

Predictors of Mother–Adolescent Discussions About Condoms: Implications for Providers Who Serve Youth

Kim S. Miller, PhD, and Daniel J. Whitaker, PhD

ABSTRACT. *Objective.* To examine predictors of mother–adolescent communication about condoms.

Methods. Interviews were conducted with 907 mothers of adolescents aged 14 to 17 years in the Bronx, New York; Montgomery, Alabama; and San Juan, Puerto Rico, to determine whether mothers had talked with their adolescent about condoms.

Results. By univariate analysis, mother–adolescent communication about condoms was associated with greater knowledge about sexuality and acquired immunodeficiency syndrome, perception of having enough information to discuss condoms, information from a health-related source, less conservative attitudes about adolescent sexuality, perception that the adolescent was at risk for human immunodeficiency virus, greater ability and comfort in discussing condoms, stronger belief that condoms prevent human immunodeficiency virus/acquired immunodeficiency syndrome, and a more favorable endorsement of condoms. In multivariate analyses, mother–adolescent communication about condoms was associated with a less conservative attitude about abstinence until marriage (odds ratio [OR]: 0.73; 95% confidence interval [CI]: 0.54–0.74), greater skill in communicating about sex (OR: 1.13; 95% CI: 1.06–1.20), greater comfort in communicating about sex (OR: 1.31; 95% CI: 1.01–1.69), a more favorable endorsement of condoms (OR: 1.85; 95% CI: 1.17–2.78), and the perception that the adolescent's friends were sexually active (OR: 3.53; 95% CI: 1.97–7.16).

Conclusion. Parents who communicate effectively about sexuality and safer sex behaviors can influence their adolescents' risk-taking behavior. Health care providers, particularly physicians, can facilitate this communication by providing to parents information about the sexual behavior of adolescents, the risks that adolescents encounter, condom use, condom effectiveness, and how to discuss condoms. They also can make referrals to programs that teach communication skills. *Pediatrics* 2001;108(2). URL: <http://www.pediatrics.org/cgi/content/full/108/2/e28>; condoms, adolescents, maternal communication, HIV, STD, African Americans, Hispanics.

ABBREVIATIONS. STD, sexually transmitted disease; HIV, human immunodeficiency virus; AIDS, acquired immunodeficiency syndrome.

From the Division of HIV/AIDS Prevention, Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention, Centers for Disease Control and Prevention, Atlanta, Georgia.

Received for publication Jan 12, 2001; accepted Mar 26, 2001.

Reprint requests to Centers for Disease Control and Prevention, Mailstop E45, 1600 Clifton Rd, Atlanta, GA 30333. E-mail: kxm3@cdc.gov

PEDIATRICS (ISSN 0031 4005). Copyright © 2001 by the American Academy of Pediatrics.

Promoting condom use among sexually active adolescents is an important public health goal.¹ Adolescents who have unprotected sex are at risk for sexually transmitted diseases (STDs), including human immunodeficiency virus (HIV). According to the Youth Risk Behavior Survey, a Centers for Disease Control and Prevention survey of students in grades 9 through 12, 48% of all high school students had engaged in sexual intercourse; of the students who had engaged in sexual intercourse during the 3 months before the survey (35%), only 57% reported that they had used a condom during their most recent sexual intercourse.² Seven percent of students reported sexual initiation before the age of 13.² Other representative data sources show that adolescents have the highest age-specific risk for many STDs,^{3,4} and according to recent estimates, 50% of new HIV infections occur among people who are younger than 25 years.⁵ New strategies are needed to promote more use of condoms by adolescents.

Although considerable attention has been directed toward individual,^{6–8} peer,^{9,10} and partner^{11–15} factors associated with condom use by adolescents, recent research suggests that parent–child communication can influence adolescents' use of condoms. One study found that mother–adolescent discussion about condoms that took place before the adolescent's sexual initiation was associated with more use of condoms at sexual initiation, which set the stage for later condom use.¹⁶ Other research showed that comprehensive communication about sexuality and communication skills are related to less sexual risk behavior among adolescents^{17,18} and to adolescents' greater communication about condoms and condom use with their partners.¹⁹ Despite these findings indicating the importance of early parental discussions about condoms, many parents either are not talking to their children about this issue or are not initiating these discussions early enough.²⁰

Our purpose was to examine factors associated with mother–adolescent communication about condoms. By understanding which factors influence whether mothers talk with their children about condoms and by understanding the barriers that parents may perceive in talking with their children, specific recommendations and strategies to promote communication can be developed and implemented.

