

SEXUAL BEHAVIORS AND CONTRACEPTIVE USE OF
AMERICAN ADOLESCENTS: THE ROLE OF RELIGION,
MATERNAL EDUCATION AND SCHOOL ENROLLMENT

BY

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THESIS

Submitted in partial fulfillment of the requirements
for the degree of Master of Science in Community Health
in the Graduate College of the
University of Illinois at Urbana-Champaign, 2017

Urbana, Illinois

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ABSTRACT

Background: Previous studies have been conducted to determine the role of religiosity on contraceptive use and sexual attitudes among adolescents. However, fewer studies have examined the effects of maternal education and adolescent school enrollment on contraceptive use and sexual attitudes.

Aims: The current study aims to use recent data to examine the influence of maternal education and school enrollment on adolescent sexual behaviors and attitudes, and to update the literature on how religiosity influences contraceptive use and sexual behaviors among adolescents.

Methods: Data from the National Survey of Family Growth from the years 2002-2015 were used in the analysis. Respondents were adolescents between the ages of 15-19. The dependent variables of interest were if the participant had ever had sex and contraception use consistency. Religiosity was assessed using two measures: self-rated religious importance and religious attitudes on sexuality. Education was captured with two variables: maternal education and adolescent's school enrollment. Descriptive statistics, logistic and multinomial regression analyses were used to explore the role of religion and education on sexual attitudes and contraceptive behavior.

Results: Findings indicated that self-rated religious importance was not a significant factor in predicting sexual behaviors. However, for males, higher religious importance was associated with a higher risk of not using contraception or using contraception inconsistently. Religious attitudes on sexual behavior were significantly associated with sexual behavior for both males and females. Higher maternal education acted as a protective factor for sexual behaviors for both genders, meaning that higher maternal education reduced the risk of ever having had sex. Additionally, lower maternal education was associated with higher risk of not using contraception among males. School enrollment was a strong protective factor for sexual behaviors for both sexes and contraceptive use among females.

Conclusions: Based on recent data, this study found that higher religious attitudes were associated with lower likelihood of ever having had sex. Maternal education was significantly associated with contraceptive use among males, whereas school enrollment was a protective factor for contraceptive use

among females. Black females were at highest risk of engaging in sexual behaviors as well as not using contraception or using it inconsistently.

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION.....	1
CHAPTER 2: METHODS.....	10
CHAPTER 3: RESULTS.....	13
CHAPTER 4: DISCUSSION.....	17
CHAPTER 5: LIMITATIONS.....	19
CHAPTER 6: CONCLUSION.....	20
APPENDIX A: FIGURES.....	21
APPENDIX B: TABLES.....	25
REFERENCES	31

CHAPTER 1: INTRODUCTION

Teenage birth rates in the United States have been steadily declining since the 1990s.¹ In 1991, the teenage birth rate in the United States was 61.8 per 1,000 births (U.S. DHHS, 2015). By 2013, the teen birth rate had fallen to 26.5 (CDC, 2014; U.S. DHHS, 2015). According to World Bank data, the teen birth rate in the United States reached 21.2 per 1,000 births in 2015 (World Bank, 2016). Many studies have shown that increasing levels of contraceptive use and effectiveness of sexual education curricula are important factors that explain the changes in teen birth rates nationally (Wright, Duffy, Kershner, Flynn, & Lamont, 2015; Patchen, Letourneau, & Berggren, 2013; Ayadi, Kuo, Adams, & Gavin, 2012; Kirby, Laris & Roller, 2007; Kirby, 2008; Schalet et al., 2014; Roberto et al., 2008).

Research has shown that almost half of high school students have had sexual intercourse at least once in their lifetime and thirty-four percent of high school students are currently sexually active (have had sex within the last 3 months) (CDC, 2014). Nonetheless, among sexually active teenagers, only about sixty percent used a condom at last intercourse and about fourteen percent reported that they did not use any method to prevent pregnancy (CDC, 2016). Research has shown that condom use at first intercourse is a strong predictor for future consistent condom usage (Shafii, Stovel, Davis & Holmes, 2004). Engaging in unprotected sex contributes to unintended pregnancies and sexually transmitted infections among teenagers, making consistent contraceptive use all the more important. Having many sexual partners, engaging in risky sexual behaviors and using contraceptive infrequently or inconsistently increases the risk of contracting a sexually transmitted infection (STI) (Crosby et al., 2001).

Religion has been found to have an effect on the sexual attitudes and sexual behaviors of American youth (Smith, 2003; Regnerus, 2007; Smith & Snell, 2009). While most studies found that religiosity had a protective influence, meaning later sexual initiation and fewer lifetime sexual partners, studies have also shown that religiosity was associated with non-use or inconsistent contraceptive behavior and higher risk sexual encounters (Brewster, Cooksey, Guilkey & Rindfuss, 1998; Miller & Gur,

¹ Teenage birth rate is the number of live births to mothers ages 15 to 19 divided by the number of women in this age group in the same geographical area. The rate is obtained by multiplying this value by 1,000.

2002; Bearman & Brückner, 2001). Numerous studies have investigated the effect religion has on contraceptive use and sexual attitudes among adolescents (Hill, Siwatu & Robinson, 2014; O'Brien et al., 2013; Aparicio, Pecukonis, & Zhou, 2014; Kramer, Hogue, & Gaydos, 2007; Barrett, DaVanzo, Ellison, & Grammich, 2014; Regnerus, 2005; Manlove, Logan, Moore, & Ikramullah, 2008; Kirby, 2002; Rostosky, Regnerus, & Wright, 2003; Rostosky, Wilcox, Wright & Randall, 2004; Nonnemaker, McNeely, & Blum, 2003; Lammers, Ireland, Resnick, & Blum, 2000; Meier, 2003; Abbott & Dalla, 2008; Leonard & Scott-Jones, 2010; Remez, 1990; Hardy & Raffaelli, 2003). Most found that higher religious attendance was associated with no use or inconsistent contraceptive use and more conservative sexual attitudes (O'Brien et al., 2013; Kramer et al., 2007; Barrett et al., 2014; Regnerus, 2005; Manlove et al., 2008; Rostosky et al., 2003; Rostosky et al., 2004; Nonnemaker et al., 2003; Lammers et al., 2000; Meier, 2003).

Previous studies have explored the relationship between parental education and sexual behaviors and attitudes. Most of the research has shown that higher parental education was a protective factor for sexual initiation and contraceptive use (Cubbin, Santelli, Brindis & Braveman, 2005; Glei, 1999; Gold et al., 2010; Rostosky et al., 2003; Bearman & Brückner, 2001; Lammers et al., 2000; McCree, Wingwood, DiClemente, Davies & Harrington, 2003; Nonnemaker et al., 2003; Resnick et al., 1997; Jones, Darroch & Singh, 2005; Thornton & Camburn, 1989; Cooksey, Rindfuss & Guilkey, 1996; Kirby, 2002; Meschke, Zweig, Barber & Eccles, 2000; Manlove, Terry-Humen, Ikramullah & Moore, 2006; Manlove et al., 2008; Afxentiou & Hawley, 1997; McNeely et al., 2002; Ford, Zelnik & Kantner, 1981; Forste & Heaton, 1988; Hayward, Grady & Billy, 1992; Brewster et al., 1998; Meier, 2003). Additionally, studies have shown that school enrollment can act as a protective factor for sexual behaviors among adolescents (Brewster et al., 1998; Darroch, Landry & Oslak, 1999; Manlove, 1998; Kirby, 2002).

Religiosity and Sexual Debut

A number of studies have explored the relationship between religiosity and sexual debut among adolescents (Rostosky et al., 2003; Rostosky et al., 2004; Meier, 2003; Bearman & Brückner, 2001; Manlove et al., 2008; Haglund & Fehring, 2010; Lefkowitz, Gillen, Shearer & Boone, 2004; Manlove et

al., 2006; Lammers et al., 2000; Hull, Hennessy, Bleakley, Fishbein & Jordan, 2011; Davis & Friel, 2001; Burdette & Hill, 2009; Thornton & Camburn, 1989; Jones et al., 2005). However, measures of religiosity vary across studies. Some studies used religious affiliations/denomination to measure religiosity (Burdette & Hill, 2009; Thornton & Camburn, 1989; Jones et al., 2005). Others measured religiosity by religious adherence, religious feelings (Lammers et al., 2000; Hull et al., 2011), or self-rated importance of religion (Davis & Friel, 2001). Finally, a significant portion of the literature used measures on religious service, praying and church-related activities attendance as well as self-rated importance (Davis & Friel, 2001; Rostosky et al., 2003; Rostosky et al., 2004; Meier, 2003; Bearman & Brückner, 2001; Manlove et al., 2008; Haglund & Fehring, 2010; Lefkowitz et al., 2004; Burdette & Hill, 2009; Thornton & Camburn, 1989; Sinha, Cnaan & Gelles, 2007).

Most of the research has shown that higher religiosity reduced the likelihood of sexual debut among adolescent males and females, with a stronger effect among females (Rostosky et al., 2003; Rostosky et al., 2004; Meier, 2003; Haglund & Fehring, 2010; Lefkowitz et al., 2004; Lammers et al., 2000; Hull et al., 2011; Thornton & Camburn, 1989). Adolescents with higher levels of religiosity were more likely to delay the onset of sexual behavior or activity to later ages (Rostosky et al., 2004; Manlove et al., 2006; Manlove et al., 2008; Lammers et al., 2000; Davis & Friel, 2001; Burdette & Hill, 2009). Bearman and colleagues (2001) found that adolescents who made “virginity pledges,” which are a common tradition in many religions to encourage postponing having sex until marriage, were less likely to have had sex than adolescents who had not taken a virginity pledge.

Religiosity and Sexual Attitudes

Further research has considered the relationship between attitudes towards premarital sexual activity and religion (Rostosky et al., 2003; Rostosky et al., 2004; Nonnemaker et al., 2003; Lammers et al., 2000; Meier, 2003; Abbott & Dalla, 2008; Leonard & Scott-Jones, 2010; Remez, 1990). Several studies have demonstrated that adolescents who attended religious services more frequently and/or consider religion important in their lives had more restrictive attitudes towards premarital sex and reported less sexual experience than those who did not attend religious services frequently (Remez, 1990;

Rostosky et al., 2003; Rostosky et al., 2004; Nonnemaker et al., 2003; Lammers et al., 2000; Abbott & Dalla, 2008; Leonard & Scott-Jones, 2010).

There are also significant associations between religiosity and sexual behaviors and attitudes. Haglund and Fehring (2010) found that young women ages 15-21 who viewed religion as very important, frequently attended church, and held stronger religious sexual attitudes were 27–54% less likely to have had sex and had significantly fewer sexual partners than their non-religious peers. Additional research showed that religious individuals reported more conservative views of acceptable sexual behaviors such as an older age at first intercourse and increased likelihood that first intercourse was with a fiancé or spouse. Higher religiosity was also associated with the reduced probability of having multiple sexual partners (Simons, Burt & Peterson, 2009).

