

# Pathways from Family Religiosity to Adolescent Sexual Activity and Contraceptive Use

**CONTEXT:** Few studies with nationally representative longitudinal data have examined whether and how family religiosity is associated with adolescent sexual and contraceptive behavior.

**METHODS:** Data from the 1997 National Longitudinal Survey of Youth were used to examine associations between a multidimensional measure of family religiosity assessed during early adolescence and reproductive health outcomes (sexual activity, number of partners and consistent contraceptive use) at age 17. Pathways through which family religiosity is associated with these outcomes were identified using structural equation models.

**RESULTS:** Family religiosity was negatively associated with adolescent sexual activity, both directly (beta,  $-0.14$ ) and indirectly ( $-0.02$ ). The indirect association was mediated by family cohesion (as reflected in parental monitoring among the entire sample and among males, and in parent-teenager relationship quality and family routine activities among females) and negative peer behaviors. Greater family religiosity was indirectly associated with having fewer sexual partners ( $-0.03$ ) and with using contraceptives consistently ( $0.02$ ); these relationships were mediated through later age at first sex, more positive peer environments and higher levels of parental monitoring and awareness. However, among sexually active males (but not females), family religiosity was directly and negatively associated with contraceptive consistency ( $-0.11$ ).

**CONCLUSION:** Cohesive family environments and positive peer networks contribute to reduced levels of risky sexual behavior among adolescents from religious families. Parents who monitor their children's activities and peer environments, engage their families in regular activities and foster strong parent-child relationships can help reduce risky sexual behavior, regardless of family religiosity. Parental involvement in prevention programs may help reduce rates of teenage pregnancy and STDs.

*Perspectives on Sexual and Reproductive Health, 2008, 40(2):105–117, doi: 10.1363/4010508*

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An expanding research literature has shown that families influence teenagers' decisions about having sex and using contraceptives, and thus affect their risk of pregnancy and STDs. Compared with other adolescents, teenagers who have positive relationships with their parents, communicate with them and engage in regular family activities, and those whose parents are aware of and monitor their activities and friends, are less likely than others to have sex at an early age, tend to have fewer sexual partners and, in some cases, are more likely to practice contraception.<sup>1,2</sup> Another component of the family environment that may be associated with teenagers' sexual behavior—as well as with the parental factors mentioned above—is religiosity, a construct that encompasses multiple beliefs and behaviors.<sup>3</sup> Adolescents' religious beliefs and attachment to religious institutions are often developed within the family environment.<sup>4–6</sup> Until recently, however, the availability of longitudinal data for examining whether family religiosity is associated with delayed sexual activity and improved contraceptive use among teenagers has been limited.

Because religious communities generally discourage and provide sanctions against premarital sexual behavior,<sup>7</sup> the primary premise of this study is that teenagers in

families with higher levels of religiosity will be more likely than other teenagers to avoid early sexual behavior and the associated risks of pregnancy and STDs. Sexual activity, the number of partners one has and contraceptive use all affect the risk of pregnancy and STDs; however, religiosity may not be related to each of these in the same way. For example, religious sanctions against premarital sex may cause some teenagers to avoid sexual intercourse, but once these youth become sexually active, they may perceive religious sanctions as a barrier to practicing contraception.<sup>8</sup> The goal of this study is to gain a better understanding of whether and, importantly, how family religiosity is associated with adolescents' sexual behavior and contraceptive use.

Using longitudinal data collected between 1997 and 2003, we address three sets of research questions. First, is family religiosity associated with adolescent sexual activity, number of partners and consistent contraceptive use? Second, do aspects of the family environment (specifically, parent-teenager relationships, parental monitoring and awareness, and family routines) and the peer environment (both positive and negative) mediate the association between family religiosity and teenagers' sexual

and contraceptive behavior? Finally, are the direct and indirect associations between family religiosity and adolescents' sexual and contraceptive behavior similar among males and females?

## BACKGROUND

### Religiosity, Sexual Activity and Contraceptive Use

Longitudinal research on the influence of family religiosity on adolescent sexual behavior has been limited. The few existing studies have found that higher levels of family religiosity are associated with delayed initiation of sex<sup>9</sup> and reduced sexual activity,<sup>10,11</sup> in some cases, these associations remain after controlling for adolescent religiosity. Meanwhile, a growing body of longitudinal research indicates that multiple dimensions of adolescent religiosity are associated with sexual activity; for example, adolescents' levels of religious beliefs, prayer and attendance at religious services, as well as their scores on composite measures of religiosity, are associated with delayed sexual initiation.<sup>12-15</sup> Although fundamentalist religious beliefs have been linked with reduced sexual activity in some studies, other research has found little or no relationship between the two after controlling for religious attendance.<sup>8,9,16</sup>

Relatively little research has examined the relationship between religiosity and contraceptive use, and the results generally have shown either no association or a negative association. One study found no relationship between family religiosity and contraceptive use among females, and a negative association among males.<sup>9</sup> Some research has found no link between adolescent religiosity and contraceptive use,<sup>12,17</sup> while other work has found a negative association between teenagers' levels of religiosity and contraceptive practice.<sup>8,18-20</sup>

### Mediators

Limited research has explored the mechanisms through which family religiosity is associated with adolescent sexual behavior. Some research suggests that the Judeo-Christian religious tradition plays a role by promoting family relationships.<sup>21,22</sup> For example, high levels of family religiosity may facilitate positive family functioning and cohesiveness because family members often attend religious services and participate in activities together.<sup>22</sup> In addition, the messages and doctrines of conservative religious denominations encourage family solidarity and child obedience.<sup>23</sup> Thus, higher levels of family religiosity may promote positive parent-child relationships by allowing parents and children to spend time together in a family-supportive environment, which in turn may reduce the likelihood that an adolescent will have sex.<sup>24-26</sup>

Moreover, several studies have found associations between parental religiosity and parenting styles. Parental religiosity is positively associated with parent-child relationships, as measured by levels of closeness, communication and perceived family satisfaction;<sup>25,27-29</sup> it is also

positively associated with parental monitoring and awareness of adolescents' activities and friends,<sup>28,30</sup> and with family cohesion, as measured by levels of engagement and harmony.<sup>31</sup>

In addition, children in more religious families may benefit from the tight social networks of similarly minded friends and family within religious communities. For example, teenagers from more religious families and communities may tend to associate with religious peers, who may reinforce moral directives against sexual behavior,<sup>8,14,30,32</sup> and their peers may exhibit fewer problem behaviors and more positive ones than other teenagers. These findings are important because peers can influence adolescent behavior, both positively and negatively. For instance, teenagers with high-achieving peers are less likely than other youth to have sex, while those whose peers engage in negative behaviors, including early sexual activity, are more likely than others to have sex.<sup>33-36</sup>

### Gender Differences

Adolescents' sexual experiences and contraceptive use differ by gender,<sup>37</sup> but few studies have examined gender differences in the association between religiosity and adolescents' sexual and contraceptive behaviors. Most studies that have explored such differences suggest that the association is stronger among females than among males.<sup>13</sup> This gender differential may be due to the societal emphasis on controlling female adolescents' emerging sexuality<sup>38,39</sup> and to an underlying assumption that young women should act as responsible gatekeepers.<sup>13</sup> Nonetheless, most research on family environments suggests that parental monitoring and awareness, family activities and positive parent-teenager relationships are protective against risky sexual behavior for both genders.<sup>1,2</sup>

### Hypotheses

This study expands on previous research by using longitudinal data to examine the association between a multidimensional construct of family religiosity and adolescent sexual activity, and assess both sexual and contraceptive outcomes. Moreover, it examines the pathways through which family religiosity and adolescent outcomes are associated, and tests differences by gender.

