

Adolescents' Discussions About Contraception Or STDs with Partners Before First Sex

CONTEXT: Limited research has examined the individual, family and relationship factors that determine whether teenagers discuss contraception or STDs with their sexual partners before having sex for the first time.

METHODS: Logistic regression analyses of data from 1,426 teenagers who participated in Waves 1 (1995) and 2 (1996) of the National Longitudinal Study of Adolescent Health and who had first sex between waves examined factors influencing whether respondents discussed contraception or STDs with their partner before first sex, and whether these factors differ by gender.

RESULTS: Fifty-three percent of females and 45% of males discussed contraception or STDs before having first sex. The greater respondents' perceived condom knowledge and the greater their communication with their parents about everyday life, the higher their odds of discussing contraception or STDs before first sex (odds ratio, 1.2 for each). Being black was positively associated with sexual communication before first sex (1.9); as the number of dating activities and score on a test of verbal ability increased, so did the odds of such communication (1.6 and 1.02, respectively). The predictors of discussions about contraception or STDs did not differ by gender.

CONCLUSIONS: By increasing teenagers' knowledge about condoms and other methods of contraception, pregnancy and STD prevention programs can help to encourage communication among teenage partners before the initiation of sexual intercourse. Programs should also encourage conversations between parents and teenagers, even when not about sex.

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One primary component of effective pregnancy and STD prevention programs is teaching teenagers to negotiate sexual activity and contraceptive use with dating partners and, if they engage in sex, to discuss contraception and STDs with a partner before they do so.¹ Research findings and program evaluations have shown a strong connection between discussions about contraception and STDs before first sex and subsequent contraceptive use,^{1–11} suggesting that improving teenagers' ability to have such conversations will help increase contraceptive use and consistency. In turn, these changes will ultimately reduce rates of teenagers' involvement in unintended pregnancy and acquisition of STDs, especially for females.^{3,10} Yet, little research exists on what characteristics of teenagers, their families and their relationships determine whether contraception or STDs are discussed with partners before first sex. To our knowledge, only one study has examined this question using multivariate analyses on a reasonably large sample (963 teenagers), though nonrepresentative data of school-age youth throughout the United Kingdom were used;² the other studies that have analyzed this issue typically have used small or clinic-based samples.^{12–16}

In this article, we examine a nationally representative longitudinal sample of middle school and high school teenagers to assess factors associated with communica-

tion about contraception and STDs before first sex. We address two research questions: First, what family, individual and relationship characteristics are associated with whether teenagers discuss contraception or STDs with their first sexual partners before initiating sex? Second, do these associations differ by gender? Understanding the factors that influence adolescents' ability to communicate about contraception and STDs will enable pregnancy and STD prevention programs to help young people improve their communication skills and, therefore, promote more positive reproductive health behaviors. We are particularly interested in assessing gender differences because research on male involvement in couple decisions regarding contraceptive use is lacking.¹⁷

THEORETICAL FRAMEWORK

Domains of Influence

Our analyses are guided by a public health risk and protective framework, in conjunction with an ecological approach that highlights the importance of multiple domains of influence on adolescent behavior.^{18,19} We expect that teenage behavior is influenced by risk and protective factors at the individual, family and relationship levels. Specifically, we examine five potential domains of influence: reproductive health knowledge and sex education, parent-teenager interactions, opportunity

costs and barriers, partner and relationship characteristics, and individual and family background factors.

•**Reproductive health knowledge and sex education.** The link between reproductive health knowledge and discussions of contraception or STDs before first sex is not clear. Some research controlling for key individual- and relationship-specific factors has shown no significant associations between reproductive health knowledge and education and communication about contraception.² But other evidence has shown that well-implemented education programs (especially those that incorporate role-playing exercises) can be effective in increasing communication about sex, contraception and STDs, and improving contraceptive use.^{1,8} We hypothesize that the more teenagers know about sexual health and contraception, the more likely they will be to discuss contraception or STDs with first partners.

