Reborn a Virgin: Adolescents' Retracting of Virginity Pledges and Sexual Histories

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Objectives. We examined retractions of virginity pledges and of sexual histories among adolescents taking part in waves 1 and 2 of the National Longitudinal Study of Adolescent Health.

Methods. Logistic regression analyses were used to compare respondents' reports of virginity pledges and sexual histories at waves 1 and 2.

Results. Among wave 1 virginity pledgers, 53% denied having made a pledge at wave 2; after control for confounders, pledgers who subsequently initiated sexual activity were 3 times as likely to deny having made a pledge as those who did not initiate sexual activity (odds ratio [OR] = 3.21; 95% confidence interval [CI] = 2.04, 5.04). Among wave 1 nonvirgins who subsequently took virginity pledges, 28% retracted their sexual histories at wave 2; respondents who took virginity pledges were almost 4 times as likely as those who did not to retract reports of sexual experience (OR = 3.88; 95% CI = 1.87, 8.07).

Conclusions. Adolescents who initiate sexual activity are likely to recant virginity pledges, whereas those who take pledges are likely to recant their sexual histories. Thus, evaluations of sexual abstinence programs are vulnerable to unreliable data. In addition, virginity pledgers may incorrectly assess the sexually transmitted disease risks associated with their prepledge sexual behavior. (*Am J Public Health.* 2006;96:1098–1103. doi:10.2105/AJPH.2005.063305)

The US government promotes abstinence-based sex education initiatives, including those encouraging adolescents to take pledges to delay sexual activity until marriage. Virginity pledge programs are widespread, but their efficacy is unknown. The goal of these programs is to curb adolescent sexual activity; instead virginity pledges may alter some adolescents' reporting of their sexual activity.

Surveys are the major source of data for determining the efficacy of virginity pledges in delaying adolescent sexual activity. All survey data are compromised somewhat by inaccurate responses, but reports of intimate behaviors, including sexual activities, are particularly vulnerable because of respondents' tendency to answer survey questions in accordance with their current attitudes toward sexuality as well as their current behaviors; when their current beliefs conflict with their past behaviors, their reports typically concur with the former rather than the latter.[1]

Survey respondents typically reconcile their memories with their present beliefs. Respondents may recall only memories consistent with their current beliefs or report actions that did not occur but are consistent with their current beliefs.[2,3] For instance, it has been shown that individuals who affirm the importance of voting, express an intention to vote in the next election, and are under social pressure to vote are more likely than others to claim that they voted in the past election, even though official records indicate that they did not.[4–6]

In addition, survey respondents' reports of their past behavior may resemble their current conduct more closely than their actual past behavior. For example, it has been shown that high school students' reports of their past substance use are highly correlated with their present use rather than their actual past use.[7] Biased recall may be caused by the respondent's use of availability and anchoring/adjustment heuristics to gauge their past behavior, so that *currently* sexually inactive respondents will underestimate their *past* sexual activity because they use current activity as a reference point for gauging past activity.[8]

Respondents may also intentionally overreport or underreport their health risk behaviors. Surveys have assessed inaccurate reporting of sexual experiences by asking respondents how honestly they answered questions. For example, in one survey, 25% of male middle schoolers reported overstating their sexual experience, compared with approximately 15% of female middle schoolers and 10% of high school students of both genders.[9] Surveys can measure overreports of drug use by including questions on a fictitious drug; results of 2 studies showed that the 1% to 4% of respondents who reported using a fictitious drug generally reported more use of other drugs as well and therefore were probably overstating their drug use overall.[10,11]

It has been shown that adolescents respond inconsistently to questions about their history of risk behaviors in general, recanting not only previous reports of engaging in sexual intercourse[12,13] but also of smoking cigarettes[14–17] and using alcohol and illegal drugs.[15,16,18–22] Inconsistent report of risk behaviors has been correlated only with demographic factors such as gender, ethnicity, age, and socioeconomic status; potential connections with social contexts or religious affiliations have not been studied. African Americans and Latinos appear to be more likely than individuals from other racial/ethnic backgrounds to contradict earlier reports of substance use.[13,19–24] The effects of other demographic variables have been mixed: among those who have been cited as more likely to retract earlier statements are male adolescents,[23,24] younger adolescents,[19,23] married respondents,[20,21] individuals residing in rural areas,[20] individuals residing in urban areas,[19] and individuals at low education levels.[13,20,22]

Retraction of earlier reports seems not to be caused by a response error, because it is most common in the case of intimate, deviant, or illegal behaviors,[21,23] and individuals who report and subsequently deny these behaviors

are no more likely to supply other forms of bad data (e.g., skipped questions) than individuals who do not recant.[12] Also, respondents may later retract reports of behaviors that they view as experimental, in that they are more likely to retract reports of behaviors that they initially reported as infrequent.[12,22,23]

If this pattern holds true for adolescents' reports of their sexual histories, adolescents who initially report sexual involvement but subsequently take a virginity pledge will be more likely to recant their previous report of sexual activity; similarly, adolescents who initially report a virginity pledge and then engage in sexual intercourse will be more likely to recant their previous report of having taken a virginity pledge. Both hypotheses were examined.