Our review of the literature suggests several hypotheses. We expect that higher levels of family religiosity will be associated with lower levels of adolescent sexual activity (measured as recent sexual intercourse). This association will operate, in part, through greater parental monitoring and awareness, and higher levels of family cohesion, in more religious families. It will also be mediated by increased involvement with peers who engage in positive behaviors and by reduced involvement with peers who engage in negative behaviors.

We also hypothesize that higher levels of family religiosity will have direct negative effects on the number of sexual partners that adolescents have and on consistency of contraceptive use. Moreover, higher levels of

family religiosity will be associated with more cohesive family environments, more positive peer environments and later age at first sex, all of which, in turn, will be associated with having fewer sexual partners and with consistent contraceptive use.

Finally, we expect that the association between family religiosity and adolescent outcomes will be greater for females than for males.

## METHODS

### Sample

We used data from the 1997 cohort of the National Longitudinal Survey of Youth (NLSY), a nationally representative longitudinal study of adolescents born in the United States in 1980–1984, who were aged 12–16 on December 31, 1996.<sup>40</sup> In face-to-face interviews, the 8,984 respondents provided information on the timing and circumstances of their first heterosexual intercourse, on their contraceptive use at first sex and on family background measures. The adolescents were surveyed first in 1997 and annually thereafter (follow-up continues into the present). In addition, one parent (generally the biological mother) was interviewed in 1997; measures of parent religiosity were obtained from these interviews.

Because we were interested in the effects of parent religiosity and family-level mediators on subsequent adolescent sexual activity, and because many key measures were assessed only among younger adolescents at baseline, we limited our sample to respondents aged 12–14 who reported in 1997 that they had not had sexual intercourse and who provided information on family-level mediators (3,644 youth).<sup>\*</sup> The adolescents who were excluded from the sample because they were sexually experienced or had incomplete data differed from those who remained in the sample on measures of religiosity and demographic characteristics.<sup>†</sup>

We examined sexual activity and contraceptive use at age 17, because at that age, teenagers usually are still living with their parents (allowing us to examine the impact of family environments), yet many are sexually active (allowing us to obtain an adequate sample to study sexual behavior).<sup>37</sup> For analyses of whether teenagers were sexually active at age 17, we examined outcomes among the 3,632 respondents for whom information on sexual activity was available. (Because the interval between interviews was sometimes slightly longer than

one year, 243 respondents were not interviewed at age 17; for these respondents, all dependent variables were measured at age 18.) Analyses of the number of sexual partners that the adolescent had had in the past year were based on a sample of 1,722 respondents who had ever had intercourse by age 17 and who reported information on partners. Analyses of contraceptive use were based on a sample of 1,465 respondents who, at age 17, had had intercourse in the past year and who provided information on contraceptive consistency during that period.

### Measures

•*Dependent variables.* We created three measures of sexual activity and contraceptive use at age 17. The first variable, sexual activity at age 17, was based on whether the respondent reported having had heterosexual intercourse in the past 12 months. We measured respondents' sexual activity in the past year, instead of whether they had ever had sex, to ensure that our outcome was measured after the mediators were assessed.

The second dependent variable, the number of opposite-sex partners the adolescent had had in the past 12 months, was measured among respondents who had had intercourse by age 17. Adolescents were asked, "How many partners have you had sexual intercourse with since the last interview on [date of last interview]?"

The third dependent variable measured consistency of contraceptive use at age 17 among teenagers who had been sexually active in the past 12 months. This measure was based on teenagers' reports of the number of times they had used "any method of birth control, including a condom," in the past year relative to the number of times that they had had sex. Respondents who could not recall the number of times they had had sex or the number of times they had used contraceptives were asked to estimate the proportion of times in which they had used contraceptives.

•*Family religiosity.* We created a latent construct of family religiosity, using measures based on responses by the participating parent (generally the mother) at the 1997 interviews: parental attendance at religious services, parental prayer, parental religious beliefs and familial religious activities. Parental attendance at worship services during the past 12 months was assessed on a scale

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\*The initial sample consisted of 5,419 respondents aged 12–14 at baseline. We excluded 771 adolescents who were sexually experienced; we also excluded those for whom data were missing or incomplete on measures of sexual activity (123), family religiosity (594) or family-level mediators (287). Thus, the final sample consisted of 3,644 youth.

†Compared with adolescents in the sample, those who were excluded because they had already had intercourse were less likely to be white, to live with two biological or adoptive parents or to participate in family religious activities; their parents had less education and lower levels of religious attendance and beliefs, and were more likely to pray at least

twice a day, than were parents of adolescents in the sample. Adolescents who were excluded because of incomplete information about sexual activity had parents with higher levels of religious attendance than did adolescents in the sample. Adolescents excluded because of missing information on family religion were less likely to be white or to live with two parents than were adolescents in the sample, and their parents had less education than parents of teenagers in the sample. Finally, adolescents who were excluded because of missing information on family mediators were less likely than those in the sample to live with two parents, and their parents had less education and lower levels of religious beliefs than did parents of teenagers in the sample.

from 1 (never) to 8 (every day). The parental prayer variable measured whether parents reported that they “pray more than once a day.” Parental religious beliefs were assessed on the basis of responses (true or false) to two statements: “God has nothing to do with what happens to me personally” and “I don’t need religion to have good values” (both items were reverse-coded). The final measure was the adolescent’s response to a question on the frequency of family religious activities: “In a typical week, how many days from 0 to 7 do you do something religious as a family, such as go to church, pray or read the scriptures together?”

