

## **Going Most of the Way: “Technical Virginity” among Young Americans\***

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The first and third authors were supported by a research grant from the National Institute of Child Health and Human Development (R03-HD048899-01, Mark Regnerus, PI).

## **TITLE**

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## **ABSTRACT**

Reports from academic and media sources assert that many young people substitute non-vaginal sexual activities for vaginal intercourse in order to maintain “technical virginity.” Explanations of technical virginity are scarce but tend to focus on two rationales: avoiding sexual “sin” and reducing risk of unwanted outcomes. These accounts, however, are based on weak empirical evidence and considerable conjecture. Using data from Cycle 6 of the National Survey of Family Growth, we examine technical virginity and its motivations among respondents aged 15–25. The results suggest that religious adolescents are less likely than their counterparts to opt for non-vaginal sex over total abstinence. Abstinence pledgers who are virgins are neither more nor less likely than nonpledgers who are virgins to substitute non-vaginal sex for intercourse after accounting for their (higher) religiosity. In fact, religion and morality are the weakest motivators of sexual substitution among young people who have not had vaginal sex. Preserving technical virginity is instead more common among virgins who are driven by a desire to avoid potential life-altering consequences, like pregnancy and sexually transmitted diseases. Additionally, many technical virgins are simply waiting for the right person and time to come along before engaging in vaginal sex.

## **KEYWORDS**

Technical virginity, sexual behavior, abstinence pledging, religiosity

## **GOING MOST OF THE WAY: “TECHNICAL VIRGINITY” AMONG YOUNG AMERICANS**

Although instances of oral sex, anal sex, and mutual masturbation are far more common among those who also pursue vaginal intercourse, significant media and social scientific attention has been paid to those who abstain from vaginal sex while engaging in other forms of sexual activity—those dubbed “technical virgins” (Gagnon and Simon 1987; Gates and Sonenstein 2000; Woody et al. 2000). According to the *USA Today* and *The New York Times*, technical virginity is simply “part of teens’ equation” (Jayson 2005), and “many girls see [oral sex] as a means of avoiding pregnancy and of preserving their virginity” (Lewin 1997, p. 8). Social scientists report that about ten percent of adolescent girls and 15 percent of adolescent boys are technical virgins, but the proportion decreases with age (as rates of vaginal intercourse increase) such that only about four percent of 20–24-year-olds have had oral or anal sex but not vaginal sex (Mosher, Chandra, and Jones 2005). Moreover, about 30 percent of urban high-school students who have not had sex have participated in mutual masturbation (Schuster, Bell, and Kanouse 1996). There is little evidence that this practice of sexual “substitution” is anything new. In the early 1980s, about 15 percent of adolescent girls and 25 percent of adolescent boys had engaged in oral sex but not vaginal intercourse (Newcomer and Udry 1985).

But social scientists have yet to offer compelling explanations for technical virginity. Still, presumptions about the source of the behavior persist in spite of scant or dated empirical evidence. According to many observers (including scholars and journalists), technical virgins engage in non-vaginal sexual activities to avoid “sinful” behavior (sexual immorality), or to “stay pure.” For instance, religious young people are suspected of engaging in oral sex as a way

to adhere to cultural norms while still not explicitly violating their religious ones (Mahoney 1980).

Further, some scholars suspect that the abstinence pledge movement<sup>1</sup> (with its religious origins) may inadvertently encourage other forms of sex (Connolly 2005). This suspicion is based on the well-publicized finding that abstinence pledgers are more likely than nonpledgers to be technical virgins (Brückner and Bearman 2005). Although this finding is accurate, that study erroneously concludes that pledgers “who do not [have premarital sex] are more likely to substitute oral and/or anal sex for vaginal sex” (Brückner and Bearman 2005, p. 277).<sup>2</sup> Brückner and Bearman, however, do not analyze a sample of young people *who have not had premarital sex*; they analyze a sample of all young adults. If a higher proportion of pledgers abstain from vaginal sex, which their research suggests (Bearman and Brückner 2001), then it is possible that fewer of these virgin pledgers are substituting alternative forms of sex. In other words, the perceived prevalence of technical virginity (or substitution) among abstinence pledgers might be attributable to the fact that more pledgers are virgins in general. When only virgins are considered, then, substitution may be less common among pledgers.<sup>3</sup> The same may be true for religious young people who are virgins.

Other scholars suggest that technical virginity is less about maintaining virginity for its religious or moral implications and more about reducing risk to one’s “life chances” (Michels et al. 2005; Regnerus 2007). This explanation stresses that young people who have not had vaginal sex engage in non-vaginal sex to avoid life-altering consequences such as pregnancy or sexually transmitted diseases. Using a nationally representative sample of young people from Cycle 6 of the National Survey of Family Growth, this study empirically evaluates these two explanations—remaining “pure” and reducing risk—for technical virginity. In so doing, we ask and answer two

questions: (1) Are religious young people and abstinence pledgers who have not had vaginal sex substituting other forms of sex at higher rates than are other virgins, and (2) what reasons motivate technical virgins to substitute non-vaginal sex for vaginal sex? Before addressing these questions, however, we first discuss what we already know about technical virginity among American young people.

## **RELIGION, ABSTINENCE PLEDGING, AND TECHNICAL VIRGINITY**

### **Religion and Technical Virginity**

A common assumption about technical virginity is that religious young people substitute other forms of sex for vaginal sex in order to avoid violating religious teachings about nonmarital intercourse. Our empirical knowledge of the link between religion and technical virginity, however, is limited. Mahoney (1980) found that although college students with high degrees of self-reported religiosity were less likely to engage in a wide variety of sexual behaviors, including oral sex and manual stimulation, they were also more likely to have oral sex as a precursor to vaginal sex. The less religious typically had vaginal sex before they had oral sex. Further, technical virgins were found disproportionately among the highly religious (which may be because they were more likely to avoid vaginal sex). More recently, an ethnography of Southern California youth notes that many self-proclaimed virgins engage in a variety of sexual behaviors, all the while expressing their commitment to “staying pure...because that’s what God calls [them] to do” (Clark 2004, p. 133).<sup>4</sup>

This seemingly contradictory relationship between “purity” and non-vaginal sexual activity—if it does exist—could be the result of mixed definitions of “sex.” After all, only 40 percent of college students consider oral sex to be “sex” (Sanders and Reinisch 1999). Other studies find that number too high and suggest that almost all young people think that sex is only

about penile penetration of the vagina (Clark 2004). Regardless of who is correct, the meaning of sex in America is ambiguous and contested (Bogart et al. 2000; Remez 2000).

How *religious* young people define “sex” is not well documented. One study of California ninth-graders finds that respondents are significantly more likely to oppose vaginal sex on religious grounds than they are oral sex (Halpern-Felsher et al. 2005). This distinction between sexual behaviors, however, is not likely emanating from religious teachings. Few religious organizations—including conservative or evangelical ones—make clear moral distinctions among vaginal sex, oral sex, anal sex, and mutual masturbation (Remez 2000). Indeed, in-depth interviews of adolescents suggest that the most common definition of sex among religiously conservative adolescents does include oral and anal sex (Regnerus 2007). As one respondent in that study articulates, “If it has the word sex in it, then it’s sex.” There is likely more to the religion and technical virginity story than the ambiguous definition of sex.