•**Parent-teenager interactions.** Positive parent-teenager relationships increase the likelihood that teenagers and their partners discuss contraception before sex. Having parents who are open to discussing issues of sexuality, partner choice, contraception and STD risk is positively associated with teenager-partner communication about sexual risk and contraception.^{2,12} In addition, having a warm relationship with parents is linked to an elevated likelihood that teenagers, especially females, will discuss contraception with partners before initiating sex.² Thus, we expect that degree of closeness to and level of communication with parents will be positively associated with discussions of contraception or STDs with a partner before first sex.

•**Opportunity costs and barriers.** We hypothesize that the more teenagers anticipate lost opportunities (such as unmet educational aspirations) as a result of their sexual activity, the more motivated they will be to discuss contraception or STDs with a partner before first sex. Research linking opportunity costs and barriers to discussions about contraception or STDs is rare, although one qualitative study revealed that young adult men often cite not wanting to miss out on life opportunities as a reason to use contraceptives for pregnancy prevention.¹³ Also, we expect that the more logical a teenager is in considering the consequences of his or her actions, the more likely he or she will be to discuss contraception or STDs, because better problem-solving skills are associated with delayed initiation of sex and with increased contraceptive use.^{1,20,21}

We further expect that teenagers' perception of their risk for contracting an STD will be positively associated with discussions of contraception and STD issues before first sex. But the findings related to perceived disease risk are mixed. Some research has found a positive association between worrying about AIDS and condom use consistency,²² and has shown that the perception of condoms' efficacy in preventing AIDS increases the consistency of condom use.²³ However, other work suggests that perceived risk of AIDS has no effect on condom use.^{7,24} Interestingly, some research has even shown that percep-

tion of STD risk is positively associated with sexual risk-taking^{1,25,26} and that sexually experienced teenagers who are actually at a high risk for getting AIDS are less likely to use condoms than their sexually experienced peers at low risk.⁹

•**Partner and relationship characteristics.** In accordance with previous research, we anticipate that relationship- and partner-level factors will be associated with sexual communication. Stronger relationship commitment or intimacy is related to a greater likelihood of discussing contraception with one's partner before first sex.^{2,15} Relationship duration is also important. Length of time in a relationship before initiation of sex is positively associated with discussing contraception before first sex, especially for males.^{2,13} We further expect that the more teenagers have in common with their partner (i.e., with respect to age, race or ethnicity, and social networks), the more dating activities they will engage in before sex and the older they are at first sex, the greater their likelihood of discussing contraception or STDs before first sex, because these factors are linked to other positive reproductive health behaviors, such as greater contraceptive use and consistency.^{3,11,27,28}

•**Individual and family characteristics.** We expect individual and family characteristics to be associated with discussions about contraception and STDs before first sex. Socioeconomic status is positively associated with discussing contraception prior to first sex for males.² Living with two biological or adoptive parents and having higher cognitive ability are protective against risky teenage contraceptive use,^{3,29} therefore, we expect they will also be related to communication about contraception and STDs before first sex. Hispanic teenagers are less likely than both black and white non-Hispanic teenagers to discuss contraception with their sexual partners,³⁰ and Hispanic women report being less comfortable discussing condoms than do white and black women.¹⁶ Black teenagers, however, report more frequent condom use than either white or Hispanic teenagers.^{31,32} Therefore, we hypothesize that, compared with whites, Hispanics will be less likely, and blacks will be more likely, to discuss contraception or STDs before first sex.

Gender Differences

Researchers have found some gender distinctions in whether teenagers discuss issues related to sex and contraception. In a small survey of undergraduate students, females reported discussing contraception with their partners and encouraging their first partners to use contraceptives more often than males.¹⁴ A focus group study supports this finding—most men who were interviewed said that they do not feel comfortable discussing contraception, and that they typically leave it up to their female partners to initiate conversations and to decide whether to use contraceptives.¹³ On a larger scale, a meta-analysis of relevant literature also reveals that women are more likely than men to want to discuss sexual issues.³³

Given these findings, we hypothesize that different factors may influence males' and females' decisions about whether to discuss contraception or STDs before first sex.

