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**Adolescent Virginity Pledges
And
Risky Sexual Behaviors**

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Abstract

A recent article in the *Journal of Adolescent Health* suggested that adolescents who make virginity pledges are more likely to engage in anal and oral sex. This claim generated widespread media attention across the nation. Using the same Add Health data base, this paper demonstrates that, contrary to the prior report, virginity pledgers are less likely to engage in oral or anal sex when compared to non-pledgers. In addition, virginity pledgers who have become sexually active (engaged in vaginal, oral or anal sex) are less likely to engage in oral or anal sex when compared to sexually active non-pledgers. This lower level of risk behavior puts virginity pledgers at lower risk for sexually transmitted diseases relative to non-pledgers.

This finding contradicts previous research because the present article describes the behavior of pledgers and non-pledgers as a whole. By contrast, the previous article in the *Journal of Adolescent Health* described risk behavior only among minute sub-groups of pledgers. For example, the central contention in the prior research that pledgers are more likely to engage in anal sex without vaginal sex relates to only 21 persons out of the total Add Health sample of 14,116.

Finally, this paper finds that although virginity pledgers are less likely to use contraception at first intercourse, any differences in contraceptive use between pledgers and non-pledgers disappear very quickly. In young adult years, sexually active pledgers are as likely to use contraception as non-pledgers.

Executive Summary

In the April 2005 issue of the *Journal of Adolescent Health*, professors Peter Bearman and Hannah Bruckner claimed that adolescents who make virginity pledges are more likely to engage in the risky sex behaviors of oral and anal sex. The authors suggested that this risky sexual behavior, particularly anal sex, by virginity pledgers may partially account for the apparent paradox that pledgers, allegedly, do not have lower rates of infection by sexually transmitted diseases even though they delay sexual activity and have fewer sex partners. Bruckner and Bearman called for a re-examination of federal financial support to abstinence education.

Bearman and Bruckner's article resulted in an immediate editorial in the same issue of the *Journal of Adolescent Health*. The editorial asserted: "pledgers are more likely to engage in noncoital oral-genital and ano-genital sexual behaviors that represent some risk for [sexually transmitted diseases]."¹ The editorial suggested that abstinence education programs may "cause harm" to youth.

- The *Washington Post* repeated this claim, asserting, "Young people who sign a virginity pledge [are]..more likely to experiment with oral and anal sex."²
- The NBC *Today Show* proclaimed, "A major new study reports teens who pledge to remain virgins until marriage are more likely to engage in other kinds of potentially risky sexual behavior."³
- The CBS television news show *60 Minutes* repeated the charge, stating, "kids who take virginity pledges....are even more likely to engage in high risk sexual behavior."⁴
- *The San Francisco Chronicle* informed its readers that, "Virginity pledgers are five times more likely to have oral or anal sex."⁵
- Even network television comedian Bill Maher joined the campaign with a scathing comedy monologue, based on the Bearman/Bruckner study, which denounced abstinence education as demented and perverse.⁶

The Bearman/Bruckner article has become a centerpiece in the lobbying campaigns of groups opposed to abstinence education. For example, the nation's leading anti-

¹ Hannah Bruckner and Peter Bearman, "After the Promise: the STD consequences of adolescent virginity pledges," *Journal of Adolescent Health*, April 2005, pp. 271-278.

² Ceci Connolly "Teen Pledges Barely Cut STD Rates, Study Says" *The Washington Post*, March 19 2005, p. A03

³ *Today Show*, "Dr. Mark Schuster and Leslee Unruh talk about teens pledging to remain virgins, but engage in other risky sex," March 21, 2005

⁴ *Sixty Minutes*, "Taking the Pledge", May 22, 2005.

⁵ "Key to Sex Education: Discipline or Knowledge," *The San Francisco Chronicle*, May 22, 2005

⁶ HBO Broadcast Transcript "Real Time with Bill Maher," Episode #306, April 1, 2005

abstinence organization, the Sexuality Information and Education Council of the United States (SIECUS) proclaims, “Virginity Pledgers More Likely to Engage in Risky Sexual Behavior Including Oral and Anal Sex”.⁷

These charges were repeated in newspapers of across the country. The widespread attention to the Bearman-Bruckner article was unfortunate since the highly publicized suggestion that virginity pledgers are “more likely” to engage in risky sexual behavior is, at best, profoundly misleading. Professors Bearman and Bruckner drew their data from the National Longitudinal Study of Adolescent Health (Add Health). An examination of these data reveal, contrary to the implications of Bearman and Bruckner, youth who made virginity pledges as adolescents are, in fact, less likely to engage in risky sexual behaviors as young adults. Specifically, when compared to non-pledging adolescents, virginity pledgers are:

- less likely to engage in vaginal intercourse;
- less likely to engage in oral sex;
- less likely to engage in anal sex; and,
- less likely to engage in sex with or act as prostitutes.