Perceptions aside, theory of sexual behavior suggests that religious young people who have not had vaginal sex should be *less* likely to be technical virgins than their counterparts. Varying types and degrees of social embeddedness (such as in a religious community) may influence the sexual script<sup>5</sup> an individual follows (Ellingson et al. 2004). Further, institutional actors (like churches or denominations) are key players that determine “the meaning systems and scripts that guide sexual behaviors and relationships” (Ellingson et al. 2004, p. 25). The degree to which these scripts are adopted by young people may also depend on the value accorded the institution that promotes it (Smith 2003). Thus we would expect at least some young people who are embedded in religious communities and who value their religious faith to adopt the sexual scripts advocated by religious institutions.

The details of these religious sexual scripts, then, become important for our understanding of technical virginity. Do they include proscriptions of premarital, *non-vaginal* sexual activity? Some evidence indicates that they do. As noted above, religious organizations make no moral distinctions among different types of sexual activities (Remez 2000). Of course, young people may choose not to adhere to these sexual scripts and opt for the more permissive scripts promoted by secular culture (especially those who do not value their religious experience very much). As religious authority over sexual behavior continues to wane (Petersen and Donnenwerth 1997; Joyner and Laumann 2000; Ellingson 2004), this is increasingly the case. And whether or not religious communities articulate proscriptions of non-vaginal sex as frequently and as clearly as they do proscriptions of vaginal sex is not well understood. Yet there is little theoretical basis to support claims of *heightened* technical virginity among highly religious virgins.

### **Abstinence Pledging and Technical Virginity**

Perhaps because of its public policy implications, the non-vaginal sexual activity of abstinence pledgers has received much attention of late. Brückner and Bearman's (2005) finding, from Wave III Add Health data, that pledgers are more likely to be technical virgins than are nonpledgers has been misinterpreted (by an editorial in the same journal issue) to mean that abstinence pledgers are more likely to have oral and anal sex in general. According to Fortenberry (2005:270), "Pledgers are more likely to engage in non-vaginal oral-genital and anogenital sexual behaviors."<sup>6</sup> This claim has been disputed using the same Add Health data. Significant differences are found between pledgers and nonpledgers, but it is those who pledge who are less likely to have had oral sex (63 vs. 73 percent) and anal sex (15 vs. 22 percent) (Rector and Johnson 2005). However, the assertion that *virgin* pledgers are more likely to have

had non-vaginal sex than virgins who have not pledged (Brückner and Bearman’s claim) remains unchallenged. But as with religious organizations, pledging organizations should theoretically reduce the incidence of technical virginity among their constituency, not increase it. The sexual scripts advocated by pledging organizations, like those endorsed by religious communities, are inclusive of all forms of sexual activity. *True Love Waits*, a prominent pledging organization, proclaims, “Until you are married, sexual purity means saying no to sexual intercourse, oral sex, and even sexual touching. It means saying no to a physical relationship that causes you to be ‘turned on’ sexually. It means not looking at pornography or pictures that feed sexual thoughts” (“FAQ about TLW” 2005). Although sexuality “has a plasticity and variegated logic of its own” that often undermines organizational efforts to control it (Ellingson 2004, p. 308), pledging—at the very least—should not *encourage* technical virginity.

## **RISK REDUCTION AND TECHNICAL VIRGINITY**

Given the restrictive sexual scripts taught by religious communities and pledging organizations, some argue that technical virginity is less about avoiding sinful behavior and more about reducing pregnancy and STD risk. After all, adolescents consider oral sex much less risky than vaginal sex when it comes to contracting a sexually transmitted disease or getting (someone) pregnant (Halpern-Felsher et al. 2005). Regnerus (2007) concludes that the technical virginity phenomenon is evidence of a nascent “middle class morality,” which is neither about religion nor sexual abstinence but rather avoiding hindrances to future schooling plans and socioeconomic life chances. The average technical virgin has no *moral* objection to vaginal intercourse, he argues, and the phenomenon is noted more readily among mainline Protestant and Jewish adolescents—traditionally some of the least religious and most economically advantaged young people (Smith and Denton 2005; Pyle 2006). African-American adolescents, typically less

economically advantaged than white youth, are seldom technical virgins. They instead tend to skip non-vaginal sexual behaviors and to prefer vaginal intercourse (Smith and Udry 1985; Regnerus 2007). Adolescents espousing this new middle class sexual script are generally not interested in remaining virgins per se (for moral reasons) but may nevertheless exhibit the pattern of behavior identified as technical virginity. Instead, they are interested in remaining free from the burden of pregnancy and the sorrows of STDs, so they trade the “higher” pleasures of actual intercourse for a set of low-risk substitutes: coupled oral sex, mutual masturbation, and solitary pornography use (and masturbation). They perceive a bright future for themselves: college, an advanced degree, a career, a family. Simply put, too much seems to be at stake. Sexual intercourse is not worth the risks. Intercourse, then, is suspended temporarily and replaced by lower risk alternatives.

If this theory of “middle class morality” is correct, we would expect technical virginity to be most common among young people with a high educational trajectory and low religiosity; their motivation for abstinence would be based not on religion or morality but on fear of pregnancy and STDs—outcomes that significantly hamper future health and socioeconomic prosperity. Technical virginity would be less about virginity maintenance (for reasons of “purity”) and more about risk-aversion.

## **DATA**

The data for this study come from Cycle 6 (2002) of the National Survey of Family Growth (NSFG). The NSFG is a nationally representative survey of 12,571 women and men aged 15–44 and is focused on factors affecting pregnancy and birthrates, men’s and women’s health, and parenting. The survey was commissioned by the National Center for Health Statistics (NCHS) and conducted by the Institute for Social Research at the University of Michigan.

Funding was provided by eight programs and agencies of the U.S. Department of Health and Human Services, including the National Institute of Child Health and Human Development (NICHD) and the Centers for Disease Control and Prevention (CDC). The survey included detailed questions about a variety of sexual behaviors and also a brief assessment of the respondents' religiosity.

The NSFG employed a multistage probability sampling design. At Stage 1, 121 primary sampling units (cities/counties) were selected from more than 2,400 around the U.S., including 11 Hispanic primary sampling units. At Stage 2, these primary sampling units were separated into blocks, which were subsequently divided into four domains by their racial composition. Blocks were then selected with probabilities proportionate to the estimated number of households in the block according to the 2000 census. Next (Stage 3), housing units were chosen from each block. Housing units within blocks with higher proportions of minorities (i.e., Hispanics and African-Americans) were chosen at higher rates to obtain an oversample of these groups. Lastly, in Stage 4 of the design, an eligible respondent from each housing unit was randomly selected and interviewed in his or her home by a trained female interviewer. Sensitive questions were administered using an audio computer-assisted self-interviewing (ACASI) technique.

The NSFG obtained an overall response rate of 79 percent.<sup>7</sup> When weights are applied (to account for unequal probability of selection), the NSFG can be treated as a nationally representative survey of U.S. women and men aged 15–44. For this study, we restrict our sample to unmarried 15–25-year-olds. Prior to listwise deletion of missing values, our working sample size is 4,278. For more information about Cycle 6 of the NSFG, see Groves et al. (2005).