METHODS

The Family Adolescent Risk Behavior and Communication Study was a cross-sectional study of 907 adolescents and their mothers who were recruited from 2 public high schools in Mont-

gomery, Alabama, and the Bronx, New York, and 1 public high school in San Juan, Puerto Rico. Recruitment took place between October 1993 and June 1994 at high schools that had a prominent representation of blacks and Puerto Ricans, populations that have been affected disproportionately by the HIV/acquired immunodeficiency syndrome (AIDS) epidemic.²¹ A description of the sample appears elsewhere.²²

Procedures

A list of potential participants was obtained from each high school, and students were recruited through fliers distributed in homerooms and mailed to their homes. Interested mothers and adolescents telephoned the researchers; those who wished to participate were screened for eligibility. To be eligible, both the adolescent and the mother had to be willing to participate; the adolescent had to be 14 to 16 years old, had to be enrolled in grades 9 to 11, and had to have lived with the mother in the recruitment area for at least the past 10 years; and the mother had to be the adolescent's biological or adoptive mother or stepmother. Of the 1733 pairs who provided screening information, 1124 were eligible and 982 (87% of the eligible pairs) were interviewed.

Separate face-to-face interviews were conducted with the mother and the adolescent by interviewers of the same ethnicity and gender as the adolescent and the mother. Mothers were interviewed first whenever possible (for 91% of the pairs) to ease the adolescents' concerns that their responses would be discussed with their mother. Mothers were reimbursed \$45, and adolescents were reimbursed \$25 for their participation. Before the interview, the interviewer explained the purpose of the study, reviewed the consent form with the mother and the adolescent separately, and had each sign the consent form. Institutional review boards approved the study at each site. The sample comprised 907 adolescent-mother pairs (75 pairs did not meet eligibility requirements).

Instruments and Measures

The research instrument was a structured questionnaire developed by study investigators. Questions for adolescents and mothers were similar but not identical.

Main Outcome Measure

The main outcome measure was the mothers' yes/no response to the question, "Have you and your child ever talked about condoms?"

Demographics

Demographic variables were site (New York, Alabama, or Puerto Rico), ethnicity (black or Hispanic), adolescent's gender, mother's age, adolescent's age, income, mother's education, and father's presence in the home.

Information was elicited on 6 distinct domains drawn from 3 influential behavioral theories: the theory of reasoned action,^{23,24} the health belief model,^{25,26} and social-cognitive theory.^{27,28} These domains were mother's knowledge and information about HIV, STDs, and sexuality; mother's attitudes and beliefs about sexuality and religiousness; mother's perception of her adolescent's risk; mother's perception of her ability to discuss sex and condoms; mother's beliefs about condom effectiveness; and mother's endorsement of condoms.

Domain 1: Mother's Knowledge and Information

HIV knowledge was measured with 7 items. Each correct response was scored 1 point so that higher scores reflected greater knowledge about HIV/AIDS transmission. Similarly, knowledge about STD and sex was assessed with 7 true/false items. Each correct response was scored 1 point so that higher scores reflected more knowledge about STDs and sex.

Information Sources were measured several ways. First, mothers were asked to answer yes or no regarding whether they had enough information to talk with their adolescent about condoms, sex, STDs, and AIDS. Second, to examine mothers' sources of information about sex-related topics, mothers were asked, "Where or from whom do you currently receive information about the topics we just talked about: mother or father; other relative; boyfriend, girlfriend, or friend; book or TV; school; pamphlet, physician, or health department?"

Domain 2: Mother's Attitudes, Beliefs, and Religiousness

Adolescent Sex and Sex Outcomes

We measured mothers' attitudes about sex during adolescence (3 items measured; 1 = never OK, 3 = always OK; $\alpha = 0.78$), her attitude about abstinence until marriage (1 item measured: "I think my son/daughter should wait until he's/she's married to have sex"; 1 = strongly disagree, 4 = strongly agree), and her beliefs that "getting pregnant or getting a girl pregnant would ruin her son's/daughter's future" (1 item measured; 1 = strongly disagree, 4 = strongly agree).

Religiousness

Mothers reported how often they attended religious services (1 = never, 4 = about once a week or more) and how important their religious beliefs were to them (1 = not at all, 5 = very). The questions were similar conceptually and therefore were averaged to form a single index ($r = 0.34$); higher scores reflected higher religiousness.

