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Promising to wait: virginity pledges and adolescent sexual behavior

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Abstract

Purpose—The current study examined the association between formal and non-formal virginity pledges and the initiation of genital play, oral sex, and vaginal intercourse among adolescents.

Methods—Logistic regressions controlling for age, gender, race, expectancies, academic achievement, contraceptive education, perceived peer pledging behavior, and parental and peer attitudes were conducted to examine the relationship between pledging behavior and genital play, oral sex, and vaginal intercourse. A total of 870 adolescents aged 12–16 from 10 counties in northern and southern California participated in the current study.

Results—The findings indicate that making a private pledge or promise to oneself to wait to have sexual intercourse until one is older reduces the likelihood that adolescents will engage in sexual intercourse and oral sex. The effect persists even when controlling for socio-demographic variables. Making a formal pledge did not appear to have an effect on sexual behavior.

Conclusions—The findings raise questions about the effectiveness of formal virginity pledges in preventing adolescent sexual behavior. The findings suggest that sexual health programs may be more effective if they encourage young people to make a personal commitment to delay the onset of sex, foster social norms supportive of delaying sex, and raise awareness of how early sexual initiation may threaten future plans.

Keywords

Adolescence; Sexual behavior; Virginity pledges

Findings from the National Longitudinal Study of Adolescent Health (Add Health) indicate that elements of abstinence-only education, specifically the virginity pledge, may delay the initiation of sexual intercourse among some adolescents [1]. To date, few studies have explored this relationship further, and none have examined whether the effect of the pledge extends to other sexual behaviors. The current study builds upon previous research by prospectively examining the effect of the virginity pledge on the initiation of genital play, oral sex, and vaginal intercourse in early and middle adolescence.

Although the focus of most research on adolescent sexuality has been vaginal intercourse, a number of studies have assessed the prevalence of non-coital sexual behaviors among young people. Nationally representative surveys indicate that between 23% and 36% of youth aged 15 to 17 have participated in heterosexual oral sex [2,3], a non-coital sexual activity that places

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adolescents at some risk for sexually transmitted infections (STIs) [4]. Previous studies suggest that substantial differences exist in the prevalence of non-coital sexual behavior between virgins and non-virgins, although statistical comparisons have not been conducted. In one study of adolescent and young adult virgins, 14% of males and 11% of females reported having had oral sex compared with 85% and 79%, respectively of non-virgins [5]. A second study examining sexual behaviors of heterosexual adolescent virgins found that about 30% engaged in partner masturbation, 10% had participated in oral sex, and about 1% reported engaging in anal intercourse [6]. In a study of college students, heterosexual and homosexual virgins scored lower on a sexual behavior inventory than non-virgins; however, dating status (not involved in a romantic relationship, casually dating, and dating someone exclusively) moderated the relationship between virginal status and lifetime sexual experience [7]. Among college students who were dating exclusively, college virgins and non-virgins did not differ with regard to oral sex. Conversely, virgins who were not currently dating or were dating someone casually were significantly less likely to engage in oral sex than were non-dating or casually-dating non-virgins. Virginity status, therefore, appears to be associated with non-coital sexual experience, with virgins being less likely to have engaged in other sexual behaviors than non-virgins.

The virginity pledge movement, started in 1993 as a social movement supported by the Southern Baptist Church, encompasses churches, schools, and colleges across the country [1]. By providing adolescents an opportunity to make a pledge or a promise to remain a virgin until marriage (or a specified later date), the pledge movement seeks to reduce the prevalence of sexual behaviors that can lead to pregnancy and STIs. Among adolescents in the United States, it is estimated that 23% of females and 16% of males have taken a virginity pledge [1]. Among college students, a recent study found that 16% had taken a virginity pledge [7].

An analysis of the Add Health data set by Bearman and Brückner (2001) suggests that the virginity pledge delays the initiation of sexual intercourse among adolescents, even after controlling for age, gender, ethnicity, socioeconomic status, religiosity, and other psychosocial and cognitive variables [1]. Several results, however, highlight the complex relationship between age, school type, peers' pledging behavior, and the virginity pledge. First, a significant three-way interaction was found between school type, prevalence of same-sex pledgers at school, and taking a virginity pledge. Pledgers who attended a socially open school (a majority of friendships and romantic relationships are with adolescents who attend other schools) in which there were no other pledgers, did not differ from non-pledgers in terms of rate of initiation of first sexual intercourse. An increase in the percentage of same-sex pledgers in school was associated with a delay in the onset of sexual intercourse among pledgers. In socially closed schools (a majority of friendships and romantic relationships exist among members of the school), a higher prevalence of same-sex pledgers did not serve to delay sexual initiation among pledgers.