## **MEASURES**

## Dependent Variables

The first dependent variable for this study is a classification of American young people based on their heterosexual behavior.<sup>8</sup> Our four-category typology is constructed from the following yes/no questions posed by NSFG:

- “Have you ever had sexual intercourse with a [male/female] (sometimes this is called making love, having sex, or going all the way)?”
- “Have you ever put your mouth on a [female’s vagina/man’s penis] (also known as oral sex or [cunnilingus/fellatio])?” and “Has a [female/male] ever put [her/his] mouth on your [penis/vagina] (also known as oral sex or [fellatio/cunnilingus])?”
- “Ha[ve/s] [you/a male] ever put [your/his] penis in [a female’s/your] rectum or butt (also known as anal sex)?”

Based on responses to these questions, we classify respondents in the following way:

- **Technical virgins:** Respondents who answered “yes” to at least one of the oral sex questions or the anal sex question but “no” to the vaginal sex question are labeled “technical virgins.”
- **Total abstainers:** Respondents who answered “no” to all of the questions listed above are referred to as “total abstainers.”
- **Mixed sexual practitioners<sup>9</sup>:** Respondents who said they had had vaginal sex *and* one of the other types of sex are considered “mixed sexual practitioners.”
- **Sexual traditionalists:** Respondents who answered “yes” to the vaginal sex question but “no” to the other questions are termed “sexual traditionalists.”

We do not include a category for those who have had anal sex only, since these individuals constitute less than one-tenth of one percent of the 15–25-year-old population.

We also utilize a variable that measures an individual's participation in manual genital stimulation. The NSFG asked male respondents younger than 20 years old if a female had ever touched his penis until ejaculation. We consider this another type of sexual behavior, and it is coded dichotomously (yes=1). We do not include it in our classification, however, because data are available only for adolescent boys.

### **Key Independent Variables**

Our key independent variables assess the respondents' level of religiosity, their identification with the abstinence pledge movement, and virgins' motivations for remaining abstinent. The first religion measure, religious service attendance, taps an individual's involvement in a moral community and that individual's level of public religiosity. Religious service attendance is typically a good measure of religiosity because it requires a certain level of (repeated or continued) religious commitment on the part of the respondent. To gauge this facet of religiosity, NSFG asked respondents, "About how often do you attend religious services?" Five response categories were offered: "never," "less than once a month," "1-3 times a month," "once a week," and "more than once a week." We code these from 1-5, with a higher number representing more frequent attendance.

Religion is multidimensional, however, and a measure of religious service attendance does not fully capture levels of religious influence. Public religiosity and private religiosity each independently affect vaginal sexual behavior, even after controlling for the other (Nonnemaker, McNeely, and Blum 2003). To gauge this private aspect of religiosity, interviewers asked, "Currently, how important is religion in your daily life? Would you say it is very important, somewhat important, or not very important?" We code this measure of salience from 1-3, with a higher number representing higher religiosity.<sup>10</sup>

The NSFG also includes a measure of pledging status. Respondents aged 15–19 were asked, “[Did you ever take/Have you ever taken] a public or written pledge to remain a virgin until marriage?” We create a dummy variable for this measure. Respondents who answered yes are coded as 1; those indicating they did not pledge are coded as 0.

We also consider respondents’ motivations for maintaining virginity (i.e., abstinence from vaginal sex). NSFG probed the primary motivation for abstinence among virgins with the following question: “As you know, some people have had sexual intercourse by your age and others have not... What would you say is the *most* important reason why *you have not had* sexual intercourse up to now?” Respondents had six responses from which to choose: “against religion or morals,” “don’t want to get [a female] pregnant,” “don’t want to get a sexually transmitted disease,” “haven’t found the right person yet,” “in a relationship, but waiting for the right time,” and “other.”<sup>11</sup>

### **Control Variables**

Sexual behavior, religion, and pledging are known to vary by sociodemographic variables. For this reason, we include a set of demographic control variables in our multivariate analyses. Age and gender (female=1) are accounted for, as are race (reference group=white), urbanicity (reference group=lives in MSA, central city), and living environment (living with parents=1). As a measure of socioeconomic status, we also consider the average education of the respondents’ parents (0=no parent has college degree; 0.5=one parent has college degree; 1=both parents have college degree). Additionally, we include a set of dummies for educational attainment. Respondents are divided into several groups: those still in high school, those who have dropped out of high school or finished high school but did not go on to college, those in college (reference group), those with an associate’s degree, and those with a bachelor’s degree or

higher. Sexual behavior also varies by one's religious reference group, or religious tradition (Cochran et al. 2004). Loosely following the classification system devised by Steensland et al. (2000), we place respondents in one of six categories, based on the denomination with which they affiliate: evangelical Protestant, mainline Protestant, black Protestant, Catholic, "other religion," and no religion. For descriptive statistics of all variables, see Appendix A.

## **ANALYTIC APPROACH**

First, we assess the veracity of the claims that religious young people and abstinence pledgers who have not had vaginal sex are more likely than their counterparts to be technical virgins. We begin by providing simple statistics that reveal the general prevalence of different types of sexual activity—broken down by religious and pledging characteristics—among young Americans. We then display the percentage of virgin respondents who engage in each type of non-vaginal sexual activity. Next, we employ multinomial logit modeling to evaluate religious and pledging effects on different types of sexual behavior, net of possible confounding effects. Because the pledging question is asked only of respondents 15–19 years of age, and because previous research (Brückner and Bearman 2005) has analyzed young adults only, we split our sample in two and separately evaluate 15–19- and 20–25-year-olds for this portion of our analysis.

Second, we determine technical virgins' motivations for abstinence from vaginal sex. We first report the primary motivation for abstinence among all virgins in the sample, and then these virgins' motivations by their non-vaginal sexual experience. We subsequently display the prevalence of sexual activity among virgins by their motivation for abstinence. Finally, we use logistic regression models to evaluate how these motivations predict technical virginity.<sup>12</sup>

In order to accommodate the multiple design weights that accompany NSFG data, we generate all analyses using “svy” estimators in Stata, which account for the strata, the primary sampling unit, and the unequal probability of being included in the sample (StataCorp 2006).

Table 1 about here

## RESULTS

### Religion, Pledging, and Technical Virginity

Table 1 displays the percentage of unmarried young people who fall into each type of sexual classification. To begin, technical virginity is fairly rare among young Americans. Only about ten percent of young people have had only oral and/or anal sex. By contrast, about one-quarter of American young people abstain from all types of sex; total abstinence is much more common than technical virginity by a ratio of two-and-a-half to one. The majority of 15–25-year-olds—almost 60 percent—have had both oral and/or anal sex *and* vaginal sex. Those who have had vaginal sex are likely to have also had another type of sex: only six percent of young people are sexual traditionalists.

Sexual behavior is clearly patterned by age. Technical virginity is more prevalent during adolescence; by early adulthood, however, vaginal sex becomes much more common, and technical virginity and abstinence wane. Only five percent of unmarried young adults are technical virgins, compared to almost 15 percent of adolescents. An even more drastic difference is apparent when it comes to total abstinence. While 40 percent of adolescents are total abstainers, only one-tenth of young adults are.

