

Original article

Religious differentials in the sexual and reproductive behaviors of young women in the United States

Rachel K. Jones, Ph.D.*, Jacqueline E. Darroch, Ph.D., and Susheela Singh, Ph.D.

The Alan Guttmacher Institute, New York, New York

Manuscript received September 11, 2003; manuscript accepted February 17, 2004

Abstract

Purpose: To examine whether religious involvement and affiliation during early adolescence is associated with reduced levels of sexual risk.

Methods: We used nationally representative data from the 1995 National Survey of Family Growth (NSFG) to examine the relationship between religious affiliation and frequency of attendance at religious services at age 14 years and a range of sexual behaviors among women aged 15–24 years, including age of first intercourse, contraceptive use, timing of first family planning visit, timing of birth, and number of sexual partners. The majority of young women had mothers with at least a high school education (79%) and had been living with both parents at age 14 (57%). Two-thirds of the sample was white, 12% Hispanic, and 15% black, and a substantial minority is poor (18%) or low-income (24%). We used bivariate analysis to describe variation in behavior according to religious affiliation and frequency of attendance. We used multivariate techniques to assess the role of religion once other factors are taken into account.

Results: Bivariate relationships suggest that both affiliation and attendance are associated with age of first sex, contraceptive use at first sex, teen births, and number of sexual partners. However, most of these associations disappear once we control for young women's demographic characteristics. Multivariate analyses show that religious affiliation shares few associations with sexual behaviors, though frequent attendance at religious services at age 14 years continues to have a strong delaying effect on the timing of first intercourse.

Conclusion: Frequency of attendance and religious affiliation have little impact on sexual behaviors once intercourse occurs. © 2005 Society for Adolescent Medicine. All rights reserved.

Keywords: Adolescents; Religion; Sexual behavior; Sexual risk-taking

In their attempts to understand the high teenage pregnancy and birth rates in the United States, social scientists and policy makers have begun to pay closer attention to the role of religion in the lives of adolescents. This is owing, in part, to their goal of better understanding factors that may lead to adolescent pregnancy and to evidence that religious beliefs and practices may influence values and attitudes that affect a range of teenage behaviors [1,2]. Also, in recent years, church-based groups have become more prominent and effective in their political activities. The intent of this article is to help clarify the relationship between religious involvement and a broad range

of sexual and reproductive behaviors among young women in the United States. A key question addressed is whether religious involvement affects only certain aspects of young women's sexual and reproductive behavior, or whether it affects a broad range of these behaviors.

Several studies have found an association between religion and timing of first sexual intercourse [3]. Greater frequency of attendance at religious services is associated with a reduced likelihood of intercourse among both female and male adolescents [4,5]. Affiliation with a Fundamentalist church has been associated with delayed onset of sexual intercourse for young white, but not black, women [6], and one study found that adolescent women who do not have any religious affiliation are at higher risk for initiating sex than are "mainline" Protestants [7].

*Address correspondence to: Dr. Rachel K. Jones, The Alan Guttmacher Institute, 120 Wall Street, New York, NY 10005.

E-mail address: rjones@guttmacher.org

Involvement in school religious organizations was associated with a lower likelihood of having a nonmarital birth by grade 12 among adolescent women, though only among Whites [8]. Research that addressed regularity of sexual activity found that although religious attendance was not associated with frequency of intercourse in the last 3 months among sexually active adolescent women, it was negatively associated with number of months sexually active in the prior year for white teens [4]. A study that included several outcomes found that although religious involvement appears to delay the age of first intercourse, thereafter the associations between measures of religion and sexual behaviors grow weaker. However, more recent analyses by Miller and Gur [9] found that religious factors were not associated with onset of sexual intercourse for adolescent women; instead, both devotion and frequent attendance were associated with fewer sexual partners in the last year, and frequent attendance was associated with an increased likelihood of responsible and planned use of birth control.

To better tap the complexity of religiosity, some researchers have used multidimensional scales. Findings from the National Longitudinal Study of Adolescent Health (Add Health) found that religiosity, measured as frequency of prayer, viewing oneself as religious, and having a religious affiliation, is associated with delayed onset of sexual intercourse [10]. Subsequent research suggests, however, that the delaying effects of religiosity, measured according to attendance and importance of religion to the individual, may be limited to black and white female adolescents and Hispanic and white male adolescents [11].

One study found that greater religiosity at time one, measured according to attendance, frequency of prayer and importance of religion at the first survey date, was associated with a lower likelihood of onset of sexual intercourse by the subsequent survey [12,13], though it was not associated with contraceptive use at first intercourse [12].

Previous analyses have typically focused on one or two aspects of sexual behavior. We are interested in determining if religion is associated with reduced risk across a range of outcomes; that is, does it only serve the “gatekeeping” function of delaying sexual intercourse or does it also reduce sexual risk in other behaviors such as contraceptive use and number of sexual partners.