(All these differences are statistically significant at the 95 percent confidence level.)

Even if the analysis is limited to youth who are sexually active (e.g. have engaged in any vaginal, oral or anal sex activity), pledgers are not more likely to engage in risky sex behaviors. When compared to sexually active non-pledgers, sexually active pledgers are:

- less likely to engage in anal sex;
- less likely to engage in oral sex; and,
- less likely to engage in sex with or act as prostitutes.

Overall, adolescents who have made virginity pledges are less likely to engage in any form of sexual activity. If they do become sexually active, their array of sexual behaviors is likely to be more restricted than that of non-pledgers. In complete contrast, to what Bearman and Bruckner assert, pledging is most strongly associated with a reduction in highest risk sex activity. The more risky the activity, the less likely pledgers are to engage in it, in comparison to non-pledgers. Finally, sexually active pledgers are no less likely to use condoms as young adults than are non-pledgers.

How can these facts be reconciled with Bearman-Bruckner’s apparent claim that virginity pledgers are more likely to engage in risky oral and anal sex? The answer is simple, although Bearman and Bruckner strongly imply that virginity pledgers are more likely to engage in risky sex behaviors, they never actually make that claim. They never assert that virginity pledgers, as a whole, are more likely to engage in oral or anal sex. They never assert that sexually active pledgers are more likely to engage in oral or anal sex.

⁷ Sexuality Information and Education Council of the United States, “Virginity Pledgers More Likely to Engage in Risky Sexual Behavior Including Oral and Anal Sex,” press release, March 18, 2005.

Instead, their analysis refers not to all or even most virginity pledgers, but is restricted to very tiny sub-groups within the virginity pledge population.

For example, the assertion that virginity pledgers are more likely to engage in anal sex does not apply to all virginity pledgers or even to sexually active pledgers. Instead, the claim is limited to pledgers who have engaged in anal sex but not vaginal intercourse. This “at risk” subgroup comprises only 21 persons out of the entire Add Health sample of 14,116 individuals. This “risk” group amounts to less than one percent of all virginity pledgers. By stating that a minute sub-segment of virginity pledgers were more likely to engage in risky anal sex, while deliberately failing to inform the reader that virginity pledgers as a whole were substantially less likely to engage in this behavior, Bearman and Bruckner severely misled their readers. Their sensationalistic implication garnered widespread media attention, but distorted the truth, and unfairly maligned abstinence education.

Background

For more than a decade, organizations such as True Love Waits have encouraged young people to abstain from sexual activity. As part of these programs, young people are encouraged to take a verbal or written pledge to abstain from sex until marriage. In recent years, increased public policy attention has been focused on adolescents who take these “virginity pledges,” as policy-makers seek to assess the social and behavioral outcomes of such abstinence programs.

Our analysis will utilize the same data base employed by Bearman and Bruckner, the National Longitudinal Study of Adolescent Health (hereafter simply “Add Health”),⁸ funded by the Department of Health and Human Services and other federal agencies. The Add Health survey is longitudinal which means that it surveys the same group of youth repeatedly over time. Interviews were conducted in three succeeding periods: wave I in 1994, wave II in 1995, and wave III in 2001. When the Add Health survey started with wave interviews in 1994, most of the respondents were junior-high and high-school students, nearly all between the ages of 12 and 18. The students were tracked through high school and into early adulthood. By the time of the wave III interviews, the youth in the survey were nearly all young adults between the ages of 19 and 25.

In each of the three waves of the Add Health survey, youth were asked the question: “Have you ever taken a public or written pledge to remain a virgin until marriage?” In the following analysis, youth who reported, in any of the three waves of the survey, that they have taken a pledge are counted as “pledgers”. Youth who did not report taking a

⁸ This research uses data from Add Health, a program project designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris and funded by grant P01-HD31921 from the National Institute of Child Health and Human Development, with cooperative funding from 17 other agencies. Special acknowledgment is due Ronald R. Rindfuss and Barbara Entwisle for assistance in the original design. Persons interested in obtaining data files from Add Health should contact Add Health, Carolina Population Center, 123 West Franklin Street, Chapel Hill, NC 27516-2524 (addhealth@unc.edu).

virginity pledge in any of the Add Health interview waves are counted as “non-pledgers.”⁹ Roughly one fifth of the youth in the Add Health survey report having taken a pledge in at least one interview of the survey. The remaining four fifths have never reported taking a pledge.