Second, the effect of pledging behavior was age specific, with a significant effect emerging only in middle adolescence. However, further analyses indicated that the interaction between pledging, percentage of same sex pledgers, and school type was significant only in early adolescence, suggesting that the pledge is effective in delaying the initiation of sexual intercourse but only among a specific subset of adolescents. This study also found that adolescents who broke their virginity pledge were significantly less likely than non-pledgers to use contraception when they first engaged in sexual intercourse.

A cross-sectional study examining the virginity pledge among college students found that although pledgers were less likely to have had sexual intercourse than non-pledgers (66% vs. 78%), they were equally likely to have had oral and anal sex [8]. This finding suggests that the effect of the virginity pledge may only extend to sexual intercourse and not other sexual behaviors. Lipsitz et al. (2003) also found that although virgin pledgers were more likely to

delay the initiation of sexual intercourse than those who had not pledged, a majority of young adults who had taken a virginity pledge reported that they had broken their vow (61%). Of those who kept their virginity pledge, a majority reported having had oral sex (55%). They also found that young adult virgin pledgers were less likely than others to use a condom at first intercourse.

The present study examined the association between taking a virginity pledge and the initiation of a range of adolescent sexual behaviors using longitudinal data and controlling for other important predisposing factors (e.g., religiosity, sexual expectancies, age, gender). Specifically, this study advances previous research by assessing formal vs. private non-formal virginity pledges and by examining their association with genital play, oral sex, and sexual intercourse among youth. Based on extant empirical literature, we hypothesized that taking a virginity pledge, private non-formal or formal, would decrease the likelihood of adolescents engaging in genital play, oral sex, and vaginal intercourse.

Methods

Sample

The data were drawn from the first three waves of an ongoing 3-year, 5-wave, longitudinal study. Data were collected at 6-month intervals using a combination of in-home computer assisted self-administered interviews (CASI) and mail surveys. A list assisted sample of households from the greater San Francisco Bay Area (Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma counties) and Los Angeles County in California was used as the basis to recruit study participants aged 12 to 16 at wave 1. Potential participants and their parents were first contacted through a mailed letter and fact sheet that described the study and invited them to take part. A follow-up telephone call was then used to schedule interviews. Up to 10 telephone contact attempts were made before a number was retired from the sample. If a household included more than one eligible individual, the young person with the most recent birthday was selected.

A certificate of confidentiality was obtained from National Institutes of Health (NIH) to protect the privacy of the respondents. Parents were informed that the interviews with the adolescent respondents were to be conducted in private and that the data could not be shared with them. Moreover, the CASIs were completed in private and parents were given a self-administered questionnaire (SAQ) to further remove them from the interview situation. Written parental consent was obtained for all respondents as per the approved institutional review board (IRB) protocol.

At wave 1 (fall, 2002), in-home computer assisted self interviews (CASIs) that averaged 25 to 35 minutes in length to complete were conducted. A total of 1105 adolescents completed the first CASI. The average age of the participants was 14.1 (SD = 1.42, range = 12 to 16 years) with 48.2% (N = 533) females, 51.8% (N = 572) males, and 67% (N = 742) non-Hispanic white.

Calculation of response rates for list-assisted surveys is complicated because eligibility cannot be determined for households in the sample that were not contacted despite extensive follow-up attempts. Therefore, the CASRO method for estimating response rates was used [9]. Specifically, non-contacted telephone numbers were distributed between eligibles and ineligibles in the same proportions as for the numbers that were contacted. The denominator term for calculating response rate thus contains both the number of known eligible households and the estimated number of eligible households among the non-contacted numbers. Using this method, the estimated response rate was 75%. This approach is conservative because, in fact, it is likely that a greater proportion of the non-contacted numbers are ineligible (e.g., not

working numbers). The cooperation rate (*N* completed interviews/*N* known eligible numbers) was considerably higher (88%) than the estimated response rate.

Six months following completion of the first CASI, participants were mailed a self-administered questionnaire to be returned upon completion. A total of 891 respondents completed both the wave 1 CASI and the mail survey (81%). A second CASI in-home interview was administered at year two (fall, 2003). A total of 1012 respondents completed the second CASI. In all, 79% of the original sample completed all 3 surveys (N = 870).

Measures

Data regarding individual-level predispositions including sex expectancies, parental and peer attitudes, religiosity, academic achievement, and demographics were assessed in the wave 1 CASI. Information on virginity pledges and sex education was obtained in the wave 2 mail survey 6 months following the first administration of the CASI. Dependent variables for the current study, initiation of genital play, oral sex, and sexual intercourse, were assessed during the second year wave 3 CASI, 1 year following the administration of the first CASI.