Methods

We use data from the 1995 National Survey of Family Growth (NSFG), a nationally representative, cross-sectional sample of women aged 15–44 years that provides information on a number of sexual and reproductive behaviors and sociodemographic characteristics. Because our focus is understanding the impact of religious experiences during adolescence on the behaviors of young women, we limit the analyses to women aged 15–24 years at the time of the survey.

We examine a total of nine dichotomous dependent variables: timing of first intercourse (before age 15 years, before age 18 years, and before age 20 years), use of contraception at first sexual intercourse, whether or not the woman made a family planning visit within 6 months of first intercourse, timing of childbearing during adolescence (before age 18 years and before age 20 years), number of sex partners in the last year, and current contraceptive use. First sexual intercourse was defined as the first voluntary intercourse after menarche. Contraceptive use included methods used by the woman as well as by her male partner. A family planning visit is defined to include one or more of the following services: contraceptive counseling, birth control methods and prescriptions, and check-ups or tests related to birth control. The number of sexual partners in the last year was obtained by combining responses in both the face-to-face and self-administered portions of the NSFG. All variables are coded so that ‘1’ represents a risky outcome.

Our hypothesis is that religious experiences during early adolescence will affect subsequent sexual and reproductive behaviors. Although religious identification and involvement are multi-dimensional components, we were restricted to two measures available from the 1995 NSFG: religious affiliation at age 14 years and frequency of attendance at religious services at age 14 years.

The NSFG classified religious affiliation into 20 groups. Based on the findings of prior research on the most meaningful categories and taking into account sample size, we collapsed the detailed groups into fewer, larger categories: Catholic, Fundamentalist Protestant, Mainline Protestant, Other Religion, and no religious affiliation.

Fundamentalist Protestant includes Baptists, Fundamentalist Christians, and Pentecostals. Mainline Protestants are individuals raised as Presbyterian, Methodist, or Lutheran, as well as a number of other Protestant sects. The residual category of Other Religion is more heterogeneous and includes women raised in Hinduism, Islam, Judaism, Mormonism, nondenominational Christianity, and women who indicated they were not raised to identify with “any particular faith.” Although it is problematic to include such diverse religious groups into a single category, the number of individuals in each sect was too small for separate use in statistical analyses, and we grouped them together rather than exclude them. We measured frequency of attendance at religious services at age 14 years according to four categories: once a week or more, one to three times a month, less than once a month, and never.

In multivariate analyses we control for a number of demographic and socioeconomic variables known to affect women’s sexual and reproductive behaviors: mother’s education, respondent’s education (only for analyses of women aged 20–24 years because many 15–19-year-olds have not yet completed high school), race/ethnicity, and whether or not the respondent lived with both biological or adoptive parents at age 14 years. In some of the multivariate analy-

ses, as appropriate given the dependent variable, we also control for one or more of the following: year of birth, year of first sex, age of first sex, current poverty status, and current union status.

We restricted the analyses to relevant age and sexual activity groups so that, for example, only women aged 18–24 years are included in the examination of factors relative to having had sex by age 18 years and only women who have ever had sex are included in the model examining number of sexual partners in the past year. When appropriate, we examine models separately for 15–19- and 20–24-year-olds.

We examined bivariate relationships between the socio-demographic characteristics and religious affiliation and attendance as well as the bivariate relationship between religion and sexual and reproductive behaviors. We conducted multivariate analysis using logistic regression techniques, and used the software package Stata (StataCorp LP, College Station, TX) to conduct tests of significance.

Results

Religion and sociodemographic characteristics

Just under one-third of U.S. women aged 15–24 were raised Catholic (30%), and this makes it the most common religious affiliation we examine (Table 1). Although a majority of women grew up in Protestant families, a higher proportion were raised in Fundamentalist denominations (28%) than were raised as Mainline Protestants (23%). Eight percent of women were raised in an Other Religion and 10% without a religious affiliation.¹

Mainline Protestants are less likely than women in all groups but Other Religion to be socioeconomically disadvantaged. For example, women raised Fundamentalist or Catholic and those who were not raised with an affiliation are significantly more likely than those who were raised Mainline Protestant to have mothers that did not graduate from high school and less likely to have mothers that graduated from college. Catholics, Fundamentalists, and women with no religious affiliation are more likely to be poor or low-income than are Mainline Protestants.

During early adolescence, many young women exhibited high levels of religious participation. At age 14 years, a majority of young women (54%) attended religious services at least once a week (Table 1, right panel). The remaining 46% were about equally likely to attend one to three times a month (14%), less than once a month (14%), or to never attend (17%). Almost all of the sociodemographic charac-

teristics we examined were associated with attendance, typically in the expected direction.