Comparison of Pledgers and Non-pledgers

Chart 1 compares young adults who report they have made a virginity pledge at some point in their past with young adults who never made a pledge. The data, taken from Wave III of the Add Health Survey, show whether an individual reports ever having engaged in a particular sexual activity. At the time of the Wave III interview, the individuals are between 19 and 25 with a median age of 22. In some cases, the virginity pledges may have been made as much as seven years earlier. Although virginity pledging is associated with a pronounced decrease in sexual activity during adolescence, the present question is whether virginity pledging in adolescence is still linked to reduced risk behavior several years later, when the youth have become young adults.¹⁰

The data show consistent differences in the sexual behavior of pledgers and non-pledgers in young adult years. Pledgers are less likely to engage in any type of sex activity and are less likely to engage in each particular type of sex behavior as well. The differences between pledgers and non-pledgers are most pronounced in the case of the highest risk behaviors of anal sex and sex with prostitutes.

When compared to young adults who have never made a virginity pledge, young adults who have made a pledge in the past are:

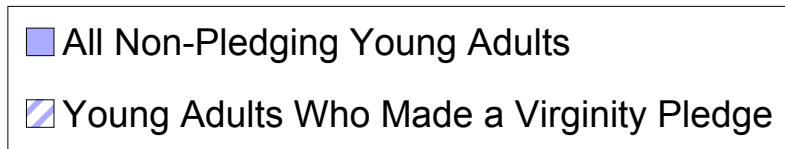
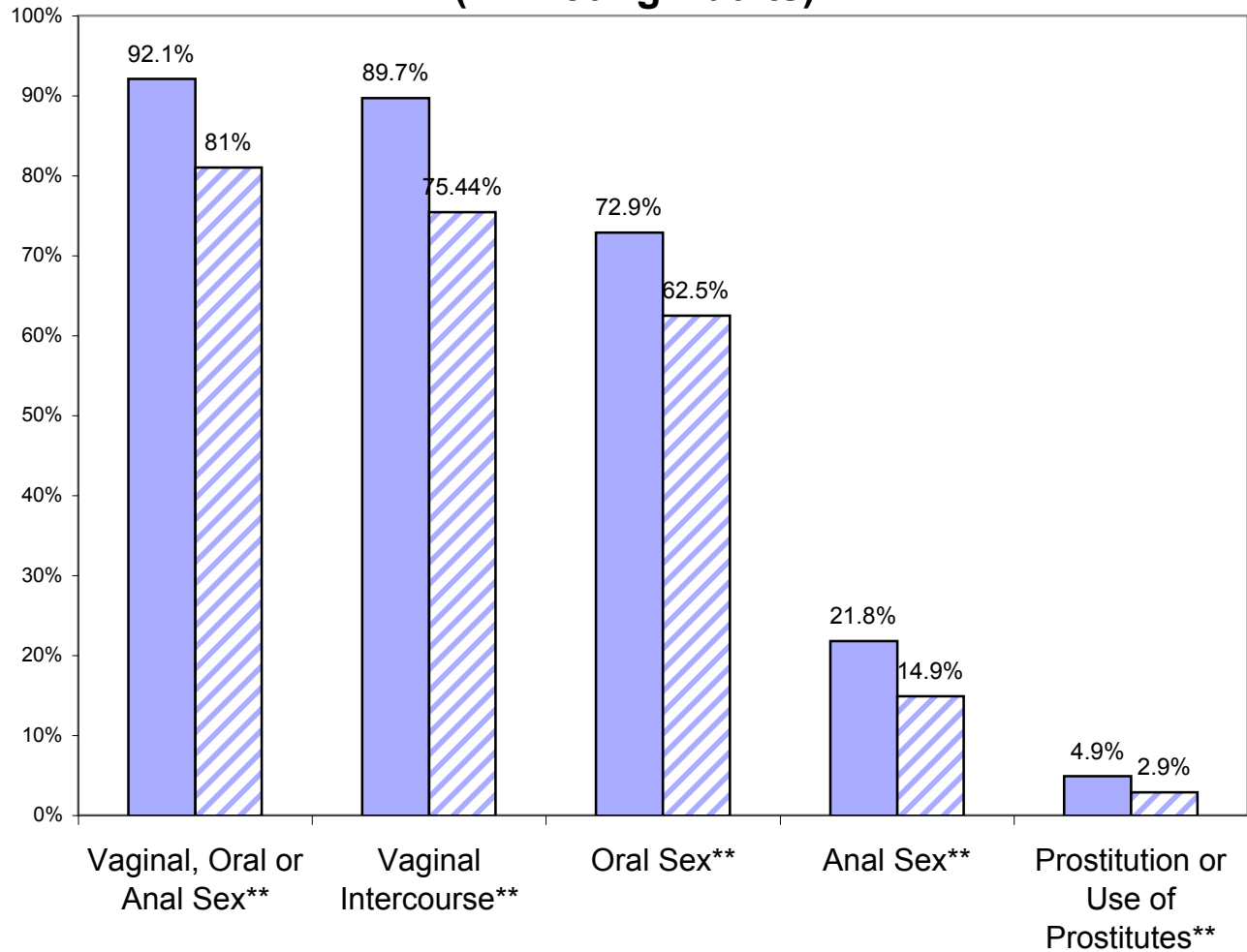
- Less likely to engage in vaginal, oral or anal sexual activity. Some 81 percent of virginity pledgers had engaged in any sexual activity compared to 92 percent of non-pledgers.
- Less likely to engage in vaginal intercourse. Some 75 percent of virginity pledgers had ever engaged in vaginal intercourse compared to 90 percent of non-pledgers.
- Less likely to engage in oral sex. Some 62 percent of pledgers had ever engaged in oral sex compared to 73 percent of non-pledgers.
- One third less likely to engage in anal sex activity. Some 15 percent of pledgers had engaged in anal sex compared to 22 percent of non-pledgers.