Domain 3: Mother's Perception of Her Adolescent's Risk

We used 4 measures of the mother's perception of her adolescent's risk: mother's perception that her child's had had sex (yes/no); whether the mother knew someone with HIV/AIDS (yes/no); mother's perception of her child's chances of having HIV at the time of interview (0 = no chance at all, 4 = already HIV positive); and mother's perception of the percentage of her child's friends that had had sex (0%–100%).

Domain 4: Mother's Perception of Ability to Discuss Sex and Condoms

We used 2 indexes and 2 items to examine the mother's perception of her ability to discuss sex and condoms with her adolescent. The general communication index comprised 7 questions from Barnes and Olson's communication scale.²⁹ Mothers' responses to items were summed to form an index ($\alpha = 0.85$ for mothers). Each item was scored on a Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree); higher scores indicated better general communication. The sexual communication skills index¹⁷ comprised 9 items. After reporting on whether they had communicated about various sex topics, mothers responded to items such as, "I don't know enough about topics like this to talk to my son/daughter," and, "My son/daughter and I talk openly and freely about these topics" (1 = strongly disagree, 4 = strongly agree). Negatively worded items were reverse-scored, and responses were summed ($\alpha = 0.82$) so that higher scores indicated better sexual communication skills. Mothers' comfort with discussing sex with their adolescents and mothers' perception of their adolescents' comfort about discussing sex were measured separately with single items (1 = feels very uncomfortable, 4 = feels very comfortable).

Domain 5: Mother's Beliefs About Condom Effectiveness

Responses to 3 questions were used to assess beliefs about the effectiveness of condoms: 1) "How effective do you think the use of a condom is to prevent getting the AIDS virus (HIV)?" (1 = not at all effective, 3 = very effective). 2) "Do you feel like you can protect yourself against the AIDS virus (HIV) by always using a condom during sex?" (yes/no). 3) "Does sex with latex condoms and spermicide decrease a person's chance of getting the AIDS virus(HIV)?" (yes/no).

Domain 6: Mother's Endorsement of Condoms

We used responses to 2 questions to assess mothers' beliefs about condom access: "Do you think high schools should make condoms available to students?" (yes/no), and, "I think my son/daughter should carry condoms" (1 = strongly disagree, 4 = strongly agree).

Analytic Plan

First, bivariate analyses were performed between each predictor (demographics and the variables in each of the 6 domains) and communication about condoms. Next, multivariate analyses were conducted using a series of logistic regression models. The first model examined the multivariate relationship between the demographic variables and communication about condoms. All signifi-

icant or marginally significant demographic predictors were included in all subsequent regression models. Next, to examine predictors within each domain, we conducted 6 regression models (1 for each domain) with all variables within a domain entered simultaneously. A final model examined predictors across domains. This final model included all predictors that were significant from the within-domain regression models. (Note that a separate model that included all predictors—both significant and nonsignificant—yielded nearly identical results.)

RESULTS

Bivariate Analyses

Of the 907 mothers surveyed, 666 (73.4%) had talked with their adolescent about condoms. Table 1 shows the relationship between each predictor and communication about condoms and the associated *P* value from the χ^2 or Student's *t* test. Among the demographic factors, differences were found for site, ethnicity, mother's age, income, education, and presence of a father in the home. Condom communication was greater for mothers who were from New York, black, younger, wealthier, better educated, and when no father was present in the home. For domain 1 (knowledge and information), more knowledge of AIDS and more knowledge of sex were related to more communication, as was the mother's belief that she had enough information to discuss condoms, sex, AIDS, and STDs with her adolescent. Regarding information sources, only one variable—having obtained information from a pamphlet, physician, or health department—was associated with more communication. For domain 2 (attitudes, beliefs, and religiousness), 3 of the 4 measures were associated with communication about condoms, and for each measure, less conservative attitudes or less religiousness was associated with more communication. For domain 3 (perceived risk), 3 of the 4 variables were associated with communication about condoms; for each, perception of higher risk was related to more communication about condoms. Next, for domain 4 (perception of ability to discuss sex and condoms), better general communication skills, more skills in communicating about sex, and mother's comfort in discussing sex were related to more communication about condoms; mother's perception of her adolescent's comfort was not. For domains 5 and 6 (beliefs about condom effectiveness and mother's endorsement of condoms), all variables were associated with more communication about condoms. Mothers who considered condoms more effective and mothers who endorsed condoms for adolescents were more likely to have talked with their adolescent about condoms.