METHODS

A nationally representative sample of students in grades 7 through 12 was interviewed in 1995 (wave 1) and again in 1996 (wave 2) as part of the National Longitudinal Study of Adolescent Health (Add Health).[25,26] The sample was derived from a multistage design; the primary sampling units were 80 high schools and 52 middle schools. High schools were selected with unequal probability from 26 666 US high schools stratified according to region of the country, level of urbanization, size, type, and ethnic composition; the 52 middle schools represented a sample of feeder schools associated with the sampled high schools. Students from these schools were selected with unequal probability for the wave 1 home interview; 20 745 students were interviewed at wave 1 (response rate: 79%).

A subset of the wave 1 respondents were selected for the wave 2 interview; 14 736 students were interviewed at wave 2 (response rate: 88%). The probability of selection for the sample was known for 13 568 of the Add Health respondents. All quantities were weighted by the inverse probabilities of selection so that the results would generalize to the population of American adolescents enrolled in high school in the 1994–1995 school year and so that standard errors would be accurate. Respondents whose probability of selection was unknown (n=7177) were excluded from the analyses.

Interviewers entered all of the participants' responses directly into a laptop computer to protect data confidentiality and security. Sensitive questions such as those focusing on sexual history were administered via audio-CASI (computer-assisted self-interview); that is, respondents heard the questions through earphones and entered their answers themselves to avoid self-presentation bias.[27]

The outcome variables in this study were inconsistent self-reports of taking a virginity pledge (based on responses to the question "Have you taken a public or written pledge to remain a virgin until marriage?") and inconsistent self-reports of engaging in sexual intercourse (based on responses to "Have you ever had sexual intercourse? When we say sexual intercourse, we mean when a male inserts his penis into a female's vagina."). Retracting a previous report was defined as providing an affirmative answer at wave 1 and a nonaffirmative answer at wave 2.

Predictor variables were gender, age, race, vocabulary test score, language spoken at home, self-reported dishonesty in answering the audio-CASI questions, number of sexual partners, and self-identification as a born-again Christian. "Born-again" identity was included as a covariate owing to the strong ties that many virginity pledge groups have with evangelical Christianity. Age was measured in years at the time of the interview; race was coded as Black versus non-Black; and vocabulary test score was a binary indicator of having an age-standardized score on the Peabody Picture Vocabulary test in the lowest quartile.

Language spoken at home was coded as English versus a language other than English; self-reported honesty was coded as 1 for respondents who reported answering the audio-CASI questions "very honestly" or "completely honestly" and 0 otherwise. Number of sexual partners was the total number of romantic and nonromantic sexual partners reported at wave 1; respondents in the top 5% of the distribution, those reporting 11 or more partners, were recoded as having 11 partners. The question was asked only of respondents who reported nonromantic sexual partners; respondents who reported sexual intercourse, but no nonromantic sexual partners, were recoded as having 1 sexual partner. Self-identification as a born-again Christian was a binary variable measured at both waves 1 and 2.

Bivariate analyses were used to examine the data of respondents who reported at wave 1 having taken a virginity pledge and answered the wave 2 virginity pledge question (n=1966) and those who reported having ever had sexual intercourse and answered the wave 2 sexual intercourse question (n=5156). Survey-weighted logistic regression analyses included data only from respondents who answered all questions corresponding to the covariates; thus, the sample sizes for the regressions were slightly smaller than those for the bivariate analyses (n=1803 and n=4666, respectively). As a means of avoiding selective choice of variables, models were developed with a random half sample of the full data before they were run with the full data.