⁹ In our analysis, we closely followed Bearman and Bruckner’s definition of pledge status and were able to replicate their pledge categorization of the Add Health population. In their analysis Bearman and Bruckner often divide youth into three categories: non-pledgers, inconsistent pledgers and consistent pledgers. Our analysis follows this categorization precisely except that the two categories of inconsistent and consistent pledgers have been combined into the single category of pledgers.

¹⁰ For example, only 39 percent of pledgers engage in vaginal intercourse before age 18 compared to 63 percent of non-pledgers.

Chart 1

Sexual Activity and Risk Behaviors (All Young Adults)



** Differences between Pledge groups statistically significant at the 95 percent confidence level.

Source: National Longitudinal Study of Adolescent Health

- Almost half as likely to engage in prostitution or to have sex with prostitutes. Some 2.9 percent of pledgers had acted as or used prostitutes compared to 5 percent of non-pledgers.

Overall, virginity pledgers were less likely to engage in all types of sexual activity.¹¹ The differences were most pronounced in the high-risk behaviors of anal sex and sex with prostitutes. The more risky the activity the less likely pledgers are to engage in it relative to non-pledgers. All differences between pledgers and non-pledgers were statistically significant.

Comparison of Sexually Active Youth

Overall, adolescents who made virginity pledges are less likely to be sexually active as young adults. Nearly one fifth of all pledgers had not engaged in any sex activity compared to less than a tenth of non-pledgers. However, it is possible that once they initiate sex behavior, pledgers are more prone to risk behavior. Chart 2 examines this possibility. The chart shows the behavior of young adults who engaged in any type of sex behavior (vaginal, oral, or anal); individuals who have never engaged in any sex activity are excluded.