Multivariate Analyses

In the initial regression model, only the 8 demographic factors were considered (Table 2). Four variables were significant predictors of communication about condoms (site, mother's age, mother's education, and father's presence in home), and 2 were marginally significant (gender and adolescent's age). These 6 variables were included in all later regression models.

The next regression model included the 12 knowledge and information variables described previ-

ously. Of those variables, the mother's perception that she had enough information to discuss condoms with her son or daughter and the mother's having obtained information from a health-related source were associated with more condom communication. In the second model (analysis of the 4 items concerning maternal attitudes and beliefs and religiousness), only the mother's endorsement of abstinence until marriage was significant, and it was associated with less condom communication. In the third model, which included the 4 items that assessed the mother's perception of her adolescent's risk, only the mother's perception of the sexual activity of her adolescent's friends was significant, and it was associated with more communication. In the fourth model, which included the 4 variables for the mother's perception of her ability to discuss sex and condoms, the mother's skill and her comfort with discussing sex were associated with more condom communication. In the fifth model (analysis of 3 items concerning beliefs in the effectiveness of condoms), believing condoms to be effective was associated with more communication about condoms. In the final regression model, which included beliefs about condom availability, each item was related independently to communication about condoms; stronger endorsement of condoms for adolescents was associated with more communication.

A final regression model comprised the 9 significant predictors from the 6 models, along with the 6 demographic predictors (Table 3). Of the substantive predictors, having enough information about condoms dropped to marginal significance, and belief in the effectiveness of condoms dropped to nonsignificant. The remaining variables were associated independently with communication about condoms. More communication about condoms was related to having obtained information from a health-related source, weaker endorsement of abstinence until marriage, greater perception that the child's friends were sexually active, better skills in communicating about sex, more comfort with discussing sex, and stronger endorsement that schools should distribute condoms and that adolescents should carry condoms.

DISCUSSION

Adults play an important role in promoting the sexual health of adolescents. Because mother-adolescent discussions about condoms before sexual initiation have been associated strongly with safer sexual behaviors,¹⁶ it is important to promote mother-adolescent communication about condoms. In our examination of factors associated with mother-adolescent communication about condoms, we found that variables in a variety of domains are related to mother-adolescent communication.

Our findings suggest ways in which parents and providers of youth services, particularly physicians, can promote the sexual health of adolescents. Specifically, in addition to direct contact with adolescent patients, physicians can support adolescents' use of condoms by providing parents with the information and the skills to help them discuss sexuality and

TABLE 1. Single-Variable Analyses of Mother–Adolescent Communication About Condoms