Religiosity and Contraceptive Use

Prior research has investigated the relationship between religion and contraceptive use (Hill et al., 2014; O'Brien et al., 2013; Aparicio et al., 2014; Kramer et al., 2007; Barrett et al., 2014; Regnerus, 2005; Manlove et al., 2008; Kirby, 2002; Miller, 2002). In addition, research has shown that religion can influence the type of contraceptive use among young women (Hill et al., 2014; Aparicio et al., 2014). For instance, Catholic women aged 15-44 were more likely to use contraception that was more effective against pregnancy than Protestant women of the same age group (Hill et al., 2014). The researchers attributed this relationship to the rigid nature of the Catholic faith and the fear of stigma associated with unplanned pregnancy (Hill et al., 2014). Even though some studies have indicated that religion acts as a protective factor for risky sexual behaviors, sexually active adolescents with high religiosity in New Zealand reported the highest rates of inconsistent contraceptive use when compared to sexually active adolescents with lower levels of religiosity (O'Brien et al., 2013).

In addition, research has also shown that higher religiosity, defined by attendance and/or reported importance, contributed to increased odds of not using contraceptive methods among adolescents (Barrett et al., 2014; Kramer et al., 2007; Raine, Minnis, & Padian, 2003; Brückner & Bearman, 2005). A possible explanation for this phenomenon could be the less-approving opinions religious individuals have about

contraceptive use. For instance, research found that individuals who frequently attended religious services were more likely to disapprove use of contraceptives and were also less supportive of the provision of contraception to adolescents (Barrett et al., 2014). Additional research found that religious affiliation was significantly associated with no use of contraceptives among adolescents (Raine et al., 2003). Virginity pledgers were significantly less likely to use a condom or other form of contraception at sexual debut than non-pledgers (Brückner & Bearman, 2005).

Another possible explanation for low contraceptive use among highly religious adolescents could stem from the lack of parent-child communication about sex and contraception use (Widman, Choukas-Bradley, Helms, Golin, & Prinstein, 2014; Halpern-Felsher, Kropp, Boyer, Tschann & Ellen, 2004; DiClemente et al., 2001; Malcolm et al., 2013; Regnerus, 2005; Moore, Berkley-Patton, Bohn, Hawes, & Bowe-Thompson, 2015). Research has shown that almost thirty percent of adolescents had not communicated with their parents about sexual topics (Widman et al., 2014). It has also been found that less frequent communication resulted in increased odds of not using contraception (DiClemente et al., 2001), and that increased communication between parent and child and between partners resulted in more frequent and consistent contraceptive use (Widman et al., 2014; Halpern-Felsher et al., 2004; Malcolm et al., 2013; Moore et al., 2015). Research suggests that parental religiosity reduced the frequency of conversations about sex and birth control (Regnerus, 2005). Furthermore, when conversations between religious parents and youth take place, the content often revolved around the morality of adolescent sexual involvement rather than actual sexual relations and contraceptive use (Regnerus, 2005; Moore et al., 2015). This could result in a poorer understanding of proper contraceptive use and/or avoidance of contraception in general.

Lack of communication could also be related to how conservative parents or families are. Research has shown that more conservative parents highly value abstinence outside of marriage whereas less conservative families view abstinence as unrealistic, and are more supportive of contraceptive use (Cahn & Carbone, 2010). As a result of increased focus on abstinence in conservative families, less information is provided on contraception methods which may result in elevated rates of pregnancy and

sexually transmitted infections in sexually active adolescents from conservative families. Additional research has shown that individuals with less open-minded positions on religion had similarly less open-minded positions on sexuality and sexual behaviors, further reducing parent-child communication about sex (McMillen, Helm & McBride, 2011).

Maternal Education

Previous research indicates that higher maternal education was associated with delayed sexual debut among adolescents (Rostosky et al., 2003; Bearman, 2001; Lammers et al., 2000; McCree et al., 2003; Nonnemaker et al., 2003; Resnick et al., 1997; Jones et al., 2005; Cooksey et al., 1996; Kirby, 2002; Meschke et al., 2000; Miller, 2002; Ford et al., 1981; Forste & Heaton, 1988; Hayward et al., 1992; Afxentiou & Hawley, 1997; McNeely et al., 2002; Brewster et al., 1998; Meier, 2003). Researchers also found that, in general, higher parental education was a protective factor for pregnancy risk (Kirby, 2002; Kearney & Levine, 2012).

Fewer studies have explored the association between parental education and contraceptive use. However, the research that has been done has produced mixed results. Most studies have shown that adolescents whose parents, particularly mothers, have higher education are more likely to have used contraception at first and most recent sexual intercourse than adolescents whose parents have lower levels of education (Cubbin et al., 2005; Jones et al., 2005; Kirby, 2002; Manlove et al., 2006; Manlove et al., 2008; Gleib, 1999; Raine et al., 2003; Hayward et al., 1992). However, one study, using data from the 1995 wave of the National Survey of Family Growth (NSFG), found that maternal education had no significant effect on contraception use of young women ages 20-24 (Howard & Powell, 2004). The researchers did not provide an explanation as to why this result differed from other research.

School Enrollment

Studies have shown that school enrollment can be a protective factor for risky adolescent behaviors including having sex at younger ages and unplanned pregnancy (Kirby, 2002; Eaton, Brener & Kahn, 2008; Madkour, Farhat, Halpern, Godeau & Gabhainn, 2010). Previous research has shown that adolescents who are not in school were more likely to have had sex (Guttmacher, Weitzman, Kapadia &

Weinberg, 2002), to have sexual debut at younger ages (Brewster et al., 1998; Timmermans, Van Lier & Koot, 2008; Eaton et al., 2008), to not use contraception (Darroch et al., 1999), and to become pregnant (Manlove, 1998) than adolescents who were in school. Further research has shown that involvement in a religious institution was associated with a reduced risk of not only risky sexual behaviors but also truancy among adolescents (Sinha et al., 2007).

Gender Differences

Research has also examined gender differences in contraception use and sexual behaviors and attitudes. The majority of the research found that males were more likely to have an earlier sexual debut than females (Edwards, Fehring, Jarrett & Haglund, 2008; Burdette & Hill, 2009; Laumann, 1994; Lauritsen, 1994; Haglund & Fehring, 2010; Hull et al., 2011; Johnson & Tyler, 2007; Kirby, 2002; Thornton & Camburn 1989). Despite this difference, researchers did not find any significant difference in contraception use between male and female adolescents (Kirby, 2002; Leonard & Scott-Jones, 2010). Some of the research attributed the former relationship to higher religiosity rates among females. Higher religiosity helps delay sexual initiation in both males and females, but often more so in females (Leonard & Scott-Jones, 2010; Manlove et al., 2006; Rostosky et al., 2004; Miller et al., 1997; Billy, Brewster & Grady, 1994). However, other research found that while religiosity helped to delay sexual debut, this did not differ according to gender (Hardy & Raffaelli, 2003).

Racial and Ethnic Differences

Research has shown that African American males were more likely than Black females and White males and females to have earlier sexual initiation (Upchurch, Levy-Storms, Sucoff & Aneshensel, 1998; Rostosky et al., 2003; Day, 1992; Beck, Cole & Hammond, 1991; Johnson & Tyler, 2007; Manlove et al., 2006; Furstenberg, Morgan, Moore & Peterson, 1987; Browning, Leventhal & Brooks-Gunn, 2004; Cubbin et al., 2005; Mott, Fondell, Hu, Kowaleski-Jones & Menaghan, 1996). In addition, African American females were more likely to have earlier sexual debut than White females (Eaton et al., 2006; Jones et al., 2005). Many studies found that, in general, White teens were less likely to have had sex than any other races and their sexual initiation tended to be later than teens of other races/ethnicities (Santelli,

Lowry, Brener & Robin, 2000; Grunbaum et al., 2004; Lauritsen, 1994; Santelli et al., 2000; Whitbeck, Yoder, Hoyt, & Conger, 1999). Further research found that Black teens are more likely to have early sexual initiation than White teens (Kirby, 2002; Miller et al., 1997).

In terms of contraceptive use, Kusunoki and colleagues (2016) found that there were no significant differences in frequency and consistency of contraception use between Black and White females but Black females were more likely to use less effective methods of contraception than White females. Other research found that, in comparison to White women, Black and Hispanic women were significantly less likely to have used contraception at first sex (Jones et al., 2005). As a result, Hispanic and Black women were more likely to have given birth by the age of 20 than White women (Jones et al., 2005). Additionally, research showed that sexually active Latina and Asian women were less likely to use contraception than young White women (Raine et al., 2003) and that Black and Hispanic teens were less likely to use contraception than White teens (Moore, 1995).

Given the associations between race and religiosity, a few studies have explored racial and religious differences on sexual behaviors. Evidence showed that religious Black males were more likely to sexually debut than White males and non-religious Black males (Rostosky et al., 2003).

Study Aims

Research has shown that, in general, attaining higher levels of education results in lower levels of religiosity (Hungerman, 2014; Schwadel, 2016). This relationship offers the potential to update the literature on the influence of maternal education and school enrollment on adolescent sexual behavior and contraceptive use. Haglund and Fehring (2010) used 2002 NSFG data to explore the associations between religiosity, parental factors and sexual behaviors among adolescents and found that highly religious adolescents and young adults were significantly less likely to have had sex and had fewer sexual partners than their peers. This study aims to update that literature with more recent NSFG data and explore how youth school enrollment affects adolescent sexual behavior. We also hope to update the literature on the influences of religiosity on adolescent sexual behaviors and contraceptive use using the most recent available waves of NSFG data.

As illustrated above, a significant amount of previous research has addressed the relationship between religion and sexual behaviors among adolescents. Using nationally representative data from the NSFG, the goal of this study is to provide updated estimates of adolescent sexual behaviors based on the most recent cycles of the NSFG and address the following research questions:

Research Question 1: Does higher religiosity, as measured by self-rated importance of religion and/or high religious attitudes on sexuality, result in decreased odds of ever having had sex among adolescents?

Research Question 2: Does higher religiosity, as measured by self-rated importance of religion and/or high religious attitudes on sexuality, result in the increased odds of using contraception less consistently?

Research Question 3: Does higher maternal education and school enrollment increase the odds of consistent contraceptive use regardless of level of religiosity?

Based on these research questions, we have formed three distinct hypotheses:

Hypothesis 1: Adolescents who are highly religious, measured by whether or not they reported that religion was important to them and/or had high religious attitudes on sexuality, will be less likely to have ever had sex than adolescents who are not highly religious.

Hypothesis 2: Higher self-rated importance of religiosity and/or higher religious attitudes on sexuality will result in less consistent contraceptive use, defined as lower likelihood of use at first *and* last sexual encounters, among sexually active adolescents.