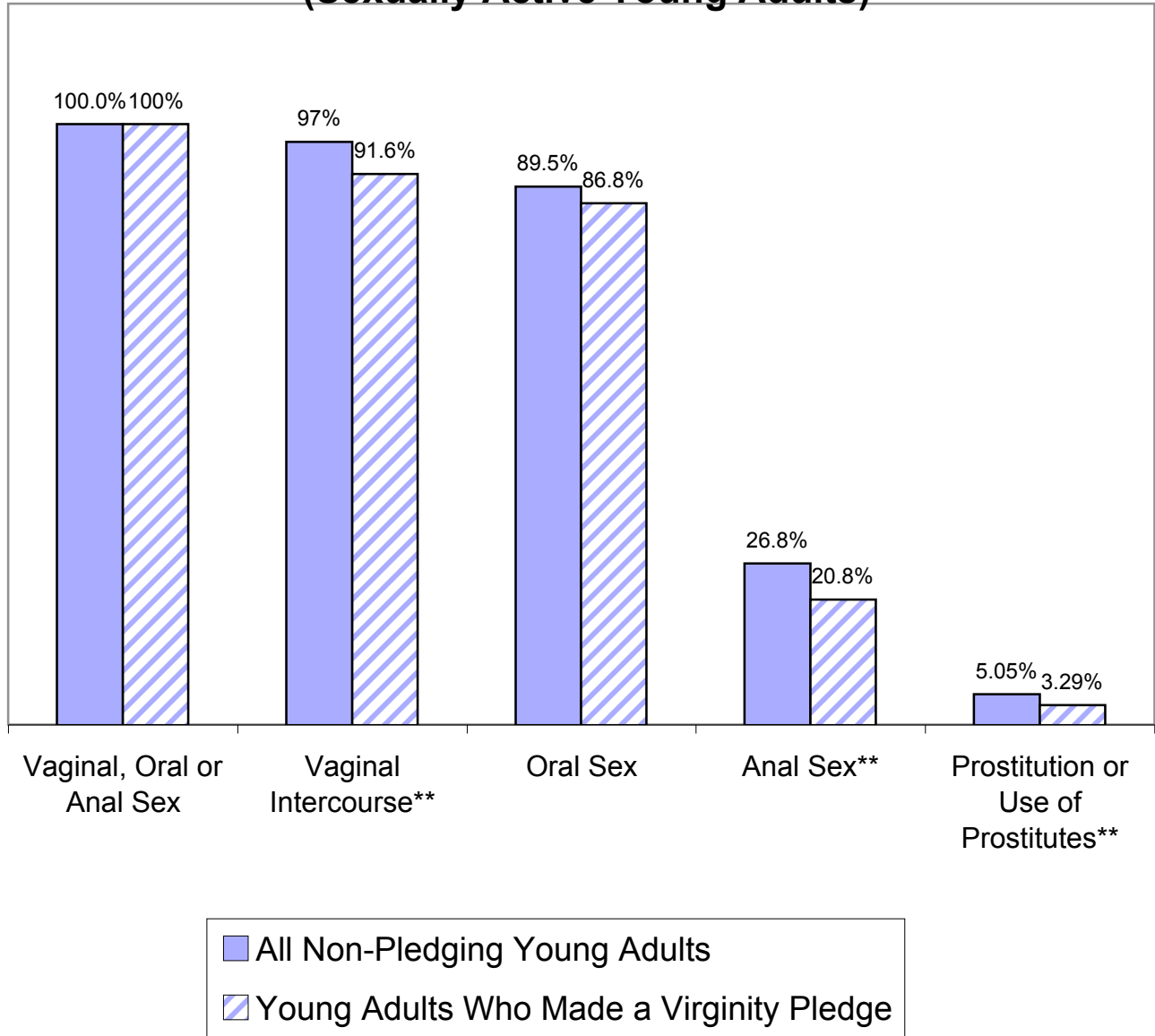
As Chart 2 shows, even when the analysis is limited to youth who have been sexually active, teens who make virginity pledges are still less likely to engage in anal or oral sex, less likely to have vaginal intercourse and less likely to have sex with prostitutes or act as prostitutes. When compared to sexually active non-pledgers, sexually active pledgers are:

- Less likely to engage in anal sex. Some 21 percent of sexually active pledgers have engaged in anal sex compared to 27 percent of non-pledgers.
- Slightly less likely to engage in oral sex. Some 87 percent of sexually active pledgers have ever engaged in oral sex compared to 89 percent of non-pledgers.
- Less likely to have sex with prostitutes or engage in prostitution. Some 3.3 percent of sexually active pledgers had used or acted as prostitutes compared to 5 percent of non-pledgers.
- Less likely to engage in vaginal intercourse. Some 92 percent of sexually active pledgers have engaged in vaginal intercourse compared to 97 percent for non-pledgers.

¹¹ Bearman and Bruckner divide the Add Health population into three categories; non-pledgers, inconsistent pledgers and consistent pledgers. This three part categorization is more complex, but makes little difference relative to the present analysis. Both inconsistent and consistent pledgers have lower rates of vaginal, oral and anal sex when compared to non-pledgers; the differences in rates are statistically significant.

Chart 2

Sexual Activity and Risk Behaviors (Sexually Active Young Adults)



** Differences between Pledge groups statistically significant at the 95 percent confidence level.

Source: National Longitudinal Study of Adolescent Health

The behavioral differences between pledgers and non-pledgers are largest for two high-risk behaviors: anal sex and sex with prostitutes. All the behavioral differences, except oral sex, are statistically significant at the 95 percent confidence level. (However, in the multivariate logistic regressions presented below the differences in oral sex activity are found to be statistically significant at the 99 percent confidence level.)

