Published in final edited form as:

J Am Coll Health. 2013 February ; 61(2): 114–120. doi:10.1080/07448481.2012.755188.

Examining the Prospective Effects of Making a Virginity Pledge Among Males Across Their 4 Years of College

Samantha Williams and Martie P. Thompson

Department of Public Health Sciences, Clemson University, Clemson, South Carolina

Abstract

Objectives—We examined prospective associations of making a virginity pledge on sexual behaviors among male college students.

Participants—A sample of 795 males was followed for 4 years (2008, 2009, 2010, 2011), with response rates ranging from 72% – 82% across the follow-up years.

Methods—Males were surveyed at the end of each of their 4 years in college about sexual behavior activities and other risky behaviors.

Results—Multivariate regression analyses indicated that males who made private virginity pledges were significantly more likely to remain abstinent across all 4 years of college and have fewer sexual partners at the end of their third and fourth years of college, even after controlling for age, race, high-risk drinking, impulsivity, and religiosity. Making a pledge was not related to condom use.

Conclusion—Findings suggest that abstinence-based messages alone are not sufficient yet should be included as part of comprehensive sex education programs.

Keywords

college students; sexual behaviors; virginity pledges; prospective design

The present study examined the effect of making a virginity pledge on sexual intercourse behaviors among male college students. A number of studies have examined the effectiveness of virginity pledges on delaying intercourse among adolescents and also on the likelihood of using safe sex precautions among virginity pledgers who break their pledge. Many studies have found virginity pledges to be effective in delaying intercourse^{1,2,3}. Data from a sample of nationally representative adolescents indicated that pledgers were 34% less likely than nonpledgers to have engaged in sexual intercourse¹. Estimates based on data from another national sample of adolescents indicated that 34% of pledgers engaged in sexual intercourse 3 years later compared to 56% of nonpledgers³. Studies also have found that making a private pledge was effective in delaying intercourse while making a public pledge had no effect⁴.

Although most studies have found virginity pledges to be effective in delaying intercourse, results regarding how virginity pledges affect condom use are mixed. Some studies have found that pledgers are less likely than nonpledgers matched on key variables to use a condom^{5,6}, some studies have found no differences², and some studies have found that although pledgers were less likely than nonpledgers to use a condom at first intercourse,

they were no less likely to use a condom at their most recent intercourse or in the previous 12 months^{1,7}.

Determining the effectiveness of virginity pledges also is important given the debate regarding whether schools should offer abstinence-only sex education or comprehensive sex education. Although virginity pledges are not necessarily a component of abstinence-only programs, these programs have shown limited effectiveness^{8,9}. One abstinence-only sex education program called Sex Can Wait was found to be associated with a lower likelihood of engaging in sexual intercourse among middle school students and a greater intention to remain abstinent among high school students¹⁰. However, a Department of Health and Human Services evaluation of the effectiveness of four abstinence-only education programs found that youth who participated in the programs were no more likely to be abstinent, to delay the initiation of intercourse, or to have fewer sexual partners¹¹.

Despite the varying findings across studies, delaying the initiation of sexual intercourse is important to public health. Delaying sexual intercourse not only reduces the risk of pregnancy¹², but also reduces the chance of contracting a STD^{13,14}. In addition, early age of sexual debut is related to several other risk factors, such as a greater number of sexual partners and greater likelihood of having had sexual intercourse while under the influence of alcohol or drugs¹⁵. These issues are of particular importance for college students, as they engage in a number of high-risk sexual behaviors such as having sex while under the influence of alcohol, having sex with multiple partners, and using condoms inconsistently, all of which can put them at higher risk for contracting an STD¹⁶. The American College Health Association reports that 66% of college students engaged in oral sex, vaginal intercourse, or anal intercourse in the last 12 months and the average number of sexual partners among those who reported having at least one partner was 2.17. Among those who had had sexual intercourse in the last 30 days, only 54% had used a condom during vaginal intercourse and among those who had had vaginal intercourse in the prior year, 2% reported having impregnated someone or having become pregnant¹⁷. Further, although data on STD prevalence among college students is limited, surveillance data indicate that half of the 19 million new cases of STDs each year occur among 15–24 year-olds even though this age group represents only one quarter of the sexually experienced population¹⁸. In addition, the CDC reports that men ages 20–24 have the highest rates of both chlamydia and gonorrhea, and women ages 20–24 having the second highest rates of these diseases compared to other age and sex groups¹³.