RESULTS

Approximately 13% of adolescents reported having taken a virginity pledge at wave 1; at wave 2, more than half of this group (7.2% of participants overall) denied having taken a virginity pledge (Table 1). The respondents most likely to retract the pledge were male and Black, reported not answering the wave 1 survey honestly, were not born-again Christians at wave 1, abandoned their born-again Christian identity at wave 2, or

TABLE 1—Virginity Pledge Histories Among Respondents in Waves 1 and 2 of the National Longitudinal Study of Adolescent Health, 1995–1996

	Report of Pledge in 1996, %	No Report of Pledge in 1996, %	Total (n=13 070), %
Report of pledge in 1995	6.3	7.2	13.5
No report of pledge in 1995	5.5	81.0	86.5
Total	11.8	88.2	100.0

TABLE 2—Factors Associated With Retracting Earlier-Reported Virginity Pledges: Respondents in Waves 1 and 2 of the National Longitudinal Study of Adolescent Health, 1995–1996

	No.	Retracting, %	Odds Ratio (95% Confidence Interval) (n = 1807)
Overall reports	1966	53.3	
Gender			1.79 (1.34, 2.40)
Boys	673	59.9	
Girls	1293	49.6	
Age, y			1.21 (0.88, 1.68)
<15	777	53.5	
≥15	1189	53.3	
Ethnicity			1.57 (1.04, 2.37)
Black	469	65.5	
Non-Black	1494	51.3	
Vocabulary test score			1.30 (0.92, 1.84)
Lower quartile	552	65.5	
Upper 3 quartiles	1414	49.6	
Home language			1.18 (0.73, 1.92)
Not English	291	63.0	
English	1675	52.1	
Honesty in responding, wave 1			0.51 (0.30, 0.88)
Honest	1812	51.7	
Not honest	147	75.0	
Honesty in responding, wave 2			0.68 (0.35, 1.33)
Honest	1782	51.7	
Not honest	177	70.6	
Born-again Christian, wave 1			0.32 (0.23, 0.44)
Yes	930	41.6	
No	1036	64.8	
Sexual experience, wave 1			3.18 (2.12, 4.76)
Yes	226	74.8	
No	1735	50.8	
Repudiate born-again Christianity, wave 2			2.79 (1.70, 4.58)
Yes	195	63.0	
No	1771	52.3	
Initiate sexual experience, wave 2			3.21 (2.04, 5.04)
Yes	266	73.2	
No	1687	49.7	

Note. The percentage of retractions was computed with sample weights. Odds ratios were calculated from the complete case logistic regression and thus included fewer observations than the total number of respondents eligible to retract their wave 1 reports.

reported sexual experience at waves 1 or 2 (Table 2).

After control for English literacy, demographic and religious factors, and previous sexual experience, respondents who reported sexual experience for the first time at wave 2 were more than 3 times as likely to retract a virginity pledge as those who did not report first-time sexual experience at wave 2. Restricting the analysis to wave 1 pledgers who reported never having had sex, respondents who renounced their born-again identity were more than twice as likely as those who did not to retract a virginity pledge (odds ratio [OR]=2.37; 95% confidence interval [CI]=1.31, 4.29; n=1357).

About a third of the respondents reported having had sexual intercourse at wave 1; at wave 2, however, 10.7% of these adolescents disavowed ever having had sexual intercourse (Table 3). The respondents most likely to retract wave 1 statements of sexual activity were male, were younger than 15 years, did not speak English at home, reported not answering the survey questions honestly, reported only one sexual partner at wave 1, had recently identified themselves as born-again Christians, and reported a virginity pledge at either wave (Table 4).

After control for English literacy, demographic and religious factors, and previous virginity pledges, respondents who reported a virginity pledge for the first time at wave 2 were approximately 4 times as likely to retract reports of sexual experience made at wave 1 as those who still had not taken a virginity pledge at wave 2. Respondents who contradicted their original positive responses to the sexual experience question reported a mean of 2.22 (95% CI=1.91, 2.53) sexual partners at wave 1, compared with 3.08 (95% CI=2.95, 3.21) among respondents who reiterated their original reports of sexual experience.

Respondents were more likely to contradict previous reports of sensitive or unusual behaviors than they were to retract previous reports regarding demographic and other less sensitive information. At wave 2, fewer than 1% changed their earlier reports regarding demographic details such as gender, birth date, and speaking a language other than English at home, and fewer than 4% denied common behaviors (e.g., ear piercing among women) or conditions (e.g., menstruation). By contrast, more than 10% of respondents contradicted earlier reports of relatively uncommon or socially unacceptable behaviors such as engaging in sex, becoming pregnant, and taking a virginity pledge.