Sexual activity—The CASI program permitted the wording of questions to be tailored to the gender of the respondent. Therefore, males were asked about both heterosexual sexual behavior with a “girl” and homosexual sexual behavior with a “boy.” Females were asked about heterosexual behavior with a “boy” and homosexual behavior with a “girl.” The current study uses data from the heterosexual component of the survey. In order to examine the effects of taking a virginity pledge on the initiation of sexual behaviors, respondents who reported engaging in the behavior under investigation at the first data collection period were excluded from the analyses. For example, adolescents who reported having engaged in genital play at wave 1 were deleted from the regression analyses in which genital play at wave 3 was the dependent variable.

The 3 outcome measures of primary interest include initiation of genital play, oral sex, and vaginal intercourse. Two items were combined to develop a dichotomous measure of genital play (yes = 1; no = 0). Respondents were asked “Has a girl/boy ever touched your genitals?” and “Have you ever touched a girl’s/boy’s genitals?” Positive answers to either or both questions were coded as equal to “1”. Oral sex was measured with a single item, “Have you ever had oral sex with a girl/boy? (When a girl/boy puts her/his mouth or tongue on your genitals or you put your mouth or tongue on a girl’s/boy’s genitals).” Vaginal intercourse was measured by asking participants, “Have you ever had sexual intercourse? By sexual intercourse, we mean when a boy puts his penis into a girl’s vagina.” Both items were dichotomous (yes = 1; no = 0). All sexual behaviors were defined throughout the survey.

Virginity pledge—Adolescents responded to several items assessing their formal and private non-formal pledging behavior. A private non-formal virginity pledge is different from a formal pledge in that it is not an overt public behavior such as making a vocal or written promise. However, both behaviors involve making a personal commitment. For brevity we will refer to the non-formal private promise as a private pledge.

Adolescents responded to 2 dichotomous items (yes = 1; no = 0) that assessed their personal commitment to remain a virgin by making a private pledge. Teens were asked, “Have you made a promise to yourself to wait to have sexual intercourse until you are married?” and “Have you made a promise to yourself to wait to have sexual intercourse until you are older?” A single item was used to identify teens who had taken a formal virginity pledge. Participants were asked, “Have you ever taken a public pledge (written or spoken) to wait to have sexual intercourse until you are married?” Response options included: “No, I never had the chance;” “No, I had the chance but chose not to;” “Yes, I made the pledge with a few close friends;”

"Yes I made the pledge as part of a small group (e.g. youth group, boy or girl scouts, church, etc.);" "Yes, I made a pledge during a school assembly;" and "Yes, I made a pledge in another large group setting." This item was transformed into a dichotomous variable with those who had participated in a formal pledge coded as "1" and those who had not coded as "0".

Perceived peer pledging—We were also interested in examining how many of the respondents' three closest friends had taken a virginity pledge. Adolescents were asked, "How many of your three closest friends have made a pledge to wait to have sexual intercourse until they are married? If you are not sure please give us your best guess." Response options ranged from none "0" to all of them "3".

Expectancies—Thirteen items assessed adolescents' sex expectancies. For each outcome specified, respondents were asked to indicate on a 4-point scale their belief about the likelihood (very unlikely "1" to very likely "4") of the specific outcome happening to them personally if they were to have sexual intercourse. Those who had not had intercourse were instructed to imagine and make their best guess. Missing values were coded to the mean. A factor analysis using principal components extraction identified 3 underlying factors corresponding to positive expectancies, negative psychosocial expectancies, and negative health expectancies. Because the factors underlying the expectancy items were likely to be correlated, an oblique rotation of the factors (direct oblimin) was specified. Bartlett factor scores were obtained to represent each of these dimensions. Positive expectancies included: (a) be more popular, (b) feel more loved and wanted, (c) feel more attractive, (d) keep your boyfriend or girlfriend from breaking up with you, (e) feel closer to your partner, and (f) fit in more with your friends ($\theta = .73$). Negative psychosocial expectancies included: (a) feel guilty, (b) get into trouble with your parents, (c) get a bad reputation, (d) lose your self-respect, and (e) disappoint people who are important to you ($\theta = .82$). Negative health expectancies included 2 consequences: (a) get pregnant or get someone pregnant and (b) get a sexually transmitted disease ($\theta = .65$).

Religiosity—Adolescents were asked 3 questions relating to their religious activities and beliefs. Participants were asked, "How often do you go to church, synagogue, mosque, temple, or other religious services?" and "How often do you go to other church or religious activities such as youth groups, prayer meetings, Bible study, or other religious volunteer groups?" Response options ranged from never or less than once a year "1" to more than once a week "7". Respondents also were asked, "How important or unimportant is religion to you, personally, in your everyday life?" Response options ranged from not at all important "1" to very important "4". Missing values were coded to the mean. A principal component factor analysis indicated a single underlying factor. Bartlett factor scores were generated to represent the factor religiosity ($\theta = .80$).