METHODS

Data and Sample

The data for this study come from Waves 1 and 2 of the National Longitudinal Study of Adolescent Health (Add Health), a U.S. school-based survey that is nationally representative of students in grades 7–12 in 1995.³⁴ In 1995, more than 20,700 students and their parents participated in Wave 1 by completing in-home interviews that collected detailed information on parent-adolescent interactions and on adolescents' peer, romantic and sexual relationships. In 1996, approximately 14,700 adolescents participated in the Wave 2 follow-up.

Our sample includes 1,586 unmarried teenagers who participated in both survey waves, had sample weights, were sexually inexperienced at the time of the Wave 1 survey and had their first sexual relationship by Wave 2. Restricting the sample to teenagers who had sexual intercourse for the first time between Waves 1 and 2 allowed us to include in our analyses factors measured at Wave 1 because we can be confident that these variables were measured before the teenagers' sexual initiation.* Because of data limitations, we had to exclude 160 teenagers whose first sexual partner was nonromantic,† leaving a final analytic sample of 1,426 teenagers.

Measures

•**Dependent variable.** Our dependent variable, measured at Wave 2, specified whether teenagers had discussed contraception or STDs with their first sexual partner before having sex for the first time. We derived this information from questions about the earliest partner reported in the teenager's detailed sexual relationship history. For each of 15 romantic relationship activities, respondents identified those activities that had occurred with their first sexual partner and placed them in sequential order. We examined the sequence of two activities: "You talked about contraception or sexually transmitted diseases" and "You had sexual intercourse." Our dependent variable was coded 1 for teenagers who reported that discussion about contraception or STDs had preceded sex, and it was coded 0 for those who reported that such discussions had occurred after sexual intercourse or had not occurred in the relationship.

•**Individual and family characteristics.** Our analyses included five individual and family controls from Wave 1: gender; race or ethnicity; verbal ability, as measured by a modified Peabody Picture Vocabulary Test (PVT), on which the national average score is 100;³⁵ educational attainment of the more highly educated parent; and whether the teenager lived with two parents (biological or adoptive). In bivariate analyses, we used a dichotomous measure of parent education that distinguished teenagers with a parent who had attended at least some college from

those whose parents were less educated. In multivariate analyses, we used a continuous measure that ranged from 1 (never completed high school) to 7 (graduate or professional school).

•**Reproductive health knowledge and sex education.** Perceived condom knowledge was derived from responses to the single item "You are quite knowledgeable about how to use a condom correctly." Higher scores on this measure (range, 0–4) indicated higher levels of perceived condom knowledge. Our measure of sex education captured whether the respondent had received both pregnancy and AIDS education in school. Both items derive from Wave 1.

•**Parent-teenager interactions.** We examined two Wave 1 components of parent-teenager relationships: closeness and communication. Closeness was measured on a scale derived from four items of teenager-reported residential parent-teenager closeness (warmth, overall closeness, satisfaction with communication and overall satisfaction with relationship; Cronbach's alpha, 0.86). If a teenager had two residential parents, we used the average of the two closeness scores. Higher scores on this measure indicated a greater degree of closeness between teenagers and their parents.

