

Intentions for Having Sex: What Matters

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Abstract

The intentions of 614 adolescents to have sex were examined in conjunction with their participation in risky behaviors (hard drugs, violence and suicide, alcohol and marijuana use) and protective factors (community connected and against teen sex, educational aspirations, emotional support from family, friends and girlfriend/boyfriend or sexual partner). Key findings from bivariate and linear regression analyses revealed that alcohol and marijuana use were correlated with intention to have sex among adolescents, as was emotional support from a boyfriend/girlfriend or sexual partner. This study offers insights regarding intentions to have sex among adolescents, pointing particularly to the issue of emotional support in a dating relationship as a motivation for having sex. Findings from this study can be used to develop health education and promotion programs focusing on delaying sexual intercourse.

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Introduction

Adolescents and Sexual Activity

Early sexual activity can bring with it serious short and long term health consequences as well as have negative effects on youth, their family, offspring, and society as a whole (Erickson, 1998; Sather & Zinn, 2002). Adolescents who have sex early are more likely to have unprotected and unsafe sex and have more lifetime partners which in turn puts them at high risk for HIV, other sexually transmitted infections (STIs) and unintended pregnancy (Erickson, 1998; Kotchick., 2001). More specifically, adolescents are at higher risk for acquiring STIs than older adults because they: (1) are more likely to have multiple (sequential or concurrent) sexual partners rather than a single, long-term relationship; (2) engage in unprotected intercourse; (3) may select partners at higher risk (CDC, 2000); (4) have immaturity of cervical tissues; and (5) are unable to negotiate safe sex practices due to immaturity. Sexually active adolescents have high rates of chlamydia infection and among females; 15-19 year olds had the highest rate of gonorrhea in 2000 compared to all other age categories (CDC, 2000).

Aside from physical consequences, early and risky adolescent and teenage sexual activity has other adverse effects most often experienced as the effect of unintended pregnancy, including lower educational attainment, depression, poverty, family conflict, limited career opportunities and lack of access to prenatal care. There are also other consequences to the baby, and these may include low birth weight or preterm delivery (Unger, Molina, and Teran, 2000). Early initiation of sexual activity is associated with longer periods of risk taking in later adolescence and early adulthood, and may be a marker for poor adult outcomes around financial problems, economic success, incarceration and family formation (Moore, Manlove, Glei, & Morrison, 1998, Warren, Kann, Small, Santelli, Collins, & Kolbe, 1997). Efforts to modify their willingness to engage in risk behaviors are a critical challenge that has long-term rewards, for both adolescents and society in general (DiClemente, Wingood, Crosby, Sionean, Cobb, Harrington et al., 1999).

The growing literature on risk behavior and protective factors offers insights into the issue of adolescent sexual activity within a larger social

context (Fraser & Rickman, 1999) and suggests that both need to be understood in a time of omnipresent opportunities for risk.

Risky Behaviors

Risky behaviors such as substance use, suicide and violence has been identified as increasing adolescent's risk for engaging in sexual activity and risky sexual behaviors. Valois, Oeltmann, Waller, & Hussey (1999) found that teens with a greater number of sexual partners are more likely to experience violence (date rape and physical fighting) and substance use. Costa, Jessor, Donovan, & Fortenberry (1995) found that among white adolescents, greater participation and tolerance of deviance and having more friends who engage in problem behaviors is associated with an earlier age of sexual initiation. Male teen involvement in physical fights is associated with a younger age for sexual debut (Miller, Norton, Curtin, Hill, Schvaneveldt, & Young, 1997) and sexual activity (Harvey and Spinger, 1995). Mott and Fondell (1996) found that youth who became sexually active before age 14 were much more likely to have hurt someone in a fight and used substances at an early age. Rector, Johnson, & Noyes (2003) compared teens who were not sexually active to teens who were sexually active and found that they were less likely to be happy, more likely to feel depressed, and more likely to attempt suicide. A longitudinal study of at risk male adolescents in Oregon indicate that teens who initiate sexual intercourse in the seventh or eighth grade exhibit higher levels of substance use and other risk behaviors in adolescence than their peers who initiate sexual intercourse in grades nine through eleven (Capaldi, Crosby, & Stoolmiller, 1996). Several studies conducted with youth 13 to 18 years old found that substance use (drugs, alcohol and tobacco) was significantly associated with the initiation of sexual intercourse and risky sexual behavior (Duncan, Strycker, & Duncan, 1998; Lammers, Ireland, Resnick, & Blum 2000) independent of gender. Tapert, Aarons, Sedlar, & Brown (2001) examined substance abusing and non-abusing adolescents and the relationship of substance use and dependence to sexual risk-taking behavior. Earlier age of onset to sexual activity, more sexual partners and less consistent