Religion and sexual and reproductive behaviors. Previous research suggests that being raised as a Fundamentalist is associated with delayed intercourse, at least for white women [6], but our initial findings suggest that the relationship works in the opposite direction (Table 2). Only 15% of 15–24-year-olds indicate that they had sex before age 15 years, but those who were raised Fundamentalist and those with no affiliation were significantly more likely to have done so than were Mainline Protestants (18% and 24% vs. 13%, respectively). Only women raised in Other Religions were significantly less likely to have had sex by age 15 years. These women also were less likely to engage in sex by ages 18 and 20 years and, in fact, although 80% of 20–24-year-olds indicated that they had had sex by age 20 years, only a slight majority of women (54%) raised in Other Religions had done so.

In line with our expectations, the bivariate distributions show that frequent attendance at religious services during early adolescence is consistently associated with delayed sexual activity. Relative to women who went to services on a weekly basis at age 14, those who attended less frequently were significantly more likely to have had sex by ages 15, 18, and 20.

A sizeable minority (29%) of sexually experienced women aged 15–24 years did not use a contraceptive method the first time they had sex. This proportion was higher among those raised Catholic, Fundamentalist, and without a religious affiliation (29%, 30%, and 35%, respectively) than for Mainline Protestants (23%). Women who never attended services at age 14 years were more likely than those who attended frequently to initiate sex without using a contraceptive method.

A majority of sexually experienced young women, 62%, made no family planning visit to a clinic or doctor within 6 months of first intercourse, and this behavior was not significantly associated with either affiliation or attendance.

Some 18% of young women aged 18–24 years who had sex before age 17 years had a birth before age 18 years, and those raised as Fundamentalists were more likely than Mainline Protestants to have done so (22% compared with 14%, respectively). The proportion of sexually experienced women aged 20–24 years who had a birth by age 20 years was also significantly higher for those raised Catholic (30%) and Fundamentalists (36%) compared with Mainline Protestants (21%), possibly because of religious proscriptions against contraception or abortion.

Among sexually experienced women, 38% indicate that they had two or more sex partners in the last year. This proportion was significantly lower for women raised in Other Religions (26%) than that for Mainline Protestants (38%).

¹ Over 85% of women raised in a given denomination also reported the same religious denomination at the time of the survey, suggesting relatively little change in affiliation between adolescence and early adulthood.

Table 1
Percentage distribution of women aged 15–24 by select sociodemographic characteristics, according to religious affiliation and church attendance at age 14, 1995

Independent variables	Total %	Religion raised					Attendance at age 14			
		Catholic	Protestant		Other	None	Weekly or more ^a	1–3 times a month	Less than once a month	Never
			Fundamentalist	Mainline Protestant ^a						
Unweighted n	2914	898	906	630	194	286	1602	425	404	482
Weighted n (in 1000s)	17,870	5435	5129	4118	1381	1807	9678	2546	2565	3076
Total %	100.0	30.4	28.7	23.0	7.7	10.1	54.2	14.2	14.4	17.2
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Mother's education										
Not a high school graduate	20.8	24.6***	22.5***	12.9	15.0	26.9***	18.3	25.0*	19.8	25.9**
High school diploma	60.0	55.8*	64.1	62.3	59.2	56.6	60.3	57.3	63.2	58.8
College degree	19.2	19.6*	13.4***	24.8	25.9	16.5**	21.4	17.7	17.1	15.2**
Race/ethnicity										
White, non-Hispanic ^b	67.7	61.4***	59.0***	84.6	70.0***	71.0***	66.8	62.7	69.1	73.4*
Hispanic	12.4	29.9***	3.9	3.0	7.3*	13.1***	12.8	15.6	10.5	12.4
Black, non-Hispanic	15.0	4.4**	36.0***	7.9	6.0	10.7	17.1	17.8	12.8*	8.2***
Asian, non-Hispanic	4.8	4.3	1.1**	4.5	16.7**	5.2	3.3	3.9	7.6*	6.1
Family structure at age 14										
Living with both parents	58.7	64.6	49.7***	63.3	75.8***	47.2***	64.8	52.2***	54.2***	47.9***
Not living with both parents	41.3	35.4	50.3***	36.7	24.2***	52.8***	35.2	47.8***	45.8***	52.1***
Age (years)										
15–17	29.9	28.5	28.7	32.4	31.5	31.0	27.0	36.3**	37.1**	28.0
18–19	20.0	19.7	20.2	18.3	21.3	23.3	20.5	21.2	17.7	19.3
20–24	50.1	51.8	51.1	49.4	47.2	45.8	52.5	42.5**	45.2*	52.6
Current union status										
Married	16.0	15.2	19.5**	13.0	14.3	16.9	17.2	15.0	11.3**	17.0
Cohabiting	7.7	7.5	6.5	8.4	5.0	12.0	6.1	6.4	8.7	12.9***
Not in union	76.3	77.2	74.1	78.6	80.7	71.2*	76.7	78.6	80.0	70.1*
Respondent's education (20–24-year-olds)										
Not a high school graduate	13.9	12.6*	20.2***	7.8	6.6	19.2**	11.5	12.4	15.6	21.2***
High school degree	32.4	31.0	35.8	29.4	31.9	34.5	29.3	37.0	37.1	35.8
Some college/college degree	53.7	56.5	44.0***	62.9	61.6	46.3**	59.2	50.6	47.3*	43.0***
Current poverty status										
Less than 100% of poverty	17.7	16.4	19.2*	14.2	19.1	24.4**	17.4	15.8	15.9	22.1*
100–199% of poverty	24.4	24.4*	28.1***	19.9	23.5	24.7	23.7	25.2	25.0	25.3
200+ % of poverty	57.9	59.2**	52.7***	65.9	57.4	50.9***	58.9	59.0	59.1	52.6*