Variable	Ever Discussed	Never Discussed	P Value
Demographics			
Gender of adolescent			
Male	76.3%	23.7%	.09
Female	71.3%	28.7%	
Site			<.001
New York	80.7%	19.3%	
Alabama	74.1%	25.9%	
Puerto Rico	61.9%	38.1%	
Ethnicity			.05
Black	77.0%	23.0%	
Hispanic	69.8%	30.2%	
Adolescent's mean age	15.3	15.3	NS
Mother's mean age	39.4	42.6	<.001
Mean income	4.11	3.88	.04
Mean education	3.88	3.56	.005
Father present in home			
Yes	68.8%	31.2%	<.001
No	78.8%	21.2%	
Domain 1: Mother's knowledge and information			
HIV knowledge	6.61	6.46	.04
STD and sex knowledge	5.52	5.39	.04
Enough information to discuss condoms			<.001
Yes	77.9%	22.1%	
No	58.6%	41.4%	
Enough information to discuss sex			<.001
Yes	76.0%	24.0%	
No	64.4%	35.6%	
Enough information to discuss STDs			.006
Yes	75.8%	24.2%	
No	66.5%	33.5%	
Enough information to discuss AIDS			.009
Yes	75.6%	24.4%	
No	66.7%	33.3%	
Gets information from her mother or father			NS
Yes (<i>n</i> = 30)	73.3%	26.7%	
No (<i>n</i> = 877)	73.4%	26.6%	
Gets information from other relative			NS
Yes (<i>n</i> = 666)	7.8%	92.2%	
No (<i>n</i> = 241)	6.6%	93.4%	
Gets information from boyfriend/girlfriend or friend			NS
Yes (<i>n</i> = 130)	76.1%	23.9%	
No (<i>n</i> = 777)	73.0%	27.0%	
Gets information from book or TV			NS
Yes (<i>n</i> = 68)	73.0%	27.0%	
No (<i>n</i> = 839)	74.5%	25.4%	
Gets information from school			NS
Yes (<i>n</i> = 216)	23.3%	76.7%	
No (<i>n</i> = 691)	25.3%	74.7%	
Gets information from pamphlet, doctor, or health department			<.001
Yes (<i>n</i> = 758)	75.9%	24.1%	
No (<i>n</i> = 149)	61.1%	38.9%	
Domain 2: Attitudes, beliefs, and religiousness			
Attitude toward teen sex	2.84	2.92	<.001
My adolescent should wait until married for sex	3.03	3.45	<.001
Getting pregnant will ruin future	3.30	3.35	.70
Religiousness	3.76	3.96	<.001
Domain 3: Mother's perception of her adolescent's risk			
Mother thought adolescent had had sex			.001
Yes	84.5%	15.5%	
No	69.8%	30.2%	
Mother knows at least 1 person with HIV			.02
Yes	75.6%	24.4%	
No	68.2%	31.8%	
Chance adolescent has HIV right now	0.81	0.68	.07
Percentage of adolescent's friends who have had sex	38.7%	17.5%	<.001
Domain 4: Mother's perceived ability to discuss sex and condoms			
General communication	22.57	21.91	.01
Sexual communication skill	23.72	22.88	.02
Mother's comfort with discussing sex	3.52	3.33	<.001
Adolescent's comfort with discussing sex	3.00	3.03	NS
Domain 5: Mother's beliefs about condom effectiveness			
Condoms are effective at preventing HIV	2.20	2.00	<.001
Can protect from HIV by always using condoms	52.3%	38.7%	<.001
Condoms decrease chance of getting AIDS	84.3%	76.0%	.004
Domain 6: Mother's beliefs about condom availability			
Schools should distribute condoms	83.2%	59.3%	<.001
My adolescent should carry condoms	2.83	2.11	<.001

NS indicates not significant.

All variables were examined for differences by site. The only variable that differed by site was having enough information to discuss condoms and site.

TABLE 2. Regression Models Examining Predictors of Condom Communication by Domains of Variables, Controlling for Demographic Covariates

Model and Variables	Estimate	Odds Ratio (95% CI)
Demographic factors only		
Gender (male reference)	-0.282†	0.75 (0.55–1.04)
Site (Puerto Rico reference)		
New York	0.845**	2.33 (1.45–3.73)
Alabama	0.297	1.35 (0.69–2.63)
Ethnicity (Hispanic reference)	0.039	1.04 (0.61–1.79)
Adolescent's age	0.190†	1.21 (0.98–1.50)
Mother's age	-0.086**	0.92 (0.89–0.94)
Income	0.080	1.08 (0.95–1.23)
Mother's education	0.169**	1.18 (1.05–1.33)
Father present in home	-0.500**	0.61 (0.43–0.85)
Model 1: Mother's knowledge and information		
HIV knowledge	0.013	1.01 (0.86–1.20)
STD and sex knowledge	0.072	1.08 (0.88–1.31)
Enough information to discuss condoms	0.944**	2.57 (1.45–4.55)
Enough information to discuss sex	0.038	1.04 (0.58–1.85)
Enough information to discuss STDs	-0.285	0.75 (0.42–1.36)
Enough information to discuss AIDS	0.217	1.24 (0.67–2.31)
Gets information from her mother or father	0.171	1.19 (0.47–2.98)
Gets information from relative	0.256	1.29 (0.68–2.47)
Gets information from boyfriend/girlfriend or friend	0.313	1.37 (0.85–2.21)
Gets information from book or TV	0.053	1.05 (0.73–1.52)
Gets information from school	-0.176	0.84 (0.57–1.24)
Gets information from pamphlet, doctor, or health department	0.677**	1.97 (1.40–2.78)
Model 2: Mother's attitudes and beliefs		
Attitude toward teen sex	-0.385	0.68 (0.32–1.45)
My adolescent should wait until married for sex	-0.489**	0.61 (0.48–0.78)
Getting pregnant will ruin future	0.102	1.11 (0.91–1.36)
Religiousness	-0.143	0.87 (0.68–1.11)
Model 3: Mother's perceived risk		
Mother thought adolescent had had sex	0.339	1.40 (0.80–2.46)
Mother knows at least 1 person with HIV	0.302	1.35 (0.92–1.99)
Chance adolescent has HIV right now	-0.049	0.95 (0.77–1.17)
Percentage of adolescent's friends who have had sex	1.432**	4.19 (2.19–7.99)
Model 4: Perceived ability to discuss sex and condoms		
General communication	0.002	1.00 (0.95–1.06)
Sexual communication skill	0.128**	1.14 (1.07–1.21)
Mother's comfort with discussing sex	0.265*	1.30 (1.03–1.64)
Adolescent's comfort with discussing sex	0.066	1.07 (0.87–1.31)
Model 5: Mother's beliefs about condom effectiveness		
Condoms are effective at preventing HIV	0.360*	1.43 (1.03–2.00)
Can protect from HIV by always using condoms	0.300	1.35 (0.93–1.95)
Condoms decrease chance of getting AIDS	0.045	1.05 (0.68–1.62)
Model 6: Mother's beliefs about condom access		
Schools should make condoms available	0.757**	2.13 (1.46–3.12)
My adolescent should carry condoms	0.415**	1.52 (1.26–1.82)