Research on virginity pledges and their effects on sexual behavior can be informed from the perspective of the Theory of Planned Behavior (TPB). The TPB has been applied to several other problem behaviors and includes three key constructs - attitudes, perceived norms, and perceived control. These constructs are hypothesized to predict behavioral intentions and hence behavior¹⁹. The TPB is particularly relevant to health behaviors that are intentionally-driven, as the theory postulates that behavioral intentions predict the actual behavior itself²⁰. Thus, given that virginity pledges represent an orientation towards future sexual behavior, the TPB may be particularly well-suited to guide future research on virginity pledges and their effects on sexual behavior. In our study, virginity pledges reflect behavioral intentions and sexual intercourse and condom use represent the high-risk sexual behaviors. In assessing the effects of making a virginity pledge on sexual behavior, we controlled for three variables that have been found in prior research to predict the onset of sexual intercourse. These included religiosity, as youth higher is religiosity are more likely than their less religious counterparts to delay onset of sexual intercourse^{2,3,5, 21–23}; high-risk drinking, as this also has been found to be associated with earlier sexual debut^{24,25}; and impulsivity, as this has been found to associated with early sexual initiation²⁶.

In summary, the present study examined the effect of making a virginity pledge on sexual intercourse behaviors among male college students. Specifically, we examined if pledgers were more likely than nonpledgers to remain sexually abstinent across their 4 years of college. We examined this question for both making a private pledge as well as making a public pledge, and included controls for other variables that might be related to sexual activity such as age, race, religiosity, high-risk drinking, and impulsivity. We hypothesized based on previous research that those who made virginity pledges would be more likely to remain abstinent across each year of college. Based on the findings in the study by Bersamin and colleagues⁴, we hypothesized that the private pledge would be more effective than the public pledge. We also examined the effect of making private and public virginity pledges on condom use. Because research is mixed as to how making a virginity pledge affects condom use, we did not make a directional hypothesis concerning this question. Finally, we examined the effect of making private and public virginity pledges on number of sexual partners.

Method

Sample and Sampling Procedures

The sample was recruited from a population of 1,472 men who enrolled as 1st-year, full-time students at a large, public, southeastern university in August 2007. Recruitment began with an electronic mail message to each male student at the university who was ending his 1st year in college (March–April, 2008), posting an announcement in the student newspaper, and distributing flyers around campus. All methods of communication invited the students to come to the student health center anytime between 9:00 a.m. and 4:00 p.m. during the upcoming week to complete a confidential, 20 to 30 minute self-report survey on men's attitudes and behaviors regarding relationships with women. The sample included only males because data were derived from a larger study on risk factors for sexual aggression among males, as male violence against women represents a significant public health problem.

Wave 1 data were collected over a 1-week period in March–April 2008. Data collection ended once the target sample size of 800 was achieved, which was approximately half of the total population from which it was drawn. The sample was representative of the population of 1st-year male students in terms of race. Five individuals were excluded from the study because they were not 18 years of age at the time of data collection. The sample of 795 males was between 18–20 years of age ($M = 18.56$; $SD = 0.51$) and 90% were White.

In March–April 2009, 2010, and 2011, males who completed Wave 1 surveys were contacted via email to complete follow-up surveys. Eighty-two percent of the participants completed the Wave 2 survey ($n = 651$), 75% completed a Wave 3 survey ($n = 596$), and 72% completed a Wave 4 survey ($n = 572$). Study procedures and study site location were similar for data collection at all four Waves. At Wave 1, when men arrived at the health center, their names were checked off a master list of names of full-time, 1st-year male students. At Waves 2, 3, and 4, participants were provided with a survey that had a confidential, unique code that linked their surveys. Prior to completing surveys, men provided written informed consent. Local IRB approval from the university and a Certificate of Confidentiality from the National Institutes of Health were obtained prior to data collection. No personal identifiers were included on the surveys. After completing the surveys, participants deposited them without consent forms attached into a locked box. Then they received payment for their participation and were provided a referral sheet of counseling resources. Students were paid \$20.00 for their participation at Waves 1 and 2 and \$25.00 at Waves 3 and 4. Retention at Waves 2, 3, and 4 was unrelated to Wave 1 demographics.