•**Mediators.** We included in our models several family and peer characteristics that may mediate the relationship between family religiosity and our dependent variables. Because the majority of parental respondents in our sample were residential mothers (the biological or adoptive mother, or stepmother, who lived with the respondent), we assessed the residential mother’s monitoring and awareness of the adolescent’s activities, and the adolescent’s report of his or her relationship with the residential mother.\* To assess the residential mother’s monitoring and awareness of the adolescent’s activities, we created a latent construct from three adolescent-reported measures: the degree to which the mother knows the adolescent’s close friends, knows the close friends’ parents and knows whom the adolescent is with when he or she is not at home; responses for each item were coded on a scale from 0 (parent knows nothing) to 4 (parent knows everything). We used two adolescent-reported measures of family routines combined into a latent construct: the number of times per week the adolescent eats dinner with the family and the number of days per week the adolescent does something fun with the family. The quality of the adolescent’s relationship with the residential mother was assessed with a latent construct created from three adolescent-reported measures: the degree to which the adolescent enjoys spending time with the mother, thinks highly of her and wants to be like her; each of these was measured on a scale of 0–4. All of the individual measures used in the constructs concerning monitoring and awareness, family routines and mother-adolescent relationships were averages of items from all rounds of the NLSY from study entry through the age 17 interview.

\*If respondents did not have a residential mother or did not respond to these items, measures were coded with the sample average.

†The enriching environment index is composed of three questions: “In the past month, has your home usually had a computer?”; “In the past month, has your home usually had a dictionary?” and “In a typical school week, did you spend any time taking extra classes or lessons—for example, music, dance or foreign language lessons?” Positive responses were summed to create an index with a range of 0–3.

‡The physical risk index is composed of two questions answered by adolescents and three items completed by interviewers. Adolescents were asked, “In the past month, has your home usually had electricity and

To measure peer influences, we created two latent constructs of peer behaviors—one for positive behaviors, one for negative behaviors—based on adolescents’ reports about peers in their grade at school. The items used to create the latent construct for positive peer behaviors were peer church attendance, involvement in extracurricular activities, intentions to attend college and volunteerism; responses for each item were converted to a scale ranging from 1 (fewer than 10% of peers engaged in this activity) to 4 (more than 90% did so). The latent construct for negative peer behaviors comprised five items: smoking, drinking, drug use, gang involvement and skipping school. Each item was coded as 1 if the respondent reported that at least 25% of peers engaged in that activity, and 0 otherwise. All peer items were measured at the baseline interview.

In the models predicting the number of sexual partners and consistency of contraceptive use, we also included age at first sex as a mediator.

•**Social and demographic variables.** To avoid confounding social and demographic factors with family religiosity, we controlled for race and ethnicity (white vs. nonwhite and Hispanic vs. non-Hispanic), gender and age. In addition, we constructed two indices to measure home environment quality: the adolescent’s exposure to an enriching environment in and around the home (on a scale of 0–3, with a higher score indicating a more enriching environment);<sup>†</sup> and the physical risk in the adolescent’s home and neighborhood (on a scale of 0–7, with a higher score representing greater risk).<sup>‡</sup> We also incorporated parental education (measured in years for the residential parent with the higher educational attainment), family structure (two biological or adoptive parents vs. another family structure), timing of puberty (defined as self-reported age at menarche for girls, and age at which pubic or facial hair growth or voice cracking were “definitely under way” or had already occurred for boys) and whether the adolescent’s mother gave birth as a teenager. All of these were measured in 1997.

## Analysis

We used bivariate generalized linear model analyses to examine whether measures of family religiosity, mediators, and social and demographic controls are associated with adolescent sexual activity, number of sexual

heat when you needed it?” and “In a typical week, how many days from 0 to 7 do you hear gunshots in your neighborhood?” Interviewers responded to these questions: “When you went to the respondent’s neighborhood/home, did you feel concerned for your safety?”; “How well kept are most of the buildings on the street where the adult/adolescent resident lives?”; and “How well kept is the interior of the home in which the adolescent respondent lives?” Possible scores on the last two items ranged from 0 to 2; the remaining questions were scored as either 0 or 1. For the index, scores on the five items were summed, yielding possible scores ranging from 0 to 7 (source: Moore KA et al., *NLSY97 Codebook Supplement: Main File, Round 1. Appendix 9: Family Process and Adolescent Outcomes Measures*, Columbus, OH: Center for Human Resource Research, Ohio State University, 1999).

partners, and contraceptive use. We used structural equation modeling for multivariate analyses. This approach allowed us to test direct and indirect effects of family religiosity on adolescent sexual and contraceptive behaviors by estimating path analysis models and examining the mediating roles of parenting behaviors and peer behaviors. We used the LISREL software package<sup>41</sup> to set up a latent construct of family religiosity that incorporated service attendance, beliefs, religious activities and prayer. All analyses include all social and demographic controls. We present results of structural equation models in tables showing standardized direct path coefficients, as well as in figures displaying the direct and indirect paths between family religiosity and each of the dependent variables. We estimated fit statistics to assess the acceptability of model fit, using cutoffs of 0.06 for the mean square error of approximation, 0.90–0.95 for the comparative fit index and 0.06 for the standardized root mean square residual.<sup>41–43</sup> We also examined the moderating effect of gender on sexual and contraceptive use outcomes by estimating cross-group comparison models in structural equation modeling.<sup>44</sup>

## RESULTS

### Sample Characteristics

Although the sample excluded adolescents who had been sexually experienced at baseline, 41% of respondents reported being sexually active at age 17 (Table 1). On average, those who had ever had sex had had 1.6 partners in the year preceding the age 17 interview; about half (51%) had had one partner, and 10% had had none (not shown). Nearly two-thirds (63%) of sexually active respondents had used contraceptives every time they had had sex in the past year.

The mean score on our measure of parental religious attendance (4.2) indicates that parents attended church an average of slightly more than once a month; more than half of parents reported praying more than once a day. Furthermore, two out of 10 parents believed that God has nothing to do with what happens to them, and one out of three reported that they did not need religion to have good values. Adolescents said that they did something religious with their family an average of 1.6 days per week.

Scores on the measures of monitoring and awareness (2.1–2.9) indicate that on average, mothers knew between “some” and “most” things about adolescents’ close friends, their close friends’ parents and the people the adolescents spent time with outside the home. Adolescents reported eating dinner with their family about five days a week and doing something fun with their family two days a week. On items assessing their relationship with their mother, 21–36% of adolescents reported the highest levels of relationship quality. Mean scores on measures of positive peer behaviors ranged from 2.1 to 3.0, indicating that close to one-half of peers attended church regularly, participated in extracurricular activities and planned to attend college, and slightly more

**TABLE 1. Selected characteristics of sexually inexperienced 12–14-year-olds, by gender, National Longitudinal Survey of Youth, 1997**