Parental attitudes—Youth were asked to report on perceived parental attitudes towards the respondent engaging in various sexual behaviors. Specifically, they were asked, "How upset do you think your parents or other guardians would be if they found out that you (a) made out with someone, (b) had oral sex, and (c) had sexual intercourse?" Response options ranged from not at all upset "1" to very upset "4". Making out with someone had previously been defined in the survey as, "kissing and/or touching for a long time." Missing values were re-coded to the mean. A principal component factor analysis indicated a single underlying factor. Bartlett factor scores were generated to represent the factor parental attitude ($\theta = .76$).

Peer attitudes—Youth were similarly asked to report on perceived attitudes towards their personal sexual behavior held by their closest friends. Adolescents were asked, "How upset do you think your three closest friends would be if you (a) made out with someone (b) had oral sex, and (c) had sexual intercourse." Response options ranged from not at all upset "1" to very

upset "4". Adolescents who indicated that they had no close friends were coded to the midpoint. Missing values were coded to the mean. A principal component factor analysis indicated a single underlying factor. Bartlett factor scores were generated to represent a single indicator (θ = .82).

Sex education—Adolescents answered a series of questions (yes = 1; no = 0) that assessed their exposure to formal sexual education (i.e., information on sexuality presented in an organized class or lesson) by indicating if they had received education on the following topics: (a) how to say no to sex (81%), (b) how pregnancy occurs (96%), (c) HIV/AIDS and STDs (95%), (d) where to get condoms and other types of birth control (67%), and (e) how to use condoms or birth control (to stop pregnancy or STDs from happening) (67%). Due to the relatively low levels of variability among the first 3 items, a single dichotomous item was created to represent formal adolescent contraceptive education. Adolescents who indicated that they had learned about where to get condoms and other types of birth control, and/or who learned how to use condoms or birth control were coded as "1".

Academic achievement—Academic achievement was assessed by asking teens, "In general, about how well do you do in school compared with other students in your classes?" Responses ranged from well below average "1" to well above average "5". Missing values were coded to the mean.

Demographics—Self-reported age, gender, and ethnicity were included in the analyses. Although respondents could identify which racial or ethnic group(s) best described them, the current analyses dummy coded ethnicity into a single variable, non-Hispanic white and non-white due to the small numbers of different ethnic minorities in the sample.

Results

Attrition analyses

Females were more likely than males [$\chi^2(1) = 12.83$, $p < .001$] and whites were more likely than non-whites [$\chi^2(1) = 13.88$, $p < .001$] to participate in all 3 surveys. No significant differences in age or sexual behaviors emerged between those who participated in both CASIs and the mail survey and those who participated in only the first wave.

Descriptive analyses

Seventy percent had made a promise to themselves to not have sexual intercourse until they were older and 46% had made a promise to themselves to not have sexual intercourse until they were married. Overall, 74% of the respondents had made a private virginity pledge; that is, made a promise to wait to have sexual intercourse until they were older and/or married. Despite some overlap in the 2 items, a relatively moderate correlation (r = .45) suggests that these items are conceptually distinct. Seventeen percent of adolescents had made a formal public pledge. Ninety-five percent of adolescents who had made a formal pledge had also made a private pledge, however only 23% of adolescents who had made a private pledge had also made a formal pledge.

Significant demographic characteristics emerged between adolescents who privately pledged to remain a virgin until they were older or married and those who had not made such a private pledge (Table 1). Similarly, significant differences emerged between adolescents who participated in a formal public pledge and those who had not. In general, pledgers were more likely to be female, more religious, and more likely to perceive that their friends and parents had more disapproving attitudes about their engaging in sexual behavior than non-pledgers. Pledgers were also significantly more likely to have higher negative psychosocial expectancies,

negative health expectancies, and lower positive expectancies about sex than non-pledgers. Pledgers were less likely to report oral sex and vaginal intercourse than non-pledgers.

A series of bivariate correlation analyses (Table 2) indicate that adolescents who made a formal public pledge to wait until marriage to have sexual intercourse and/or made a promise to wait until they were older or married to have sexual intercourse were less likely to have participated in oral sex and vaginal intercourse than adolescents who hadn't participated in a formal or non-formal pledge. Interestingly, the relationship between making a formal pledge and genital play was not significant whereas private pledges were significantly and negatively associated with genital play.

In addition, the bivariate analyses indicate that a negative association exists among all 3 sexual behaviors and parent attitudes, peer attitudes, negative psychosocial expectancies, negative health expectancies, and academic achievement. A positive association emerged between all 3 sexual behaviors and positive expectancies and formal contraceptive education. A significant inverse association exists between religiosity and both oral sex and vaginal intercourse, but not genital play.

