early adolescent years.

Taken together these findings suggest that early sexual initiation is not the key causal variable in predicting sexual risk behavior in the early 20s and 30s; instead, it may be a marker for other risk factors that are the underlying causal variables. There is, in this case, little justification for continuing to promote abstinence among adolescents on the basis of preventing a behavior that marks a course of risky sexual behavior. Rather than focusing on the physical act of sexual initiation, it is important to recognize the role that broader social constraints play in adolescents' sexual development. For example, youth with little parental monitoring and whose after-school time is unstructured are more likely to engage in sexual activity (DiClemente et al., 2006). Youth who are impulsive and who have antisocial peers may choose impulsive romantic partners from that peer group (Henderson et al., 2005),

resulting in short-term sexual relationships and inconsistent condom use. Thus, prevention programs with the strongest record of success tend to focus on broad environmental and individual problems in addition to proximate sexual behaviors such as age of initiation (DiClemente et al., 2005; Jackson, Geddes, Haw, & Frank, 2011; Kirby, 2007).

Future studies need to examine normative patterns of sexual initiation, with a special focus on sexual behavior that is consensual, pleasurable, and protected. As the gap between sexual initiation and first marriage has widened (Santelli et al., 2006), the majority of today's adolescents will initiate sexual activity before their 20th birthday (Finer & Philbin, 2013), and almost all will be sexually active before marriage (Finer, 2007). Characterization of all adolescent sexuality as inherently risky given how prevalent these behaviors are is problematic. A recent review found that improved use of contraception is responsible for 86% of the decline in teenage pregnancy in the U.S. (Santelli, Lindberg, Finer, & Singh, 2007). In order to continue this trend, it is important to remove barriers to obtaining and using protection and increase adolescents' self-efficacy concerning their sexual decision making. A better understanding of how adolescents transition into a spectrum of sexual behaviors will also inform preventive intervention targets such as choice of partner and forward planning for contraception.

Acknowledgments

Funding for this study was provided by grants from the National Institute on Drug Abuse (NIDA; R01DA009679; R01DA024411) and by grant 21548 from the Robert Wood Johnson Foundation. The authors gratefully acknowledge SSDP panel participants for their continued contribution to the longitudinal study. We also acknowledge the SDRG Survey Research Division for their hard work maintaining high panel retention, and the SDRG editorial and administrative staff for their editorial and project support.

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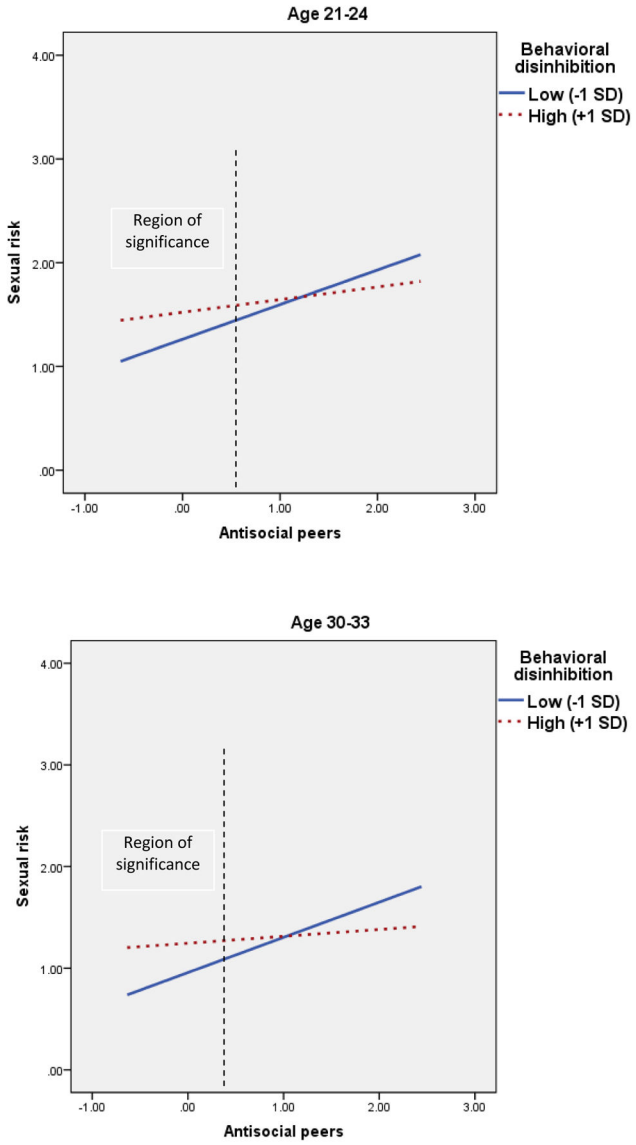

Figure 1.

Figure 1a. Predicting sexual risk behavior: Interaction between BD and antisocial peers at ages 21 – 24.

Figure 1b. Predicting sexual risk behavior: Interaction between BD and antisocial peers at ages 30 – 33.