Hypothesis 3: Higher maternal education and youth school enrollment will increase consistent contraceptive use. Adolescents whose mothers have high levels of education and who are currently in school will use contraception more consistently, regardless of level of religiosity.

Our study will expand upon the current literature regarding contraceptive use and sexual attitudes among adolescents by incorporating recently available data from the National Survey of Family Growth (NSFG).

CHAPTER 2: METHODS

Survey

The data come from NSFG, a cross-sectional in-person survey initiated in 1973 that collects information about family life, marriage and divorce, pregnancy, infertility, use of contraception, and men's and women's health in the United States. The NSFG is conducted by the Centers for Disease Control and Prevention National Center for Health Statistics. Initially, the NSFG only sampled women aged 15 to 44 but in 2002 began sampling men and increased the age range to 49 years. Cycles that will be used for this analysis are the 2002, 2006-2010, 2011-2013 and 2013-2015 of the NSFG. Interviews for the NSFG were collected from a nationally representative area probability selection of households. Only one respondent was selected per household.

Participants

Participants of the NSFG are non-institutionalized male and female US residents between the ages of 15 and 49. For the purpose of this study, age was restricted to 15 to 19 and analyses were stratified by gender. Missing data on predictor variables were excluded from analysis (<1% dropped). Figure 1 illustrates the sample size flow throughout the analysis. There were 5,440 female participants and 5,517 male participants within the ages of 15 and 19 over the four cycles mentioned previously. The mean age of this sample is 17.0 years. Of all participants, 82.4 percent were enrolled in regular school at the time of the interview. Approximately twenty-six percent of participants were of Hispanic origin. Most of the sample was White (64.3), followed by Black (21.9) and Other reported races (13.8).

Measures

Religiosity

Two measures captured religiosity: self-rated importance of religion (SRIR) and religious attitudes on sexuality (RAS). The item on self-rated importance of religion was recorded as very important, somewhat important, or not important. Based on existing literature, more highly religious adolescents had less permissive views regarding premarital sexual activities (Fehring et al., 1998, Lefkowitz et al., 2004; Sheeran et al., 1993; Thornton and Camburn, 1989). RAS is composed of NSFG

survey items in a section pertaining to attitudes towards sexuality, contraception, marriage, gender and parenthood. RAS is a measure comprised of four items: (1) “it is OK for unmarried 16-year-olds to have sex if there is a strong affection,” and (2) “it is OK for unmarried 18-year-olds to have sex if there is strong affection,” (3) “it is OK for an unmarried woman to have a child, and (4) “it is not OK for a young couple to live together unless married”. Previous research included the item “sexual acts between two consenting adults is OK”, however the NSFG does not include this item in later years, thus it was omitted from this analysis. These items were measured on a scale of 1-5 with 5 being “strongly disagree” and 1 being “strongly agree”. The score for Item 4 was reversed. Using a scale adapted from Haglund and Fehring (2010), the responses were added together to create a total score with a range of 4 to 20 with 4 being “lowest religious attitudes on sexuality” and 20 being “highest religious attitudes on sexuality.” A Chronbach’s alpha of .71 was calculated for this measure. The correlation coefficient between SRIR and RAS was -.39.

Contraceptive Use

Based on existing literature, consistent contraceptive use was measured as having used any method of contraception at first sexual intercourse and most recent sexual intercourse. To measure these constructs two questions were asked. The first question asked what method, if any, the respondent used at first intercourse. For the purpose of analysis, the available categories, which encompassed various forms of contraceptive methods, were collapsed into “used any method” and “did not use a method” at first intercourse. The second question asked if the participant used any form of contraception at most recent intercourse and was dichotomized into yes or no categories. These variables were then combined to represent whether or not the respondent used contraception at both first and most recent sexual intercourse (consistent use), used contraception at either first or most recent sexual intercourse but not both (inconsistent use), or did not use contraception at either occurrence (no use). There were 280 female participants (11.2%) and 351 male participants (13.5%) missing data on contraceptive use in this sample.

Maternal Education

Maternal education was measured by asking participants the highest level their mother or mother figure completed. Options included less than high school, high school graduate or graduate equivalent degree (GED), some college, and bachelor's degree or higher.

School Enrollment

Participants were asked to respond if they were currently enrolled in regular school at the time of the survey or not currently enrolled in regular school.

Time

Employing the four waves of data compiled for this analysis, we created a time construct to examine whether or not the effect of religiosity on sexual behaviors has changed throughout time. The survey waves were assigned a numerical value, with the 2002 survey numbered one and the 2013-15 survey numbered four. This allowed us to examine period trends of our main dependent and independent variables.

Statistical Analysis

STATA version 13.1 software was used for data analysis. First, descriptive statistics were used to determine if religiosity, maternal education and school enrollment were significantly associated with ever having had sex and contraceptive use. Following this analysis, logistic and multinomial regression were conducted to determine the independent effects of these variables in the relationship between sexual experience and contraceptive use. Age, race, ethnicity and survey year were included as controls in the analysis. All analyses incorporated standard survey procedures and weights to account for NSFG design.

CHAPTER 3: RESULTS

Sexual Experience: Hypothesis 1

Table 1 shows the descriptive statistics for ever having had sex by gender. Approximately forty-six percent of females and forty-seven percent of males said they had sex. The mean age of respondents who have ever had sex was about 17.7, and 16.5 for respondents who said they have never had sex ($p < .001$). Race was significantly associated with ever having had sex among females ($p < .001$), with Black females reporting higher percentages of ever having had sex. Hispanic ethnicity was also associated with sexual activity for both sexes. Non-Hispanic participants reported higher rates of ever having had sex than Hispanic participants. A higher percentage of participants who reported that religion was very important said they had never had sex. Participants who reported they had never had sex had correspondingly higher scores on religious sexual attitudes. Higher rates of participants who were currently enrolled in school reported they had never had sex in comparison to participants not currently enrolled in school. Participants whose mothers had higher levels of education reported higher rates of never having had sex in comparison to participants whose mothers had lower levels of education.

Figure 2 illustrates the changes in sexual behaviors by gender between 2002 and 2015. No significant changes were found for males ($p = .143$) nor females ($p = .254$). There was a significant decline in ever having had sex for White ($p = .05$) and Other ($p = .008$) adolescents, but not Black adolescents ($p = .190$).

Table 2 shows the results for the logistic regression of ever having had sex by gender. Self-rated religious importance was not a significant predictor of ever having had sex in this sample. However, males and females with higher religious attitudes on sexuality were less likely to have ever had sex than respondents with lower religious attitudes on sexuality ($p < .001$). Respondents not enrolled in school were significantly more likely to have ever had sex than respondents who were enrolled in school for both sexes ($p < .001$). Maternal education was a protective factor for respondents whose mothers had a Bachelor's degree or higher for both sexes ($p < .001$). Age, as expected, was significantly associated with sexual activity among both sexes in this sample ($p < .001$). As age increases, the likelihood of ever having

had sex also increases. Race was also significantly associated with ever having sex and Black respondents were more likely than White respondents to have ever had sex ($p < .001$). Respondents who self-reported any of the other races were .677 times as likely as White to have ever had sex among females ($p < .05$). Hispanic males were more likely to have ever had sex than non-Hispanic males ($p < .01$).

Contraceptive Use: Hypothesis 2

To test this hypothesis, we limited the sample to only participants who reported they had ever had sex. Table 3 shows the descriptive statistics for contraceptive use by gender.

We did not find that self-rated religious importance predicted contraceptive use among males and females in this sample. However, religious attitudes on sexuality were significantly associated with contraceptive use. Higher sexual attitudes scores corresponded with no contraceptive use among males and females ($p < .001$). Participants who were enrolled in school at the time of the survey reported higher rates of consistent use than participants not currently enrolled among both sexes. Participants whose mothers had a Bachelor's degree or higher reported the highest rates of consistent use among the four groups of maternal education. Race was a significant factor in predicting contraceptive use among females, but not among males. Black female respondents reported the lowest rates of consistent use among the three groups. Hispanic ethnicity was also associated with contraceptive use. Hispanic respondents reported lower rates of consistent use in comparison to non-Hispanic participants -- for both males and females. Period trends were observed among females, but not males. Among females, rates of no use and inconsistent use significantly decreased since 2006 ($p = .011$).

Figure 3 shows the changes in contraceptive use consistency by gender, between the years 2002 and 2015. There were no significant changes for males ($p = .35$) nor females ($p = .44$). Changes by race were also examined, however, there were no significant changes for any of the three groups. However, it was found that White females increased consistent contraceptive use from 2002 to 2015 ($p = .04$).

A multinomial regression model was used to determine the relative risk ratios (RRR)² of contraceptive use on several predictor variables. Consistent contraceptive use was used as the base category. Table 4 shows the results of the multinomial regression for contraceptive use by gender.

Females were most strongly impacted by school enrollment. Female respondents not enrolled in school were over six times as likely to not use contraception and more than two times as likely to use contraception inconsistently than females who were enrolled in school ($p < .001$). Religious importance, religious attitudes on sexuality and maternal education did not predict contraceptive use among females. Black female respondents were more than two times as likely to not use contraception ($p < .01$), or use it inconsistently ($p < .001$) than White respondents. Hispanic female respondents were significantly more likely to use contraception inconsistently ($p < .001$) and to not use contraception ($p < .05$) in comparison to non-Hispanic participants. Older female participants had a lower risk of not using contraception and using contraception inconsistently in this sample ($p < .05$).

In contrast to females, male respondents were influenced more by maternal education and religious importance. Males whose mothers had less than a high school education were over two times as likely to not use contraception compared to participants whose mothers graduated high school ($p < .05$). Additionally, respondents who rated religion as very important were more likely to use contraception inconsistently in comparison to those who rated religion as somewhat important ($p < .05$). Older male participants were more likely to use contraception inconsistently in this sample ($p < .01$). School enrollment and religious attitudes on sexuality were not significant predictors of contraceptive use among males.

Figures 4-7 illustrate changes over time for our main independent variables: self-rated importance of religion, religious attitudes on sexuality, maternal education and school enrollment. Figure 4 shows the changes in SRIR over time by gender. Male adolescents showed a significant increase in SRIR ($p = .004$), but females did not ($p = .07$). Black adolescents also showed a significant increase in SRIR over time

² Relative risk ratio (RRR) is the ratio of the probability of an event occurring in an exposed group to the probability of an event occurring in a non-exposed group.

($p=.05$). This increase was more pronounced for Black females ($p.03$). Figure 5 shows the changes in RAS over time by gender. Both males and females showed significant decline in RAS scores over time ($p<.001$). Black males ($p=.04$) and females ($p=.01$) showed significant declines in RAS over time as did White males ($p<.001$) and females ($p=.003$). Figure 6 illustrates the changes in maternal education over time. We found that maternal education had significantly increased since 2002 ($p=.04$). Figure 7 shows changes in school enrollment over time by gender. Both males ($p=.003$) and females ($p<.001$) showed significant increases in school enrollment since 2002.