Characteristic	Total (N=3,632)	Female (N=1,844)	Male (N=1,788)
<b>Sexual outcomes†</b>			
Sexually active (%)	40.8	43.9***	37.6
No. of partners in past year‡	1.59	1.46***	1.73
Consistent contraceptive use (%)‡	62.5	60.4	65.0
<b>Family religiosity</b>			
Parental religious attendance (range, 1–8)§	4.17	4.19	4.15
Parent prays >once daily (%)§	52.8	54.0	51.5
“God has nothing to do with what happens to me” (%) agree§	20.2	20.2	20.2
“I don’t need religion to have good values” (%) agree§	34.9	34.8	34.9
Family religious activities (days/week)	1.58	1.59	1.57
<b>Monitoring/awareness††</b>			
Mother knows adolescent’s close friends (range, 0–4)	2.51	2.60***	2.40
Mother knows friends’ parents (range, 0–4)	2.06	2.12***	2.00
Mother knows whom adolescent is with (range, 0–4)	2.86	3.00***	2.72
<b>Family routines††</b>			
No. of days/week has dinner with family	4.83	4.63***	5.04
No. of days/week does something fun with family	2.20	2.14***	2.26
<b>Relationship with parent††,‡‡</b>			
Enjoys spending time with mother (%)	20.6	22.3*	18.9
Wants to be like mother (%)	26.9	29.2**	24.7
Thinks highly of mother (%)	36.3	36.9	35.6
<b>Positive peer behaviors</b>			
Regular church attendance (range, 0–4)	2.95	2.96	2.96
Extracurricular activities (range, 0–4)	2.86	2.90**	2.81
Plans to attend college (range, 0–4)	2.78	2.82*	2.74
Volunteer activities (range, 0–4)	2.07	2.13***	2.02
<b>Negative peer behaviors</b>			
≥25% smoke (%)	60.2	65.1***	55.3
≥25% get drunk (%)	34.2	40.1***	28.2
≥25% use drugs (%)	41.5	46.0***	37.0
≥25% involved in gangs (%)	24.5	24.9	24.1
≥25% skip school (%)	52.7	56.1***	49.2
<b>Age at first sex§§</b>	16.11	16.12	16.11
<b>Social and demographic</b>			
Age	12.92	12.94	12.90
White (%)	75.2	72.9***	77.6
Hispanic (%)	11.7	12.4	11.1
Male (%)	49.8	na	na
Age at first date*†	11.46	11.41	11.51
Started puberty (%)	73.2	74.8*	71.6
Lives with both biological/adoptive parents (%)	59.2	56.3***	62.2
Enriching environment (range, 0–3)	1.89	1.92*	1.86
Physical risk environment (range, 0–7)	1.06	1.06	1.07
Parental education (years)	13.98	13.87*	14.09
Mother’s age at first birth	23.56	23.42	23.71

\*p<.05. \*\*p<.01. \*\*\*p<.001. †Measured at age 17. ‡Among adolescents who had had sex in past year. §Item answered by parent. ††Average of all rounds from 1997 to the round before age 17. ‡‡Percentage who strongly agreed with each statement. §§Among adolescents who had ever had sex. \*†Measurement based on first round at which adolescent reported dating. Notes: Unless otherwise specified, characteristics were measured at baseline, and values are means. na=not applicable.

than one-quarter participated in volunteer activities. Substantial proportions of teenagers reported that at least a quarter of their peers smoked, skipped school and, to a lesser extent, drank heavily, used drugs and joined gangs.

The values for our social and demographic controls reflect that our sample was roughly nationally representative of 12–14-year-olds in 1997. On average, respondents were about 13 years old at baseline; half were male,

and three-quarters were white. Nearly 60% lived with both parents.

Numerous gender differences were apparent for our measures. Females were more likely than males to report that they were sexually active at age 17; they also reported higher levels of parental monitoring and awareness and of mother-adolescent relationship quality. Males had had more sexual partners in the past year and participated in family routines more frequently than did females. Interestingly, females reported higher levels of both positive and negative peer behaviors.

In addition, males and females differed on several social and demographic measures. Males were more likely than

females to be white and to live in families with two biological or adoptive parents, and their parents were better educated than parents of females. Females were more likely than males to live in enriching environments and to have started puberty.

**Bivariate Analyses**

In bivariate analyses, parents of teenagers who were sexually active at age 17 had lower levels of religious attendance, prayer and beliefs than parents of teenagers who were not sexually active (Table 2). As expected, sexually active teenagers took part in family religious activities less frequently, and reported lower

**TABLE 2. Selected characteristics of sexually inexperienced 12–14-year-olds, National Longitudinal Survey of Youth, 1997, by sexual activity, number of partners in past year and consistency of contraceptive use at age 17**

Characteristic	Sexually active		No. of partner <sup>†</sup>		Consistent use <sup>‡</sup>	
	No (N=2,107)	Yes (N=1,525)	0–1 (N=1,046)	≥2 (N=676)	No (N=555)	Yes (N=910)
<b>Family religiosity</b>						
Parental religious attendance (range, 1–8) <sup>‡</sup>	4.43	3.79***	3.88	3.71	3.76	3.81
Parent prays >once daily (%) <sup>‡</sup>	55.0	49.5**	48.4	51.4	49.6	49.4
“God has nothing to do with what happens to me” (% agree) <sup>‡</sup>	18.9	22.0*	21.4	21.9	21.8	21.9
“I don’t need religion to have good values” (% agree) <sup>‡</sup>	33.1	37.4**	37.4	36.8	35.2	38.2
Family religious activities (days/week)	1.75	1.34***	1.35	1.35	1.32	1.34
<b>Monitoring/awareness<sup>§</sup></b>						
Mother knows close friends (range, 0–4)	2.56	2.45***	2.47	2.37*	2.43	2.48
Mother knows friends’ parents (range, 0–4)	2.12	1.97***	2.01	1.88**	1.89	2.03***
Mother knows whom adolescent is with (range, 0–4)	2.95	2.73***	2.78	2.61***	2.69	2.75
<b>Family routines<sup>§</sup></b>						
No. of days/week has dinner with family	5.01	4.58***	4.59	4.55	4.48	4.66
No. of days/week does something fun with family	2.30	2.05***	2.01	2.13	1.97	2.10
<b>Relationship with parent<sup>§,††</sup></b>						
Enjoys spending time with mother (%)	23.3	16.8***	17.1	15.5	15.9	17.4
Wants to be like mother (%)	30.3	22.1***	24.9	17.5***	21.3	22.8
Thinks highly of mother (%)	39.6	31.4***	30.2	30.7	30.4	32.1
<b>Positive peer behaviors</b>						
Regular church attendance (range, 0–4)	3.06	2.80***	2.89	2.70***	2.69	2.86**
Extracurricular activities (range, 0–4)	2.87	2.84	2.89	2.75**	2.87	2.83
Plans to attend college (range, 0–4)	2.85	2.69***	2.78	2.57***	2.64	2.72
Volunteer activities (range, 0–4)	2.07	2.08	2.13	2.01*	2.03	2.10
<b>Negative peer behaviors</b>						
≥25% smoke (%)	55.6	66.9***	65.7	66.8	69.1	65.8
≥25% get drunk (%)	29.6	40.7***	39.8	39.6	39.6	41.9
≥25% use drugs (%)	37.3	47.6***	47.2	48.1	47.5	48.2
≥25% involved in gangs (%)	21.6	28.7***	27.2	31.5	30.0	27.9
≥25% skip school (%)	49.4	57.5***	56.5	60.0	56.4	57.5
<b>Age at first sex<sup>‡‡</sup></b>						
	na	15.41	15.50	15.11***	15.26	15.48***
<b>Social and demographic</b>						
Age	12.99	12.83***	12.86	12.78	12.80	12.85
White (%)	78.3	70.8***	72.0	68.5	68.9	72.3
Hispanic (%)	10.7	13.2*	12.7	13.9	17.2	10.9***
Male (%)	52.5	45.9***	43.0	53.5***	42.7	47.6
Age at first date <sup>§§</sup>	12.03	10.62***	10.66	10.31	10.55	10.65
Started puberty (%)	71.1	76.2***	76.1	76.0	73.5	78.7*
Lives with both biological/adoptive parents (%)	66.6	48.6***	52.2	44.0**	46.5	50.1
Enriching environment (range, 0–3)	1.96	1.78***	1.81	1.72*	1.69	1.84***
Physical risk environment (range, 0–7)	0.91	1.29***	1.21	1.40**	1.35	1.27
Parental education (years)	14.35	13.44***	13.56	13.28*	13.28	13.55
Mother’s age at first birth	24.14	22.72***	23.00	22.38*	22.64	22.76