* Statistically significant at $p < .05$; **Statistically significant at $p < .01$; ***Statistically significant at $p < .001$.

^a Serves as the reference group.

^b Women of "other" races are included with white women.

Table 2
Sexual and reproductive behaviors of women aged 15–24, according to religious affiliation and church attendance at age 14, 1995

Dependent variables (%)	Total %	Religion raised					Attendance at age 14			
		Catholic	Protestant		Other	None	Weekly or more ^a	1–3 times a month	Less than once a month	Never
			Fund.	Mainline Protestant ^a						
All women										
Had sex before age 15 (15–24-year-olds)	14.8	12.2	17.8*	13.1	7.2*	23.8***	8.8	19.2***	20.2***	25.3***
Had sex before age 18 (18–24-year-olds)	61.5	57.2*	66.6	65.3	38.9***	68.7	54.9	65.7**	72.3***	71.7***
Had sex before age 20 (20–24-year-olds)	79.6	77.5*	83.2	84.5	54.0***	83.7	75.3	83.3*	85.2**	86.9***
Sexually experienced women ^b										
Did not use contraception at first sex	28.7	29.3*	29.7*	23.3	28.9	35.4**	27.3	30.4	24.2	34.4*
Did not make family planning visit within 6 months of first sex	61.7	65.3	57.0	61.6	68.3	62.0	60.5	63.2	64.3	61.8
With 1st birth before age 18 ^c	18.3	17.3	21.8*	14.2	19.3	18.2	19.9	13.9	15.3	20.1
With 1st birth before age 20 ^d	29.7	30.4*	36.3***	21.1	27.8	29.4	28.5	32.9	25.2	34.5
With 2 or more sex partners in the last year	37.7	36.0	40.1	38.4	25.5**	39.9	35.1	42.1*	40.1	39.4
At risk for unintended pregnancy ^e										
Not currently using a contraceptive method	12.3	13.1	11.5	11.3	10.1	15.8	12.1	14.4	9.7	13.6

* Statistically significant at $p < .05$; **Statistically significant at $p < .01$; ***Statistically significant at $p < .001$.

^a Serves as the reference group.

^b Refers to women who have ever had voluntary intercourse after menarche.

^c Restricted to women aged 18–24 whose first voluntary intercourse occurred before age 17.

^d Restricted to women aged 20–24 whose first voluntary intercourse occurred before age 19.

^e Refers to women who had sex in the last 3 months, are not currently pregnant, postpartum or trying to get pregnant, and whose partners are not sterile and who are not sterilized themselves.

The proportion of sexually active women at risk for unintended pregnancy who are not currently using contraception (12%) is substantially lower than the proportion that did not use a method at first intercourse (29%). Unlike contraceptive use at first sex, current use does not vary by either affiliation or attendance.

Multivariate analysis. Because women of different religious affiliation and attendance groups differ significantly on a number of sociodemographic characteristics as well as sexual and reproductive behaviors, we use multivariate logistic regression analyses to determine if the relationships discussed above are maintained while holding sociodemographic factors constant.

Both measures of religiosity are associated with timing of first intercourse. Being raised in an Other Religion continues to have a delaying effect on initiation of intercourse even after controlling for sociodemographic characteristics (Table 3, columns 1–3). Relative to Mainline Protestants, these young women are less likely to have had sex by ages 18 and 20 years.

Young women who attended services less frequently at age 14 years were more likely to have sex by ages 15, 18, and 20 years. The differences were greatest for onset of

sexual debut before age 15 years, with an odds ratio of 3.36 for those who never attended services compared with frequent attendees, but the odds ratio was still sizeable for beginning sex before age 18 (1.95) and 20 years (2.21).