condom use were reported by the substance abusing adolescent group. Smith (1997) found that substance use and lack of parental attachment were predictors of early sexual activity for both boys and girls. For girls, having low aspirations for school achievement also predicted early sexual activity.

Protective Factors

Educational aspirations have been identified as a protective factor for adolescent health. When teens feel connected and attached to their schools, believe that academic achievement is important, get good grades, have plans for higher education beyond high school, and do not drop out, they initiate sex later, use contraception more effectively and are less likely to become pregnant or cause pregnancy (Kirby, 2003). Lammers et al. (2000) found better school performance among those who delayed onset of sexual intercourse. Negative attitudes toward school, low achievement in school and low educational aspirations have been identified as predictors of early sexual debut (Coker, Richter, Valois, McKeown, Garrison, & Vincent, 1994; Luster and Small, 1997; Resnick, Bearman, Blum, Bauman, Harris, Jones et al., 1997). Moore et al. (1998) found that educational performance and positive school relationships were inversely correlated with the risk of non-marital teen births. Additionally, findings from the National Longitudinal study on Adolescent Health (Resnick et al., 1997) indicate that adolescents who reported higher grade-point averages in school were less likely to have an early sexual debut. Among adolescent girls of similar sociodemographic backgrounds, Kalil and Kunz (1999) found that high educational expectations were associated with fewer non-marital births. Other studies have found that improving an adolescent's academic progress is important to any long-term goal of reducing sexual risk (Taylor-Seehafer & Rew, 2000).

Emotional support from family and friends is an additional protective factor that has been identified in the literature as a promising construct in protecting adolescents. Borowsky, Ireland, & Resnick (2001) examined risk and protective factors for suicide attempts among

adolescents and findings indicated that emotional well-being was found to be protective for female youth, whereas high parental expectations for school achievement was protective for some boys but not for the girls.

Community connectedness and community caring seem to also play an important role in adolescent non-marital and reproductive health. For instance, socioeconomic and demographic compositions of neighborhoods differentially influence teen sexual behaviors and in neighborhoods with higher crime rates, adolescents are more likely to engage in risky sexual behaviors (Manlove, Terry-Humen, Romano-Papillo, Franzetta, Williams, and Ryan, 2001). Upchurch, Aneshensel, Succof, & Levy-Storms (1999) found that adolescent females living in lower socioeconomic status neighborhoods were more likely to become pregnant than those living in working-class neighborhoods. Neighborhood socioeconomic status regulates, at least in part, exposure to environmental conditions such as crime, violence and physical deterioration. Physical decay contributes to social disorder, which in turn, weakens the process of social relations, community support and possibly community connectedness. When examining the influences of neighborhood and family contexts on the transition to first sexual intercourse among a community based sample of 870 adolescents, social conditions such as violence, crime and physical deterioration were clearly found to influence the risk of adolescents becoming sexually active (Upchurch et al., 1999).

On the protective side, Moore et al. (1998) found that when examining family and community correlates of sexual debut and pregnancy among African American females, that while community influences were not directly associated with the transition to first intercourse, they were correlated with the probability of experiencing pregnancy. Taylor-Seehafer and Rew (2002) believe that socially cohesive neighbors can exert informal social control over residents, which may reduce opportunities for criminal activity and other risky behaviors. Neighborhoods contain resources that may either enhance or be a

detriment to the functioning of adolescents and their families (Taylor-Seehafer & Rew, 2002). Stevenson (1998) found that community characteristics (e.g., having concerned neighbors who look out for and are interested in the lives of youth) are associated with lower depression among inner-city African American adolescent girls.