\*p<.05. \*\*p<.01. \*\*\*p<.001. †Among participants who had had sex in past year. ‡Item answered by parent. §Average of all rounds from 1997 to the round before age 17. ††Percentage who strongly agreed with each statement. ‡‡Among participants who had ever had sex. §§Measurement based on first round at which adolescent reported dating. Notes: Unless otherwise specified, all characteristics were measured at baseline, and values are means. na=not applicable.

levels of parental monitoring and awareness, less frequent participation in family routines, and lower levels of mother-adolescent relationship quality, than teenagers who were not sexually active. In addition, sexually active adolescents reported fewer peers who attended church regularly or planned to attend college, and they reported higher levels of all negative peer behaviors.

Sexually experienced teenagers who had had two or more partners in the past year did not differ from those who had had fewer partners on any measure of family religiosity. However, having had multiple partners was associated with lower levels of maternal monitoring and awareness, a lower likelihood of wanting to be like one's mother and lower levels of positive peer behaviors.

Sexually active teenagers who used contraceptives every time they had sex and those who were inconsistent users or nonusers of contraceptives did not differ on any measure of family religiosity. Consistent contraceptive users were more likely than adolescents who were not consistent users to report that their mother knew their close friends' parents and that their peers attended church regularly.

### Multivariate Analyses

•**Sexual activity.** In our multivariate model of the influence of family religiosity on adolescent sexual activity (Figure 1 and Table 3, page 112), family religiosity was associated with each of the mediators in the hypothesized direction: It had positive associations with parent-child relationship quality (beta, 0.09), parental monitoring and awareness (0.11), family routines (0.21), and positive peer behaviors (0.10), and a negative association with negative peer behaviors (−0.06).

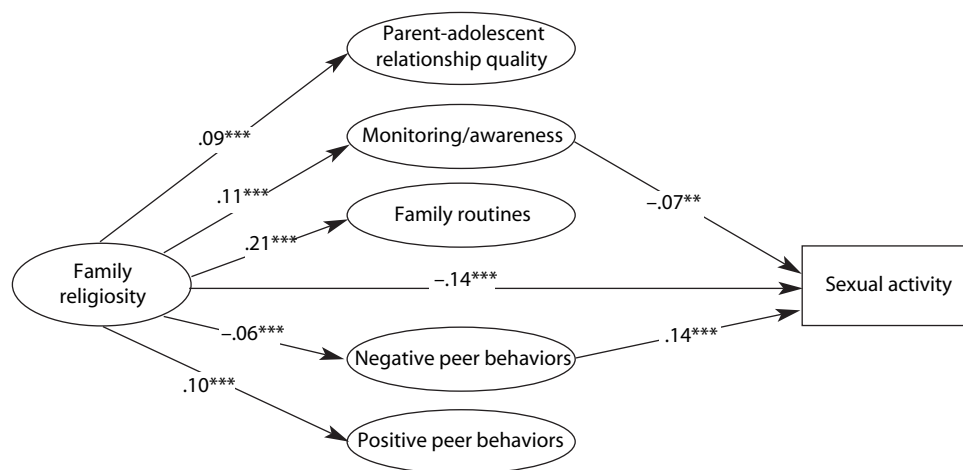
The model also shows an indirect association between family religiosity and sexual activity, which operates

through monitoring and awareness and negative peer behaviors. Compared with their less religious counterparts, religious parents reported higher levels of monitoring and awareness, which were associated with lower levels of sexual activity (beta, −0.07). On the other hand, adolescents with less religious parents tended to associate with peers who exhibited more negative behaviors, and these adolescents reported greater levels of sexual activity (0.14). Even after we controlled for the mediators in the model, family religiosity was significantly related to adolescent sexual activity (−0.16), via both a direct negative association (−0.14) and an indirect association that operated through monitoring and awareness and negative peer behaviors (−0.02). The model has an acceptable fit.

In separate analyses by gender, we find a direct negative association between family religiosity and sexual activity for both male and female adolescents. The analyses show an indirect effect for females only. Among females, parent-adolescent relationship quality, family routines and negative peer behaviors mediated the relationship between religiosity and sexual activity: Family religiosity was positively associated with parent-child relationship quality and family routines, both of which were associated with lower levels of sexual activity; it was negatively associated with negative peer behaviors, which were associated with higher levels of sexual activity. Among males, family religiosity was positively associated with parental monitoring and awareness, which was negatively associated with sexual activity; higher levels of negative peer behaviors were associated with greater sexual activity. Both gender models fit adequately; fit statistics are similar to those of the full sample, and cross-group comparisons do not show differences in models by gender.

•**Number of sexual partners.** Estimates of the association between family religiosity and the number of recent

**FIGURE 1. Path model of relationships between family religiosity, mediators and sexual activity at age 17**



\*p<.05. \*\*p<.01. \*\*\*p<.001. Notes: Values shown are standardized path coefficients. Only statistically significant paths are shown. Models control for all social and demographic characteristics listed in Table 1.