In models 1–6, significant demographic covariates are included: site, adolescent's age, mother's age, and education.

* $P < .05$.

** $P < .001$.

† $P < .10$.

condom use with their children early, before sexual activity begins.

The traditional way in which physicians have promoted sexual health is by screening and counseling adolescent patients about their sexual risk behavior. Barriers such as lack of time and concern about the adolescent's or the parent's discomfort^{30–34} may inhibit physicians from counseling adolescent patients effectively. Moreover, adolescents use health care services less than any other age group does, and they are least likely to seek care at a physician's office.³⁵ Physicians who do talk with adolescents probably talk too late—that is, after that adolescent has already had sex. If physicians could facilitate parent-child communication, then barriers such as lack of time and parental discomfort could be avoided. Our findings suggest specific ways in which physicians

can facilitate parent-child communication about condoms.

First, condom communication was associated with mothers' beliefs that they had enough information to discuss condoms, having received information from a health-related source, and beliefs that condoms prevent HIV/AIDS. Physicians can serve as an important informational resource by providing parents with information about the importance of talking with their adolescent about sex and condoms and by informing parents that aside from abstinence, condom use is the only way to prevent STDs, including HIV. Physicians should make sure that parents have all of the information that they believe they need to discuss condoms, a place to turn to if they need more information, and accurate information about the effectiveness and use of condoms.

TABLE 3. Final Regression Model Included All Significant Predictors and Significant Demographic Covariates

Variable	Estimate	Odds Ratio (95% CI)
Gender (male reference)	0.054	1.06 (0.70–1.60)
Demographics		
Site (Puerto Rico reference)		
New York	0.731**	2.08 (1.20–3.59)
Alabama	0.239	1.27 (0.77–2.09)
Adolescent's age	0.135	1.15 (0.89–1.48)
Mother's age	–0.064**	0.94 (0.91–0.97)
Education	0.205**	1.23 (1.08–1.39)
Father present in home	–0.199	0.82 (0.56–1.21)
Substantive predictors		
Enough information to discuss condoms	0.398†	1.49 (0.96–2.30)
Gets information from pamphlet, doctor, or health department	0.458*	1.58 (1.07–2.34)
My adolescent should wait until married for sex	–0.313*	0.73 (0.55–0.96)
Percentage of adolescent's friends who have had sex	1.233**	3.43 (1.79–6.57)
Sexual communication skill	0.119**	1.13 (1.06–1.20)
Mother's comfort with discussing sex	0.271*	1.31 (1.01–1.70)
Condoms are effective at preventing HIV	0.079	1.08 (0.77–1.53)
Schools should make condoms available	0.601**	1.82 (1.18–2.83)
My adolescent should carry condoms	0.236*	1.27 (1.02–1.57)

CI indicates confidence interval.

* $P < .05$.

** $P < .01$.

† $P < .10$.

Second, condom communication was associated with greater skill in and comfort with discussing condoms. To be comfortable and confident in these discussions, parents must know that the discussion is appropriate, and they must know how to have such a discussion. Physicians can help by informing parents of the potential benefits of discussing condoms with their adolescent and can provide informational brochures about how to do so. Physicians also can refer parents to programs that teach parent–child communication skills.