CHAPTER 4: DISCUSSION

Previous research has observed that religiosity is associated with later sexual debut (Rostosky et al., 2003; Rostosky et al., 2004; Meier, 2003; Haglund & Fehring, 2010; Lefkowitz et al., 2004; Lammers et al., 2000; Hull et al., 2011; Thornton & Camburn, 1989; Manlove et al., 2006; Manlove et al., 2008; Davis & Friel, 2001; Burdette & Hill, 2009). However, our research found that self-rated religiosity was not associated with sexual behaviors. However, religious attitudes on sexuality were significantly associated with sexual behaviors, which is in accordance with previous research (Haglund & Fehring, 2010). Respondents who reported higher levels of religious attitudes on sexuality were less likely to have ever had sex than respondents who reported lower levels of religious attitudes on sexuality.

Previous research has found that school enrollment is a protective factor for sexual behavior (Kirby, 2002; Eaton et al., 2008; Madkour et al., 2010; Guttmacher et al., 2002; Brewster et al., 1998; Timmermans et al., 2008; Darroch et al., 1999; Manlove, 1998). Our findings confirm these findings and show that school enrollment is a protective factor for sexual behaviors among males and females. Research has also shown the protective factor of maternal education on sexual behaviors (Rostosky et al., 2003; Bearman, 2001; Lammers et al., 2000; McCree et al., 2003; Nonnemaker et al., 2003; Resnick et al., 1997; Jones et al., 2005; Cooksey et al., 1996; Kirby, 2002; Meschke et al., 2000; Miller, 2002; Ford et al., 1981; Forste & Heaton, 1988; Hayward et al., 1992; Afxentiou & Hawley, 1997; McNeely et al., 2002; Brewster et al., 1998; Meier, 2003). We also found that respondents whose mothers had higher levels of education were less likely to have ever had sex than respondents whose mothers had lower levels of education.

Previous research found that adolescents who reported higher levels of religiosity were more likely to not use contraception (Barrett et al., 2014; Kramer et al., 2007; Raine et al., 2003; Brückner & Bearman, 2005). We found that males who reported higher religiosity were more likely to not use contraception than males who reported religion was only somewhat important to them, however, this relationship did not hold among females.

In previous research, maternal education has acted as a protective factor for contraceptive use (Cubbin et al., 2005; Jones et al., 2005; Kirby, 2002; Manlove et al., 2006; Manlove et al., 2008; Gleib, 1999; Raine et al., 2003; Hayward et al., 1992). In contrast, we did not find that higher maternal education increased consistent contraceptive use. However, we found that male respondents whose mothers had less than a high school education were significantly more likely to not use contraception. Prior research on school enrollment focused mainly on the association between enrollment/truancy and sexual behavior. However, little research examined the impact of school enrollment on contraceptive use. We found that school enrollment acted as a strong protective factor for contraceptive use. Female respondents not enrolled in school were significantly more likely to not use contraception or use contraception inconsistently than respondents enrolled in school. However, school enrollment was not significant among males.

Our data afforded us the opportunity to examine whether the effect of religiosity on sexual behaviors has changed over time. Interaction variables were created and we discovered no significant interaction effect between SRIR and RAS and time on sexual behaviors. Based on these results, the effect of religiosity on adolescent sexual behaviors has not changed over the time period of our data.

We also found some very interesting and important results pertaining to especially vulnerable groups. As previous literature has shown, Black adolescents are at higher risk of having sex, earlier sexual initiation, and not using contraception than White adolescents (Upchurch, Levy-Storms, Sucoff & Aneshensel, 1998; Rostosky et al., 2003; Day, 1992; Beck, Cole & Hammond, 1991; Johnson & Tyler, 2007; Manlove et al., 2006; Furstenberg, Morgan, Moore & Peterson, 1987; Browning, Leventhal & Brooks-Gunn, 2004; Cubbin et al., 2005; Mott, Fondell, Hu, Kowaleski-Jones & Menaghan, 1996; Eaton et al., 2006; Jones et al., 2005; Kirby, 2002; Miller et al., 1997). We discovered similar findings, most notably among Black females. Black females were more likely to have had sex than White females. In addition, Black and Hispanic females were also much more likely to not use contraception or use contraception inconsistently in comparison to White females.

CHAPTER 5: LIMITATIONS

Previous research had dichotomized self-rated importance of religion into important and not important categories (Haglund and Fehring, 2010). However, in our study we use a more disaggregated measure. Our measure of religiosity also differed slightly from previous research in that we did not include frequency of church attendance in the composite measure. Our measure of religious attitudes on sexuality also differed slightly from previous studies given that the NSFG no longer includes one of the items previously used to construct the composite score variable, thus it was omitted in our analysis. Finally, there may be social desirability bias as the young respondents answer about their sexuality and contraceptive use. Due to the sampling process of the NSFG, we can conclude that our sample is generalizable and representative of American adolescents.

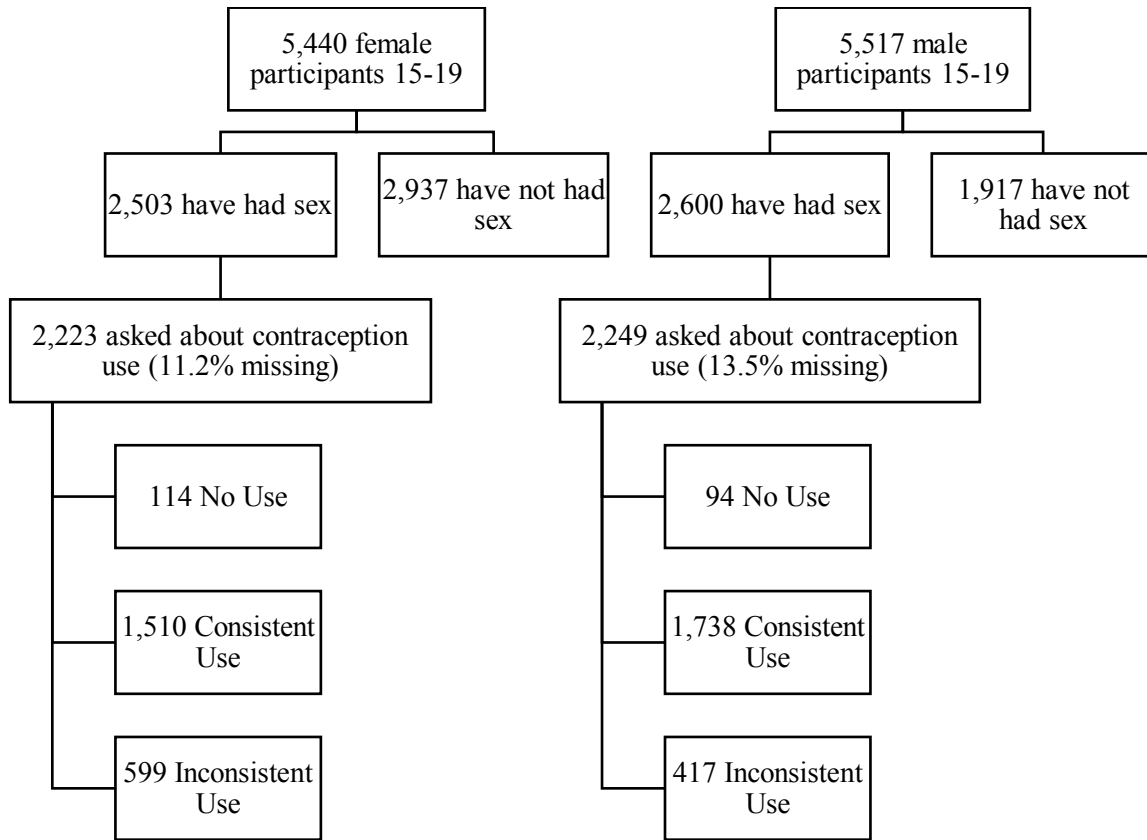
CHAPTER 6: CONCLUSION

Our analysis of several waves of the NSFG provided some evidence that religiosity helps to delay sexual debut among teens, and thus may help decrease exposure to teen pregnancy and STIs among adolescents. Being enrolled in school was also associated with reduced likelihood of ever having had sex among both sexes. Furthermore, being enrolled in school was significantly associated with contraceptive use among females. Regarding vulnerable populations, we found that Black and Hispanic females were at higher risk of not using contraception or using it inconsistently in comparison to White females. Additionally, higher rates of Black female respondents were not currently enrolled in school, which was a significant risk factor for not using contraception or using it inconsistently. Prior research has also shown that Black and Hispanic adolescents have higher rates of absenteeism than White adolescents (Vaughn, Maynard, Salas-Wright, Perron & Abdon, 2013).

It is important to recognize that encouraging and fostering school enrollment, especially among females, may significantly help to reduce sexual activity and encourage consistent contraception use. This may be an important factor that helps contribute to further lowering the teen birth rate in the United States.