Logistic regression analyses

Hierarchical logistic regressions were used to examine the association between taking a virginity pledge and initiation of sexual behaviors among adolescents while controlling for important predisposing factors. Separate analyses were conducted for genital play, oral sex, and vaginal intercourse. For each analysis, a preliminary model included demographic variables (age, gender, and ethnicity). The second step incorporated religiosity, parent attitudes, peer attitudes, expectancies, sex education, and academic achievement. The third step added the 3 formal and non-formal virginity pledge items to the model: privately pledging until one is older, privately pledging until one is married, and publicly pledging until one is married. In addition, we included the item about perceived number of close friends who have participated in a pledge. To assess improvements in successive models, χ^2 difference tests were employed. Model 2 was selected as the final model for genital play (Table 3). Model 3 was selected as the final model for vaginal intercourse and oral sex.

Genital play

Results suggest that the effects of a private pledge to remain a virgin until older do not extend to genital play. The inclusion of pledging items in the model did not significantly improve the fit of the model (Table 3). However, age, gender, and peer attitudes, emerged as significant predictors of genital play initiation (Table 4).

Oral sex

Adolescents who had made a private non-formal pledge to wait to have sexual intercourse until they were older were significantly less likely to have initiated oral sex than those who had not made such a private pledge. Specifically, adolescents who had not made a private pledge to wait to have sexual intercourse until they were older were nearly two and a half times more likely to have initiated oral sex than those who had made the pledge. Making a private pledge to wait to have sexual intercourse until marriage, perceived peer attitudes, and negative health expectancies emerged as significant predictors of oral sex initiation. Making a private pledge to wait until marriage to have sexual intercourse was inversely associated with initiating oral sex. As with genital play, adolescents who perceived that their peers had more disapproving attitudes were less likely to have initiated oral sex. Adolescents with more negative health expectancies were less likely to have initiated oral sex than those with less negative health expectancies (Table 4).

Sexual intercourse

Results from the final model (Table 4) indicate that making a private pledge to wait to have sexual intercourse until one is older significantly reduced an adolescents' risk of initiating vaginal intercourse over a 1-year period, even after controlling for important demographic and psychosocial variables. Adolescents who did not make a private pledge to wait until they were older to have sexual intercourse were nearly two and a half times more likely to initiate sexual intercourse than those who had made a promise. Making a private pledge to wait until marriage to have sexual intercourse, taking a formal virginity pledge, and having friends who have taken a virginity pledge were not significantly associated with adolescent sexual intercourse.

In contrast to previous studies, findings from the current study indicate that males were less likely to have initiated sexual intercourse than females after controlling for age, ethnicity, and other psychosocial variables. Older adolescents were almost one and a third times more likely to have initiated sexual intercourse than younger adolescents (OR = 1.33). Ethnicity was not significantly associated with initiating sexual intercourse nor were any of the other psychosocial variables.

Discussion

The purpose of this study was to examine the relationship between formal and non-formal private virginity pledges and the initiation of sexual behavior among adolescents. Overall, we found that 1 type of pledge—an informal promise or commitment to oneself to wait to have sexual intercourse until one is older—appears to reduce the likelihood that adolescents will initiate oral sex and sexual intercourse over a 1-year period. The effect persisted even when controlling for demographic and psychosocial variables that have been consistently identified as risk and protective factors in the field of adolescent sexual behavior. Interestingly, a formal virginity pledge was not uniquely associated with reductions in the likelihood of initiating any of the sexual behaviors examined once informally pledging to wait until one was older, demographic, and psychosocial variables were controlled. Pledging behavior of close friends was also not significantly associated with genital play, oral sex, or sexual intercourse.

Psychosocial influences also predicted non-coital sexual behavior. Specifically, adolescents whose peers were more approving of the respondent's engaging in sexual behavior were more likely to have engaged in genital play and oral sex. Negative psychosocial expectancies were also predictive of oral sex. That is, adolescents who perceived negative social consequences to engaging in sexual intercourse were less likely to participate in oral sex.

Psychosocial variables such as peer and parental attitudes, academic achievement, and religiosity were significantly correlated with sexual behaviors in bivariate analyses. These relations were non-significant once other factors were controlled suggesting that the effects of some psychosocial items may be mediated though pledging behavior.

The odds ratios and positive correlations between formal contraceptive education and sexual behaviors indicate that adolescents who received information on condoms were twice as likely to have participated in genital play, oral sex, and vaginal intercourse than those who had not received formal contraceptive education. This effect, however, was not significant once other factors were controlled. One possibility is that some programs emphasizing contraception may not adequately address the issue of encouraging young people to make a significant personal commitment to virginity. Alternatively, youth from families with more liberal attitudes on sexual issues may be more likely to participate in sex education programs that include information such as how to use birth control and other means of protection, while more children from more conservative families may opt out of such classes. Although the analyses controlled for parent attitudes towards the target adolescent's sexual behavior, parental attitudes towards

sex education were not assessed. Additional research is necessary to ascertain whether this effect can be replicated in future studies and, if so, what variables mediate this relationship.