**TABLE 3. Standardized coefficients from structural equation models of pathways between family religiosity, mediators and sexual activity at age 17, by gender**

Path	Total	Female	Male
<b>From religiosity to mediators</b>			
Parent-adolescent relationship quality	0.09***	0.09***	0.09**
Monitoring/awareness	0.11***	0.12***	0.10**
Family routines	0.21***	0.21***	0.22***
Positive peer behaviors	0.10***	0.07*	0.13***
Negative peer behaviors	-0.06***	-0.08**	-0.04
<b>From mediators to sexual activity</b>			
Family religiosity	-0.14***	-0.13***	-0.15***
Parent-adolescent relationship quality	-0.02	-0.06*	0.01
Monitoring/awareness	-0.07**	0.01	-0.14***
Family routines	-0.03	-0.09***	0.03
Positive peer behaviors	0.03	0.02	0.01
Negative peer behaviors	0.14***	0.14**	0.14***
<b>From religiosity to sexual activity</b>			
Direct	-0.14***	-0.13***	-0.15***
Indirect	-0.02***	-0.03***	-0.01
Total	-0.16***	-0.16***	-0.16***
Root mean square error of approximation	0.04	0.04	0.04
Comparative fit index	0.93	0.94	0.94
Standardized root mean square residual	0.05	0.05	0.05

\*p<.05. \*\*p<.01. \*\*\*p<.001. Note: Models control for all social and demographic characteristics listed in Table 1.

partners among sexually experienced 17-year-olds reveal several paths (Figure 2 and Table 4, page 113). Although no direct association linked family religiosity and the number of adolescents' sexual partners, an indirect association (beta, -0.03) operated through positive peer behaviors, age at first sex, and monitoring and awareness. Family religiosity was positively associated with a later age at first sex (0.09), which in turn was negatively associated with the number of sexual partners (-0.14). Similarly, parents in highly religious families were more likely than others to monitor or be aware of their adolescents' activities and friends (0.08), and this was associated with later age at first sex (0.15) and thus

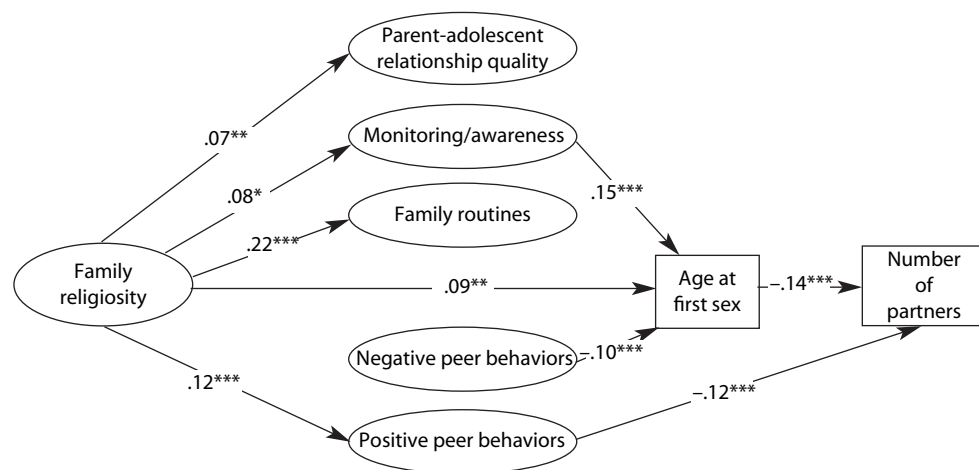
a lower number of partners. Finally, adolescent children in more religious families had peers who engaged in more positive behaviors (0.12), which again was associated with having had fewer recent partners (-0.12). The model fit is adequate.

Family religiosity was also associated with higher quality parent-child relationships and family routines, but neither of those measures was directly or indirectly related to number of partners. By contrast, negative peer behaviors were associated with age at first sex but not with religiosity.

The models for males and females have fit statistics similar to those of the total model, and cross-group comparisons do not show differences in the models by gender. Family religiosity was not directly associated with number of recent partners for either males or females. However, among female adolescents, religiosity was indirectly associated with number of partners (beta, -0.03) through age at first sex. Female adolescents with more religious parents initiated sexual activity at an older age (0.11) and therefore had had fewer sexual partners (-0.09) than their peers with less religious parents. Later age at first sex was also associated with males' having had fewer recent partners (-0.14), although it was not associated with family religiosity.

When we controlled for family religiosity, several family and peer mediators were associated with adolescents' age at first sex and with number of recent sexual partners. Among females, higher levels of parental monitoring and awareness were associated with a later age at first sex (beta, 0.20) and having had fewer sexual partners (-0.09). Negative peer behaviors were associated with earlier age at first sex (-0.14), whereas positive peer behaviors were associated with having had fewer recent partners (-0.10). Among males, although family religiosity was not indirectly associated with number of partners,

**FIGURE 2. Path model of relationships between family religiosity, mediators, age at first sex and number of partners**



\*p<.05. \*\*p<.01. \*\*\*p<.001. Notes: Values shown are standardized path coefficients. Only statistically significant paths are shown. Models control for all social and demographic characteristics listed in Table 1.



it was positively associated with positive peer behaviors (0.17), which were negatively associated with number of sexual partners (-0.15). In addition, higher family religiosity was associated with greater adolescent participation in family routines (0.20), which was, unexpectedly, associated with an earlier age at first sex (-0.01) and thus with a greater number of sexual partners. (This relationship was also apparent in bivariate analyses of sexually experienced males—not shown.) This unexpected positive indirect association between religiosity and number of partners may have offset the indirect negative association between religiosity and number of partners mediated through positive peer behaviors.

•**Contraceptive consistency.** In the model estimating the association between parent religiosity and consistency of contraceptive use among sexually active teenagers at age 17 (Figure 3 and Table 5, page 114), the direction and significance of the paths between family religiosity, mediators and age at first sex match those shown in our analyses of the number of sexual partners. The model has an acceptable fit.