The relative locations of the pledge and sexual intercourse questions within the Add Health survey changed between the 2 waves. However, notwithstanding this change, respondents reporting a virginity pledge at either wave were equally likely to report sexual experience (18% and 20%, respectively) after control for ethnicity, age, and gender (data not shown). In addition, restricting the analysis to respondents who were at least 15 years old at wave 1 or who spoke English at home

TABLE 3—Sexual Experience Among Respondents in Waves 1 and 2 of the National Longitudinal Study of Adolescent Health, 1995–1996

	Report of Sexual Intercourse in 1996, %	No Report of Sexual Intercourse in 1996, %	Total (n = 13 355), %
Report of sexual intercourse in 1995	29.2	3.5	32.7
No report of sexual intercourse in 1995	12.9	54.4	67.3
Total	42.1	57.9	100.0

did not change either result (data not shown). Young age and difficulty speaking English can therefore be eliminated as explanations for false reports at wave 1.

DISCUSSION

The results showed a substantial proportion of adolescents from a nationally representative sample contradicting previously reported positive details regarding virginity pledges and sexual experience. After control for English literacy, demographic and religious factors, and previous virginity pledges or sexual activity, retraction was associated with changes in religious and sexual identities.

More than half of adolescents reporting having taken a virginity pledge at wave 1 reported a year later that they had never taken such a pledge. This finding may imply that many of these individuals did not regard the pledge as central to their identities. Pledge retraction was most frequent among those who were newly sexual active (73%) and those who renounced a previous born-again Christian identity (63%).

The order of these decisions cannot be determined from the present data. Some respondents may have abandoned their virginity before their virginity pledge, whereas others may have abandoned their virginity pledge before their virginity. In the former case, self-identified virginity pledgers chose to have sexual intercourse despite their pledge and may later have "overlooked" the pledge as a result of cognitive dissonance between their virginity pledge and their history of sexual intercourse.

In the latter case, virginity pledgers may have consciously decided to renounce their pledge and subsequently no longer felt constrained from sexual activity; that is, their abandonment of the virginity pledge may be attributable to a religious change. The association observed between abandonment of born-again identities and retraction of virginity pledges among respondents who reported never having had sexual intercourse suggests that some adolescents may renounce their virginity pledges not when they initiate sexual activity but, rather, when they experience religious changes.

More than 10% of adolescents reporting sexual intercourse at wave 1 reported a year later that they were virgins. Retraction of sexual histories was most common among recent adopters of virginity pledges (28%) and of born-again Christianity (18%). After control for religious factors, retraction of sexual history was not more common among Blacks. This result was contrary to an earlier finding[13] that may have been partially confounded by Black adolescents' more frequent born-again identification. On average, respondents who denied their sexual activity had fewer sexual partners than those who did not, and those who had had only one sexual partner were about twice as likely to retract their histories as those who had had more than one sexual partner; the latter result may indicate that some retractors considered their sexual experiences as experimental.[12,22,23]

Whether adolescents believe that being "born again" or a "secondary virgin" erases their history, or whether they acknowledge their history but consider it not worth reporting, surveys do not reliably measure the sexual histories of some of these adolescents. If those who deny their sexual pasts perceive their new history as correct,[7] they will underestimate the sexually transmitted disease (STD) risk stemming from their prepledge sexual behavior (on average, these retractors had more than 2 sexual partners). Parallel to the situation with voting described earlier,[4–6] respondents who feel the most pressure to abstain from sexual intercourse may be more likely to abstain than respondents who do not feel such pressure, but respondents who do not abstain may also be more likely to falsely report sexual abstinence; self-reported voting can be verified with official voting records, but self-reported sexual abstinence cannot.

These results have implications for researchers, health care providers, and virginity pledge programs. Researchers should account for the fact that sensitive information is less reliable than other data and the fact that reliability varies according to social context (e.g., self-reports of sexual experiences are less reliable among virginity pledgers). One virginity pledge study used inconsistent reports of pledges as indicating less devotion.[28] Evaluations of abstinence initiatives should incorporate outcome measures, such as STD assays, that are equally reliable for adolescents assigned to abstinence education and those assigned to a control group. Analyses of the effects of abstinence education on sexual intercourse should use multiple imputation (or another method of correcting for missing or bad data) to account for the uncertainty introduced by this measure's differential unreliability.

If self-report measures must be used, researchers should consider the types of questions currently employed in assessing nonnormative behaviors such as drug use (e.g., "How old were you when you tried marijuana for the first time?"). Health care providers who want to assess STD risk could ask adolescents whether they were sexually active before they took virginity pledges or experienced religious changes. Virginity pledge programs should ensure that pledgers know they bear the risks of previous sexual behaviors irrespective of their virginity pledge or other religious commitments.