Third, mothers who endorsed abstinence until marriage were less likely to talk with their adolescent about condoms. Here the physician's role may not be to try to change parental attitudes but to inform parents about the realities of adolescent behavior. Physicians should encourage parents to communicate their values about premarital sexual activity to their children, but they also should realize that it is highly unlikely that their adolescent will abstain from sex until marriage, as >72% of never-married female adolescents and 84% of never-married male adolescents have had sexual intercourse by age 20.^{36,37} Parents also need to know that providing information about safer sex does not increase adolescents' sexual activity and that it is not inconsistent to endorse both abstinence and condom use when the adolescent does choose to have sex, even among adolescents who have never had sex.

Finally, condom communication was associated with mothers' perception that their adolescent was at risk. Parents may not realize that their adolescent is having sex and thus may underestimate the adolescent's risk. (In this sample, of the female adolescents who had had sexual intercourse, 47% of their mothers thought that they had not; of male adolescents who had had sexual intercourse, 53% of their mothers thought that they had not.) Here again, physicians should inform parents about the realities of adolescent sexual behavior, such as that adolescents

whose peers are having sex are likely to have sex themselves, as mothers in our sample seemed to realize. Parents must learn that talking with adolescents about sex and condoms is associated with safer sexual behavior and with a reduced association between adolescents' own behavior and the adolescents' perception of their peers' behavior.³⁸ Physicians can provide the parents of their patients and their patients who are parents with information, skills, and resources to discuss sexuality and condoms if they choose to do so. Clearly, the role of physicians is a critical one.

ACKNOWLEDGMENTS

Funding for this study was provided by the Division of HIV/AIDS Prevention, Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention, Centers for Disease Control and Prevention, Atlanta, Georgia.

REFERENCES

1. US Department of Health and Human Services. *Healthy People 2000: National Health Promotion and Disease Prevention Objectives*. Washington, DC: US Department of Health and Human Services, Public Health Service; 1991
2. Centers for Disease Control and Prevention. Youth risk behavior surveillance—United States, 1997. *MMWR Morb Mortal Wkly Rep*. 1998; 47(SS-3):1–92
3. Bell TA, Holmes KK. Age-specific risks of syphilis, gonorrhea, and hospitalized pelvic inflammatory disease in sexually experienced U. S. women. *Sex Transm Dis*. 1984;11:291–295
4. Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance, 1996*. Atlanta: Centers for Disease Control and Prevention; 1997
5. Rosenberg PS. Scope of the AIDS epidemic in the United States. *Science*. 1995;270:1372–1375
6. Helweg-Larson M, Collins BE. The UCLA Multidimensional Condom Attitudes Scale: documenting the complex determinants of condom use in college students. *Health Psychol*. 1994;13:224–237
7. Stiffman AR, Dore P, Cunningham RM. Inner-city youths and condom use: health beliefs, clinic care, welfare, and the HIV epidemic. *Adolescence*. 1994;29:805–820
8. DiClemente RJ. Determinants of condom use among junior high school students in a minority, inner-city district. *Pediatrics*. 1992;89:197–202
9. DiClemente RJ. Predictors of HIV-preventive behavior in a high-risk adolescent population: the influence of perceived peer norms and sex-