Our measure of parent-teenager communication is based on the teenager's report of whether he or she had discussed the following topics with a residential parent in the past month: someone he or she was dating or a party he or she went to, a personal problem, schoolwork or grades, and other things he or she was doing in school. We created a summative index of the communication topics for each residential parent, and if a teenager had two residential parents, we took the average of the indices.‡

•**Opportunity costs and barriers.** Opportunity costs and barriers were derived from three Wave 1 measures: rational decision-making, educational aspirations and perceived disease risk. Rational decision-making was a scale derived from four items, reflecting the degree to which teenagers reported that they get as many facts as possible to solve a problem, think of many ways to approach a problem, use a systematic method for judging and comparing alternatives, and analyze what went right and wrong after

*Compared with teenagers who were sexually experienced by Wave 1, the teenagers in our sample were less likely to be male or black, and more likely to be white and to live with two biological or adoptive parents. In addition, they had higher verbal ability and had parents with higher educational attainment than their sexually experienced counterparts.

†In the Add Health survey, respondents classified their sexual relationships as romantic, "liked" or nonromantic. Liked relationships are those that the respondent did not identify as romantic, but in which they had held hands, kissed and exchanged "I love you's" with the partner. Nonromantic relationships are those that are neither romantic nor liked. The measures we used to construct our dependent variable were collected only for romantic or liked relationships, so we had to eliminate from our sample teenagers whose first sexual relationship was nonromantic.

‡We also tried measuring closeness and communication using data only from the parent with whom the teenager had the most interaction; we found no difference in our results.

TABLE 1. Selected characteristics of teenagers participating in Waves 1 (1995) and 2 (1996) of the National Longitudinal Study of Adolescent Health who had first sex between waves, by gender and by whether they discussed contraception or STDs with their partner before first sex

Characteristic	All (N=1,426)	Gender		Discussed contraception or STDs	
		Females (N=830)	Males (N=596)	No (N=726)	Yes (N=700)
Discussed contraception or STDs before sex (%)	49.5	53.0	44.7*	na	na
Individual/family					
Gender (%)					
Female	57.3	100.0	0.0	53.3	61.4*
Male	42.7	0.0	100.0	46.7	38.6*
Race/ethnicity (%)					
Hispanic	12.9	10.7	15.9*	14.1	11.7
Black	14.8	15.4	14.0	14.5	15.1
White	65.8	67.8	63.1	64.2	67.4
Other	3.9	3.3	4.6	3.8	3.9
PVT score (range, 14–132)	100.65	99.67	101.98*	98.96	102.39***
Parent attended ≥some college (%)	49.2	47.7	51.2	49.1	49.3
Lives with two parents (%)	47.9	49.2	46.1	48.4	47.3
Reproductive health knowledge/sex education					
Perceived condom knowledge (range, 0–4)	3.28	3.14	3.47***	3.22	3.34†
Received pregnancy/AIDS education in school (%)	86.8	87.4	86.0	85.9	87.7
Parent-teenager interactions					
Closeness (range, 0–4)	3.17	3.08	3.30***	3.15	3.20
Communication (range, 0–4)	1.98	2.13	1.78***	1.78	2.18***
Opportunity costs/barriers					
Rational decision-making (range, 0–4)	2.74	2.72	2.76	2.65	2.82**
Educational aspirations (range, 0–4)	3.37	3.39	3.34	3.30	3.44†
Perceived disease risk (range, 0–4)	0.64	0.58	0.74***	0.71	0.58*
Partner/relationship					
Partner type (%)					
Romantic	89.2	92.3	84.9**	84.8	93.6***
Liked	10.8	7.7	15.1**	15.2	6.4***
Teenager-partner homogamy (range, 0–3)	2.26	2.15	2.41***	2.25	2.28
No. of dating activities that preceded sex (range, 0–8)	5.49	5.59	5.36	4.32	6.69***
Age at first sex (range, 10–20)	15.56	15.49	15.65	15.35	15.78***
No. of mos. in relationship before sex (range, 1–65)	4.37	4.52	4.17	3.49	5.24***

*p<.05. **p<.01. ***p<.001. †p<.10. Notes: Unless otherwise noted, data are means. na=not applicable. PVT=modified Peabody Picture Vocabulary Test. For a description of the various scales, see page 151.

attempting to solve a problem (Cronbach's alpha, 0.76). The items were reverse-coded so that a higher score indicated greater rational decision-making tendencies.