Although these results show that virginity pledges were associated with retractions of reported sexual activity, it could not be determined how much of the initially reported sexual activity actually occurred. Younger respondents were more likely than older respondents to report risk behaviors that most

TABLE 4—Factors Associated With Retracting Earlier-Reported Sexual Experience: Respondents in Waves 1 and 2 of the National Longitudinal Study of Adolescent Health, 1995–1996

	No.	Retracting, %	Odds Ratio (95% Confidence Interval) (n = 4678)
Overall reports	5156	10.4	
Gender			2.00 (1.54, 2.59)
Boys	2678	13.4	
Girls	2481	7.0	
Age, y			2.36 (1.71, 3.25)
<15	678	19.9	
≥15	4479	8.5	
Ethnicity			1.14 (0.80, 1.63)
Black	1610	13.1	
Non-Black	3542	9.3	
Vocabulary test score			1.29 (0.96, 1.74)
Lower quartile	1510	14.8	
Upper 3 quartiles	3649	8.8	
Home language			2.31 (1.40, 3.81)
Not English	446	23.6	
English	4713	9.6	
Honesty in responding, wave 1			0.64 (0.45, 0.93)
Honest	4507	9.1	
Not honest	619	19.8	
Honesty in responding, wave 2			0.60 (0.39, 0.91)
Honest	4389	9.0	
Not honest	737	19.1	
No. of sex partners, wave 1			1.87 (1.44, 2.45)
1	2485	13.7	
>1	2674	7.4	
Born-again Christian, wave 1			1.14 (0.82, 1.60)
Yes	1232	11.3	
No	3927	10.0	
Virginity pledge, wave 1			2.43 (1.53, 3.85)
Yes	233	23.4	
No	4888	9.7	
Recently born again, wave 2			2.02 (1.32, 3.11)
Yes	416	18.4	
No	4743	9.7	
Recent virginity pledge, wave 2			3.88 (1.87, 8.07)
Yes	106	28.0	
No	5053	10.0	

Note. The percentage of retractions was computed with sample weights. Odds ratios were calculated from the complete case logistic regression and thus included fewer observations than the total number of respondents eligible to retract their wave 1 reports.

likely did not occur,[7,12,29] but older respondents who took virginity pledges and became "born again" were no less likely to deny or dismiss their sexual histories than younger respondents. Likewise, the data could not reveal whether respondents who retracted their sexual histories were sexually inactive at the time of their reports. Pledgers who remained sexually active at wave 2 may have recanted as a result of cognitive dissonance, whereas pledgers who had been sexually active at wave 1 but ceased their sexual activity may have "overlooked" their sexual histories by using easily recalled examples of their recent behavior to answer questions about the past.[2]

Retraction cannot be explained as coding error. If that were the case, proportions of retraction would not vary according to sensitivity of questions or time interval between test and retest. Consistent with previous research,[21,23] adolescents were more likely to deny previous reports of sensitive behaviors (such as engaging in sexual activity or taking a virginity pledge) and unusual or illegal behaviors than less sensitive details. Also, in comparison with respondents taking part in a survey that involved similar questions and a 2-week test–retest interval, the present respondents were more than twice as likely to deny their sexual histories after a test–retest interval of 1 year (10.5% vs 4.1%).[30] Retraction also cannot be explained by English-language difficulties, because results were unchanged when analyses were restricted to respondents who spoke only English at home. Because respondents entered their responses to the survey questions on a laptop while they listened to the questions through earphones, retractions of virginity pledges and sexual histories cannot be explained by impression management theories.

Missing data owing to survey nonresponse and item nonresponse may have affected the extent to which the information gathered was inconsistent, and the strength of association between variables may have been influenced by missing data. The wave 2 response rate was 88%; after casewise deletion of observations resulting from item nonresponse, approximately 92% of the wave 2 respondents were included in the analyses. Retraction was observed only among respondents to both waves of the survey, so it cannot be explained by missing data.

Despite the limitations of this study, my findings show that a significant proportion of a nationally representative sample of adolescents reported their risk behaviors in logically inconsistent ways. They were most likely to contradict their previous affirmative answers to questions about sensitive or unusual behaviors. The factors most strongly associated with retraction of a virginity pledge were becoming sexually active and abandoning a born-again religious identity. The factors most

strongly associated with retraction of sexual history were becoming a born-again Christian and having newly taken a virginity pledge. Retraction may represent a real phenomenon: a perceived identity change arising from joining or leaving a social movement. ■

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