The results of this study are somewhat consistent with past research on virginity pledges in adolescence. Bearman and Brückner (2001) found that participating in a formal (written or spoken) virginity pledge delayed the onset of sexual intercourse. Although the current study did not find a significant association between a formal pledge and vaginal intercourse, we did find that 1 version of an informal pledge was strongly and negatively associated not only with sexual intercourse but also with engaging in oral sex. Formal pledges may be successful to the extent that adolescents believe that they may be held responsible by their peers to follow through on their commitment or are internalized. However, formal pledges may also fail if adolescents are simply responding to external pressures (e.g., from parents, teachers) in making such commitments. Conversely, the private pledge may delay the initiation of sexual behavior because the promise or commitment is generated by the adolescent (i.e., intrinsically motivated) and a more accurate reflection of personal attitudes, beliefs, and intentions regarding sex.

It could be argued that the language in formal or public pledges (e.g., “I pledge to myself, my family, God, etc.”) means that such pledges are simultaneously private pledges as well. Rather than focusing on the specific language used in the pledge, we believe the formal/public vs. informal/private distinction rests with the immediate context in which the pledge is made (i.e., social vs. non-social). Formal/public pledges occur in a social context which introduces the possibility that such pledges may be subject to social pressures and youths’ desires to conform to peer norms and the expectations of others. When the motivation for pledging is extrinsically located, the pledge behavior and the attitudes and intentions of the individual may be incongruous.

In our study, 95% of public pledgers also made private pledges, suggesting that such social pressures do not appear to have been completely driving their public pledging behavior. However, we also found that only 23% of youth who made private pledges also reported making public ones. One possible explanation is that most youth who self-select into groups or institutions where engaging in a public pledge is likely (e.g., church youth groups, religiously-affiliated schools) are already personally committed to postponing sex. Therefore, the public pledge does not serve to additionally instigate the commitment to remain a virgin, but serves as an outward demonstration of a commitment already made by the individual. Unfortunately, because we do not have data on the sequence in which public and private pledges were made, we cannot empirically test this hypothesis. Importantly, only the private pledge was a significant predictor of transitions into sexual behavior. The implication for the pledge movement is that efforts to promote abstinence among teens should focus on increasing youths’ beliefs that they will benefit from delaying sex and thus increase the likelihood that they will make a personal commitment to do so rather than engaging youth in public pledges.

The current study has several limitations. First, the temporal relationship between pledging and the initiation of sexual behavior is unknown. That is, pledging items were collected 6 months after the first CASI and 6 months prior to the second CASI. This raises the possibility that pledging behavior may follow and be a result of previous sexual experience for some youth. In other words, some young people may have initiated sexual behavior and then pledged between the first CASI and the mail survey and, therefore, should be classified as “abstinent”. However, in the current analyses adolescents who initiated sexual behavior and then pledged would have been classified as non-virgins thus, under-estimating the effects of pledging. The strong association between informal pledging and sexual behavior suggests that the effect of the private pledge deserves additional consideration. Additional research on this topic would be beneficial to pregnancy and STI prevention programs.

Second, the number initiating sexual behavior is relatively small (genital play: n = 114, oral sex: n = 115, vaginal intercourse: n = 76), somewhat reducing the power of our analyses comparing them to virgins and our ability to generalize findings beyond the study sample or draw definitive policy-related conclusions. The small sample size also limits our ability to conduct analyses examining pledging context. Third, we were unable to examine an interaction between age, pledging behavior, and sexual behavior because a majority of younger adolescents were not engaging in genital play, oral sex, or sexual intercourse. Future studies should explore whether age moderates the relationship between pledging and sexual behavior, and whether significant differences in sexual behavior emerge among adolescents who participate in a formal pledge with a few close friends or as part of a large or small group. Because the purpose of our study was to examine the initiation of and developmental trajectories in sexual behavior over adolescence, we sampled youth as young as 12 and 13, who were unlikely to be sexually experienced during the early phases of the research. This restricts our ability to perform more comprehensive analyses on the first few waves of data collected. The relatively high percentage of virgins, however, will permit us to look at the development of sexual behavior over time as the study progresses. And fourth, ethnic minority adolescents were not over-sampled, thus limiting comparisons between adolescents of different ethnicities. This may also account for the lack of a significant relationship between ethnicity and sexual behavior—a finding that is inconsistent with other research.