- ual communication on incarcerated adolescents' consistent use of condoms. *J Adolesc Health*. 1991;12:385-390
10. Romer D, Black M, Ricardo I, et al. Social influences on the sexual behavior of youth at risk for HIV exposure. *Am J Public Health*. 1994;84:977-985
 11. Rickman RL, Lodico M, DiClemente RJ, Morris R, Baker C, Huscroft S. Sexual communication is associated with condom use by sexually active incarcerated adolescents. *J Adolesc Health*. 1994;15:383-388
 12. DiClemente RJ, Lanier MM, Horan PF, Lodico M. Comparison of AIDS knowledge, attitudes and behaviors among incarcerated adolescents and a public high school sample in San Francisco. *Am J Public Health*. 1991;81:628-630
 13. Catania JA, Dolcini M, Coates TJ, et al. Predictors of condom use and multiple partnered sex among sexually active adolescent women: implications for AIDS-related health interventions. *J Sex Res*. 1989;26:514-524
 14. Shoop DW, Davidson PM. AIDS and adolescents: the relation of parent and partner communication to adolescent condom use. *J Adolesc*. 1994;17:137-148
 15. Miller KS, Clark LF, Moore JS. Sexual initiation with older male partners and subsequent HIV risk behavior among adolescent females. *Fam Plann Perspect*. 1997;29:212-214
 16. Miller KS, Levin ML, Whitaker DJ, Xu X. Patterns of condom use among adolescents: the impact of maternal-adolescent communication. *Am J Public Health*. 1998;88:1542-1544
 17. Dutra R, Miller KS, Forehand R. The process and content of sexual communication with adolescents in two-parent families: associations with sexual risk-taking behavior. *AIDS Behav*. 1999;3:59-66
 18. Kotchick BA, Dorsey S, Miller KS, Forehand R. Adolescent sexual risk-taking behavior in single-parent ethnic minority families. *J Fam Psychol*. 1999;13:93-102
 19. Whitaker DJ, Miller KS, May D, Levin ML. Teenage partners' communication about sexual risk and condom use: the importance of parent-teenager discussions. *Fam Plann Perspect*. 1999;31:117-121
 20. Kaiser Family Study Results, 1999. Talking with kids about sex and relationships. Available: <http://www.talkingwithkids.org/sex.html>
 21. Lindegren M, Hanson C, Miller K, Byers RH, Onorato I. Epidemiology of human immunodeficiency virus infection in adolescents, United States. *Pediatr Infect Dis J*. 1994;13:525-525
 22. Miller KS, Clark LF, Wendell DA, et al. Adolescent heterosexual experience: a new typology. *J Adolesc Health*. 1997;20:179-186
 23. Ajzen I, Fishbein M. Attitude-behavior relations: a theoretical analysis and review of empirical research. *Psychol Bull*. 1977;84:888-918
 24. Fishbein M, Middlestadt SE. Using the theory of reasoned action as a framework for understanding and changing AIDS-related behaviors. In Mays VM, Albee GW, eds. *Primary Prevention of AIDS: Psychological Approaches*. Vol. 13. *Primary Prevention of Psychopathology*. Newbury Park, CA: Sage; 1989:93-110
 25. Janz NK, Becker MH. The health belief model: a decade later. *Health Educ Q*. 1984;11:1-47
 26. Montgomery SB, Joseph JG, Becker MH, Ostrow DG, Kessler RC, Kirscht JP. The health belief model in understanding compliance with preventive recommendations for AIDS: how useful? *AIDS Educ Prev*. 1989;1:303-323
 27. Bandura A. Self-efficacy: toward a unifying theory of behavioral change. *Psychol Rev*. 1977;84:191-215
 28. Bandura A. Social cognitive theory of self-regulation. *Organ Behav Hum Decis Process*. 1991;50:248-287
 29. Barnes HL, Olson DH. Parent-adolescent communication and the circumplex model. *Child Dev*. 1985;56:438-447
 30. Marks A, Fisher M, Lasker S. Adolescent medicine in pediatric practice. *J Adolesc Health Care*. 1990;11:149-153
 31. Fisher M. Adolescent sexuality: overview and implications for the pediatrician. *Pediatric Ann*. 1991;20:285-289
 32. Fisher M. Parents' view of adolescent health issues. *Pediatrics*. 1992;90:335-341
 33. Post SG, Botkin JR. Adolescents and HIV prevention: the pediatrician's role. *Clin Pediatr*. 1995;34:41-45
 34. Maheux B, Haley N, Rivard M, Gervais A. STD risk assessment and risk reduction counseling by recently trained family physicians. *Acad Med*. 1995;70:726-728
 35. Klein JD. Adolescents and the health care delivery system, and health care reform. In: Irwin CE Jr, Brindis C, Holt K, Langlykke K, eds. *Health Care Reform: Opportunities for Improving Adolescent Health*. Arlington, VA: National Center for Education for Maternal and Child Health; 1994:17-28
 36. Abma JC, Chandra A, Mosher WD, Peterson L, Piccinino L. Fertility, family planning, and women's health: new data from the 1995 National Survey of Family Growth. *Vital Health Stat* 23. 1997;19
 37. Sonenstein FL, Ku L, Lindberg LD, Turner CF, Pleck JH. Changes in sexual behavior and condom use among teenaged males: 1988 to 1995. *Am J Public Health*. 1998;88:956-959
 38. Whitaker DJ, Miller KS. Parent-adolescent discussions about sex and condoms: impact on peer influences of sexual risk behavior. *J Adolesc Res*. 2000;15:251-273