Measures

Outcomes

Sexual abstinence: Virginity status was assessed at each wave of the study. At each wave, males who reported ever having had vaginal or anal sex with at least one person were given a score of 0 and were considered nonabstainers, whereas males who reported not ever having vaginal or anal sex were given a score of 1 and considered abstainers.

Condom use: At Wave 3 and Wave 4, males were asked if they or their partner had used a condom the last time they had sexual intercourse.

Number of sexual partners: At all four waves, respondents were asked how many people they had had vaginal or anal sex with since the age of 14.

Predictor

Virginity pledge: At Wave 1, respondents were asked “Have you taken a public or written pledge to remain a virgin until married?” and “Have you made a private decision to remain a virgin until married?” These questions comprised the public and private pledge variables respectively.

Covariates

Demographics: Respondents were asked to provide information of their age and race.

Religiosity: Males were asked how often they had attended religious services or participated in religious activities in the past year, with response options ranging from 0 (never) to 5 (more than once a week).

High-risk drinking: Males were asked how many times over the last two weeks they had consumed five or more drinks in a row in a two hour period. This variable was dichotomized to reflect if they had engaged in high-risk drinking or not.

Impulsivity: The 19-item Impulsivity Questionnaire was used to assess for impulsivity²⁷. Items were answered using a yes/no (scored as 1 and 0, respectively) response format, and higher scores on the summed items indicated greater impulsivity. The scale showed adequate internal consistency reliability ($\alpha = .79$) in the current sample.

Data Analysis Strategy

For all analyses, we used a Bonferroni adjustment to account for the number of statistical tests, resulting in an α set at .0036 and 99.64 confidence intervals (CI). First, we used bivariate logistic regression to determine if making a private virginity pledge and making a public virginity pledge were each associated with abstinence from sexual intercourse at the four different time points. We used logistic regression because our outcome variable was dichotomous (abstain v. not abstain from sex). Eight separate equations were conducted. We next conducted multivariate logistic regression analyses to determine if the two pledge variables remained significant predictors of the outcomes after controlling for the relevant covariates (i.e., age, race, religiosity, high-risk drinking, impulsivity). For the prospective analyses, we used pledge status as assessed at Wave 1, and covariates as assessed at the time period for which we were predicting abstinence. Next, we subsetted our sample to include only males who had engaged in sexual intercourse. We used logistic regression to examine if the two pledge variables predicted condom use and linear regression to determine if the pledge variables predicted number of sexual partners. Both sets of analyses controlled for the five covariates.

Results

Descriptives

In terms of the outcome variables, 43.3% ($n = 344$) of the male participants reported never having engaged in sexual intercourse at Wave 1, 35.7% ($n = 232$) at Wave 2, 30.6% ($n = 186$) at Wave 3, and 24.9% ($n = 142$) at Wave 4. Among those who had had sexual intercourse, 63.2% ($n = 271$) reported condom use at Wave 3, and 54.6% ($n = 233$) reported condom use at Wave 4. The average number of partners increased over time from Wave 1 ($M = 2.14$, $SD = 3.92$) to Wave 2 ($M = 2.86$, $SD = 4.49$), to Wave 3 ($M = 3.77$, $SD = 6.40$), and to Wave 4 ($M = 5.32$, $SD = 8.86$). In terms of the predictor variable, 27.3% ($n = 217$) reported having made a private pledge, and 11.9% ($n = 94$) reported having made a public pledge. Almost three-quarters of the sample (70.0%, $n = 556$) had made neither a private nor public pledge, 9.1% ($n = 72$) had made a public and a private pledge, 2.8% ($n = 22$) had made a public but not private pledge, and 18.2% ($n = 144$) had made a private but not public pledge.

Bivariate Logistic Regression

The findings from the eight bivariate logistic regression analyses are shown in Table 1. As can be seen, males who made a private virginity pledge were significantly more likely than their counterparts who had not made a private virginity pledge to have remained sexually abstinent across all 4 years in college. Specifically, they were 33 times more likely to be abstinent at the end of their first year in college, 21 times more likely to be abstinent at the end of their second year in college, 14 times more likely to be abstinent at the end of their third year in college, and 15 times more likely to be abstinent at the end of their fourth year in college. Findings for making a public pledge were also significant, although the magnitude of effects was smaller. Males who made a public virginity pledge were significantly more likely than their counterparts to have remained sexually abstinent across all 4 years in college. Specifically, they were four times more likely to be abstinent at the end of their first, second, and third years of college, and twice as likely to be abstinent at the end of their fourth year in college. All of the crude odds ratios were statistically significant based on the 99.64% CIs not including 1 (see Table 1).