Our measure of educational aspirations captured how much a respondent wanted to go to college; a higher score indicated a greater desire to attend. The perceived disease risk scale was derived from three items that measured the teenager's perceived chances of contracting HIV, AIDS or another STD (Cronbach's alpha, 0.72). These items were reverse-coded so that a higher score indicated greater perceived chances of contracting a disease.

•**Partner and relationship characteristics.** We included five Wave 2 measures of partner and relationship characteristics that retrospectively describe the teenager's first sexual partner: self-defined partner type (comparing romantic relationships with liked relationships), teenager-partner homogamy index, an index of dating activities before first sex, age at first sex with partner and length of relationship before first sex. To create the teenager-partner homogamy index, we summed three dichotomous measures that indicated whether the first partner was within two years of the teenager's age, whether the teenager and partner were of the same race or ethnicity, and whether the teenager and partner belonged to the same social network (i.e., went to the same school or church, or lived in the same neighborhood or were friends when the relationship began). We considered couples whose age differed by at most two years to be homogamous because 76% of our sample had a partner who was within two years of their age (not shown).

Our measure of dating activities before sex was an eight-item summative index that captured the number of dating activities that preceded sexual intercourse within teenagers' first sexual relationship (thinking of themselves and their partner as a couple, telling others they and their partner were a couple, going out together in a group, going out together alone, exchanging "I love you's," meeting each other's parents, exchanging presents and spending less time with friends in order to spend more time together). Length of the relationship before sex was measured as the difference, in months, between the date that the romantic relationship started and the date of first sex.

Analytic Methods

To assess bivariate associations between the predictor variables and our outcome of interest, we used t tests for continuous measures and chi-square statistics for categorical variables. Then, we used logistic regression to identify factors associated with whether teenagers discussed contraception or STDs before first sex, while controlling for all other measures. We conducted the multivariate analyses in three stages. First, we included only the family and individual control measures. Second, we added the measures of reproductive health knowledge and sex education, parent-teenager interactions, and opportunity costs and barriers to see if they accounted for any observed associations. Third, we incorporated the partner and relationship characteristics to see if these factors mediated any observed associations. We used survey estimation procedures in Stata to weight and adjust all models for the survey's clustered sampling design.³⁶

RESULTS

Sample Characteristics

One-half of teenagers in our sample reported that they had discussed contraception or STDs with their first sexual partner before having sex for the first time (Table 1). Forty-three percent of teenagers were male,

and 66% were white. On average, teenagers scored 100.7 on the modified PVT. Almost one-half had at least one parent who had attended at least some college, and a similar proportion lived with two parents.

On average, teenagers reported a high level of perceived condom knowledge (3.3); 87% of teenagers had received pregnancy and AIDS education in school. Teenagers reported that they were close with their parents (3.2) and had discussed an average of two out of four topics from their everyday life with them. On average, teenagers reported a moderate level of rational decision-making (2.7) and high educational aspirations (3.4), and they perceived themselves as having almost no chance of contracting an STD (0.6).

Nearly nine out of 10 teenagers (89%) classified their first sexual partner as romantic, and 11% classified their first sexual partner as liked. On average, teenagers were similar to their partners on 2.3 out of three characteristics, had participated in 5.5 out of eight dating activities before sex, had been aged 15.6 years at first sex and had waited 4.4 months between the start of their relationship with their first sexual partner and first sex.

Bivariate Results

A lower proportion of males than of females reported that they had discussed contraception before sex with their partner (45% vs. 53%; Table 1). Also, compared with females, males reported a higher level of perceived condom knowledge, greater closeness and less communication with their parents, greater perceived disease risk and more teenager-partner homogamy; a lower proportion of males reported that first sex had occurred within a romantic relationship.