Participation in types of sexual behavior varies widely by religiosity measures. Technical virginity is most common among the most frequent church attenders. Just over 13 percent of those who attend religious services more than once a week are technical virgins, compared to just

seven percent of nonattenders. At the same time, however, total abstinence also increases dramatically with more frequent attendance at religious services, and mixed sexual practicing decreases. The pattern is different when it comes to religious salience. There is no clear variation in technical virginity by respondents' reports of the importance of religion in their lives. About ten percent of each group has had oral and/or anal sex only. Total abstinence, on the other hand, increases drastically with increases in religious salience. Only about 14 percent of young people who claim religion is not important have remained totally abstinent, compared to 38 percent of young people who say religion is very important to them. As with increased church attendance, increased religious salience corresponds with a decrease in mixed sexual practice.

The difference between abstinence pledgers and those who do not pledge is slight when it comes to technical virginity. About 17 percent of pledgers have oral and/or anal sex only, compared to just over 14 percent of nonpledgers. As we saw with religious service attendance, however, this slight increase in technical virginity is accompanied by a drastic increase in total abstinence. Nearly two-thirds of abstinence pledgers are total abstainers, compared to just over one-third of nonpledgers. This high prevalence of total abstention is reflected by low levels of mixed sexual practice. Only about 18 percent of pledgers have had both vaginal sex and oral or anal sex, compared to 44 percent of nonpledgers.

Table 1 suggests that technical virginity—substituting oral or anal sex for vaginal sex—is more common among religious and (to a lesser extent) pledging young people. However, total abstinence is also much more common among these individuals. Given this higher level of abstinence from vaginal sex, it is unclear whether technical virginity is more common among religious and pledging virgins. Are religious young people and pledgers who have not had vaginal sex more likely than other virgins to choose technical virginity over total abstinence?

Table 2 about here

Findings from Table 2 suggest that the answer to this question is “no.” In fact, these bivariate statistics suggest that it is just the opposite: Virgins who are more religious and who pledge abstinence are less likely to have oral sex. While about a third of virgin young people who attend church less than weekly have had oral sex, only about a fifth of weekly (and more than weekly) attenders have. The disparity is even more pronounced when differences in religious salience are considered. About 21 percent of virgins who say religion is very important to them have had oral sex, whereas 41 percent of those who say religion is not important have had oral sex.

Virgin pledgers are also less likely than virgin nonpledgers to have had oral sex: Only 21 percent of virgins who have pledged to remain abstinent until marriage opt to have oral sex, compared to 28 percent of virgins who do not pledge. This difference, however, is not nearly as pronounced as it is between the religious categories.

Oral sex is not the only type of sexual behavior that young people can substitute for vaginal intercourse, but it is apparently a more preferred option than anal sex. Less than two percent of virgins report having had anal sex. Its occurrence is so rare that conclusions can hardly be drawn. Anal sex appears slightly less frequently among the religious, but the difference is a matter of one percentage point. Pledging does not appear to make a difference when it comes to anal sex. But again, anal sex among virgins is so uncommon that it is impossible to identify a clear pattern among any of the independent variables.

Although representing only boys aged 19 and younger, NSFG data reveal that manual genital stimulation occurs at about the same rate among virgins as does oral sex.<sup>13</sup> Religious variations, however, are less clear. There appears to be a curvilinear effect of religious service

attendance on manual stimulation: The most frequent attenders and nonattenders are each less likely than sporadic attenders to have been manually stimulated by a girl. Those who value religion the most, however, are clearly less likely to have been manually stimulated than those who claim religion is not important or only somewhat important. Pledging does not have much effect on this behavior. Only about three percentage points separate the nonpledgers from the pledgers.

Table 2, then, reveals a more complex story than might be grasped from just a cursory glance at Table 1. While religious young people and pledgers do disproportionately fall into the technical virginity column (in Table 1), they also fall disproportionately into the total abstinence column. Therefore, when only those who have not had vaginal sex are considered, technical virginity is more pronounced among the less religious and among nonpledgers. Earlier findings to the contrary (e.g., Brückner and Bearman 2005) appear to be the result of the fact that there is a higher proportion of pledgers who are virgins than of nonpledgers who are virgins. Of course to this point these conclusions have been drawn from bivariate associations. To ensure that these relationships are not actually explained by some other characteristic (e.g., race or education), we turn to multivariate analysis.

Tables 3 and 4 about here

Tables 3 (15–19-year olds) and 4 (20–25-year-olds) display relative risk ratios from multinomial logistic regression models predicting young people’s participation in different types of sexual behaviors. The first columns from Tables 3 and 4 reveal that more religious young people do not tend to be technical virgins as opposed to total abstainers. In the case of 15–19-year-olds, these young people are actually less likely than their less religious counterparts to have oral or anal sex. A one-unit increase in self-reported importance of religion translates to a

45 percent reduction in the risk of being a technical virgin versus a total abstainer. Such increased religiosity does not predict total abstinence among young adults (aged 20–25), but neither does it predict technical virginity. Adolescent pledgers, like the religious young people in Table 4, are neither more nor less likely than nonpledgers to opt for technical virginity over total abstinence. Appendix B, however, suggests that pledgers are actually less likely to be technical virgins than to remain totally abstinent when religiosity is not considered. Put another way, abstinence pledgers are more likely to remain totally abstinent than other virgins, but the difference is attributable to heightened religiosity among pledgers, not the pledge itself.

The second and third columns of Tables 3 and 4 reveal the root of the preponderance of religious technical virgins and pledging technical virgins witnessed in Table 1 and reported earlier by Mahoney (1980) and Brückner and Bearman (2005). When technical virgins are compared to those who have oral or anal sex *and* vaginal sex, religious young people are much more likely to opt for technical virginity. The religious effect is especially pronounced among the young adults in Table 4. Each one-unit increase in religious service attendance among 20–25-year-olds results in almost a 50 percent increase in the probability that the respondent will be a technical virgin and not a mixed sexual practitioner. Religious salience also has its own independent effect on this distinction among young people in their 20s. Though the impact of religion is weaker during adolescence, increased church attendance still predicts technical virginity over mixed sexual practice.

Religion does not appear to be a significant determinant of technical virginity versus sexual traditionalism among either age group. Pledging, however, is significant for both distinctions (technical virgin vs. mixed sexual practitioner and technical virgin vs. sexual traditionalist) among 15–19-year-olds. Young people who sign an abstinence pledge are almost

two-and-a-half times more likely to be technical virgins than to have both vaginal sex and either oral or anal sex. They are more than three times as likely to choose technical virginity over sexual traditionalism. Given these risk ratios, it is not surprising that religious young people and pledgers are more commonly technical virgins. These individuals are more likely than their counterparts to choose technical virginity over vaginal sex.

Interestingly, the relative risk ratios in Tables 3 and 4 indicate that technical virginity is more likely among those with higher educational trajectories. Technical virginity is less likely among non-college students (aged 20–25), and more likely among adolescents (aged 15–19) whose parents are more highly educated. These findings hint that sexual substitution may indeed be more about educational and career trajectory than about religion or virginity maintenance.

Finally, the lack of significant findings among young adults (in Table 4) may reflect the fact that technical virginity is simply rare and difficult to predict among this age group. Recall that only five percent of young people aged 20–25 are technical virgins. Virginity in general is rare at this age, and technical virginity even more so.