Multivariate Logistic Regression

Findings from the eight multivariate logistic regression analyses also are shown in Table 1. Even after controlling for covariates that might be related to abstinence (i.e., age, race, religiosity, high-risk drinking, impulsivity), making a private virginity pledge remained significantly associated with abstinence likelihood. Specifically, males who made a private virginity pledge were 24 times more likely to be abstinent at the end of their first year in college, 12 times more likely to be abstinent at the end of their second year in college, and about 8 times more likely to be abstinent at the end of their third and fourth years in college compared to their counterparts who had not made a private virginity pledge. Making a public pledge was not statistically associated with abstinence at any year after the Bonferroni adjustments were made, as the 99.64% CIs included 1.

Predicting Condom Use

We conducted logistic regression analyses to determine if making a private or public virginity pledge was associated with the likelihood of using a condom. For this analysis, we limited the sample to those who had engaged in sexual intercourse. Again, we controlled for age, race, religiosity, high-risk drinking, and impulsivity. Findings revealed that making a private virginity pledge was not significantly associated with the likelihood of using a condom at the end of the third ($AOR = 1.31$ 95% $CI = 0.45, 3.80$) and fourth ($AOR = 1.42$;

95% CI = 0.60, 3.39) years of college. Making a public virginity pledge also was not significantly associated with the likelihood of using a condom at the end of the third (AOR = 0.64; 95% CI = 0.18, 2.23) or fourth (AOR = 0.85; 95% CI = 0.30, 2.41) years of college.

Predicting Number of Sexual Partners

We conducted multiple linear regression analyses to determine if making a private or public virginity pledge was associated with the number of sexual partners after controlling for age, race, religiosity, high-risk drinking, and impulsivity. Again, we limited the sample to those who had engaged in sexual intercourse. Findings revealed that making a private virginity pledge was not significantly associated with the lifetime number of sexual intercourse partners at the end of the first, $t(447) = -1.38, p > .05$, or second, $t(423) = -1.81, p > .05$, years in college but did significantly predict a lower number of sexual intercourse partners at the end of the third year, $t(428) = -2.97, p = .003$, and marginally predicted a lower number of sexual intercourse partners at the end of the fourth year in college, $t(439) = -2.48, p = .014$. On the other hand, findings revealed that making a public virginity pledge was not significantly associated with the number of sexual intercourse partners at the end of the first, $t(447) = -1.65, p > .05$, second, $t(423) = -1.41, p > .05$, third, $t(428) = -1.07, p > .05$, or fourth, $t(439) = -1.35, p > .05$, years of college.

Comment

Conclusions

Our findings indicate that making a virginity pledge was significantly associated with remaining abstinent among male college students across all 4 years of college, and this was particularly the case for making a private pledge. The findings for making a private pledge remained significant across all 4 years of college, even after controlling for age, race, religiosity, high-risk drinking, and impulsivity. The findings for making a public pledge were only significant at the bivariate level but were no longer significant after controlling for age, race, religiosity high-risk drinking, and impulsivity.

The finding that making a virginity pledge was associated with remaining abstinent is generally consistent with previous research^{1,2,3}. As predicted, while it was found that both public and private pledges were associated with remaining abstinent, those who made private pledges were more likely to remain abstinent than those who had made only a public pledge. This also is consistent with results of previous research that found that private pledges were more effective⁴. Our findings can be interpreted within the context of the Theory of Planned Behavior which hypothesizes that attitudes, norms, and perceived control impact sexual intentions and behaviors¹⁹. Bersamin and colleagues⁴ speculated that the differential effectiveness of public versus private pledges is due to whom and why the pledge is made. Whereas public pledges may be extrinsically motivated by peers, parents or churches, private pledges may be intrinsically motivated. Thus, public pledges' effectiveness is more tied to perceived norms, whereas private pledges' effectiveness is more tied to personal attitudes and perceived control. Because youth's current peer groups are likely different from their peer groups at the time they made public pledges, their perceptions of norms would also be different, hence diluting the effectiveness of their public pledge. On the other hand, because private pledges correspond with the pledgers' personal attitudes and intentions regarding sexual behaviors, and these are more likely than perceived norms to remain consistent as youth transition to college, private pledges may have longer lasting benefits.