A higher proportion of those who had discussed contraception or STDs before sex than of those who had not were female. Verbal ability, communication with parents and rational decision-making were positively associated with having had sexual communication; perceived disease risk was negatively associated with such communication. A higher proportion of teenagers who had participated in discussions of contraception or STDs before first sex than of their peers who had not were in romantic relationships; a lower proportion were in liked relationships. On average, respondents who had discussed contraception or STDs before sex had participated in more dating activities before intercourse, had been older at first sex and had had longer relationships before first sex.

Multivariate Results

When only the individual and family factors were included in the model, gender and PVT score were associated with discussions of contraception or STDs with the first sexual partner before sex (Table 2). Males had 32% lower odds than females of having discussed contraception or STDs prior to first sex (odds ratio, 0.7). For each one-point increase in PVT score, the odds that

TABLE 2. Odds ratios from logistic regression analyses predicting whether teenagers discussed contraception or STDs with their partner before first sex

Characteristic	Model 1	Model 2	Model 3
Individual/family			
Male	0.68*	0.75†	0.74
Race/ethnicity			
Hispanic	1.01	1.04	1.04
Black	1.24	1.19	1.89**
White (ref)	1.00	1.00	1.00
Other	0.86	0.88	0.87
PVT score	1.02***	1.02**	1.02*
Parent education	0.95	0.94	0.91
Lives with two parents	0.93	0.93	0.79
Reproductive health knowledge/sex education			
Perceived condom knowledge	na	1.17†	1.23*
Received pregnancy/AIDS education in school	na	0.97	0.98
Parent-teenager interactions			
Closeness	na	0.88	0.84
Communication	na	1.24**	1.20*
Opportunity costs/barriers			
Rational decision-making	na	1.36**	1.27†
Educational aspirations	na	1.05	1.05
Perceived disease risk	na	0.76*	0.80†
Partner/relationship			
Partner type			
Romantic (ref)	na	na	1.00
Liked	na	na	0.82
Teenager-partner			
homogamy	na	na	0.90
No. of dating activities that preceded sex	na	na	1.64***
Age at first sex	na	na	1.10†
No. of mos. in relationship before sex	na	na	1.00
<i>F</i>	2.57*	2.5**	9.49***
<i>df</i>	8	16	22

p*<.05. *p*<.01. ****p*<.001. †*p*<.10. Notes: ref=reference group. PVT=modified Peabody Picture Vocabulary Test. na=not applicable.

teenagers had discussed contraception or STDs before first sex increased by 2% (odds ratio, 1.02).

After measures of reproductive health knowledge and sex education, parent-teenager interactions, and opportunity costs and barriers were included, the association between gender and the outcome was attenuated, and the association between PVT and the outcome remained unchanged. Also, for every additional topic discussed with their parents, teenagers had 24% greater odds of having discussed contraception or STDs with their first partner before first sex. Rational decision-making was positively associated with sexual communication (odds ratio, 1.4); perceived disease risk was negatively associated with the outcome (0.8).

In the model that added partner and relationship factors, the associations for rational decision-making and perceived disease risk were attenuated, indicating that partner and relationship factors mediate, in part, the association between these measures and discussions about contraception or STDs. The findings for PVT score and parent-teenager communication remained positive. Also, in this final model, two measures assessed in earlier

models became significant. Black teenagers had greater odds than white teenagers of having discussed contraception or STDs before first sex (odds ratio, 1.9), and perceived condom knowledge was positively associated with the likelihood of such a discussion (1.2). The positive association between being black and having discussed contraception or STDs became evident only once dating activities were controlled for, because blacks engage in fewer dating activities, on average, than whites (4.7 and 5.6—not shown).

The number of dating activities that had preceded sex was the only partner or relationship characteristic that was significantly associated with the dependent variable. For each additional dating activity teenagers had participated in prior to sex, they had 64% greater odds of having discussed contraception or STDs before sex.

We also tested the individual components of homogeneity (age difference, racial or ethnic difference, and whether partners belonged to the same social network). None were significantly associated with discussions (not shown).