The findings from Tables 2–4 call into question the claims that religious young people and abstinence pledgers who do not have vaginal sex are more likely to engage in other sexual activities. The risk ratios in Tables 3 and 4 suggest that technical virginity may be more about risk reduction than maintaining sexual “purity.” To more clearly determine what motivates technical virginity, we next consider young people’s expressed primary motivation for abstinence from vaginal sex.

### **Motivations for Technical Virginity**

Table 5 about here

Table 5 reveals the primary motivation for abstinence among virgins, overall and by their non-vaginal sexual behavior. Virgins tend to fall into one of three major categories: religious abstainers, risk-reducing abstainers (those who are trying to avoid pregnancy and STDs), and virgins who are waiting for the right time or person to come along. A plurality of virgins—38 percent—abstains from vaginal sex for religious or moral reasons. Fear of pregnancy and STDs motivates about 26 percent of virgins to abstain, and another 27 percent are waiting to have sex until the right time or until they meet the right person. When we consider technical virgins (those who have engaged in non-vaginal sexual behaviors), we find that religious virgins are not as numerous as they are in the overall virgin sample. Religious abstainers account for about 30 percent of virgins who have had oral sex, 35 percent of those who have had anal sex,<sup>14</sup> and only 22 percent of those who have been manually stimulated to ejaculation. Those who fear pregnancy and STDs are overrepresented in each category, compared to their representation among virgins overall. About 32 percent of virgins who have had oral sex abstain for fear of pregnancy or STD. These risk-reducing abstainers also account for about half of virgins having anal sex, and more than a third of those experiencing manual stimulation. Abstainers who are waiting for the right time or person make up 32 percent of the virgins who have had oral sex, while only 14 percent of virgins who have anal sex give one of these two reasons. Additionally, about 26 percent of boys who have been manually stimulated abstain from vaginal sex because they are waiting for the right time or person.

Table 5 shows that religious abstainers make up a smaller proportion of technical virgins than of virgins overall. In contrast, risk-reducing abstainers account for a larger proportion of technical virgins than would be expected from the overall numbers (and, in the case of substituting oral sex, so do those who are waiting for the right time or person). So which virgins

are most likely to be technical virgins? Table 6 presents the sexual behaviors of virgins, broken down by their primary motivation for abstinence. If religion is not actually restricting technical virginity (or if it is actually encouraging the behavior), we would expect those who abstain for religious reasons to engage in oral sex at rates similar to or higher than those who abstain for other reasons. But this is not the case. As Table 6 demonstrates (and Table 5 intimated), religious abstainers are the least prone to engage in oral sex. Only 22 percent do so, compared to 36 percent of those who fear pregnancy, 35 percent of those waiting for the right time, 32 percent of young people who haven't found the right person, and 27 percent of those who fear STDs. Simply put, people who abstain for explicitly religious reasons do appear to refrain from oral sex at higher rates than other virgins.

Table 6 about here

These religiously motivated virgins also appear more apt to avoid manual stimulation (to ejaculation). Only 20 percent of religiously motivated male abstainers have been manually stimulated by a girl. On the other hand, manual stimulation has occurred among 44 percent of virgins who fear pregnancy, 36 percent of those waiting for the right time, 33 percent of those fearful of STDs, and 24 percent of those who haven't yet found the right person. Anal sex, as was evident from Table 2, is extremely rare among virgins, yet it occurs most frequently among those virgins who fear pregnancy and (ironically) sexually transmitted diseases.

Table 7 about here

Table 7 presents odds ratios from logistic regression models predicting oral and/or anal sex and manual stimulation among virgins. The bivariate associations in Table 6 remain significant in multivariate analysis. Those who abstain for religious reasons (the suppressed reference group) are less likely to have had oral or anal sex than all other virgins. The differences

are quite substantial, in fact. A similar story emerges when manual stimulation is considered. Net of controls for demographics, boys who abstain from sex for religious reasons are less likely than all other virgin boys to have been manually stimulated by a girl (except than those who are looking for the right person, but the difference there is not significant). Non-vaginal sexual activities are most common among those who are trying to avoid pregnancy.

These findings, using a proximal measure of motivation for technical virginity, suggest that religion does indeed have a restricting influence on technical virginity—or at the very least, not an aggravating influence. The results also suggest that substitution is most prevalent among virgins seeking to reduce risk and waiting for the right time or person, not among those attempting to “stay pure.”

## **DISCUSSION AND CONCLUSIONS**

We began by asking two questions: (1) Are religious young people and abstinence pledgers who have not had vaginal sex substituting other forms of sex at higher rates than are other virgins, and (2) what reasons motivate technical virgins to substitute non-vaginal sex for vaginal sex? Our analyses suggest that the answer to this first question is “no,” despite scholarly reports to the contrary (Mahoney 1980; Brückner and Bearman 2005). Religious adolescents who have not had vaginal sex are actually less likely to substitute non-vaginal forms of sex for vaginal intercourse. Among young adults, there is no distinguishable difference between the religious and the nonreligious when it comes to technical virginity. This could, on one hand, be a sign of waning religious influence as individuals age. The restrictive sexual script adopted by many religious adolescents may lose its appeal over time, and these individuals might opt for the cultural sexual scripts that are presented to them. On the other hand, it could simply be that virginity and technical virginity are very rare phenomena and difficult to predict among young

adults. Whichever the case, it is difficult to argue that religion *encourages* technical virginity among young adults.

A higher proportion of abstinence pledgers are indeed technical virgins (Brückner and Bearman 2005), but a much higher proportion of these individuals are also totally abstinent. Therefore, when we compare virgin pledgers to virgin nonpledgers, we find that abstinence pledgers who do not have premarital sex are actually *less* likely than their counterparts to have oral or anal sex. This difference (which is only marginally significant in the first place), however, is explained by their elevated levels of religiosity, not by a formal pledge itself. Pledgers' overrepresentation among technical virgins is explained by their avoidance of vaginal sex, not by an unusual proclivity to substitute oral or anal sex for vaginal sex. Claims of heightened sexual substitution among these individuals are simply unfounded.

Having addressed previous assertions about religious young people, abstinence pledging, and technical virginity, we set out to determine what motivates technical virginity. We find that there are three common motivations: (1) adhering to religious or moral teachings about vaginal sex, (2) reducing the risk of pregnancy or STD acquisition, and (3) waiting for the right time or the right person before having vaginal intercourse.

Even though religion is a weak motivation for sexual substitution (the weakest among the options presented here), it is not as though religious technical virgins do not exist. Because of the sheer number of religious virgins, nearly one-third of technical virgins are motivated by religious or moral principles (in spite of the relatively small proportion of religious abstainers that choose technical virginity). These individuals may very well view technical virginity as a means of conforming to cultural sexual scripts while not violating religious teachings on vaginal sex. But the majority of religious young people who have not yet had vaginal sex stick to their religious

sexual scripts, which do seem to include proscriptions of premarital, non-vaginal sexual behavior (Remez 2000).

Yet those who adhere to a religious sexual script do so not primarily because of their social embeddedness in a religious community. Rather, it is religious young people who evidence a strong personal faith—those likely to *internalize* religious sexual scripts—who avoid non-vaginal sexual behaviors (in addition to their avoidance of vaginal sex). The threat of (informal or formal) social sanctions from religious organizations and communities fails to deter adolescents from technical virginity, although it does seem to restrict the occurrence of vaginal sex. Premarital non-vaginal sex is not quite as stigmatized within religious communities as premarital vaginal sex, despite what the official organizational stance might be. Therefore, internal religious motivation, not social control, is the driving force of total abstinence for religious individuals.