While both risky behaviors and protective factors have been identified as predictors for sexual debut, their potential influence and role in 'intention to have sex' remains a little studied area in adolescent risk behavior research. It is the aim of this study to examine influences on "intention to have sex" among high school students.

Methodology

Subject Selection, Sample, and Procedure

Participants for the study were high school students in a Southern Californian urban school district. Data were collected during the 2001 academic year as part of the biennial collection of the national Youth Risk Behavior Surveillance System (YRBSS) survey (Grunbaum, Kann, Kinchen, Williams, Ross, Lowry, and Kolbe, 2002). Out of the concern that the YRBS only identifies risk behaviors but does not allow insights into attitudes that influence behaviors among youth, a decision was made to collect a local assets survey at the same time as the YRBS. This local assets survey was developed by parents and teachers to help identify local youth's risk as well as protective behaviors to help guide school policy and services.

In collaboration with the Centers for Disease Control and Prevention the YRBS survey and the local assets survey data were pre-linked with identifying numbers that allowed data merging. All sampling and data collection methods of the YRBS were followed (Grunbaum et al., 2002). Human Subjects approval was sought and granted by the collaborating university's Institutional Review Board. Data collection strategies were designed to protect the students' privacy by allowing anonymous and voluntary participation. There were no identifiers on the

survey instruments. Parental consent and student assent was obtained and data collection strategies were designed to protect students' privacy and create an atmosphere for honest responses. Students for which active parental consent was obtained before the data collection were allowed to participate. Two data collectors administered the questionnaires after the teachers left the classroom. They explained all data collection procedures and discussed human subject's concerns, risks and protections. They assured the students that their responses were anonymous and confidential and that no personal information was written on the booklets or answer sheets. Data collectors explained that students need not participate in the study. Completion of the survey was considered "assent". Students completed the self-administered questionnaire in class during regular class period, if any students needed extra time to complete the questionnaire; arrangements were made to do so. Manila envelopes were available for students to deposit their completed questionnaires. The data collectors remained in the room until all students returned the questionnaires. The YRBS questionnaires were collected first, followed by the LAS questionnaires.

Instrumentation

The Youth Risk Behavior Surveillance System was developed in 1990 to monitor priority health risk behaviors that contribute markedly to the leading causes of death and disability and social problems among youth and young adults in the United States. The YRBS questionnaires for high school students included 94 questions on the history and prevalence of behaviors such as violence, substance use, safety practices, sexual behaviors, sexual orientation, food frequency, body size, dieting, exercise, and health services access. This System was designed to determine the prevalence of health risk behaviors, assess whether health risk behaviors increase, decrease, or stay the same over time, examine the co-occurrence of health risk behaviors, provide comparable national, state and local data, provide comparable data among subpopulations of youth and monitor progress toward achieving the Health People 2010 objectives and other program indicators (CDC, 2003).

The Local Asset Survey was developed to offer a local perspective and to provide insight into attitudes that influence behaviors among youth. This survey monitors different dimensions of protective factors that influence youth behaviors. The Local Asset Survey questionnaire included 27 Likert-style questions, measuring the respondent's support systems, hopefulness about the future, school attachment and connectedness, educational attainment, community bonding and attitudes towards sexual behaviors. Of the 27 questions, nine questions were used that focused on educational aspiration, emotional support, community connectedness and community caring characteristics and selected theory of planned behavior constructs. The instrument was qualitatively and quantitatively piloted.

Measures

Multiple questions from the YRBS and Local Assets Instruments were used to create study variables. The major dependent variable was "intention to have sex one or more times in the next year." Secondary dependent variables used were positive attitudes toward sex and never having had sex against ones will/forced sex.

Working Database and Missing Data

After the YRBS and the local assets data base was merged a working database was created. Originally 1,176 high school students responded. However, since not all students were able to complete both the YRBS and the local Assets survey due to time constraints, significant missing data was detected. It was decided to keep those questionnaires that had 80% or more of the items completed, and to impute missing data values using the SPSS estimation maximization algorithm. The final sample size was 614.