These limitations notwithstanding, the results of this study suggest that prevention programs that rely solely or even heavily on formal public virginity pledges may not be as effective as previously believed. In multivariate analyses, we did not find a significant effect for public pledges on any of the 3 behaviors assessed, including sexual intercourse. Although taking a formal pledge was negatively related to oral sex and vaginal intercourse in bivariate analyses, these correlations were substantially smaller than those observed for making a private informal pledge.

In contrast to the public pledge, we found a significant effect for privately pledging to wait until one is older for oral sex and sexual intercourse in both the bivariate and multivariate analyses. To the extent that a such promise to oneself represents a behavioral intention or private commitment that may be influenced by many factors (e.g., peer norms, future goals), prevention programs may be most effective when they serve to address these influences and thus increase young people’s personal motivation to abstain from sex rather than through engaging them in overt acts of pledging, which may have significant conformity and demand effects. Such an approach would be consistent with our results regarding the importance of peer approval and negative expectancies. Thus, sexual health programs, designed to assist young people in developing social norms supportive of delaying sex and raising their awareness of how early sexual initiation may threaten future plans, may reduce the prevalence of adolescent risky sexual behavior.

This is one of the first studies to examine and contrast public and private commitments to refrain from sexual intercourse. Moreover, the current study is unique in that it defines the sexual behaviors from which adolescents are pledging or promising to abstain. Previous studies have utilized the phrase, “remain a virgin” without specifying the term virginity, which could include or preclude adolescents who have engaged in oral and anal sex as well. Future longitudinal research on the effects of virginity pledges will enable researchers to investigate the potential causal role of pledging in the development of adolescent sexual behavior. Moreover, longitudinal analyses will also allow an examination of the relationship between psychosocial factors, pledging, and the progression of adolescent sexual behavior. Finally, future research will need to examine if and how the effectiveness of virginity pledges in delaying the onset of risky sexual behavior differs among ethnic groups.

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Table 1

Demographic and psychosocial characteristics

Variables	Full group N = 870	Formal pledge		Private pledge	
		No (82%)	Yes (17%)	No (26%)	Yes (74%)
Age (mean, SD)	14.1 (1.4)	14.0 (1.4)	14.1 (1.4)	14.8 (1.2)†	13.78 (1.4)
% Male	49.0	53.0†	30.0	62.0†	45.0
% White	70.0	72.0†	61.0	71.0	70.0
Religiosity (mean, SD)	0.0 (1.0)	−0.1 (0.9)†	0.7 (1.0)	−0.4 (0.8)†	0.11 (1.0)
Parent attitudes (mean, SD)	0.0 (1.0)	−0.1 (1.1)†	0.3 (0.6)	−0.7 (1.3)†	0.23 (0.7)
Peer attitudes (mean, SD)	0.0 (1.0)	−0.1 (0.9)†	0.5 (0.8)	−0.7 (0.9)†	0.23 (0.9)
School grades (mean, SD)	3.8 (0.8)	3.8 (0.8)	3.8 (0.8)	3.7 (0.8)†	3.89 (0.8)
Positive expectancies (mean, SD)	0.0 (1.0)	0.1 (1.0)†	−0.3 (1.0)	0.2 (1.0)†	−0.06 (1.0)
Negative psychosocial expectancies (mean, SD)	0.0 (1.0)	−0.1 (1.0)†	0.5 (0.8)	−0.8 (1.0)†	0.28 (0.8)
Negative health expectancies (mean, SD)	0.0 (1.0)	−0.1 (1.0)†	0.3 (1.1)	−0.5 (0.9)†	0.16 (1.0)
% Formal contraceptive education	74.5	75.6	69.5	86.2†	70.4
Perceived peer pledge (mean, SD)	1.0 (1.7)	0.8 (1.1)†	2.0 (1.1)	0.2 (0.6)†	1.2 (1.2)
% Initiated genital play*	17.0	17.0	17.0	32.0†	14.0
% Initiated oral sex	16.0	17.0†	9.0	41.0†	9.0
% Initiated vaginal sex	10.0	11.0†	4.0	25.0†	6.0

Note. Significance tests run within each pledge type. The total number of youth who initiate sexual behaviors differs by behavior: genital play (N = 665), oral sex (N = 735), vaginal intercourse (N = 763).

*$p < .05$.

†$p < .01$.

Table 2

Correlation matrix

	Genital play, 2003	Oral sex, 2003	Sexual intercourse, 2003
Formal pledge	−.06	−.10†	−.08*
Private pledge older	−.40†	−.41†	−.36†
Private pledge married	−.28†	−.31†	−.25†
Perceived peer pledge	−.11†	−.14†	−.15†
Religiosity	−.05	−.14†	−.10†
Parent attitudes	−.15†	−.32†	−.19†
Peer attitudes	−.22†	−.32†	−.18†
Positive expectancies	.10*	.08*	.06
Negative psychosocial expectancies	−.21†	−.39†	−.21†
Negative health expectancies	−.09*	−.21†	−.14†
Academic achievement	−.08*	−.10†	−.05
Formal contraceptive education	.12†	.18†	.13†

Note. Each column only includes respondents who initiated the behavior in 2003: Genital play (N = 665), Oral sex (N = 735), vaginal intercourse (N = 763).