APPENDIX A: FIGURES

Figure 1. Sample Size Flow Figure



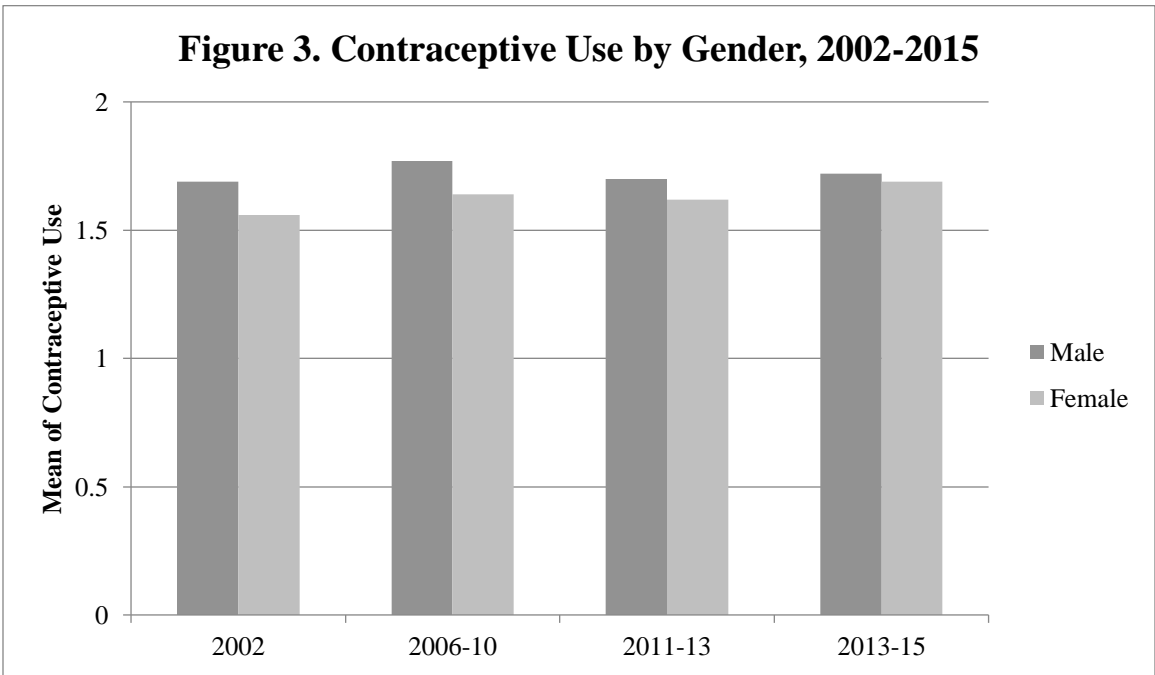
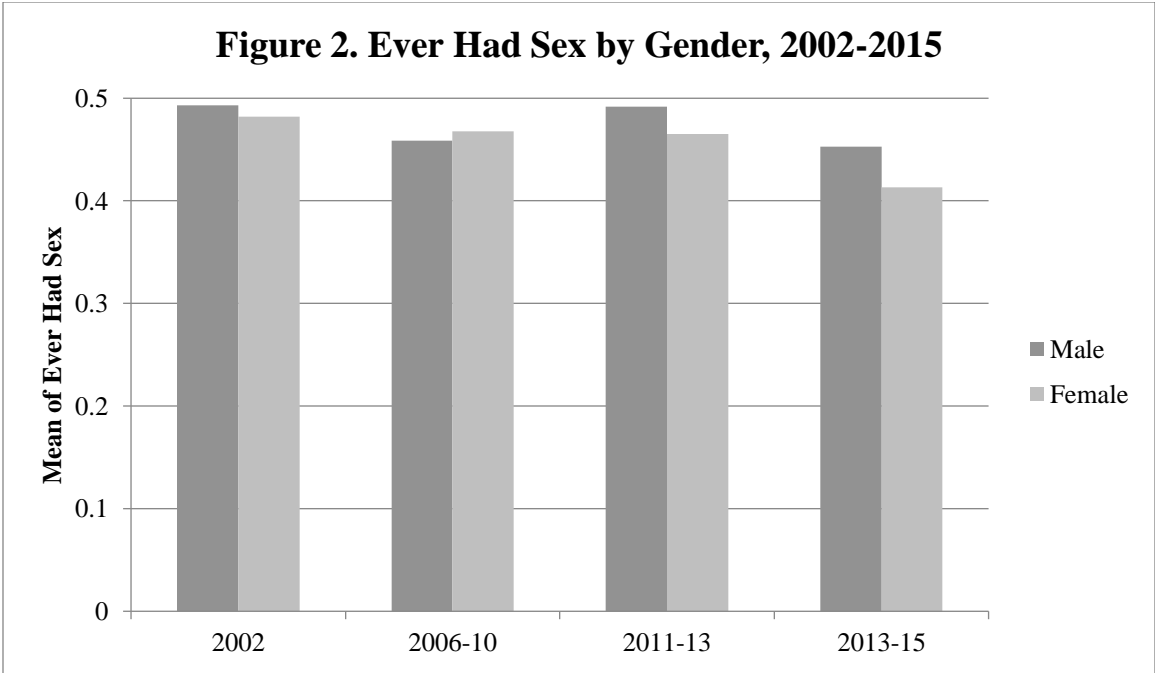


Figure 4. Self Rated Importance of Religion by Gender, 2002-2015

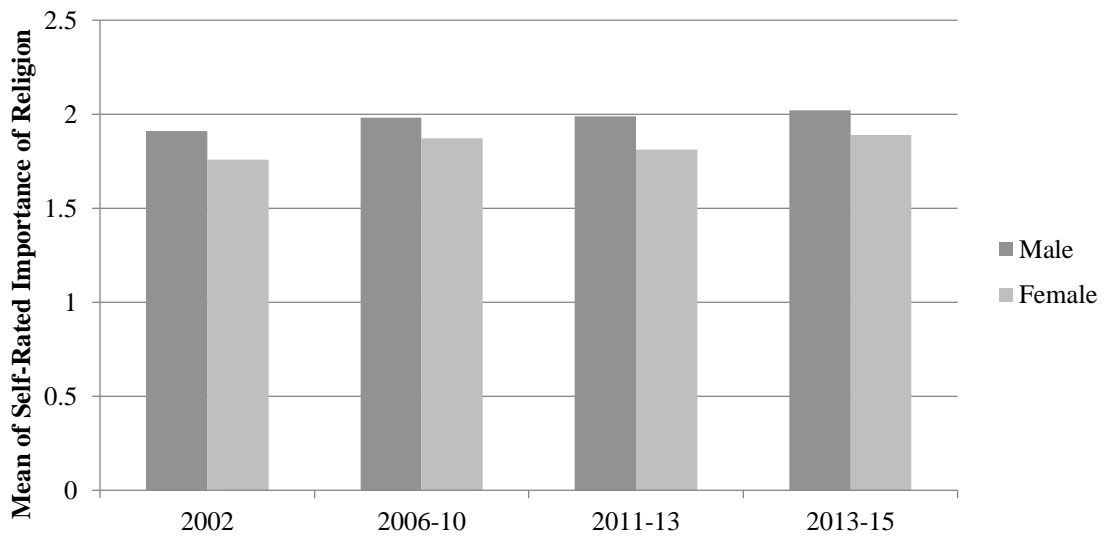


Figure 5. Religious Attitudes on Sexuality by Gender, 2002-2015

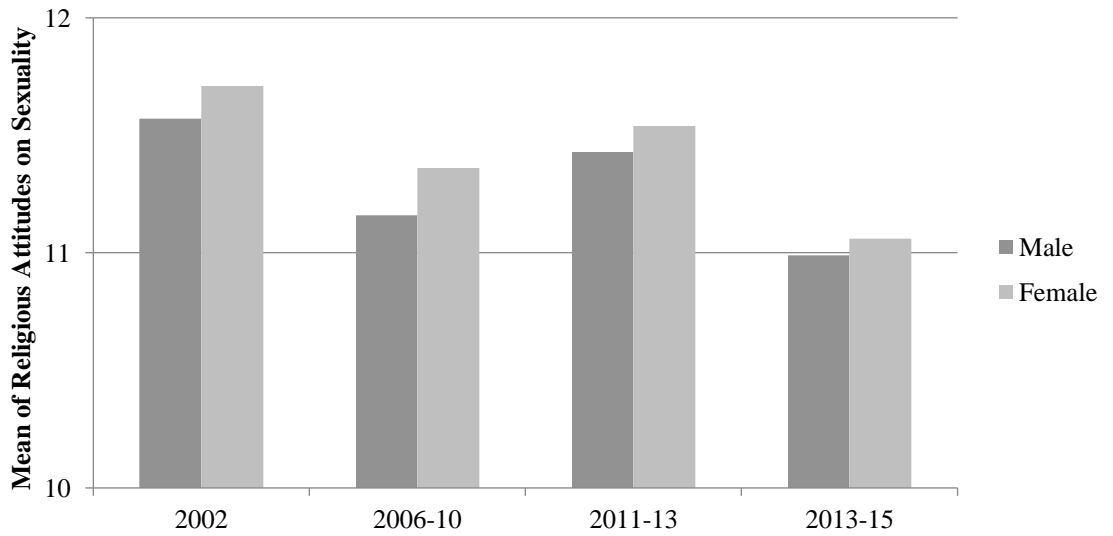


Figure 6. Mother's Education, 2002-2015

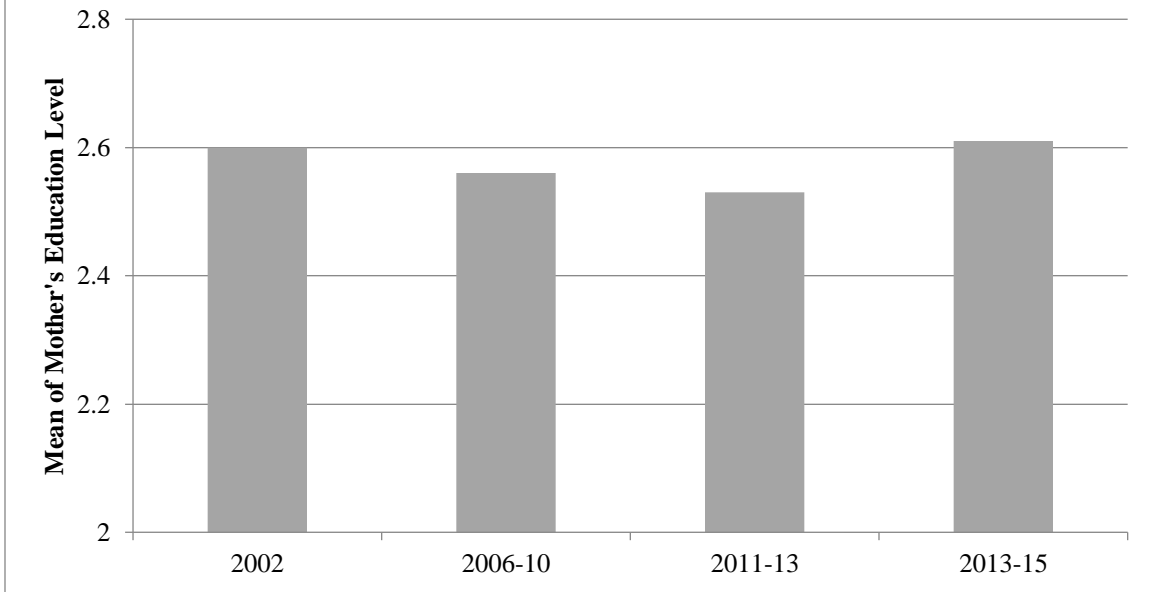
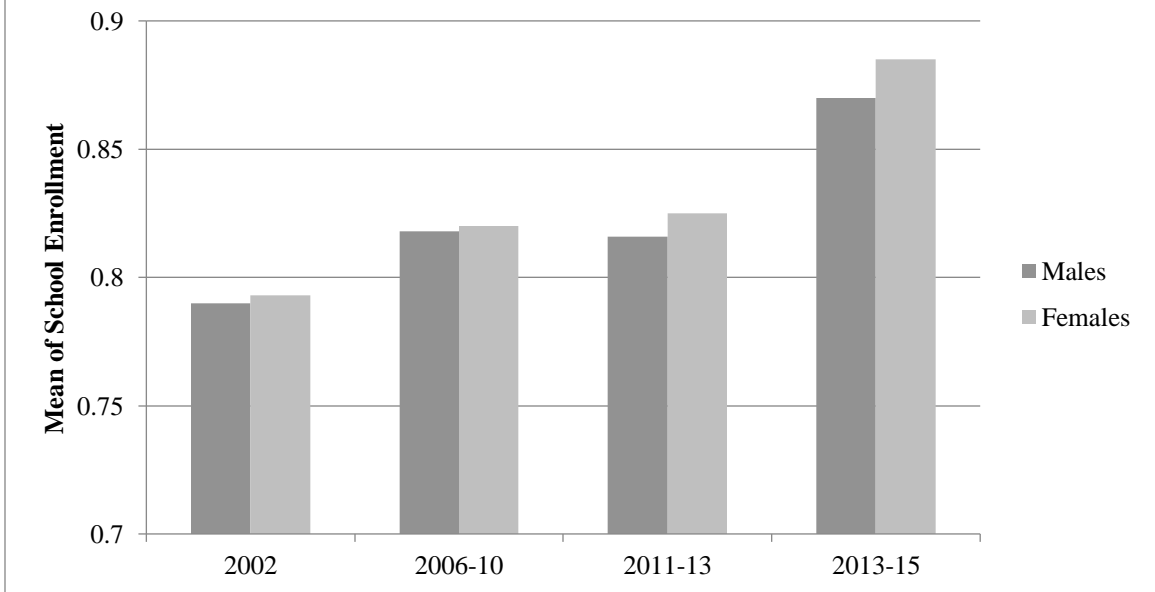