Associations between young women's sociodemographic characteristics and timing of first sex operate in the expected fashion. The odds that a woman had sex by age 15 years were significantly higher for women who turned 15 years between 1991 and 1995 relative to those who did so between 1986 and 1990, indicating that very early sexual debut was more common in the early 1990s than in the late 1980s. Young women were less likely to have had sex by all three ages if they had college-educated mothers or if they lived with both parents at age 14 years. They were more likely to have sex by ages 15 or 18 if their mothers were not high school graduates. Relative to white women, black women were more likely to initiate sex by age 15 years, but this association disappears for timing of first intercourse at later ages. Hispanic or Asian women were significantly less likely than white women to have sex by ages 18 and 20 years.

Among sexually experienced women, religious involvement during early adolescence appears to have little inde-

Table 3

Odds ratios from logistic regression analysis for women aged 15–24 showing associations between religion raised, church attendance at age 14, and selected characteristics on timing of first sex, use of contraception at first sex, and timing of first family planning visit, 1995

Characteristic	Total population			Had voluntary sex after menarche	
	Age of first sex			No CP at 1st sex	No FP visit within 6 mos. of
	15	18	20	15–24	15–24
	15–24	18–24	20–24		
Religion raised					
Catholic	.95	.87	.71	.90	1.11
Protestant					
Fundamentalist	1.23	.86	.61*	1.01	.84
Mainline Protestant	1.00	1.00	1.00	1.00	1.00
Other	.65	.40***	.26***	1.19	1.26
None	1.06	.71	.47*	1.24	.98
Attendance at age 14					
Weekly or more	1.00	1.00	1.00	1.00	1.00
1–3 times a month	2.12***	1.38	1.32	1.02	1.05
Less than once a month	2.55***	2.12***	2.02**	0.84	1.00
Never	3.36***	1.95***	2.21**	1.16	0.95
Age cohort					
Turned 15 1991–1995	1.44**	.95	NA	NA	NA
Turned 15 1986–1990	1.00	1.00	NA	NA	NA
Mother's education					
Not a high school graduate	1.32*	1.33*	1.19	1.83***	.89
High school degree	1.00	1.00	1.00	1.00	1.00
College degree	.45***	.53***	.45***	0.85	1.07
Family structure at age 14					
Living with both parents	1.00	1.00	1.00	1.00	1.00
Not living with both parents	1.79***	2.10***	3.23***	1.07	.70***
Race/ethnicity					
White, non-Hispanic ^a	1.00	1.00	1.00	1.00	1.00
Hispanic	1.10	.49***	.53**	3.35***	1.56**
Black, non-Hispanic	1.73***	1.32	1.67	2.00***	1.07
Asian, non-Hispanic	.63	.49**	.43**	1.60	2.29*
Year of first sex					
Before 1990	NA	NA	NA	2.17***	0.91
1990 or later	NA	NA	NA	1.00	1.00
Age of first sex (years)					
Less than 15	NA	NA	NA	1.25	3.98***
15–16	NA	NA	NA	.89	2.51***
17–18	NA	NA	NA	.70	1.87***
19+	NA	NA	NA	1.00	1.00
Model χ^2	232.50***	227.66***	165.02***	228.95***	96.87***
n	2913	2099	1518	2103	2077

* Statistically significant at $p < .05$; **Statistically significant at $p < .01$; ***Statistically significant at $p < .001$.

^a Women of “other” races are included with white women.

pendent effect on the subsequent sexual and reproductive behaviors examined in our models. Once we control for mother's education, family structure, race/ethnicity, and timing of first sex, neither affiliation nor attendance at religious services at age 14 years is associated with contraceptive use at first intercourse (Table 3, column 4). Young women whose mothers did not have high school diplomas were more likely to use no contraception at first sex than were women whose mothers were high school graduates. Compared with white women, Blacks were about twice as

likely not to have used contraception at first sex (odds ratios 2.00), and Hispanic women were even more likely to report no contraceptive use (odds ratio 3.35).

Few of the characteristics we examined predict timing of first family planning visit (Table 3, column 5), and neither religious affiliation nor frequency of attendance were significant predictors of behavior. Women who were not residing with both parents at age 14 years were more likely than those who were to have made a family planning visit within 6 months of first intercourse. This is the only behav-

ior we examine where residing with a single parent or no parent during early adolescence is associated with a “protective” behavior. Hispanic and Asian women were less likely than Whites to have made a family planning visit within 6 months after first intercourse, and the younger a woman was at first intercourse, the less likely she was to make a family planning visit soon after.