Although family religiosity and contraceptive consistency had no direct association, they were indirectly associated through monitoring and awareness, positive peer behaviors, age at first sex and number of partners. Religious parents had higher levels of monitoring and awareness of their adolescents' activities (beta, 0.11), which were associated with an older age at first sex (0.12) and fewer recent partners (-0.11); teenagers with fewer partners, in turn, were more likely than their peers to use contraceptives consistently (-0.12). Also, adolescents in more religious families tended to have peers who engaged in more positive behaviors (0.10), which was associated with having had fewer sexual partners (-0.12) and hence with increased contraceptive consistency. Finally, greater family religiosity was associated with

**TABLE 4. Standardized coefficients from structural equation models of pathways between family religiosity, mediators, age at first sex and number of sexual partners, by gender**

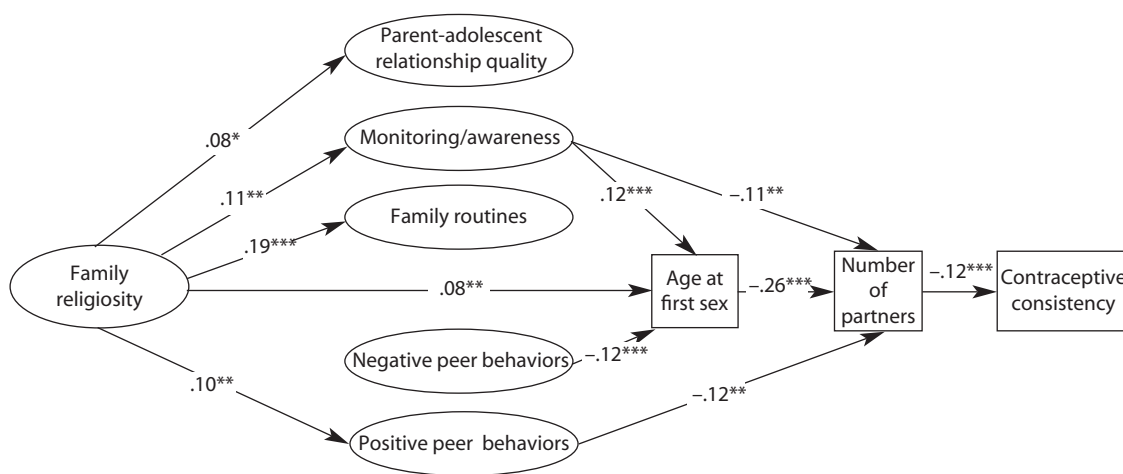
Path	Total	Female	Male
<b>From religiosity to mediators</b>			
Parent-adolescent relationship quality	0.07**	0.04	0.10*
Monitoring/awareness	0.08*	0.07	0.08
Family routines	0.22***	0.25***	0.20***
Positive peer behaviors	0.12***	0.07	0.17**
Negative peer behaviors	-0.04	-0.07	0.00
<b>From mediators to age at first sex</b>			
Family religiosity	0.09**	0.11**	0.05
Parent-adolescent relationship quality	0.00	0.00	0.01
Monitoring/awareness	0.15***	0.20***	0.10*
Family routines	-0.04	-0.01	-0.01*
Positive peer behaviors	0.02	0.00	0.04
Negative peer behaviors	-0.10***	-0.14***	-0.06
<b>From mediators to no. of partners</b>			
Family religiosity	0.00	-0.05	0.03
Parent-adolescent relationship quality	0.01	-0.01	0.02
Monitoring/awareness	-0.03	-0.09*	-0.01
Family routines	0.02	-0.01	0.06
Positive peer behaviors	-0.12***	-0.10*	-0.15**
Negative peer behaviors	0.00	-0.03	0.01
Age at first sex	-0.14***	-0.09**	-0.14***
<b>From religiosity to no. of partners</b>			
Direct	0.00	-0.05	0.03
Indirect	-0.03**	-0.03*	-0.02
Total	-0.03	-0.07	0.01
Root mean square error of approximation	0.04	0.04	0.04
Comparative fit index	0.92	0.92	0.92
Standardized root mean square residual	0.05	0.05	0.05

\*p<.05. \*\*p<.01. \*\*\*p<.001. Note: Models control for all social and demographic characteristics listed in Table 1.

a later age at first sex (0.08), which was associated with fewer recent partners (-0.26) and thus consistent contraceptive use.

Our separate models for male and female adolescents have a similar model fit to the total sample model,

**FIGURE 3. Path model of relationships between family religiosity, mediators, age at first sex, number of partners and consistent contraceptive use**



\*p<.05. \*\*p<.01. \*\*\*p<.001. Notes: Values shown are standardized path coefficients. Only statistically significant paths are shown. Models control for all social and demographic characteristics listed in Table 1.

**TABLE 5. Standardized coefficients from structural equation models of pathways between family religiosity, mediators, age at first sex, number of partners and consistent contraceptive use, by gender**

Path	Total	Female	Male
<b>From religiosity to mediators</b>			
Parent-adolescent relationship quality	0.08*	0.05	0.10*
Monitoring/awareness	0.11**	0.12*	0.11
Family routines	0.19***	0.24***	0.15***
Positive peer behaviors	0.10**	0.07	0.13*
Negative peer behaviors	-0.02	-0.07	0.03
<b>From mediators to age at first sex</b>			
Family religiosity	0.08**	0.11*	0.05
Parent-adolescent relationship quality	0.02	0.03	0.02
Monitoring/awareness	0.12***	0.16***	0.08
Family routines	-0.03	0.01	-0.08*
Positive peer behaviors	0.03	0.01	0.06
Negative peer behaviors	-0.12***	-0.17***	0.08
<b>From mediators to no. of partners</b>			
Family religiosity	0.05	0.00	0.09
Parent-adolescent relationship quality	0.00	0.00	-0.03
Monitoring/awareness	-0.11**	-0.21***	-0.05
Family routines	0.04	0.02	0.06
Positive peer behaviors	-0.12***	0.06	-0.19**
Negative peer behaviors	-0.05	-0.04	-0.07
Age at first sex	-0.26***	-0.19***	-0.28*
<b>From mediators to consistent contraceptive use</b>			
Family religiosity	-0.04	0.01	-0.11*
Parent-adolescent relationship quality	0.01	0.05	-0.05
Monitoring/awareness	0.02	-0.01	0.07
Family routines	0.04	0.04	0.03
Positive peer behaviors	0.06	0.04	0.06
Negative peer behaviors	0.02	0.02	0.00
Age at first sex	0.05	0.08*	0.01
No. of sexual partners	-0.12***	-0.10**	-0.16***
<b>From religiosity to consistent contraceptive use</b>			
Direct	-0.04	0.01	-0.11*
Indirect	0.02*	0.03*	0.01
Total	-0.02	0.04	-0.10
Root mean square error of approximation	0.04	0.04	0.04
Comparative fit index	0.92	0.92	0.92
Standardized root mean square residual	0.05	0.05	0.05

\*p<.05. \*\*p<.01. \*\*\*p<.001. Note: Model controls for all social and demographic characteristics listed in Table 1.

although cross-group comparisons show that paths for males and females differ. Among females, family religiosity had no direct effect on contraceptive consistency; however, it had a positive indirect effect on consistent contraceptive use (0.03) through higher levels of monitoring and awareness and a later age at first sex in more religious families. In contrast, among males, family religiosity was directly and negatively associated with contraceptive consistency (-0.11), but we found no indirect effects.