*$p < .05$.

†$p < .01$.

Table 3

Hierarchical model summary

	2	2	p
Genital play			
Model 1	27.63(3)†	—	
Model 2	63.14(11)†	35.50(8)	.000
Model 3	67.34(15)†	4.20 (4)	NS
Oral sex			
Model 1	50.80(3)†	—	
Model 2	101.12(11)†	50.31(8)	.000
Model 3	126.69(15)†	25.57(4)	.000
Vaginal intercourse			
Model 1	28.09(3)†	—	
Model 2	69.59(11)†	41.50(8)	.000
Model 3	92.66(15)†	23.07(4)	.000

† $p < .01$.

Table 4

Variables associated with sexual intercourse, oral sex, and genital play, odds ratios

	B	S.E.	Wald	Odds ratio	95% C.I.	
					Lower	Upper
Genital play						
Age	0.30	0.09	12.40	1.35†	1.14	1.60
Gender	−0.64	0.26	6.18	0.53†	0.32	0.87
White	−0.16	0.24	0.46	0.85	0.53	1.36
Religiosity	0.01	0.11	0.00	1.01	0.81	1.26
Parent attitudes	0.02	0.14	0.02	1.02	0.78	1.33
Peer attitudes	−0.45	0.15	8.63	0.64†	0.48	0.86
Positive expectancies	0.12	0.12	0.96	1.12	0.89	1.42
Negative psychosocial expectancies	−0.26	0.16	2.55	0.77	0.56	1.06
Negative health expectancies	−0.10	0.12	0.66	0.91	0.72	1.15
Formal contraceptive education	0.34	0.28	1.44	1.40	0.81	2.44
Academic achievement	−0.15	0.13	1.26	0.86	0.67	1.12
Oral sex						
Age	0.33	0.09	12.24	1.39†	1.16	1.67
Gender	−0.63	0.28	5.08	0.53*	0.31	0.92
White	−0.25	0.26	0.92	0.78	0.47	1.29
Religiosity	0.03	0.14	0.06	1.03	0.79	1.35
Parent attitudes	0.12	0.13	0.83	1.13	0.87	1.45
Peer attitudes	−0.34	0.16	4.37	0.71*	0.52	0.98
Positive expectancies	0.01	0.13	0.00	1.01	0.79	1.29
Negative psychosocial expectancies	−0.40	0.17	5.56	0.67†	0.49	0.94
Negative health expectancies	−0.14	0.13	1.16	0.87	0.67	1.12
Formal contraceptive education	0.44	0.33	1.79	1.55	0.82	2.95
Academic achievement	−0.02	0.14	0.02	0.98	0.75	1.29
Private pledge-Married	−0.71	0.33	4.49	0.49*	0.26	0.95
Private pledge-Older	−0.90	0.27	11.21	0.41†	0.24	0.69
Perceived peer pledging	0.08	0.15	0.27	1.08	0.81	1.44
Formal pledge	−0.24	0.41	0.35	0.78	0.35	1.76
Sexual intercourse						
Age	0.28	0.11	6.22	1.33†	1.06	1.65
Gender	−1.20	0.33	13.01	0.30†	0.16	0.58
White	−0.25	0.30	0.67	0.78	0.43	1.41
Religiosity	−0.01	0.16	0.00	0.99	0.72	1.37
Parent attitudes	0.00	0.14	0.00	1.00	0.76	1.32
Peer attitudes	−0.25	0.20	1.54	0.78	0.53	1.15
Positive expectancies	0.07	0.15	0.25	1.08	0.81	1.43
Negative psychosocial expectancies	−0.21	0.20	1.10	0.81	0.55	1.20
Negative health expectancies	−0.24	0.16	2.26	0.79	0.58	1.07
Formal contraceptive education	0.74	0.42	3.17	2.09	0.93	4.74
Academic achievement	−0.11	0.16	0.50	0.89	0.65	1.23
Private pledge-Married	−0.63	0.41	2.41	0.53	0.24	1.18
Private pledge-Older	−0.85	0.31	7.46	0.43†	0.23	0.79
Perceived peer pledging	−0.25	0.20	1.58	0.78	0.53	1.15
Formal pledge	−0.34	0.56	0.37	0.71	0.24	2.13

*$p < .05$.

†$p < .01$.

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