The second group of technical virgins is those who avoid vaginal intercourse because of the risks it poses to their health, well-being, and future plans. This rationale—risk-reduction—appears to be the best motivation for technical virginity among young people who have not had vaginal sex. Technical virginity is most common among these individuals who are driven by a desire to avoid pregnancy and sexually transmitted diseases. Much is at stake for these individuals. They are more likely to come from homes with educated parents and to be on track to attend (or are already attending) a four-year college themselves. Vaginal sex is simply not worth the damage it could incur upon their educational and career trajectories, and thus it is replaced for a time by lower-risk alternatives such as oral sex. Their behavior is reflective not of their religious morality, but of their desire to perpetuate their social class standing (Regnerus

2007). By young adulthood, however, most of these technical virgins consider intercourse worth the risk, or have become comfortable with contraception, or both.

Although many technical virgins are motivated by religion and by risk-reduction, many others have simply embraced a sexual script that defines non-vaginal sexual activities as stepping stones on the path to the pinnacle of intimacy (per their script), vaginal intercourse. These individuals are “technical virgins” by definition, but their technical virginity is less about strategic planning and more about selectiveness and the progression of intimacy. These technical virgins are just waiting for the right time and person to come along before taking that final step, or “going all the way.” Technical virginity wanes as young people age in part because by young adulthood, the “right person” or the “right time” usually comes along.

### **Limitations**

There are always limitations when using cross-sectional data, not the least of which is our inability to measure religiosity and abstinence pledging prior to sexual activity in the first part of our analysis. Brückner and Bearman (2005) find that 11 percent of abstinence pledgers are “secondary virgins”—that is, they had vaginal intercourse before they pledged abstinence and were promising to remain abstinent from that point forward. If this is the case, pledging effects will be underestimated in this study. If, however, people engage in sexual activity and then curb their religiosity<sup>15</sup> or forget their pledge, as some pledgers are known to do (Rosenbaum 2006), our results could be overestimations. Nevertheless, we are not primarily interested in identifying antecedents of technical virginity but are instead concerned with understanding the contemporary prevalence of technical virginity among subgroups of young Americans and their expressed motivation for the behavior. Furthermore, we are interested in technical virginity during

adolescence (when it is most popular), and the National Longitudinal Study of Adolescent Health includes data on oral and anal sex only in its third wave, when respondents were young adults.

Social desirability may also be a factor outside our control. Abstinence pledgers may be more prone to conceal instances of intercourse that they consider experimental or no longer in line with their current behavior (Rosenbaum 2006). This is a limitation to which all survey research on sensitive behaviors is subject.

Finally, technical virginity may well be some sort of rational, calculated decision made by young people. But alternative explanations for the phenomenon may also be valid. Some of these individuals may very well wish that they had remained totally abstinent; adolescents sometimes regret their sexual activity after it has taken place (Regnerus 2007). Some young people may get “caught up in the moment,” feel pressure to have oral sex, or have it forced upon them. Or perhaps oral sex is the only option presented to them by their partner. Still further, they may simply prefer the idea of oral sex to vaginal sex.

## **Conclusions**

This study has evaluated the claims that religious young people and abstinence pledgers who have not had vaginal sex are more likely to engage in other sexual activities. Additionally, we have sought to understand young people’s motivations for technical virginity. We conclude that technical virginity is more common among the religious and those who sign abstinence pledges because *virginity* is more common among these young people. Among virgins, however, religious young people and abstinence pledgers, if anything, are *less* likely to have oral and/or anal sex. So while many religious young people and abstinence pledgers who have not had vaginal sex are at risk for acquiring STDs by virtue of their sexual substitution, technical virginity is not more pronounced among these individuals.

Reducing risk is the most compelling motivation for technical virginity. Young people who avoid vaginal sex because they fear pregnancy or sexually transmitted diseases are more likely than religious abstainers to engage in non-vaginal sexual activities. Additionally, many technical virgins are simply waiting for the right relationship or circumstance before engaging in vaginal sex because they are not yet ready or have not had the opportunity to have vaginal sex. Oral sex simply precedes vaginal sex in their sexual script. These virgins are also more likely than religious virgins to have oral or anal sex. Yet there are still a large number of religious technical virgins, because more virgins are motivated by religion than by anything else.

## ENDNOTES

<sup>1</sup> Launched in 1993 with the formation of *True Love Waits*, an organization created by the Southern Baptist Convention, the pledging movement now consists of over one hundred loosely connected groups. Many of these groups continue to be religious, and abstinence pledges are appealing mostly to religious adolescents who are concerned about sexual morality. These pledging organizations endorse a variety of reasons to abstain from sex until marriage, including what they perceive to be the “failure” of contraceptives, the “horrors” of (untreated) STDs, the importance of giving your spouse the “gift” of virginity, and biblical teachings about sexual morality. Secularized pledging organizations, which emphasize that abstinence is the only foolproof way to avoid pregnancy and STDs, have also been developed as a tool for disseminating abstinence-only sex education in public schools. More than 2.5 million adolescents have taken an abstinence pledge (Bearman and Brückner 2001).

<sup>2</sup> To be fair, Brückner and Bearman (2005) do not make much of this finding in their study. Nonetheless, it was a media hit and was later reiterated by the study’s second author on the national news program *60 Minutes* (see “Taking the Pledge” 2005).

<sup>3</sup> Furthermore, technical virginity is uncommon in Brückner and Bearman’s Add Health sample. Only about three to four percent of young adults are technical virgins (Brückner and Bearman 2005; Mosher et al. 2005). While statistically significant differences between pledgers and nonpledgers may exist (probably by virtue of there being far more virgins among the former), this difference may not be substantively significant, since it applies to only a minute proportion of the young adult population. Technical virginity among adolescents, however, is more common (Mosher et al. 2005) and more a part of adolescent social milieu. Differences between adolescent pledgers and nonpledgers may be more substantively important.

<sup>4</sup> Clark (2004), however, notes that he did not directly discuss sexuality or sexual behavior with his study participants.

<sup>5</sup> Sexual scripts specify “the kinds of sexual behavior that can occur, the type(s) of persons appropriate as partners for that behavior, and the time(s) and place(s) in which that form of sexual expression is appropriate” (DeLamater 1987:238).

<sup>6</sup> This claim was promulgated by a variety of media outlets, including *60 Minutes*, *The Today Show* and *Real Time with Bill Maher*. For a more complete list, see Rector and Johnson (2005).

<sup>7</sup> This response rate was calculated using the AAPOR double sampling computation method, which does not reflect unequal probabilities of selection within phases.

<sup>8</sup> While of great import, we do not consider same-sex behavior in this study.

<sup>9</sup> This label is not to imply that these individuals are continuing to have vaginal sex and another form of sex. We cannot determine this. It simply means that at some point, these individuals have had both vaginal sex and either oral or anal sex.

<sup>10</sup> Individuals who indicated that they had “no religion” on a previous question (about religious affiliation) were skipped out of this question. Rather than lose more than 800 (nonrandom) cases, we code these respondents as 1 (“not important”).

<sup>11</sup> This variable also appears as a dependent variable in Table 5.