Figure 7. School Enrollment by Gender, 2002-2015



APPENDIX B: TABLES

Table 1. Descriptive Statistics for Ever Had Sex by Gender

Variable	Females (n=5,440)			Males (n=5,517)			Total (n=10,957)		
	Yes (%)	No (%)	p-value	Yes (%)	No (%)	p-value	Yes (%)	No (%)	p-value
Total	2503 (46.0)	2937 (54.0)		2600 (47.1)	2917 (52.9)		5103 (46.6)	5854 (53.3)	
Importance of Religion			<.001			<.001			<.001
Very Important	31.8	46.8		27.5	36.8		29.6	41.8	
Somewhat Important	38.5	34.3		37.8	37.6		38.1	36.0	
Not Important	29.7	18.9		34.7	25.6		32.3	22.2	
Sexual Attitudes (m+sd)	9.8 (3.0)	12.8 (3.7)	<.001	9.9 (2.8)	12.5 (3.5)	<.001	9.9 (2.9)	12.6 (3.6)	<.001
School Enrollment			<.001			<.001			<.001
Enrolled	69.8	93.8		71.9	91.3		70.9	29.1	
Not Enrolled	30.2	6.2		28.1	8.7		92.5	7.5	
Mother's Education			<.001			<.001			<.001
Less than HS	20.0	18.0		17.3	15.9		18.6	17.0	
HS Grad	32.4	29.3		34.4	28.6		33.4	28.9	
Some College	30.2	26.0		28.2	26.3		29.2	26.2	
Bachelor's or More	17.4	26.7		20.1	29.2		18.8	27.9	
Age (m+sd)	17.7 (1.21)	16.5 (1.31)	<.001	17.6 (1.2)	16.5 (1.3)	<.001	17.7 (1.2)	16.5 (1.3)	<.001
Race			<.001			<.001			<.001
White	64.7	64.7		58.9	68.2		61.8	66.4	
Black	24.9	20.2		28.2	15.6		26.6	17.9	
Other	10.4	15.1		12.9	16.2		11.7	15.7	
Hispanic Ethnicity			.005			.016			.835
Yes	23.7	27.0		27.5	24.7		25.7	25.9	
No	76.3	73.0		72.5	75.3		74.3	74.1	
Survey Year			.008			.083			.002
2002	21.8	20.0		21.0	19.2		21.4	19.6	
2006-10	42.6	41.2		41.5	43.6		42.1	42.4	
2011-13	19.1	18.8		20.3	18.7		19.7	18.8	
2013-15	16.5	20.0		17.2	18.5		16.8	19.2	

Table 2. Odds Ratios (OR) of Ever Had Sex by Gender: Logistic Regression

Variable	Females (n=5,440)		Males (n=5,517)	
	OR	95% CI	OR	95% CI
Importance of Religion				
Very Important	.887	.70-1.12	1.01	.81-1.27
Somewhat Important	1.00		1.00	
Not Important	.96	.76-1.21	.99	.80-1.22
Sexual Attitudes	.74***	.72-.77	.75***	.73-.78
School Enrollment				
Enrolled	1.00		1.00	
Not Enrolled	2.25***	1.70-2.98	1.95***	1.53-2.50
Mother's Education				
Less than HS	1.05	.78-1.42	.91	.68-1.20
HS Grad	1.00		1.00	
Some College	.97	.76-1.24	.84	.68-1.04
Bachelor's or More	.56***	.42-.73	.53***	.41-.67
Age	1.97***	1.82-2.15	1.89***	1.76-2.04
Race				
White	1.00		1.00	
Black	1.59***	1.28-1.98	2.72***	2.16-3.43
Other	.68*	.48-.96	.74	.54-1.01
Hispanic Ethnicity				
Yes	.95	.73-1.23	1.50**	1.18-1.91
No	1.00		1.00	
Survey Year				
2002	1.00		1.00	
2006-10	.75*	.59-.97	.73**	.59-.91
2011-13	.88	.64-1.22	.96	.72-1.23
2013-15	.63**	.48-.84	.77*	.59-.99

* $p < 0.05$; ** $p < 0.01$; $p < .001$ ***

Table 3. Descriptive Statistics for Any Contraceptive Use by Gender

Variable	Females (2,223)				Males (2,249)				Total (4,472)			
	None (%)	CU (%)	IU (%)	p-value	None (%)	CU (%)	IU (%)	p-value	None (%)	CU(%)	IU(%)	p-value
Total	114 (5.1)	1510 (67.9)	599 (27.0)		94 (4.2)	1738 (77.3)	417 (18.5)		208 (4.6)	3248 (72.6)	1016 (22.7)	
Importance of Religion				.260				.406				.248
Very Important	36.0	29.7	33.6		25.5	27.2	29.0		21.2	28.4	31.7	
Somewhat Important	39.5	39.3	37.5		37.2	39.1	34.1		38.5	39.2	36.1	
Not Important	24.5	31.1	28.9		37.2	33.7	36.9		30.3	32.5	32.2	
Sexual Attitudes (m+sd)	10.0 (2.6)	9.6 (3.0)	9.9 (2.8)	<.001	10.2 (3.2)	9.8 (2.7)	9.8 (2.7)	<.001	10.1 (2.9)	9.7 (2.8)	9.9 (2.8)	<.001
School Enrollment				<.001				<.001				<.001
Enrolled	34.2	76.4	57.1		67.0	77.0	63.5		49.0	76.7	59.7	
Not Enrolled	65.8	23.6	42.9		33.0	23.0	36.5		51.0	23.3	40.3	
Mother's Education				<.001				<.001				<.001
Less than HS	32.5	16.4	25.9		30.9	16.0	20.4		31.7	16.2	23.6	
HS Grad	34.2	31.9	33.1		28.7	33.3	37.4		31.7	32.6	34.8	
Some College	23.7	32.3	26.5		26.6	28.4	26.9		25.0	30.2	26.7	
Bachelor's Or More	9.6	19.4	14.5		13.8	22.3	15.3		11.5	21.0	14.9	
Age (m+sd)	17.9 (1.2)	17.7 (1.2)	17.8 (1.2)	<.001	17.5 (1.2)	17.5 (1.3)	17.7 (1.2)	<.001	17.7 (1.2)	17.6 (1.2)	17.8 (1.2)	<.001
Race				<.001				.073				<.001
White	57.0	69.8	59.9		55.3	59.8	53.5		56.2	64.4	57.3	
Black	29.8	21.4	29.4		26.6	28.5	32.4		28.4	25.2	30.6	
Other	13.2	8.8	10.7		18.1	11.7	14.1		15.4	10.3	12.1	
Hispanic Ethnicity				<.001				.006				<.001
Yes	34.2	19.5	28.2		40.4	25.8	28.3		37.0	22.9	28.2	
No	65.8	80.5	71.8		59.6	74.2	71.7		63.0	77.1	71.8	
Survey Year				.011				.134				.002

Table 3 (Cont.)

2002	28.1	20.4	25.9	19.1	15.2	18.2	24.0	17.6	22.7
2006-10	45.6	43.8	39.6	30.9	43.5	39.1	38.9	43.7	39.4
2011-13	19.3	18.4	18.5	26.6	22.0	24.5	22.6	20.3	21.0
2013-15	7.0	17.4	16.0	23.4	19.3	18.2	14.4	18.4	16.9

Consistent Use (CU); Inconsistent Use (IU)

Table 4. Relative Risk Ratios (RRR) of Contraceptive Use by Gender: Multinomial Regression

No Use	Females (n=2,223)		Males (n=2,249)	
	RRR	95% CI	RRR	95% CI
Religious Importance				
Very Important	1.19	.65-2.19	1.06	.43-2.61
Somewhat Important	1.00		1.00	
Not Important	.95	.48-1.86	1.81	.91-3.60
School Enrollment				
Enrolled	1.00		1.00	
Not Enrolled	6.29***	3.35-11.81	1.24	.63-2.44
Sexual Attitudes				
	1.00	.92-1.08	1.08	.96-1.21
Maternal Education				
Less than HS	.95	.51-1.74	2.45*	1.22-4.94
HS Grad	1.00		1.00	
Some College	.98	.48-2.01	1.57	.65-3.76
Bachelor's or More	.47	.14-1.54	.74	.30-1.83
Age				
	.74*	.58-.94	.90	.70-1.16
Race				
Black	2.60**	1.38-4.88	1.23	.55-2.74
White	1.00		1.00	
Other	1.77	.751-4.15	1.44	.49-4.22
Hispanic Ethnicity				
Yes	2.01*	1.07-3.76	1.85	.91-3.78
No	1.00		1.00	
Survey Year				
2002	1.00		1.00	
2006-10	.74	.37-1.51	.43	.18-1.03
2011-13	.81	.37-1.78	.62	.23-1.64
2013-15	.434	.137-1.37	1.02	.355-2.95
Inconsistent Use	Females (n=2,223)		Males (2,249)	
	RRR	95% CI	RRR	95% CI
Religious Importance				
Very Important	1.22	.88-1.70	1.65*	1.11-2.44
Somewhat Important	1.00		1.00	
Not Important	1.06	.78-1.42	1.53*	1.06-2.21
School Enrollment				
Enrolled	1.00		1.00	
Not Enrolled	2.17***	1.61-2.93	1.29	.90-1.86
Sexual Attitudes				
	.99	.94-1.04	1.01	.95-1.07
Maternal Education				
Less than HS	1.22	.82-1.82	1.23	.79-1.90
HS Grad	1.00		1.00	
Some College	.85	.59-1.20	.91	.63-1.31
Bachelor's or More	.94	.62-1.43	.81	.54-1.22
Survey Year				
2002	1.00		1.00	
2006-10	.83	.60-1.14	.67*	.46-.97
2011-13	.84	.53-1.35	.76	.49-1.18
2013-15	.76	.51-1.13	.78	.49-1.24
Age				
	.87*	.77-.98	1.22**	1.07-1.39

Table 4 (Cont.)