Though the bivariate relationships suggested that sexually experienced Fundamentalists and, to a lesser extent, Catholics, were more likely to give birth during adolescence, these relationships are no longer significant once we control for sociodemographic characteristics (Table 4). Instead, attendance becomes more relevant. Women at risk for early pregnancy because they had sex before age 17 years had lower odds of birth by age 18 years if they attended services less than once a week, though this effect was only significant for women who attended one to three times a month. Both measures of disadvantage, which include having a less educated mother and residing with one or no parent while growing up, are associated with early birth. Hispanic and black women were more likely than white women to have a birth by age 18 or 20 years, and the younger a woman was when she first had sex, the greater her odds of birth by ages 18 and 20 years.

We conclude our analysis by examining two recent behaviors that can affect risk of pregnancy and STDs: having more than one male sex partner in the last year and current contraceptive use (Table 5). We examined the outcomes separately for 15–19- and 20–24-year-olds because preliminary analyses suggested that the independent variables operated differently for the two groups.

For both age groups, religious affiliation and attendance at age 14 years had no effect on having two or more partners in the last year,² and few demographic characteristics had a significant relationship with this outcome. Relative to married women, those who are cohabiting or not in a union have an increased likelihood of having had more than one partner in the last 12 months. Black adolescent women, but not those aged 20–24 years, have increased odds of having more than one male sex partner in the last year relative to white adolescent women.

Among sexually active women aged 20–24 years at risk for unintended pregnancy, those who attended religious services less frequently while growing up were

² We also examined associations between current attendance and current affiliation on more recent sexual behaviors. We found that, for women in both age groups, those who never currently attended services were more likely than those who attended weekly to indicate that they had had more than one partner in the last year compared to those who attended weekly. Among 15–19 year olds, these odds were also significantly higher for those who attend one to three times a month. That the association between current attendance and number of sex partners in the last year was more consistent than that for attendance at age 14 may indicate that (current) sexual behavior affects attendance.

Table 4

Odds ratios from logistic regression analysis for women aged 15–24 showing associations between religion raised, church attendance at age 14, and selected characteristics on timing of first birth, 1995

Characteristic	Birth by age	
	18 ^a	20 ^b
	18–24	20–24
Religion raised		
Catholic	.84	1.21
Protestant		
Fundamentalist	1.03	1.39
Mainline Protestant	1.00	1.00
Other	1.40	1.50
None	.88	.96
Attendance at age 14		
Weekly or more	1.00	1.00
1–3 times a month	.44**	1.02
Less than once a month	.71	.79
Never	.96	1.09
Age cohort		
Turned 15 1991–1995	NA	NA
Turned 15 1986–1990	NA	NA
Mother's education		
Not a high school graduate	1.70**	2.17***
High school degree	1.00	1.00
College degree	.81	.48**
Family structure at age 14		
Living with both parents	1.00	1.00
Not living with both parents	1.34	1.43*
Race/ethnicity		
White, non-Hispanic ^c	1.00	1.00
Hispanic	4.35***	2.75***
Black, non-Hispanic	3.34***	1.96**
Asian, non-Hispanic	1.97	.77
Year of first sex		
Before 1990	1.32	1.04
1990 or later	1.00	1.00
Age of first sex (years)		
Less than 15	2.75***	4.56***
15–16	1.00	2.06***
17–18		1.00
19+		
Model χ^2	121.41***	170.70***
n	1020	1134

* Statistically significant at $p < .05$; **Statistically significant at $p < .01$; ***Statistically significant at $p < .001$.

^a Restricted to women who had first voluntary intercourse before age 17.

^b Restricted to women who had first voluntary intercourse before age 19.

^c Women of “other” races are included with white women.

significantly less likely than those who did so every week to be using contraception. Notably, this association was only significant for women who attended less than once a month. Although several other sociodemographic characteristics we examined are associated with this behavior, the low model Chi-square statistic (in comparison with the number of observations) indicates that the relationships have little predictive value. (Indeed, because the model for women aged 15–19 years was not significant, we do not present the results.)

Table 5
Odds ratios from logistic regression analyses for women aged 15–24 showing associations between religious affiliation, church attendance at age 14, and selected characteristics on having more than one sex partner in the last year and current contraceptive use, 1995