We tested interactions between gender and each predictor variable to assess whether the influence of these measures was dependent on whether teenagers were male or female (not shown). We found no significant interactions, indicating that similar factors influence the odds of sexual communication prior to first intercourse for both genders.

DISCUSSION

Our findings indicate that one-half of teenagers do not discuss contraception or STDs with their partner before having sex for the first time. Given the strong connection between having such discussions and using contraceptives,¹⁻¹¹ the 50% of teenagers who do not have conversations about contraceptives or STDs are heightening their risk for being involved in an unintended pregnancy or contracting an STD.

At least one factor in each of the five domains we studied is significantly associated with discussions of contraception or STDs before first sex among teenagers (although for opportunity costs and barriers, the significant associations are mediated by relationship and partner characteristics). These findings reinforce the relevance of using an ecological approach to better understanding predictors of sexual communication.^{18,19} Contrary to our hypothesis, we found no gender differences in the factors that predict discussions of contraception or STDs before first sex, perhaps because we do not know which member of the couple initiated the conversations or their content or extent.

Our research identifies males and whites as two key target groups at elevated risk for not discussing contraception or STDs before sex with their first partners. On average, males are less likely than females to discuss contraception or STDs in first sexual relationships, confirming focus group research and small-sample studies

that suggest that most males do not feel comfortable discussing contraception,¹³ and that females are more likely than males to report discussing contraception with their partners.¹⁴ Once we controlled for all other factors, however, the negative association for being male disappeared because males communicate less with parents and perceive themselves as having a higher risk of contracting STDs than females; these factors are themselves associated with lower odds of discussing contraception or STDs.

Sexually experienced blacks have higher odds than their white counterparts of having discussed contraception or STDs with their first sexual partners, but the association became significant only in the final model. This change occurred because blacks engage in fewer dating activities, on average, than whites, and participating in fewer dating activities is associated with reduced chances of communicating with one's partner about contraception or STDs. Other analyses (not shown) indicated that among teenagers who engage in a low number of dating activities, blacks have higher odds of discussing contraception or STDs than whites. The positive association for blacks is consistent with previous research showing lower sexual risk-taking and greater condom use among blacks than among whites.^{31,32}

Our work suggests implications for parents and program providers by highlighting protective strategies that may help improve teenagers' ability to discuss contraception or STDs with their sexual partners. As hypothesized, and consistent with other research, we found that the more teenagers talk with their parents about everyday life issues, the more likely they are to discuss contraception or STDs with partners prior to sex.^{2,12} Thus, parents should be encouraged to talk to their children about a range of issues—conversations do not have to be specifically about sex to have a positive effect on teenagers' ability or willingness to communicate with partners about contraception or STDs. This idea supports other work that has indicated that parent-teenager communication in general has a more consistent association with sex and contraception than does parent-teenager communication specifically about sex.^{1,37}

Similarly, engaging in more dating behaviors before sex has a positive association with communication about contraception or STDs before first sex. An increased amount of interaction between teenagers and their sexual partners likely improves their level of comfort with each other and, therefore, their willingness to communicate about topics such as contraception and STDs or to say no to sex in the first place.³⁸ In addition, other studies have shown a strong association between more dating behaviors and an increased probability that teenagers use contraceptives and use them consistently.^{10,11} These findings suggest that parents and program providers should encourage teenagers in romantic relationships to engage in more dating behaviors; this may both delay teenagers' transition to sex and promote communication among teenagers who decide to have sex. However,

teenagers in our sexually experienced sample had waited, on average, less than five months before having sex, reinforcing other research that shows a short window of time between dating and sex.^{3,39} Interestingly, counter to our hypotheses, other aspects of relationships are not associated with discussions about contraception or STDs. Dating activities may reflect additional components of relationships, including relationship length and type (i.e., romantic vs. casual).