Race					
	Black	2.04***	1.46-2.86	1.39	.99-1.95
	White	1.00		1.00	
	Other	1.01	.68-1.52	1.21	.77-1.89
Hispanic Ethnicity					
	Yes	1.82***	1.32-2.53	1.30	.87-1.95
	No	1.00		1.00	

* $p < 0.05$; ** $p < 0.01$; $p < .001$ ***

REFERENCES

- Abbott, D. A., & Dalla, R. L. (2008). 'It's a choice, simple as that': Youth reasoning for sexual abstinence or activity. *Journal of Youth Studies, 11*(6), 629-649.
- Afxentiou, D., & Hawley, C. B. (1997). Explaining female teenagers' sexual behavior and outcomes: A bivariate probit analysis with selectivity correction. *Journal of Family and Economic Issues, 18*(1), 91-106.
- Aparicio, E., Pecukonis, E. V., & Zhou, K. (2014). Sociocultural factors of teenage pregnancy in Latino communities: Preparing social workers for culturally responsive practice. *Health & social work, hlu032*.
- Ayadi, M. F., Kuo, T. M., Adams, E. K., & Gavin, N. I. (2012). Contraceptive use among Medicaid-covered teens and risk of teen conception: A longitudinal study. *Journal of Women's Health, 21*(2), 146-153.
- Barrett, J. B., DaVanzo, J., Ellison, C. G., & Grammich, C. (2014). Religion and attitudes toward family planning issues among US adults. *Review of Religious Research, 56*(2), 161-188.
- Bearman, P., & Brückner, H. (2001). Promising the Future: Virginity Pledges and First Intercourse. *American Journal of Sociology, 106*(4), 859-912.
- Beck, S. H., Cole, B. S., & Hammond, J. A. (1991). Religious heritage and premarital sex: Evidence from a national sample of young adults. *Journal for the Scientific Study of Religion, 173-180*.
- Billy, J. O., Brewster, K. L., & Grady, W. R. (1994). Contextual effects on the sexual behavior of adolescent women. *Journal of Marriage and the Family, 387-404*.
- Brewster, K. L., Cooksey, E. C., Guilkey, D. K., & Rindfuss, R. R. (1998). The changing impact of religion on the sexual and contraceptive behavior of adolescent women in the United States. *Journal of Marriage and the Family, 493-504*.
- Browning, C. R., Leventhal, T., & Brooks-Gunn, J. (2004). Neighborhood context and racial differences in early adolescent sexual activity. *Demography, 41*(4), 697-720.

- Brückner, H., & Bearman, P. (2005). After the promise: The STD consequences of adolescent virginity pledges. *Journal of Adolescent Health, 36*(4), 271-278.
- Burdette, A. M., & Hill, T. D. (2009). Religious involvement and transitions into adolescent sexual activities. *Sociology of Religion, srp011*.
- Cahn, N., & Carbone, J. (2010). *Red families v. blue families: Legal polarization and the creation of culture*. Oxford University Press.
- Centers for Disease Control (2014). *About teen pregnancy*. Retrieved from <http://www.cdc.gov/teenpregnancy/about/index.htm>.
- Centers for Disease Control (2016). *Sexual risk behaviors: HIV, STD, & teen pregnancy prevention*. Retrieved from <https://www.cdc.gov/healthyyouth/sexualbehaviors/>.
- Cooksey, E. C., Rindfuss, R. R., & Guilkey, D. K. (1996). The initiation of adolescent sexual and contraceptive behavior during changing times. *Journal of Health and Social Behavior, 59*-74.
- Crosby, R. A., DiClemente, R. J., Wingood, G. M., Sionean, C., Cobb, B. K., Harrington, K. F., ... & Oh, M. K. (2001). Correlates of casual sex among African-American female teens. *Journal of HIV/AIDS prevention & education for adolescents & children, 4*(4), 55-67.
- Cubbin, C., Santelli, J., Brindis, C. D., & Braveman, P. (2005). Neighborhood context and sexual behaviors among adolescents: Findings from the national longitudinal study of adolescent health. *Perspectives on sexual and reproductive health, 37*(3), 125-134.
- Darroch, J. E., Landry, D. J., & Oslak, S. (1999). Age differences between sexual partners in the United States. *Family planning perspectives, 160*-167.
- Davis, E. C., & Friel, L. V. (2001). Adolescent sexuality: Disentangling the effects of family structure and family context. *Journal of Marriage and Family, 63*(3), 669-681.
- Day, R. D. (1992). The transition to first intercourse among racially and culturally diverse youth. *Journal of Marriage and the Family, 749*-762.

- DiClemente, R. J., Wingood, G. M., Crosby, R., Cobb, B. K., Harrington, K., & Davies, S. L. (2001). Parent-adolescent communication and sexual risk behaviors among African American adolescent females. *The Journal of pediatrics*, *139*(3), 407-412.
- Eaton, D. K., Kann, L., Kinchen, S., Ross, J., Hawkins, J., Harris, W. A., ... & Lim, C. (2006). Youth risk behavior surveillance—United States, 2005. *Journal of school health*, *76*(7), 353-372.
- Eaton, D. K., Brener, N., & Kann, L. K. (2008). Associations of health risk behaviors with school absenteeism. Does having permission for the absence make a difference?. *Journal of School Health*, *78*(4), 223-229.
- Edwards, L. M., Fehring, R. J., Jarrett, K. M., & Haglund, K. A. (2008). The influence of religiosity, gender, and language preference acculturation on sexual activity among Latino/a adolescents. *Hispanic Journal of Behavioral Sciences*, *30*(4), 447-462.
- Fehring, R. J., Cheever, K. H., German, K., & Philpot, C. (1998). Religiosity and sexual activity among older adolescents. *Journal of Religion and Health*, *37*(3), 229-248.
- Ford, K., Zelnik, M., & Kantner, J. F. (1981). Sexual behaviour and contraceptive use among socioeconomic groups of young women in the United States. *Journal of biosocial science*, *13*(01), 31-45.
- Forste, R. T., & Heaton, T. B. (1988). Initiation of sexual activity among female adolescents. *Youth & Society*, *19*(3), 250-268.
- Furstenberg Jr, F. F., Morgan, S. P., Moore, K. A., & Peterson, J. L. (1987). Race differences in the timing of adolescent intercourse. *American Sociological Review*, 511-518.
- Glei, D. A. (1999). Measuring contraceptive use patterns among teenage and adult women. *Family Planning Perspectives*, 73-80.
- Gold, M. A., Sheftel, A. V., Chiappetta, L., Young, A. J., Zuckoff, A., DiClemente, C. C., & Primack, B. A. (2010). Associations between religiosity and sexual and contraceptive behaviors. *Journal of pediatric and adolescent gynecology*, *23*(5), 290-297.

- Grunbaum, J. A., Kann, L., Kinchen, S., Ross, J., Hawkins, J., Lowry, R., ... & Collins, J. (2004). Youth risk behavior surveillance--United States, 2003. *Morbidity and mortality weekly report. Surveillance summaries (Washington, DC: 2002)*, 53(2), 1-96.
- Guttmacher, S., Weitzman, B. C., Kapadia, F., & Weinberg, S. L. (2002). Classroom-based surveys of adolescent risk-taking behaviors: Reducing the bias of absenteeism. *American Journal of Public Health*, 92(2), 235-237.
- Haglund, K. A., & Fehring, R. J. (2010). The association of religiosity, sexual education, and parental factors with risky sexual behaviors among adolescents and young adults. *Journal of Religion and Health*, 49(4), 460-472.
- Halpern-Felsher, B. L., Kropp, R. Y., Boyer, C. B., Tschann, J. M., & Ellen, J. M. (2004). Adolescents' self-efficacy to communicate about sex: Its role in condom attitudes, commitment, and use. *Adolescence*, 39(155), 443.
- Hardy, S. A., & Raffaelli, M. (2003). Adolescent religiosity and sexuality: An investigation of reciprocal influences. *Journal of Adolescence*, 26(6), 731-739.
- Hayward, M. D., Grady, W. R., & Billy, J. O. (1992). The influence of socioeconomic status on adolescent pregnancy. *Social Science Quarterly*.
- Hill, N. J., Siwatu, M., & Robinson, A. K. (2014). "My religion picked my birth control": The influence of religion on contraceptive use. *Journal of religion and health*, 53(3), 825-833.
- Howard, B. K. and Powell, M. A., 2004-08-14 "Effects of family structure, education and religion on contraceptive decisions by women in their twenties" *Paper presented at the annual meeting of the American Sociological Association, Hilton San Francisco & Renaissance Parc 55 Hotel, San Francisco, CA, Online <.PDF>*. 2017-04-04 from http://www.allacademic.com/meta/p109418_index.html.
- Hull, S. J., Hennessy, M., Bleakley, A., Fishbein, M., & Jordan, A. (2011). Identifying the causal pathways from religiosity to delayed adolescent sexual behavior. *Journal of sex research*, 48(6), 543-553.

- Hungerman, D. M. (2014). The effect of education on religion: Evidence from compulsory schooling laws. *Journal of Economic Behavior & Organization, 104*, 52-63.
- Johnson, K. A., & Tyler, K. A. (2007). Adolescent sexual onset: An intergenerational analysis. *Journal of Youth and Adolescence, 36*(7), 939-949.
- Jones, R. K., Darroch, J. E., & Singh, S. (2005). Religious differentials in the sexual and reproductive behaviors of young women in the United States. *Journal of Adolescent Health, 36*(4), 279-288.
- Kearney, M. S., & Levine, P. B. (2012). Why is the teen birth rate in the United States so high and why does it matter?. *The Journal of Economic Perspectives, 26*(2), 141-166.
- Kirby, D. (2002). The impact of schools and school programs upon adolescent sexual behavior. *Journal of sex research, 39*(1), 27-33.
- Kirby, D. (2002). Antecedents of adolescent initiation of sex, contraceptive use, and pregnancy. *American journal of health behavior, 26*(6), 473-485.
- Kirby, D. B. (2008). The impact of abstinence and comprehensive sex and STD/HIV education programs on adolescent sexual behavior. *Sexuality Research & Social Policy, 5*(3), 18-27.
- Kirby, D. B., Laris, B. A., & Roller, L. A. (2007). Sex and HIV education programs: Their impact on sexual behaviors of young people throughout the world. *Journal of Adolescent Health, 40*(3), 206-217.
- Kramer, M. R., Hogue, C. J. R., & Gaydos, L. M. (2007). Noncontracepting behavior in women at risk for unintended pregnancy: What's religion got to do with it?. *Annals of epidemiology, 17*(5), 327-334.
- Kusunoki, Y., Barber, J. S., Ela, E. J., & Bucek, A. (2016). Black-white differences in sex and contraceptive use among young women. *Demography, 53*(5), 1399-1428.
- Lammers, C., Ireland, M., Resnick, M., & Blum, R. (2000). Influences on adolescents' decision to postpone onset of sexual intercourse: A survival analysis of virginity among youths aged 13 to 18 years. *Journal of Adolescent Health, 26*(1), 42-48.