Characteristic	> 1 partner last year		Not using CP
	Ever had sex ^a		Sexually active ^b
	15–19	20–24	20–24
Affiliation at age 14			
Catholic	1.09	.97	.84
Protestant			
Fundamentalist	.92	1.09	1.33
Mainline Protestant	1.00	1.00	1.00
Other	.75	.57	1.20
None	1.31	.83	1.65
Attendance at age 14			
Weekly or more	1.00	1.00	1.00
1–3 times a month	1.15	1.34	.91
Less than once a month	1.19	0.97	.32*
Never	1.04	1.24	.72
Union status			
Married	1.00	1.00	1.00
Cohabiting	4.89***	3.23***	.75
Not in union	5.28***	6.70***	1.93*
Education^c			
Not a high school graduate	.86	1.16	.50
High school degree	1.00	1.00	1.00
College degree (some college)	1.05	0.83	.45**
Family structure at age 14			
Living with both parents	1.00	1.00	1.00
Not living with both parents	.92	1.37*	1.29
Race/ethnicity			
White, non-Hispanic ^d	1.00	1.00	1.00
Hispanic	.99	.83	3.79***
Black, non-Hispanic	1.92**	1.44	.65
Asian, non-Hispanic	1.02	1.50	.99
Poverty status			
Less than 100% of poverty	1.00	1.00	1.00
100–199% of poverty	1.04	1.48*	.74
200+% of poverty	.90	1.23	.49*
Number of previous births			
0	NA	NA	1.86
1	NA	NA	1.45
2 or more	NA	NA	1.00
<i>Model</i> χ^2	40.94**	192.7***	48.38***
<i>n</i>	739	1360	1079

^a Refers to women who have ever had voluntary intercourse after menarche.

^b Restricted to fertile women who had sex in the last 3 months, are not currently pregnant or trying to get pregnant and whose partners are not sterile.

^c Among 15–19-year-olds, measures mother's education. Among 20–24-year-olds, measures respondent's education, and the last category includes women who hold college degrees as well as those who have some college education.

^d Women of "other" races are included with white women.

* Statistically significant at $p < .05$; **Statistically significant at $p < .01$; ***Statistically significant at $p < .001$.

Per research by Brewster et al. [6], we considered that associations between Fundamentalist religious affiliation and sexual and reproductive behaviors might be restricted to Whites and examined the above multivariate models for Whites only (not shown). We found few significant changes in the effects of the two religious characteristics on sexual and reproductive behaviors. Non-Hispanic white women raised Fundamentalist were significantly less likely to have sex by age 20 years, a pattern evident, but not statistically significant, among all women (Table 3). We also found that non-Hispanic white women aged 15–19 years raised without a religious affiliation were significantly more likely than Mainline Protestants to have had more than one sexual partner in the last year. However, these changes in the significance levels (but not direction) of the impact of the religious affiliation variables are too limited to suggest that religious affiliation (or frequency of attendance), or even Fundamentalism, has differential effects for non-Hispanic white women in the behaviors we examined.

Discussion

Young women's sexual and reproductive behaviors do differ according to religious affiliation and attendance at religious services. However, more often than not, these relationships disappeared once we controlled for sociodemographic characteristics, and characteristics such as mothers' education and race/ethnicity were more useful in understanding young women's sexual and reproductive behaviors and outcomes. A strength of this study is that we examined associations between religion and a range of sexual and reproductive behaviors. In line with previous research [4,5], we consistently found that more frequent religious attendance during adolescence is associated with later initiation of sexual intercourse. However, attendance has few significant effects on other sexual and reproductive behaviors that follow the onset of sexual intercourse. There is some indication that less frequent attendance among sexually active women actually reduces the likelihood of both having a birth by age 18 years and currently using contraception. Women who attended religious services weekly during early adolescence did not differ from those who attended less frequently when it came to contraceptive use at first sex, timing of first family planning visit, having a birth by age 20 years, or having more than one sexual partner in the last year.

The only religious affiliation we found to have a significant association with any of the behaviors we examined in the multivariate models was being raised in an Other Religion; these young women were less likely than Mainline Protestants to have intercourse by ages 18 years or age 20 years. The diverse denominations contained within the Other Religion may reflect different cultural backgrounds and values, or this affiliation may be a proxy for factors such as more parental supervision and lower levels of integration into peer groups.

Our examination revealed an interesting pattern regarding the sexual and reproductive behaviors of Hispanic women. Hispanic adolescents have higher birth rates than Whites and Blacks [15], and it is plausible that this pattern is owing to the influence of Catholicism in many Hispanic communities. However, even after controlling for religious affiliation and attendance, Hispanic women were less likely than Whites to initiate sex by ages 18 or 20 years, to use contraception at both first sex and currently, and to make a family planning visit shortly after they started having sex. In turn, they are more likely to have a birth at a young age. This pattern of relationships corresponds with the teachings of Catholicism, but the results of this analysis suggest that Hispanic ethnicity operates independently of religious affiliation and attendance. Future research might provide a better understanding of these dynamics by including factors such as immigrant status, cultural integration, and childbearing norms.

Previous research has found that some adolescents delay or avoid making family planning visits because they fear that their family will find out [16]. Our findings suggest that having two parents present may exacerbate this problem, as young women in these families were more likely to wait longer than 6 months after first intercourse to make a family planning visit than were young women who were not living with both parents.