Our results also indicated that making a virginity pledge was not related to condom use at last sexual intercourse episode. Although previous research concerning condom use has

produced mixed findings, our results suggest that virginity pledges do not decrease the likelihood of condom use when a pledger engages in sexual intercourse, yet an important caveat is that we were only able to assess for this at last sexual intercourse episode. Thus, it could be that pledgers are less likely to use condoms at their first intercourse episode but not at their most recent intercourse episode, as suggested by the work of Bearman and colleagues^{1,7}. Lastly, our findings indicated that among males who had engaged in sexual intercourse, making a private pledge was associated with having a fewer number of sexual partners by the end of their third and fourth years of college. In contrast, making a public pledge was unrelated to number of sexual partners at all of the time points. This suggests that once a male who made a private pledge breaks that pledge, he will have fewer sexual intercourse partners by the end of his college years, and hence be at lower risk for health consequences associated with multiple partners (e.g., STDs²⁸ and sexual violence²⁹). However, public pledgers who broke their pledge had just as many sexual intercourse partners as their male counterparts who had not made a public pledge.

Limitations

There were several limitations to our study that should be noted. First, the participants in our study were recruited from one university in the southeastern United States and may not be representative of all male college students. Second, the study was limited by its focus on males. Future research should determine how making a virginity pledge affects abstinence, condom use, and number of sexual partners among females and if these associations vary by gender. Third, our study did not assess the relationship status of the participants. For those who reported not using condoms, being in a committed, stable relationship might have been a contributing factor in the decision not to remain abstinent, and future research should control for this variable. Fourth, we had limited information on the context of the public virginity pledges, such as when they were made, where they were made (e.g., church), or why they were made. Similarly, we know little about the nature of the private pledges, such as how formal the private pledge was. Fifth, our data did not allow us to determine if pledgers were more or less likely than nonpledgers to use a condom during their first sexual intercourse episode, only at their most recent episode. Sixth, we do not know if males in our study were exposed to sex education programs and if so, what type of program it was. It could be that pledgers had been exposed to comprehensive-sex education programs, and hence were well educated regarding condom use.

Implications

The fact that private pledges but not public pledges helped delay the first episode of sexual intercourse when controlling for important covariates can help inform college sex education programs. It is important to note that even though our findings suggested that virginity pledges, particularly private pledges, help to delay the first episode of sexual intercourse, 38% of private pledgers and 59% of public pledgers in our study had engaged in sexual intercourse by the end of their college years. Our findings, along with evaluation research on sex education programs, suggest that having youth make virginity pledges is not a sufficient approach to promoting college student sexual health. Studies have shown that public opinion strongly supports teaching some kind of safe-sex education in schools⁸. Further, studies have shown comprehensive sex education programs to be more effective than abstinence-only programs in decreasing teen pregnancy, and increasing the use of condoms and contraceptives, and further, the abstinence-only programs evaluated in the DHHS study were found to be ineffective both in delaying intercourse and reducing number of sexual partners^{11,30,31}. These evaluation findings, coupled with our findings that public virginity pledges were not effective and that over one-third of private pledgers engaged in sexual intercourse, suggest that any college-based sex education programs cannot rely only on abstinence messages. As articulated by Kirby and colleagues³², reproductive health

professionals and educators must design or adapt sex education curricula so that they focus on risk and protective factors that are related to sexual risk behaviors and use instructional principles most likely to improve the targeted factors. Clearly, not all college students choose to remain abstinent. Thus, sex education curricula must not be limited to abstinence-only messages or they will miss the opportunity to ensure sexual and reproductive health as it pertains to STD prevention and unintended pregnancy prevention for all students.

Acknowledgments

This research was supported by two grants to the second author from the Eunice Kennedy Shriver National Institute of Child Health and Human Development at the National Institutes of Health (Award numbers R03HD053444-01A1 and R15HD065568). The content is solely the responsibility of the authors and does not necessarily represent the official views of the Eunice Kennedy Shriver National Institute of Child Health and Human Development or the National Institutes of Health.