**DISCUSSION**

This study extends previous research by using longitudinal structural equation models to examine direct and indirect associations between a multidimensional measure of family religiosity and adolescent sexual activity and contraceptive use. As we hypothesized, family religiosity in early adolescence had both direct and indirect effects on adolescent sexual activity at age 17. The direct effects were similar to those found between

adolescent religious attendance and sexual initiation in prior studies,<sup>13</sup> and add to the limited literature showing negative associations between family religiosity and adolescent sexual activity.<sup>8-10</sup> For the full sample, family religiosity was indirectly associated with sexual activity through measures of family and peer environments, which supports our hypothesis about mediators. In particular, we found higher levels of family cohesion and positive family processes in more religious families, which confirms previous studies of parenting environments among more religious teenagers.<sup>25,27-31</sup> Also, our finding that adolescents from religious families tended to have peers who exhibited high levels of positive behaviors and low levels of negative behaviors extends previous research on peers<sup>32</sup> and suggests that the relationship between religiosity and sexual activity is mediated by the presence of like-minded friends.

However, the indirect effects were fairly small compared with the direct effects, suggesting that adolescents in religious families may have different values about early sexual activity or stronger motivations to avoid early sexual activity than other teenagers do. We also found that indirect effects were concentrated among females. More mediators were significantly associated with sexual activity for females (close parent-adolescent relationships, family activities and negative peer behaviors) than for males (parental monitoring), a finding consistent with other research that has found stronger associations between family environments and sexual experience among females than males.<sup>13,45</sup>

We found no direct protective effects of family religiosity on teenagers' number of sexual partners or contraceptive consistency. In fact, among sexually active males, family religiosity had a direct negative effect on contraceptive consistency. Likewise, several other studies have suggested that once religious teenagers engage in sexual intercourse, they have relatively lower odds of using contraceptives consistently.<sup>8,9,18-20</sup> This may reflect their desire to avoid sanctions associated with publicly acknowledging sexual activity (for example, by purchasing condoms at a pharmacy),<sup>8</sup> personal discomfort or ambivalence about being sexually active, or disapproval of contraceptive use in some religious communities. The negative association between religiosity and contraceptive use, although significant only for males, suggests the utility of providing dual messages to teenagers—messages that convey the importance of abstaining from sex but that highlight the need for contraception if teenagers become sexually active.

Our finding that religiosity was indirectly associated with having fewer sexual partners and with using contraceptives consistently, among both females and the full sample, shows the value of using structural equation modeling to highlight the paths through which religiosity may influence adolescent behaviors. Standard regression and logit analyses can mask

protective indirect effects of religiosity on behavioral outcomes. In particular, we found that these indirect effects were mediated by positive peer behaviors and later first sex among more religious teenagers. Thus, the benefits of delaying sexual intercourse include not only reduced exposure to the risk of pregnancy and STDs but also greater contraceptive use among teenagers who have sex at a later age.<sup>46</sup>

While the focus of our study is the direct and indirect effects of family religiosity on adolescent sexual behavior, the study also highlights the protective role of family environments and peer influences on adolescent reproductive health decisions, regardless of the strength of family religiosity. In particular, our models contribute to previous research<sup>1,2</sup> by showing that higher parental monitoring and awareness of teenagers' friends and activities is associated with positive outcomes among all teenagers (by reducing sexual activity) and among sexually experienced teenagers (through a later timing of first sex and fewer sexual partners, both of which are associated with more consistent contraceptive use).

This study also found that both positive and negative peer environments are linked to adolescent sexual and contraceptive use outcomes. Negative peer behaviors were associated with a greater risk of sexual activity and an earlier age at first sex among sexually experienced teenagers, reinforcing findings from previous research.<sup>47</sup> However, we also found an association between positive peer behaviors and having fewer sexual partners, which extends research highlighting the independent protective effects of positive peer environments.<sup>33</sup>

### Limitations

There are several limitations to these analyses. Although the NLSY data file included multiple measures of family religiosity, it did not provide independent measures of adolescent religiosity. Previous research suggests that the association between family religiosity and adolescent outcomes operates, in part, through adolescent religious beliefs and attendance.<sup>11</sup> Ideally, therefore, we would have included in our analyses adolescents' religious attitudes and motivations as a mediator between family religiosity and adolescent sexual behavior. Also, we would have liked to include measures of peer sexual activity and peer approval of sex, but these adolescent and peer measures were not available.

Another potential limitation is that our measures of peer environments were assessed only at baseline; longitudinal data might have strengthened the evidence of associations between peer characteristics and adolescent outcomes. In addition, because the focus of this study was a broad measure of religiosity, we did not examine the influence of specific religious denominations. Future research could extend this study by exploring whether

the pathways from family religiosity to adolescent outcomes differ by denomination.

Finally, selection bias is a potential limitation. We restricted the sample to youth aged 12–14 at baseline, and we excluded those who had already engaged in sexual intercourse. Some of the strongest effects of family religiosity may be on delaying this very early sexual activity. For example, parents of youth excluded from our analyses because they had had sex before baseline reported lower levels of religious attendance, beliefs and family religious activities than those who remained in the sample. Thus, our findings reflect conservative estimates of the association between religiosity and adolescent sexual outcomes.

### Implications

This research has implications for families, programs and policymakers. Specifically, parents should recognize that monitoring and staying aware of their children's activities, engaging their families in regular activities and fostering strong parent-teenager relationships can help reduce the odds that their children will engage in risky sexual behaviors. Parents can also help by monitoring their adolescents' peers and promoting positive peer environments. Programs also play a role. Pregnancy and STD prevention programs are increasingly incorporating parental involvement to help parents communicate with their children; most of these programs focus on parent-teenager communication about sex, but they do not always address the potential protective role of strong parent-teenager relationships, family activities, and monitoring and awareness.<sup>47</sup> In addition, few programs have evaluated the effectiveness of these parent involvement activities, and many programs face challenges in recruiting and engaging parents.<sup>47</sup> Future development and evaluation of parental involvement components of pregnancy and STD prevention programs—as well as adequate funding for these initiatives—may help reduce high rates of teenage pregnancy and STDs in the United States.

Finally, religious organizations should understand their potential role in reducing adolescent sexual activity. In addition to discouraging sex outside of marriage, religious organizations may reduce risky sexual behavior by fostering opportunities for parents and teenagers to interact in shared activities, promoting stronger family cohesion and potentially increasing awareness of peer networks. However, adolescent reproductive health is complex, as shown by the finding that sexually active male adolescents from religious families are less likely than their peers to use contraceptives. This pattern, to some extent, can offset the protective effects of family religiosity. In addition, even among adolescents from religious families, sexual activity is not uncommon. Parents, teenagers and policymakers should therefore consider strategies for preventing pregnancy among teenagers who become sexually active.

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#### Acknowledgments

Funding for this study was provided through a research grant from the Centers for Disease Control and Prevention. The authors thank Elizabeth Hair for her help with structural equation models, Elizabeth Terry-Humen and Kerry Franzetta for their assistance with variable creation and Sarah Cottingham for her contribution to the literature review.

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