Teaching teenagers more about contraception may be another protective strategy. As hypothesized, the more knowledge teenagers think they have about condoms, the greater their odds of discussing contraception or STDs before initiating first sex. This corroborates Kirby's research showing that strong pregnancy and STD prevention education programs can have a positive effect on teenagers' reproductive health behaviors.^{1,8} In addition, teenagers with greater rational decision-making tendencies have elevated odds of talking about contraception or STDs before first sex, in part because of their choice of sexual partners (as evidenced by the fact that rational decision-making loses significance when partner and relationship factors have been included). This finding complements research showing a positive relationship between teenagers' problem-solving skills and their likelihood of postponing sex and of using contraceptives when they become sexually active.^{1,20,21} Thus, pregnancy and STD prevention programs that help provide teenagers with a systematic approach to negotiating decisions about sexual activity and contraceptive use in relationships may be especially effective.

Finally, teenagers who perceive themselves to be at high risk for acquiring an STD may be an especially vulnerable group in need of services. They have reduced odds of discussing contraception or STDs with partners before first sex, in part because of their choice of risky partners. Although this finding may seem counterintuitive, it is consistent with previous studies showing that teenagers who are or who perceive themselves to be at high risk have a reduced likelihood of using condoms and an elevated likelihood of engaging in sexual risk-taking behaviors such as having multiple partners.^{1,9,25,26} Perhaps teenagers who think they have a high risk for acquiring STDs do not discuss these issues with their partners because they believe it is inevitable that they will acquire a disease. If so, these teenagers need interventions to help them prevent risky sexual and contraceptive behaviors, and to help them improve their reproductive health knowledge and motivations to prevent pregnancy and STDs.

Limitations

Our analyses have some limitations, mostly because of data constraints. First, we lack important information about the content and extent of the conversations teenagers have about contraception or STDs; we therefore cannot distinguish between conversations that involve

simply asking a partner if he or she has a condom and more in-depth conversations. This is important because the effectiveness of sexual communication with partners is a stronger predictor of contraceptive use than the amount of conversation.⁴⁰ Second, we have no measure of teenagers' actual condom-use knowledge, which was asked only of teenagers aged 15 or older. Also, perceived disease risk was measured before teenagers ever had sex; therefore, it does not capture as much variation as we might expect if assessed among sexually experienced teenagers. Third, the information on sexual initiation is self-reported, and some teenagers may not have answered the questions reliably. However, Add Health used audio computer-assisted self-interviews to enhance the validity of self-reports of risky or sensitive behaviors.⁴¹ Analyses of this type of sensitive data in Add Health indicate that these measures are valid.⁴² Fourth, because our analyses were limited to school-age adolescents who transitioned to sex within a one-year time frame, our findings cannot be generalized to all sexually experienced teenagers or all sexual relationships. Relatedly, we excluded teenagers with nonromantic first sexual partners; because this group may be the least likely to have discussed contraception or STDs before first sex,^{2,13} we may have overestimated the proportion of teenagers who have such conversations before first sex.

Conclusions

Despite these limitations, however, this study contributes to the literature by using a nationally representative sample to identify risk and protective factors from several domains of influence that contribute to teenagers' decisions about whether to discuss contraception or STDs before first sex. Although understudied, this topic is highly important because discussing contraception or STDs before first sex can help teenagers avoid unintended pregnancies and reduce their risk of acquiring STDs. An interesting approach in future research might be to use path models to extend our analyses to examine how adolescent discussions about contraception and STDs before first sex relate to their actual contraceptive use at first sex; our data do not allow us to investigate this issue.

Overall, the findings support the idea that a key focus of pregnancy and STD prevention programs should be to help both male and female teenagers become comfortable with initiating conversations and communicating about pregnancy and STD prevention, especially before they engage in sexual intercourse for the first time. Role-playing exercises may be a particularly effective tool in helping teenagers develop such communication and negotiation skills, as such exercises are a key component of effective approaches to pregnancy and STD prevention.^{1,8}

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