- Laumann, E. O. (1994). *The social organization of sexuality: Sexual practices in the United States*. University of Chicago Press.
- Lauritsen, J. L. (1994). Explaining race and gender differences in adolescent sexual behavior. *Social Forces*, 72(3), 859-883.
- Lefkowitz, E. S., Gillen, M. M., Shearer, C. L., & Boone, T. L. (2004). Religiosity, sexual behaviors, and sexual attitudes during emerging adulthood. *Journal of Sex Research*, 41(2), 150-159.
- Leonard, K.C. & Scott-Jones, D. (2010). A belief-behavior gap? Exploring religiosity and sexual activity among high school seniors. *Journal of Adolescent Research*, 25(4), 578-600.
- Madkour, A. S., Farhat, T., Halpern, C. T., Godeau, E., & Gabhainn, S. N. (2010). Early adolescent sexual initiation as a problem behavior: a comparative study of five nations. *Journal of Adolescent Health*, 47(4), 389-398.
- Malcolm, S., Huang, S., Cordova, D., Freitas, D., Arzon, M., Jimenez, G. L., ... & Prado, G. (2013). Predicting condom use attitudes, norms, and control beliefs in Hispanic problem behavior youth: the effects of family functioning and parent-adolescent communication about sex on condom use. *Health Education & Behavior*, 40(4), 384-391.
- Manlove, J. (1998). The influence of high school dropout and school disengagement on the risk of school-age pregnancy. *Journal of Research on Adolescence*, 8(2), 187-220.
- Manlove, J. S., Terry-Humen, E., Ikramullah, E. N., & Moore, K. A. (2006). The role of parent religiosity in teens' transitions to sex and contraception. *Journal of Adolescent Health*, 39(4), 578-587.
- Manlove, J., Logan, C., Moore, K. A., & Ikramullah, E. (2008). Pathways from family religiosity to adolescent sexual activity and contraceptive use. *Perspectives on Sexual and Reproductive Health*, 40(2), 105-117.
- McCree, D. H., Wingood, G. M., DiClemente, R., Davies, S., & Harrington, K. F. (2003). Religiosity and risky sexual behavior in African-American adolescent females. *Journal of adolescent health*, 33(1), 2-8.

- McMillen, E. K., Helm Jr, H. W., & McBride, D. C. (2011). Religious orientation and sexual attitudes and behaviors. *Journal of research on Christian Education*, 20(2), 195-206.
- McNeely, C., Shew, M. L., Beuhring, T., Sieving, R., Miller, B. C., & Blum, R. W. (2002). Mothers' influence on the timing of first sex among 14-and 15-year-olds. *Journal of adolescent health*, 31(3), 256-265.
- Meier, A. M. (2003). Adolescents' transition to first intercourse, religiosity, and attitudes about sex. *Social Forces*, 81(3), 1031-1052.
- Meschke, L. L., Zweig, J. M., Barber, B. L., & Eccles, J. S. (2000). Demographic, biological, psychological, and social predictors of the timing of first intercourse. *Journal of Research on Adolescence*, 10(3), 315-338.
- Miller, B. C. (2002). Family influences on adolescent sexual and contraceptive behavior. *Journal of sex research*, 39(1), 22-26.
- Miller, B. C., Norton, M. C., Curtis, T., Hill, E. J., Schvaneveldt, P., & Young, M. H. (1997). The timing of sexual intercourse among adolescents family, peer, and other antecedents. *Youth & Society*, 29(1), 54-83.
- Miller, L., & Gur, M. (2002). Religiousness and sexual responsibility in adolescent girls. *Journal of Adolescent Health*, 31(5), 401-406.
- Moore, E., Berkley-Patton, J., Bohn, A., Hawes, S., & Bowe-Thompson, C. (2015). Beliefs about sex and parent-child-church sex communication among church-based African American youth. *Journal of religion and health*, 54(5), 1810-1825.
- Moore, K. A. (1995). Adolescent sex, contraception, and childbearing: A review of recent research. *Child Trends, Inc.*
- Mott, F. L., Fondell, M. M., Hu, P. N., Kowaleski-Jones, L., & Menaghan, E. G. (1996). The determinants of first sex by age 14 in a high-risk adolescent population. *Family planning perspectives*, 13-18.

- Nonnemaker, J. M., McNeely, C. A., & Blum, R. W. (2003). Public and private domains of religiosity and adolescent health risk behaviors: Evidence from the National Longitudinal Study of Adolescent Health. *Social science & medicine*, 57(11), 2049-2054.
- O'Brien, L. A., Denny, S., Clark, T., Fleming, T., Teevale, T., & Robinson, E. (2013). The impact of religion and spirituality on the risk behaviours of young people in Aotearoa, New Zealand. *Youth Studies Australia [online]*, 32(4), 25.
- Patchen, L., LeTourneau, K., & Berggren, E. (2013). Evaluation of an integrated services program to prevent subsequent pregnancy and birth among urban teen mothers. *Social work in health care*, 52(7), 642-655.
- Raine, T., Minnis, A. M., & Padian, N. S. (2003). Determinants of contraceptive method among young women at risk for unintended pregnancy and sexually transmitted infections. *Contraception*, 68(1), 19-25.
- Regnerus, M. (2007). *Forbidden fruit: Sex & religion in the lives of American teenagers*. OUP USA.
- Regnerus, M. D. (2005). Talking about sex: Religion and patterns of parent–child communication about sex and contraception. *The Sociological Quarterly*, 46(1), 79-105.
- Remez, L. (1990). Adolescents' Attitudes Toward Premarital Sex Affect Religious Activity. *Family Planning Perspectives*, 22(1), 41.
- Resnick, M. D., Bearman, P. S., Blum, R. W., Bauman, K. E., Harris, K. M., Jones, J., ... & Ireland, M. (1997). Protecting adolescents from harm: findings from the National Longitudinal Study on Adolescent Health. *Jama*, 278(10), 823-832.
- Roberto, A. J., Carlyle, K. E., Zimmerman, R. S., Abner, E. L., Cupp, P. K., & Hansen, G. L. (2008). The short-term effects of a computer-based pregnancy, STD, and HIV prevention program. *Communication Quarterly*, 56(1), 29-48.
- Rostosky, S. S., Regnerus, M. D., & Wright, M. L. C. (2003). Coital debut: The role of religiosity and sex attitudes in the Add Health Survey. *Journal of sex research*, 40(4), 358-367.

- Rostosky, S. S., Wilcox, B. L., Wright, M. L. C., & Randall, B. A. (2004). The impact of religiosity on adolescent sexual behavior: A review of the evidence. *Journal of Adolescent Research, 19*(6), 677-697.
- Santelli, J. S., Lowry, R., Brener, N. D., & Robin, L. (2000). The association of sexual behaviors with socioeconomic status, family structure, and race/ethnicity among US adolescents. *American journal of public health, 90*(10), 1582.
- Schalet, A. T., Santelli, J. S., Russell, S. T., Halpern, C. T., Miller, S. A., Pickering, S. S., ... & Hoenig, J. M. (2014). Invited commentary: Broadening the evidence for adolescent sexual and reproductive health and education in the United States. *Journal of youth and adolescence, 43*(10), 1595-1610.
- Schwadel, P. (2016). Does higher education cause religious decline?: A Longitudinal analysis of the within-and between-person effects of higher education on religiosity. *The Sociological Quarterly, 57*(4), 759-786.
- Shafii, T., Stovel, K., Davis, R., & Holmes, K. (2004). Is condom use habit forming?: Condom use at sexual debut and subsequent condom use. *Sexually transmitted diseases, 31*(6), 366-372.
- Sheeran, P., Abrams, D., Abraham, C., & Spears, R. (1993). Religiosity and adolescents' premarital sexual attitudes and behaviour: An empirical study of conceptual issues. *European Journal of Social Psychology, 23*(1), 39-52.
- Sinha, J. W., Cnaan, R. A., & Gelles, R. J. (2007). Adolescent risk behaviors and religion: Findings from a national study. *Journal of adolescence, 30*(2), 231-249.
- Simons, L. G., Burt, C. H., & Peterson, F. R. (2009). The effect of religion on risky sexual behavior among college students. *Deviant Behavior, 30*(5), 467-485.
- Smith, C. (2003). Religious participation and network closure among American adolescents. *Journal for the Scientific Study of Religion, 42*(2), 259-267.
- Smith, C., & Snell, P. (2009). Souls in transition: The religious and spiritual lives of emerging adults.
- The World Bank (2017). *Adolescent fertility rates (births per 1,000 women ages 15-19)*. Retrieved from <http://data.worldbank.org/indicator/SP.ADO.TFRT>.

- Thornton, A., & Camburn, D. (1989). Religious participation and adolescent sexual behavior and attitudes. *Journal of Marriage and the Family*, 641-653.
- Timmermans, M., Van Lier, P. A., & Koot, H. M. (2008). Which forms of child/adolescent externalizing behaviors account for late adolescent risky sexual behavior and substance use?. *Journal of Child Psychology and Psychiatry*, 49(4), 386-394.
- U.S. Department of Health & Human Services (2015). *Trends in teen pregnancy and childbearing*. Retrieved from <http://www.hhs.gov/ash/oah/adolescent-health-topics/reproductive-health/teen-pregnancy/trends.html>.
- Upchurch, D. M., Levy-Storms, L., Sucoff, C. A., & Aneshensel, C. S. (1998). Gender and ethnic differences in the timing of first sexual intercourse. *Family planning perspectives*, 121-127.
- Vaughn, M. G., Maynard, B. R., Salas-Wright, C. P., Perron, B. E., & Abdon, A. (2013). Prevalence and correlates of truancy in the US: Results from a national sample. *Journal of adolescence*, 36(4), 767-776.
- Whitbeck, L. B., Yoder, K. A., Hoyt, D. R., & Conger, R. D. (1999). Early adolescent sexual activity: A developmental study. *Journal of Marriage and the Family*, 934-946.
- Widman, L., Choukas-Bradley, S., Helms, S. W., Golin, C. E., & Prinstein, M. J. (2014). Sexual communication between early adolescents and their dating partners, parents, and best friends. *The Journal of Sex Research*, 51(7), 731-741.
- Wright, A., Duffy, J., Kershner, S., Flynn, S., & Lamont, A. (2015). New opportunities in teen pregnancy prevention: Identifying individual and environmental differences between youth who abstain, use contraception, and use no contraception. *Journal of Community Psychology*, 43(8), 931-953.