At first glance, it seems paradoxical that sexually active pledgers have lower activity rates for all three types of sex activity: vaginal, oral, and anal. The explanation is that non-pledgers are somewhat more likely to engage in multiple sexual behaviors. Because non-pledgers are more likely to engage in two or three behaviors in combination, their activity rate is greater than pledgers for each specific sex behavior.

The Role of Social Background Variables

Teens who make virginity pledges may differ from those who do not in a wide range of important social background factors. If pledgers have better behavioral outcomes than do non-pledgers, it is possible that the outcome differences are the result of social background factors rather than pledge activity per se. To compensate for this possibility, we analyzed the role of virginity pledges on sex risk behaviors through a set of multivariate logistic regression analyses which hold relevant social background factors constant. In this statistical procedure, teens who made virginity pledges were compared to non-pledging teens who were otherwise identical in social background characteristics.

A number of independent or predictor variables were used in the logistic regression analyses. These were:

Pledge status -- Individuals were identified as “pledgers” if they responded that they had made a virginity pledge in at least one wave of the survey. Individuals were identified as “non-pledgers” if they answered that they had not taken a virginity pledge in each of the three waves of the survey.¹²

Age – age at the time of the Wave III interview

Race - whether the individual was white, black, Asian or Hispanic

Family background – whether the individual came from an intact married family containing both biological parents, a single parent family, a step parent or cohabiting family or other family.

¹² In some cases individuals failed to answer the pledge question on one or more waves of the survey; an individual who responded negatively to this question on at least one wave and gave no response on the other waves was categorized as a non-pledger.

Religiosity – a continuous variable on a scale of 1 to 4 based on the average scores of responses to the questions: how often do you attend religious services, how often do you pray, and how important is religion to you.

All Add Health youths for which data were available were included in the regressions. The independent or predictor variables were deployed in four models. These were:

Model One – pledge status was used as a single predictor variable without controls.

Model Two – The independent or predictor variables were: pledge status, age, gender, and race.

Model Three – The independent variables were the same as Model Two but family structure variables were added.

Model Four – The independent variables were the same as Model Three but religiosity was added.

We used the four regression models to assess the influence of pledge status on four dependent or outcome variables of sexual risk behavior. The four dependent variables measured whether an individual reported they had ever engaged in: oral sex activity; anal sex activity; vaginal intercourse; and, any sex activity (oral, anal, or vaginal). We first performed regression analyses covering the population of all Add Health young adults. A total of sixteen logistic regressions were performed; four models for each of the four dependent or outcome variables. The results are shown in Table 1. In all sixteen regressions, pledge status (whether the youth have ever taken a virginity pledge) successfully predicted reduced levels of sexual risk behavior, independent of social background factors, at the 99 percent confidence level. Complete data on the sixteen separate regressions is provided in the at the end of the paper.

We then performed an equivalent set of regressions on the population of sexually active Add Health young adults. Sexually active individuals were defined as those who had ever engaged in any sex activity: oral, anal, or vaginal. Three dependent or outcome variables were measured: ever engaged in oral sex; ever engaged in anal sex; or, ever engaged in vaginal intercourse. (The variable ever engaged in any sex activity was omitted since the population examined by definition had engaged in at least one type of activity.)

A total of twelve logistic regressions were performed: four models for each of the three dependent variables. The results are shown in Table 2. In all twelve regressions, pledge status (whether the youth had ever taken a virginity pledge) successfully predicted reduced levels of sexual risk behavior, independent of social background factors, at the 99 percent confidence. Complete data on the twelve separate regressions is provided in the Appendix.

Table 1

Effectiveness of Virginity Pledge in
Predicting Reduced Sexual Activity

(All Add Health Youth)

	Model One	Model Two	Model Three	Model Four
Dependent Variables	Independent Variable: Pledge Status	Independent Variables: Pledge Status, Holding Constant Gender, Age, Race	Independent Variables: Pledge Status, Holding Constant Gender, Age, Race, Family Structure	Independent Variables: Pledge Status, Holding Constant Gender, Age, Race, Family Structure, and Religiosity
Anal Sex	***	***	***	***
Oral Sex	***	***	***	***
Vaginal Sex	***	***	***	***

Note: *** Pledge Status is a statistically significant predictor of reduced sex activity at the 99 percent confidence level

Source: National Longitudinal Study of Adolescent Health

Table 2

Effectiveness of Virginity Pledge in
Predicting Reduced Sexual Activity

(Sexually Active Youth Who Have Engaged in
Vaginal, Oral, or Anal Sex)