References

1. Bearman PS, Bruckner H. Promising the future: virginity pledges and first intercourse. *Am J Sociol*. 2001; 106(4):859–912.
2. Martino SC, Elliott MN, Collins RL, Kanouse DE, Berry SH. Virginity pledges among the willing: delays in first intercourse and consistency of condom use. *J Adolesc Health*. 2008; 43(4):341–348. [PubMed: 18809131]
3. Uecker JE, Angotti N, Regnerus MD. Going most of the way: “Technical virginity” among American adolescents. *Soc Sci Res*. 2008; 37(4):1200–1215. [PubMed: 19227698]
4. Bersamin MM, Walker S, Waiters ED, Fisher DA, Grube JW. Promising to wait: virginity pledges and adolescent sexual behavior. *J Adolesc Health*. 2005; 36(5):428–436. [PubMed: 15837347]
5. Rosenbaum JE. Patient teenagers? A comparison of the sexual behavior of virginity pledgers and matched nonpledgers. *Pediatrics*. 2009; 123(1):110–120.
6. Bond S. Sexual behavior of virginity pledgers same as nonpledgers, but pledgers less likely to use precautions. *J Midwifery Wom Health*. 2009; 54(5):419–420.
7. Bruckner H, Bearman P. After the promise: the STD consequences of adolescent virginity pledges. *J Adolesc Health*. 2005; 36(4):271–278. [PubMed: 15780782]
8. Bleakley A, Hennessy M, Fishbein M. Public opinion on sex education in US schools. *Arch Pediatr Adolesc Med*. 2006; 160(11):1151–1156. [PubMed: 17088519]
9. Kirby D. Comprehensive sex education: Strong public support and persuasive evidence of impact, but little funding. *Arch of Pediatr Adolesc Med*. 2006; 160(11):1182–1184. [PubMed: 17088524]
10. Denny G, Young M. An evaluation of abstinence-only sex education curriculum: An 18-month follow-up. *J School Health*. 2006; 76(8):414–422. [PubMed: 16978165]
11. Trenholm, C.; Devaney, B.; Forston, K.; Quay, L.; Wheeler, J.; Clark, M. Impacts of four title V, section 510 abstinence education programs. Washington, DC: Department of Health and Human Services; 2007. (MPR Reference No.: 8549-110).
12. Kirby, D. Emerging Answers 2007: Research Findings on Programs to Reduce Teen Pregnancy and Sexually Transmitted Diseases. Washington, DC: National Campaign to Prevent Teen and Unplanned Pregnancy; 2007.
13. STDs in adolescents and young adults. [Accessed October 13, 2011] Centers for Disease Control and Prevention Web Site. 2010. <http://www.cdc.gov/std/stats09/adol.htm>.
14. Forhan SE, Gottlieb SL, Sternberg MR, et al. Prevalence of sexually transmitted infections among female adolescents aged 14 to 19 in the United States. *Pediatrics*. 2009; 124(6):1505–1512. [PubMed: 19933728]
15. Sandfort TGM, Orr M, Hirsch JS, Santelli J. Long-term health correlates of timing of sexual debut: results from a national US study. *Am J Public Health*. 2008; 98(1):155–161. [PubMed: 18048793]
16. Cooper ML. Alcohol use and risky sexual behavior among college students and youth: evaluating the evidence. *J Stud Alcohol*. 2002; 14:101–117.