Data Reduction – Composite Variables, Factor Analysis and Scale Creation

From the High School Working database, composite variables were created. To reduce the large number of variables included in the analysis to a smaller meaningful set, factor analysis was conducted in a two-step process. In the first step, six separate exploratory factor

analyses were conducted to help develop factor domains within each of the following six composite variables: violence, suicide, substance use, educational aspirations, emotional support and community connectedness and community caring characteristics. Each of these composite variables were represented by multiple items. In both steps principal axis factoring was used. Multiple factor solutions suggested by scree tests were rotated using both oblimin and varimax rotations; the most interpretable solution was retained.

The three factor analyses for the risky behaviors (violence, suicide and substance use) resulted in one factor domain for violence – current violence; one factor for suicide – suicide attempts and ideation, and three factors for current substance use – hard drugs (heroin, methamphetamine, cocaine), marijuana, and alcohol. For the protective factors, the three factor analyses resulted in one factor domain for educational aspirations – current educational aspirations, two factor domains for emotional support – emotional support from family and friends and emotional support from boyfriend/girlfriend or sexual partner, and two factor domains from community characteristics – community connectedness and community caring.

Ten scales, one for each of the factors domains found in the above analyses were created by averaging all items loading .4 or higher on each factor reversing items as necessary to match the sign of their loadings. Cronbach's alpha for the resulting scales were between .67 and .88.

After initial analysis it became apparent that there were substantial correlations across some of the variables created in the first factor analyses. For example, the violence and hard drug use scales were correlated .55 with each other. Thus, we decided to carry out a single factor analysis for all ten of the scales initially developed to see whether a more succinct set of variable could be created. This second-state factor analysis resulted in four factor domains: (1) Current use of Alcohol or Marijuana; (2) Current Hard Drug Use, Violence and Suicide; (3) Emotional Support from Boyfriend/girlfriend

or Sexual Partner and Intention To Have Sex; and (4) Community Connected and Against Teen Sex. Reliability analysis was conducted on the four new domains. Cronbach's alpha ranges were between .58-.74.

Analysis Methods

Since we dropped 402 students from our analyses because they had more than 20% missing data (20% was used as an exclusion criterion) it is important to learn whether those dropped and those retained in the analyses differed. We compared those students who were dropped to those who were retained on basic demographic variables including gender, ethnicity, grades and grade level. There were no statistically significant differences. Data were checked, recoded as needed and analyzed using the Statistical Packages for the Social Sciences (SPSS version 12.0). Descriptive statistics (cross tabulations and frequencies) were run to explore the associations between demographic variables, selected risky behavior and protective factor variables. Spearman rho correlations were run to examine relationships among variables. Chi-square tests of association were used to detect associations between categorical variables and linear regression analysis was conducted regressing intentions to have sex on the first and second order factors. Gender and grade interactions were checked with all variables.

Results

Appendix A shows the demographics of the sample. Close to 60% were female and almost 50% were hispanic. Less than half (46%) of females and almost 55% of males reported having had sexual intercourse, but the difference did not reach conventional levels of significance ($\chi^2(1, N = 614) = 3.75, p=.053$).

Table 1 depicts findings for intention to have sex one or more times in the next year among non-virgins and virgin adolescents of both genders. Not surprisingly, non-virgins intentions to have sex were stronger than virgins. There was no significant difference between male and female non-virgins in their intent to have sex in the next year ($\chi^2(4, N=305) = 4.589, p=.332$), whereas among virgins males were more likely to report intent to have sex than females; ($\chi^2(4,$

N=309)=17.515, p=.002). It appears that intentions to have sex in the future are not as different between males and females once they become sexually active. However, a logit

analysis suggested that this interaction was not statistically significant (χ^2 (4, N = 309)= 4.259, p = .372).

Table 1
Comparison of adolescent virgins and non-virgins and their intentions to have sex one or more times during the next year by gender

Intentions to Have Sex	Non-Virgins		Virgins	
	Male	Female	Male	Female
I am sure it won't happen	12 (9%)	19 (11%)	38 (32%)	98 (51%)
It probably won't happen	8 (6%)	15 (9%)	32 (27%)	55 (29%)
There is an even chance (50/50) that it will or won't happen	25 (18%)	38 (23%)	28 (24%)	28 (15%)
It probably will happen	36 (26%)	41 (25%)	14 (12%)	8 (4%)
It will happen for sure	58 (42%)	53 (32%)	5 (4%)	3 (2%)