	Model One	Model Two	Model Three	Model Four
Dependent Variables	Independent Variable: Pledge Status	Independent Variables: Pledge Status, Holding Constant Gender, Age, Race	Independent Variables: Pledge Status, Holding Constant Gender, Age, Race, Family Structure	Independent Variables: Pledge Status, Holding Constant Gender, Age, Race, Family Structure, and Religiosity
Anal Sex	***	***	***	***
Oral Sex	***	***	***	***
Vaginal Sex	***	***	***	***

Note: *** Pledge Status is a statistically significant predictor of reduced sex activity at the 99 percent confidence level

Source: National Longitudinal Study of Adolescent Health

The Focal Point of the Bearman/Bruckner Argument

If virginity pledgers are actually less likely to engage in the risk behaviors of anal and oral sex, how can Bearman and Bruckner assert the opposite? In fact, they do not. They carefully avoid making any statements whatsoever about anal or oral sex activity among pledgers and non-pledgers as a whole. Instead, they have painstakingly culled through the Add Health data base looking for very small sub-groups of pledgers who have higher risk behaviors. They then describe the high risk behavior within these small groups without ever acknowledging the vast majority of pledgers exhibit lower levels of these risk behaviors when compared to non-pledgers. This tactic enables them to imply that virginity pledgers have higher rates of risk behavior when compared to non-pledgers, when the opposite is really true. This polemical tactic is equivalent to finding a small rocky island in the ocean, describing the island in detail while failing to describe the surrounding ocean, and then using the island's description to imply that the ocean is dry and rocky.

The centerpiece of Bearman and Bruckner's campaign against abstinence education is their assertion that virginity pledgers are more likely to have anal sex without vaginal sex.¹³ The main problem with this assertion is that their population of pledgers who have engaged in anal but not vaginal sex consists of 21 persons out of a total Add Health sample of 14,116.¹⁴ Bearman and Bruckner loudly trumpet their claim that this microscopic group, equaling less than one percent of all pledgers, has a higher rate of anal sex while deliberately failing to inform their audiences that the remaining 99 percent of pledgers have substantially lower rates of this risk behavior in comparison to non-pledgers.¹⁵ In doing this, Bearman and Bruckner deliberately misled the press and public.

Bearman and Bruckner also assert that pledgers are more likely to have oral sex without vaginal intercourse; they argue this presents a public health risk. It is true that 5.1 percent of adolescents who take a virginity pledge have had oral sex without having vaginal sex as young adults. This compares to 2.2 percent among non-pledgers. However, Bearman and Bruckner again focus on this limited group of five percent of pledgers and fail to inform their audience that the remaining 95 percent of pledgers have lower rates of oral sex activity compared to non-pledgers. In aggregate, pledgers are less likely to engage in oral sex, but Bearman and Bruckner never mention this simple fact.

There is a second fallacy in Bearman and Bruckner's arguments about pledging and oral sex. While it is true that a small group of pledgers is more likely to have oral sex without

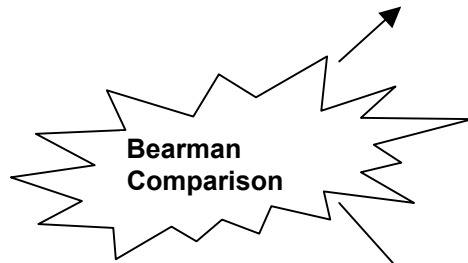
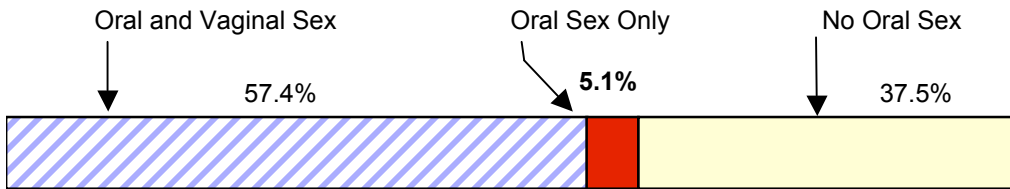
¹³ The anal sex behaviors refer to heterosexual activity only.

¹⁴ While we were able to exactly replicate Bearman and Bruckner's figures with respect to pledge status, we came close to but could not exactly match their figures with respect to anal sex without vaginal intercourse, or oral sex without vaginal intercourse. For example, while Bearman found that 1.2 percent of pledgers and 0.7 percent of non-pledgers engaged in anal sex but not vaginal intercourse, we found the comparable figures to be 0.6 percent for pledgers and 0.4 percent for non-pledgers. In either case, the number of individuals is minute. These very minor differences in small numbers do not affect the arguments or conclusions presented in this paper.