17. American College Health Association. American College Health Association-National College Health Assessment II: Reference group executive summary Fall 2010. Linthicum, MD: American College Health Association; 2011.
18. Weinstock H, Berman S, Cates W. Sexually transmitted diseases among American youth: incidence and prevalence estimates, 2000. *Perspect Sex Repro H.* 2004; 36(1):6–10.
19. Fishbein, M. Readings in attitude theory and management. New York: Wiley; 1967.
20. Armitage CJ, Talibudeen L. Test of a brief theory of planned behaviour-based intervention to promote adolescent safe sex intentions. *Br J Psychol.* 2010; 101:155–172. [PubMed: 19364444]
21. Hull SJ, Hennessy M, Bleakley A, Fishbein M, Jordan A. Identifying the causal pathways from religiosity to delayed adolescent sexual behavior. *J Sex Res.* 2011; 48(6):543–553. [PubMed: 20960362]
22. Landor A, Simons LG, Simons RL, Brody GH, Gibbons FX. The role of religiosity in the relationship between parents, peers, and adolescent risky sexual behavior. *J Youth Adolesc.* 2011; 40:296–309. [PubMed: 21052800]
23. Rostovsky SS, Wilcox BL, Wright M, Randall BA. The impact of religiosity on adolescent sexual behavior: A review of the evidence. *J Adolesc Res.* 2004; 19(6):677–697.
24. Mrug S, Borch C, Cillessen AHN. Other-sex friendships in late adolescence: Risky associations for substance use and sexual debut? *J Youth Adolesc.* 2011; 40(7):875–888. [PubMed: 21088876]
25. Cavazos-Rehg PA, Spitznagel EL, Bucholz KK, Nurnberger J, Edenberg HJ, Kramer JR, Kuperman S, et al. Predictors of sexual debut at age 16 or younger. *Arch Sex Behav.* 2010; 39(3): 664–673. [PubMed: 18846417]
26. Khurana A, Romer D, Betancourt LM, Brodsky NL, Giannetta JM, Hurt H. Early adolescent sexual debut: The mediating role of working memory ability, sensation seeking, and impulsivity. *Dev Psychol.* 2012; 48(5):1416–1428. [PubMed: 22369334]
27. Eysenck SBG, Pearson PR, Easting G, Allsopp JF. Age norms for impulsiveness, venturesomeness and empathy in adults. *Pers Individ Dif.* 1985; 6(5):613–619.
28. Pinkerton SD, Layde PM, DiFranceisco W, Chesson HW. NIMH Multisite HIV Prevention Trial Group. All STDs are not created equal: an analysis of the differential effects of sexual behaviour changes on different STDs. *Int J STD AIDS.* 2003; 14:320–328. [PubMed: 12803939]
29. Abbey A, Jacques-Tiura AJ, LeBreton JM. Risk factors for sexual aggression in young men: An expansion of the confluence model. *Aggress Behav.* 2011; 37:450–464. [PubMed: 21678429]
30. Kohler PK, Manhart LE, Lafferty WE. Abstinence-only and comprehensive sex education and the initiation of sexual activity and teen pregnancy. *J Adolesc Health.* 2008; 42(4):344–351. [PubMed: 18346659]
31. Kirby D. The impact of abstinence and comprehensive sex and STD/HIV education programs on adolescent sexual behavior. *Sex Res Social Policy.* 2008; 5(3):18–27.
32. Kirby, D.; Coyle, K.; Alton, F.; Roller, L.; Robin, L. Reducing adolescent sexual risk: A theoretical guide for developing and adapting curriculum-based programs. Scotts Valley, CA: ETR Associates; 2011.

Table 1

Private and public virginity pledge as predictors of abstinence across 4 years

	Wave 1 Virginity	Wave 1 Virginity	Wave 2 Virginity	Wave 2 Virginity	Wave 2 Virginity	Wave 3 Virginity	Wave 3 Virginity	Wave 3 Virginity	Wave 4 Virginity	Wave 4 Virginity
	COR (99.6% CI)	AOR* (99.6 CI)	COR (99.6% CI)	AOR* (99.6% CI)	AOR* (99.6% CI)	COR (99.6% CI)	COR (99.6% CI)	AOR* (99.6% CI)	COR (99.6% CI)	AOR* (99.6% CI)
Private Pledge	33.01** 15.30, 71.24	23.89** 9.88, 57.78	20.89** 10.78, 40.49	11.91** 5.57, 25.46	7.53** 3.71, 15.31	14.04** 7.50, 26.29	15.34** 7.80, 30.17	7.55** 3.54, 16.09		
Public Pledge	3.80** 1.89, 7.66	2.06 0.90, 4.70	3.88** 1.84, 8.17	1.82 0.76, 4.36	2.06 0.85, 4.98	3.89** 1.80, 8.43	2.40** 1.07, 5.37	0.86 0.32, 2.32		

Note. COR = crude odds ratio; AOR = adjusted odds ratio

* Multivariate models include covariates for age, race, high-risk drinking, impulsivity, and religiosity

** 99.64% CI does not include 1; significant at $p < .0036$ level