<sup>12</sup> Because sexual activity and religiosity are both known to vary by gender, we conducted all analyses with our sample split by gender. Although the percentages and magnitude of the relative risk and odds ratios varied, splitting our sample did not change any of our key stories or add much to our analysis. Results from these ancillary analyses are available upon request. Similarly, we tested for differences among racial groups. No key stories changed, although black adolescents who attend church more frequently are more likely than their white counterparts to

opt for technical virginity over total abstinence (i.e., a statistical interaction between black and church attendance).

<sup>13</sup> About 27 percent of 15–19-year-old virgin boys have had oral sex (results not shown).

<sup>14</sup> Recall that less than two percent of virgins have had anal sex, rendering this statistic somewhat meaningless.

<sup>15</sup> Adolescents do not reduce their religiousness after engaging in vaginal sex (Hardy and Raffaelli 2003; Meier 2003), but the effects of non-vaginal sex on subsequent religiosity are not known.

**Table 1**  
**Sexual Behavior of Unmarried 15–25-Year-Olds (in percent), by Age, Religiosity, and Pledging, NSFG**

	Technical virgins	Total abstainers	Mixed sexual practicers	Sexual traditionalists
15–25-year-olds	10.0	25.9	58.0	6.1
15–19-year-olds	14.4	40.0	40.3	5.3
20–25-year-olds	5.0	10.0	77.9	7.1
<i>Religious Service Attendance</i>				
Never	7.2	15.3	71.3	6.2
Less than once a month	9.2	18.4	67.8	4.6
One–three times a month	11.4	22.7	58.1	7.8
Once a week	12.7	41.2	39.2	7.0
More than once a week	13.2	52.3	28.7	5.8
<i>Importance of Religion</i>				
Not important	9.8	14.1	70.2	5.9
Somewhat important	10.1	22.7	62.4	4.8
Very important	10.1	37.8	44.6	7.5
<i>Pledging Status<sup>a</sup></i>				
Never pledged abstinence	14.2	36.4	43.6	5.8
Pledged abstinence	16.5	64.1	17.6	1.8

N ~ 4,238

<sup>a</sup> Question asked only of respondents 19 and younger; N ~ 2,227

Technical virgins = Has had oral and/or anal sex only

Total abstainers = Has had no type of sex

Mixed sexual practicers = Has had both vaginal and oral and/or anal sex

Sexual traditionalists = Has had vaginal sex only

**Table 2**  
**Sexual Behavior of 15–25-Year-Old Virgins (in percent), by Age, Religiosity, and Pledging, NSFG**

	Has had oral sex	Has had anal sex	Female touched penis until ejaculation <sup>b</sup>
15–25-year-old virgins	27.7	1.7	28.9
15–19-year-old virgins	26.3	1.3	29.2
20–25-year-old virgins	33.5	3.4	—
<i>Religious Service Attendance</i>			
Never	32.0	2.0	26.0
Less than once a month	33.2	2.4	33.2
One–three times a month	33.4	2.3	38.4
Once a week	23.2	1.3	26.6
More than once a week	20.1	0.9	21.4
<i>Importance of Religion</i>			
Not important	40.9	1.9	35.1
Somewhat important	30.8	2.5	35.3
Very important	20.9	1.1	20.2
<i>Pledging Status<sup>a</sup></i>			
Never pledged abstinence	27.9	1.3	29.5
Pledged abstinence	20.5	1.4	26.2

N ~ 1,447

<sup>a</sup> Question asked only of respondents 19 and younger; N ~ 1,159

<sup>b</sup> Question asked only of male respondents 19 and younger; N ~ 570

**Table 3**  
**Relative Risk Ratios from Multinomial Logistic Regression Model Predicting Sexual Behavior**  
**among Unmarried 15–19-Year-Olds, NSFG**

<i>Comparison</i>	Technical virgins vs. total abstainers	Technical virgins vs. mixed sexual practicers	Technical virgins vs. sexual traditionalists
<i>Religiosity and Pledging</i>			
Religious service attendance	0.985	1.190*	1.060
Importance of religion	0.551**	0.953	0.999
Pledged abstinence	0.818	2.460**	3.396+
<i>Demographics</i>			
Age	1.081	0.566***	0.539***
Female	1.033	0.930	1.014
African-American	1.140	0.635	0.194**
Hispanic	0.720	0.877	0.328**
Other race	0.495	0.957	0.273*
Lives in MSA, not central city	0.998	0.767	0.602+
Does not live in MSA	1.319	0.889	0.504+
Lives with parents	1.072	2.321***	2.070**
Parents' average education	1.455+	2.058**	6.387**
In high school	0.496*	0.764	0.318*
High school degree or less	0.833	0.679	0.262**
Evangelical Protestant	0.674	0.633	0.414+
Black Protestant	0.620	0.464	0.256*
Catholic	1.013	0.881	0.348**
Other religion	0.893	1.301	0.552
No religion	0.764	0.655	0.418
<i>Model Fit Statistics</i>			
-2 log likelihood	4172.2		
Pseudo R-square	0.182		
N	2,179		

+ p < .10    \* p < .05    \*\* p < .01    \*\*\* p < .001 (two-tailed test)

Technical virgins = Has had oral and/or anal sex only; N = 291

Total abstainers = Has had no type of sex; N = 839

Mixed sexual practicers = Has had both vaginal and oral and/or anal sex; N = 921

Sexual traditionalists = Has had vaginal sex only; N = 128

Reference group for race = White

Reference group for urbanicity = Lives in the city

Reference group for education = In college

Reference group for religious affiliation = Mainline Protestant

**Table 4**  
**Relative Risk Ratios from Multinomial Logistic Regression Model Predicting Sexual Behavior**  
**among Unmarried 20–25-Year-Olds, NSFG**

<i>Comparison</i>	Technical virgins vs. total abstainers	Technical virgins vs. mixed sexual practicers	Technical virgins vs. sexual traditionalists
<i>Religiosity</i>			
Religious service attendance	0.959	1.495**	1.077
Importance of religion	0.893	1.861+	1.654
<i>Demographics</i>			
Age	0.867	0.711**	0.710**
Female	1.039	1.113	1.185
African-American	4.105	1.178	0.283
Hispanic	0.318*	0.435*	0.082***
Other race	0.952	1.679	0.272*
Lives in MSA, not central city	1.429	1.175	1.261
Does not live in MSA	0.833	1.128	0.892
Lives with parents	0.769	1.811	2.282+
Parents' average education	0.833	0.742	2.351
High school degree or less	0.413*	0.341**	0.283**
Has associate's degree	2.688	0.924	4.265
Has bachelor's degree or higher	1.175	1.293	4.230*
Evangelical Protestant	0.753	1.045	1.353
Black Protestant	0.071*	0.198	0.220
Catholic	0.861	1.084	0.866
Other religion	0.242*	0.926	0.711
No religion	0.644	3.383+	2.057
<i>Model Fit Statistics</i>			
-2 log likelihood	2567.8		
Pseudo R-square	0.161		
N	2,007		

+ p < .10    \* p < .05    \*\* p < .01    \*\*\* p < .001 (two-tailed test)

Technical virgins = Has had oral and/or anal sex only; N = 95

Total abstainers = Has had no type of sex; N = 196

Mixed sexual practicers = Has had both vaginal and oral and/or anal sex; N = 1,578

Sexual traditionalists = Has had vaginal sex only; N = 138

Reference group for race = White

Reference group for urbanicity = Lives in the city

Reference group for education = In college

Reference group for religious affiliation = Mainline Protestant

**Table 5**  
**Primary Motivation for Abstinence among 15–25-Year –Old Virgins (in percent), by Sexual Behavior, NSFG**

	Against religion or morals	Fear of pregnancy	Fear of STD	Hasn't found the right person yet	In a relationship, waiting for right time
All 15–25-year-old virgins	37.6	18.5	7.6	21.0	5.6
<i>Sexual Behavior</i>					
Has had oral sex	29.9	24.2	7.3	24.3	7.5
Has had anal sex	35.4	37.8	11.8	6.0	7.8
Female touched penis until ejaculation <sup>a</sup>	22.0	25.1	9.8	21.2	4.8

N~1,453

<sup>a</sup> Question asked only of male respondents 19 and younger; N = 566

Note: Rows do not sum to 100 percent because “other” category is not displayed.