The Spearman's rho correlation coefficients in Table 2 depict relationships of risk and protective factors with intention to have sex one or more times during the next year, with a positive attitude toward sex and with having had unwilling sex. Students who reported current hard drug, violence and suicide and current alcohol and marijuana use were more likely to have intentions to having sex one or more times during the next year. Additionally, students who reported having emotional support from a boyfriend/girlfriend or sexual partner were more likely to have intentions to have sex. Among the protective factors, community connected and against teen sex and intentions to have sex were the only variables that were negatively

correlated. Thus, those who reported feeling connected to a community, which has views against teen sex, were significantly less likely to have intentions to have sex in the near future. Table 3 depicts similar findings, but provides comparison between those who were non-virgins and virgins.

Among the non-virgins, alcohol and marijuana and intention to have sex were positively correlated, as were emotional support from boyfriend/girlfriend or sexual partner and intention. Among virgins, alcohol and marijuana and intention to have sex were still positively correlated, as was emotional support from boyfriend/girlfriend or sexual partner.

Table 2
Spearman's Rho Correlations: Relationship Between Risk and Protective Factors and Selected Outcomes (N=604)*

Selected Outcomes	Intention to Have Sex	Positive Attitude toward Having Sex	Not Having Unwilling Sex
Hard drugs / violence / suicide	.22 (.000)	.14 (.000)	.24 (.000)
Alcohol & marijuana	.47 (.000)	.25 (.000)	.20 (.000)
Community connected & against teen sex	-.17 (.000)	-.10 (.017)	-.09 (.033)
Educational aspirations	-.09 (.03)	-.10 (.016)	-.06 (.141)
Emotional support from family & friends	-.10 (.015)	-.10 (.01)	-.12 (.002)
Emotional support boyfriend/girlfriend or sexual partner	.45 (.000)	.19 (.000)	.04 (.343)

* values in parentheses are p values)

Table 3
Spearman's Rho correlations: Relationship between risk and protective factors and selected outcomes by virgin and non-virgin status (N=604)*

	Intention to Have Sex	Positive Attitude Toward Having Sex	Unwilling Sex	Intention to Have sex	Positive Attitude Toward Having Sex	Unwilling Sex
Hard drugs / violence / suicide	.04 (.528)	.04 (.017)	-.22 (.000)	.09 (.123)	-.02 (.704)	-.07 (.242)
Alcohol & marijuana	.26 (.000)	.18 (.002)	-.09 (.130)	.22 (.000)	.08 (.136)	-.02 (.681)
Community connected & against teen sex	-.12 (.039)	.00 (.954)	.03 (.570)	-.09 (.135)	-.10 (.077)	.07 (.219)
Educational aspirations	-.06 (.273)	-.09 (.132)	.02 (.723)	-.04 (.456)	-.07 (.248)	.11 (.062)
Emotional support from family & friends	-.10 (.077)	-.14 (.014)	.13 (.024)	-.04 (.495)	-.04 (.530)	.10 (.070)
Emotional support boyfriend/girlfriend or sexual partner	.42 (.000)	.13 (.019)	.13 (.019)	.22 (.000)	.10 (.068)	-.01 (.821)

* values in parentheses are p values)

Table 4 depicts results from linear regression analysis of study variables on intention to have sex comparing non-virgins to virgins. Among non-virgins, intention to have sex was predicted by alcohol & marijuana use and emotional support from boyfriend/girlfriend or sexual partner. Total variance explained totaled 19%. Similarly, when looking at corresponding linear regression analysis for virgins, alcohol and marijuana and emotional support from boy/girlfriend or sexual partner were significant

predictors for intention to have sex. An additional variable, attitude toward behavior was also found to be a significant predictor for intention to have sex among virgins. This means, that for virgins, having a positive toward having sex is a significant predictor towards intention to have sex one or more times in the next year. Total variance explained for virgin analysis totaled 25%. No protective factors were found to be significant in this analysis.