Table 1

Model Variable Intercorrelations

	1	2	3	4	5	6	7	8	9	10	11	12
1. Sexual risk behavior 21 – 24	-											
2. Sexual risk behavior 30 – 33	**.46**											
3. Early sexual initiation	**.28**	**.23**										
4. Family management	−.01	**−.12**	**−.16**									
5. School bonding	**−.08**	**−.10**	**−.20**	**.32**								
6. Antisocial peers	**.22**	**.23**	**.33**	**−.24**	**−.23**							
7. Neighborhood disorganization	**.14**	**.18**	**.21**	**−.20**	**−.08**	**.27**						
8. Child of teen parent	**.13**	**.17**	**.29**	.00	−.02	**.18**	**.10**					
9. Pubertal age	−.06	−.04	**−.32**	−.04	**.09**	−.03	−.03	**−.17**				
10. Sexual abuse	.05	**.26**	**.17**	−.02	−.03	.04	**.22**	**.22**	**−.20**			
11. Behavioral disinhibition	**.26**	**.20**	**.43**	**−.12**	**−.23**	**.31**	**.12**	.07	**−.15**	.12		
12. Early alcohol use	.06	**.09**	**.25**	**−.13**	**−.21**	**.27**	**.10**	.08	−.06	.06	**.24**	
13. Male	**.17**	**.12**	**.35**	**−.15**	**−.16**	**.22**	**.13**	.04	**.16**	**−.40**	**.18**	**.12**
14. Asian	**−.28**	**−.20**	**−.41**	**−.18**	**.29**	**−.19**	−.02	**−.27**	**.19**	**−.19**	**−.36**	**−.25**
15. Black	**.10**	**.22**	**.33**	**.09**	−.01	**.26**	**.16**	**.40**	**−.10**	.14	.05	.06
16. Native	.10	**.18**	.17	.04	.02	.01	.02	−.09	−.03	.16	.10	−.02
17. Free lunch	−.01	**.16**	**.12**	**−.12**	**.11**	**.12**	**.25**	**.24**	−.01	**.20**	−.07	.00

Note. Bolded coefficients are significant at $p < .05$. Reference category for ethnicity is European American.

Table 2

Frequencies of Sexual Risk Indicators

	Ages 21 – 24		Ages 30 – 33	
Indicators of Sexual Risk	**Frequency**	**Percent**	**Frequency**	**Percent**
0.00	146	18.1	300	37.1
1.00	355	43.9	191	23.6
2.00	183	22.6	153	18.9
3.00	88	10.9	74	9.2
4.00	13	1.6	21	2.6
3+ sexual partners	233	28.8	149	20.4
Inconsistent protection	616	76.2	417	51.6
Engaging in sex while drinking or using drugs*	207	25.6	223	27.6
Engaging in prostitution	31	3.8	31	3.8
Total	808	100.0	808	100.0

Note.

*Comparison is not appropriate across ages due to different question wording.

J Sex Res. Author manuscript; available in PMC 2015 October 01.

Table 3

Adjusted Coefficients in Probit Regression Predicting Sexual Risk Behavior

	Ages 21 – 24					Ages 30 – 33				
	Unstandardized Betas									
	Step 1	**Step 2**	**Step 3**	**Step 4**	**Step 5**	**Step 1**	**Step 2**	**Step 3**	**Step 4**	**Step 5**
Early sexual initiation	0.37***	0.33***	0.25**	0.18+	0.18+	0.37***	0.23*	0.10	0.06	0.04
Demographic controls										
Gender (male)		0.21**	0.17*	0.16+	0.15+		0.17*	0.16+	0.15+	0.13
Asian		−0.42*	−0.39**	−0.34**	−0.33**		−0.25	−0.23	−0.20	−0.19
African American		−0.03	−0.10	−0.08	−0.07		0.19	0.15	0.16	0.17
Native American		0.04	0.08	0.07	0.08		0.35	0.34	0.33	0.35
Free lunch		0.04	−0.01	0.01	0.00		0.23	0.15	0.16	0.15
Environmental factors										
Family management			0.11	0.11	0.10			−0.17	−0.17	−0.18
School bonding			0.03	0.04	0.05			−0.01	0.00	0.01
Antisocial friends			0.27***	0.23***	0.25***			0.25***	0.21**	0.25**
Neighborhood disorg.			0.10*	0.10+	0.10*			0.09+	0.08+	0.09
Child of teen parent			0.10	0.10	0.10			0.09	0.10	0.09
Child sexual abuse			0.03	0.00	−0.01			0.41**	0.40**	0.38**
Individual factors										
Behavioral disinhibition				0.18***	0.21***				0.12*	0.16**
Early alcohol use				0.00	0.00				0.01	0.01
Early puberty				−0.05	−0.04				−0.02	0.00
Interactions										
BD x antisocial peers					−.11*					−0.16**
R-square	.02	.08	.11	.13	.14	.03	.08	.13	.14	.15

Note.

*p<.05,

** p < .01,

*** p < .001;

Neighborhood disorg. = Neighborhood disorganization; BD x antisocial peers = interaction term between behavioral disinhibition and antisocial peers.