Limitations

The survey data we analyzed did not allow us to examine the processes whereby attendance at religious services delays initiation of first sex, and there are a number of issues that need to be addressed in future research. It is possible that attendance is associated with, or a proxy for, other characteristics not examined in our analyses. For example, young women's (and men's) attendance at religious services is associated with mothers' attendance and, in turn, mothers who attend services frequently have more conservative attitudes about premarital sex [5]. Research suggests that more religious parents also may be more involved in their children's lives [14]. Young women who become sexually active may themselves decrease their levels of religious involvement to reduce dissonance with religious teachings discouraging premarital sexual activity [5].

Another limitation of this study is the restricted measures of adolescent religious experience; spirituality and religiosity are complex issues of which attendance is only one facet. More detailed and varied measures of religiosity, such as prayer, belief in God, participation in peer religious groups, and exposure to specific religious teachings would better allow us to understand the relationships between religious involvement and adolescent sexual behaviors.

The fact that differences in affiliation between religious groups that vary broadly in doctrine and social perspectives generally do not translate into behavioral differences once we

control for sociodemographic factors may be owing partly to the relatively unrefined measure of denomination in the available data. Larger sample sizes, or samples that over-represent women affiliated with religions that are less common, are necessary to gain a full understanding of associations between affiliation and reproductive behaviors.

In closing, the fact that the majority of young women attend religious services weekly during early adolescence suggests that religious groups have many opportunities to influence young women's sexual and reproductive attitudes and behaviors. Whether and how this process occurs, the potential impact of providing information and teachings specifically related to sexuality, and the relationship between attendance and characteristics such as close associations with adults, family activities, and peer support, are important subjects for future research.

Acknowledgment

This analysis was supported by a grant from the Charles Stewart Mott Foundation.

References

- [1] Blum R, Beuhring T, Shew ML, et al. The effects of race/ethnicity, income and family structure on adolescent risk behaviors. *Am J Public Health* 2000;90:1879–84.
- [2] Whitehead BD, Wilcox BL, Rostosky SS, eds. *Keeping the Faith: The Role of Religion and Faith Communities in Preventing Teen Pregnancy*. Washington, DC: National Campaign to Prevent Teen Pregnancy, 2001.
- [3] Wilcox BL, Rostosky SS, Randall BA, et al. Reasons for hope: a review of research on adolescent religiosity and sexual behavior. In: Whitehead BD, Wilcox BL, Rostosky SS, eds. *Keeping the Faith: The Role of Religion and Faith Communities in Preventing Teen Pregnancy*. Washington, DC: National Campaign to Prevent Teen Pregnancy, 2001:31–82.
- [4] Billy JOG, Brewster KL, Grady WR. Contextual effects on the sexual behavior of adolescent women. *J Marriage Fam* 1994;56:387–404.
- [5] Thornton A, Camburn D. Religious participation and adolescent sexual behavior and attitudes. *J Marriage Fam* 1989;51:641–53.
- [6] Brewster KL, Cooksey EC, Guilkey DK, Rindfuss RR. The changing impact of religion on the sexual and contraceptive behavior of adolescent women in the United States. *J Marriage Fam* 1998;60:493–504.
- [7] Brewster KL. Race differences in sexual activity among adolescent women: the role of neighborhood characteristics. *Am Sociol Rev* 1994;59:387–404.
- [8] Moore KA, Manlove G, Gleib D. Nonmarital school-age motherhood: family, individual, and school characteristics. *J Adolesc Res* 1998; 13:433–57.
- [9] Miller L, Gur M. Religiousness and sexual responsibility in adolescent girls. *J Adolesc Health* 2002;31:401–6.
- [10] Resnick MD, Bearman PS, Blum RW, et al. Protecting adolescents from harm. Findings from the National Longitudinal Study on Adolescent Health. *JAMA* 1997;278:823–32.
- [11] Perkins DF, Luster T, Villarruel FA, et al. An ecological, risk-factor examination of adolescents' sexual activity in three ethnic groups. *J Marriage Fam* 1998;60:660–73.

- [12] Bearman PS, Bruckner H. Promising the future: virginity pledges and the transition to first intercourse. *Am J Sociol* 2001;106:859–912.
- [13] Meier A. Adolescents' transition to first intercourse, religiosity, and attitudes about sex. *Soc Forces* 2003;81:1035–55.
- [14] Gunnoe ML, Hetherington EM, Reiss D. Parental religiosity, parenting style and adolescent social responsibility. *J Early Adolesc* 1999; 19:199–220.
- [15] Darroch JE, Singh S. Why is Teenage Pregnancy Declining? The Roles of Abstinence, Sexual Activity and Contraceptive Use. (Occasional Report No. 1) New York, NY: The Alan Guttmacher Institute, 1999.
- [16] Zabin LS, Clark SD. Why they delay: a pilot study of teenage family planning clinic patients. *Fam Plann Perspect* 1981;13:205–7,211–7.