Table 4
Linear regression of intentions to have sex on study variables

	Non-Virgins (N=305)				Virgins (N=309)			
	Beta	Sig.	95% CI		Beta	Sig.	95% CI	
Heroin, violence and suicide	-0.11	0.065	-0.23	0.01	0.09	0.151	-0.03	0.21
Alcohol and marijuana	0.24	0.000	0.12	0.36	0.16	0.006	0.05	0.27
Community connected and against teen sex	-0.08	0.139	-0.18	0.03	-0.01	0.865	-0.12	0.10
Educational aspirations	0.03	0.573	-0.07	0.13	0.07	0.185	-0.03	0.17
Emotional support family friends	-0.10	0.087	-0.21	0.01	-0.07	0.212	-0.18	0.04
Emotional support boy/girlfriend partner	0.38	0.000	0.28	0.49	0.17	0.002	0.06	0.28
Attitude toward behavior	0.15	0.005	0.05	0.25	0.29	0.000	0.19	0.40
Not having unwilling sex	-0.06	0.235	-0.16	0.04	-0.04	0.489	-0.15	0.07

Discussion

The main question for this study concerned possible links between risky behavior and protective factor variables and intention to have sex among adolescents. The study provides further evidence of such links among these variables. Alcohol and marijuana use appeared to consistently predict intention to have sex among adolescents. Alcohol consumption has been shown to be a significant predictor of early sexual activity (Blaine-Pike, 1999; Perkins, Luster, Villarruel, and Small, 1998; Small & Luster, 1994). Among virgins, it was found that having a positive attitude toward having sex was a significant predictor of intention to have sex. Community connectedness and having positive views against teen's having sex was negatively correlated with teen's intention to have sex and this finding is consistent with other findings (Kirby, 2003) where adults in the community place greater emphasis on; (a) careers, (b) teens avoiding early childbearing, and (c) acting as role models for local youth.

While not surprising, our results indicate that emotional support from a boyfriend/girlfriend or sexual partner is also a significant predictor for intentions to have sex one or more times in the next year. Historically, many believed that emotional support was a protective factor for adolescents. Since many adolescents feel that they do not receive sufficient emotional support from adults (including parents), however, they seek this support in a dating relationship.

Study strengths include random sampling of an ethnically diverse urban school district. While the findings are compelling and should be taken into consideration in aiding youth to delay

sexual onset, study limitations include issues around teen self-reporting. However, studies suggest that self-reporting may actually underestimate true attitude toward sexual behavior and sexual behavior itself for adolescents (Brown & Zimmerman, 2004; McFarlane & St. Lawrence, 1999). Also, this was a cross sectional study which suggests correlations however, it does not allow for establishing causality. Lastly, some important information may have been lost as a result of the exclusion of 462 youth due to missing data. Since most missing data exclusions came from those who were not able to complete the two surveys in time, we may have inadvertently excluded the poorest readers, which are often also those students at highest risk for a variety of risk behaviors. The results of a comparison of demographics of those excluded and those included in the study revealed no statistically significant differences between the two groups. As a consequence the bias we may have introduced is conservative, as our analysis would have likely underestimated the level and range of sexual activity in the sample.

While there are some limitations, this study provides important information and offers insights regarding intentions to have sex among adolescents. Study findings, particularly the findings around the protective role of community connectedness and community views against teens having sex and the role of youth seeking emotional support in a dating relationship as a motivation for having sex, should be taken into account in the development of health education and health promotion programs addressing teen sexual behavior.

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Appendix A

Selected demographic characteristics among 614 high school students

Selected Demographic Characteristics	N	%
Gender		
Male	256	41.7
Female	358	58.3
Ethnicity		
Hispanic or Latino	303	49.3
Black or African American	110	17.9
White	121	19.7
Native Hawaiian/Pacific Islander	15	2.4
Other	65	10.6
Current Grade		
9th grade	140	22.8
10th grade	155	25.2
11th grade	210	34.2
12th grade	109	17.8
Current Age		
14 or younger	80	13.1
15	138	22.5
16	176	28.7
17	131	21.3
18 or older	89	14.5
Family Type		
Mother and father	304	49.5
Mother only	136	22.1
Father only	27	4.4
Blended family	95	15.5
Grandparents	20	3.3
Wife or husband	5	0.8
Foster family or group home	2	0.3
Other (adolescent identified)	21	3.4
Missing data	4	0.7
Parental divorce		
No	438	71.3
Yes	176	28.7
History of Sexual Activity		
Those who had sex	305	49.7
Those who have not had sex	309	50.3