**Table 6**  
**Sexual Behavior of 15–25-Year-Old Virgins (in percent), by Motivation for Abstinence, NSFG**

	Has had oral sex	Has had anal sex	Female touched penis until ejaculation <sup>a</sup>
<i>Primary Motivation for Abstinence</i>			
Against religion or morals	22.2	1.6	20.1
Fear of pregnancy	35.7	3.5	44.1
Fear of STD	26.7	2.7	33.2
Hasn't found the right person yet	31.5	0.5	24.0
In a relationship, waiting for right time	35.3	2.3	36.2

N~1,453

<sup>a</sup> Question asked only of male respondents 19 and younger; N = 566

**Table 7**  
**Odds Ratios from Logistic Regression Models Predicting Sexual Behavior among 15–25-Year-Old Virgins, NSFG**

	Has had oral and/or anal sex	Female has touched penis until ejaculation <sup>a</sup>
<i>Primary Motivation for Abstinence</i>		
Fear of pregnancy	3.041***	4.713***
Fear of STD	2.119*	2.818*
Hasn't found the right person yet	1.686**	1.454
In a relationship, waiting for right time	2.513**	2.924*
<i>Demographics</i>		
Age	0.974	1.066
Female	1.076	—
African-American	0.592*	0.518
Hispanic	0.552*	0.427*
Other race	0.478*	0.303
Lives in MSA, not central city	1.095	0.681
Does not live in MSA	1.006	0.557*
Lives with parents	1.070	1.208
Parents' average education	1.509*	1.520
In high school	0.350***	0.492+
High school degree or less	0.626	0.805
Has associate's degree	2.197	—
Has bachelor's degree or higher	1.401	—
<i>Model Fit Statistics</i>		
-2 log likelihood	1569.6	574.3
Pseudo R-square	0.060	0.104
N	1,434	554

+ p < .10    \* p < .05    \*\* p < .01    \*\*\* p < .001 (two-tailed tests)

<sup>a</sup> Question asked only of male respondents 19 and younger

Reference group for race = White

Reference group for urbanicity = Lives in the city

Reference group for education = In college

Reference group for primary motivation for abstinence = Against religion or morals

Note: Models contain but do not display a control for "other" motivation for abstinence.

**Appendix A**  
**Weighted Means, Ranges, and Standard Deviations of Measures (N ~ 4,278)**

Variables	Mean	Range	SD
Has had oral and/or anal sex only	0.10	0,1	0.30
Has had vaginal plus oral and/or anal sex	0.57	0,1	0.49
Has had vaginal sex only	0.06	0,1	0.24
Has had no type of sex	0.26	0,1	0.44
Female touched penis until ejaculation <sup>a</sup>	0.52	0,1	0.50
Religious service attendance	2.55	1–5	1.35
Importance of religion	2.09	1–3	0.80
Pledged abstinence <sup>b</sup>	0.12	0,1	0.32
Abstained for religious or moral reasons <sup>c</sup>	0.38	0,1	0.48
Abstained for fear of pregnancy <sup>c</sup>	0.18	0,1	0.39
Abstained for fear of STD <sup>c</sup>	0.08	0,1	0.26
Abstained to wait for right person <sup>c</sup>	0.21	0,1	0.41
Abstained to wait for right time <sup>c</sup>	0.06	0,1	0.24
Age	19.45	15–25	2.99
Female	0.48	0,1	0.50
White	0.62	0,1	0.48
African-American	0.15	0,1	0.36
Hispanic	0.16	0,1	0.37
Other race	0.06	0,1	0.25
Lives in MSA, central city	0.46	0,1	0.50
Lives in MSA, not central city	0.35	0,1	0.48
Does not live in MSA	0.19	0,1	0.39
Lives with parents	0.36	0,1	0.48
Parents' average education	0.27	0–1	0.38
In high school	0.33	0,1	0.47
High school degree or less	0.30	0,1	0.46
In college	0.29	0,1	0.45
Associate's degree	0.01	0,1	0.12
Bachelor's degree or more	0.07	0,1	0.25
Evangelical Protestant	0.18	0,1	0.39
Mainline Protestant	0.12	0,1	0.32
Black Protestant	0.11	0,1	0.31
Catholic	0.29	0,1	0.45
Other religion	0.12	0,1	0.33
No religion	0.19	0,1	0.39

<sup>a</sup> Question asked only of male respondents 19 and younger; N = 1,118

<sup>b</sup> Question asked only of respondents 19 and younger; N = 2,247

<sup>c</sup> Question asked only of virgins; N = 1,453

**Appendix B**  
**Relative Risk Ratios from Multinomial Logistic Regression Model Predicting Sexual Behavior**  
**among Unmarried 15–19-Year-Olds, Minus Controls for Religion, NSFG**

<i>Comparison</i>	Technical virgins vs. total abstainers	Technical virgins vs. mixed sexual practicers	Technical virgins vs. sexual traditionalists
<i>Pledging</i>			
<b>Pledged abstinence</b>	<b>0.641<sup>a</sup></b>	<b>2.761**</b>	<b>3.312+</b>
<i>Demographics</i>			
Age	1.104	0.572***	0.558***
Female	0.958	0.972	0.993
African-American	0.735	0.508**	0.134***
Hispanic	0.746	0.985	0.302**
Other race	0.444+	1.074	0.289*
Lives in MSA, not central city	1.010	0.772	0.583*
Does not live in MSA	1.154	0.955	0.507+
Lives with parents	1.081	2.494***	2.182**
Parents' average education	1.464+	2.175**	6.691**
In high school	0.562+	0.724	0.329*
High school degree or less	0.886	0.648	0.250**
<i>Model Fit Statistics</i>			
-2 Log Likelihood	4386.1		
Pseudo R-square	0.151		
N	2,208		

+ p < .10    \* p < .05    \*\* p < .01    \*\*\* p < .001 (two-tailed test)

Technical virgins = Has had oral and/or anal sex only; N = 293

Total abstainers = Has had no type of sex; N = 853

Mixed sexual practicers = Has had both vaginal and oral and/or anal sex; N = 932

Sexual traditionalists = Has had vaginal sex only; N = 130

Reference group for race = White

Reference group for urbanicity = Lives in the city

Reference group for education = In college

<sup>a</sup> p = 0.053

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