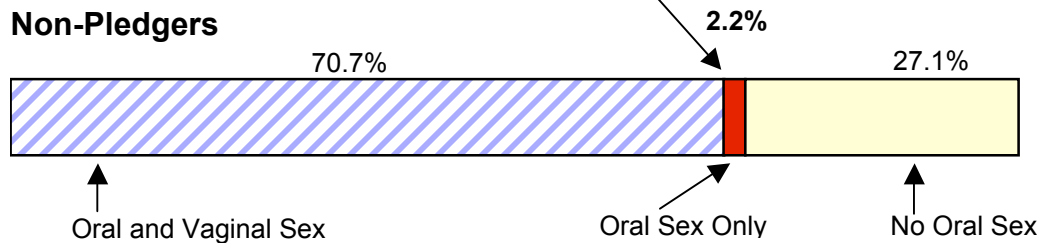
Chart 3




Misleading Comparisons: Oral Sex Activity

Virginity Pledgers



Non-Pledgers



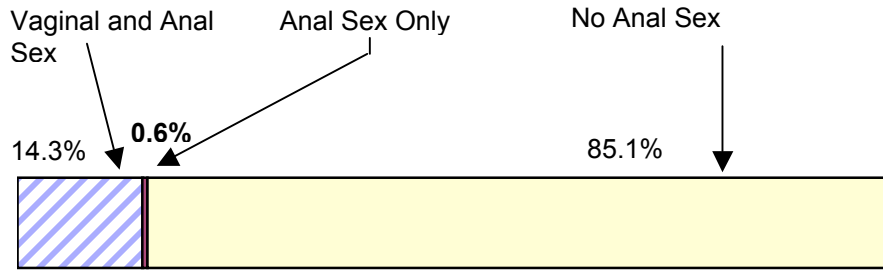
-  Oral and Vaginal Sex
-  Oral Sex Only
-  No Oral Sex

Source: National Longitudinal Study of Adolescent Health

Chart 4

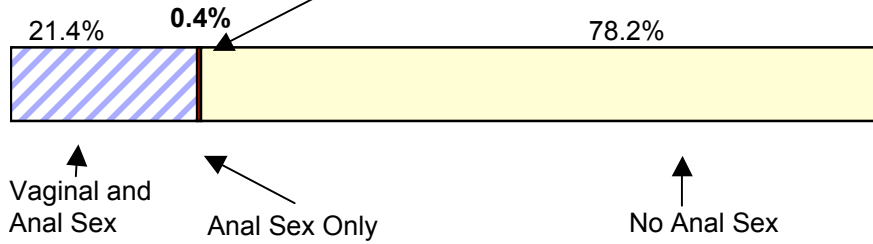
Misleading Comparisons: Anal Sex Activity




Virginity Pledgers



Bearman Comparison

Non-Pledgers



-  Vaginal and Anal Sex
-  Anal Sex Only
-  No Anal Sex

Source: National Longitudinal Study of Adolescent Health

vaginal sex, this does not mean that non-pledgers, by comparison, are less likely to have oral sex. Instead, it means, in most cases, that non-pledgers are more likely to have oral and vaginal sex together.

While Bearman and Bruckner suggest, ominously, that a small group of pledgers “are more likely to substitute oral sex...for vaginal sex”, they never explain why this substitution should be considered a heightened risk behavior.¹⁶ More realistically, it appears that some pledgers may substitute oral sex alone for oral and vaginal sex combined; it is very difficult to understand why this would be judged a heightened risk behavior. In reality, these behavioral differences indicate a relative risk decrease for -pledgers compared to non-pledgers.

Charts 3 and 4 summarize the Add Health data concerning oral and anal sex and pledge status. In both cases, Bearman and Bruckner compare the two dark rectangles in the center of the bars and presents the conclusion that pledgers have higher risk behavior. By this limited comparison, pledgers do appear to have more oral sex (5.1 percent to 2.1 percent) and more anal sex (0.6 percent to 0.4 percent). It is even true that the differences are statistically significant.¹⁷ But, Bearman and Bruckner conspicuously avoid providing any of the surrounding data on the charts. They report neither the aggregate rates of the sex behaviors for the differing pledge groups, nor the percentage of each group that abstain from the sex activities entirely. By presenting the data in this limited fashion, Bearman and Bruckner grievously manipulate the data to create a false impression.

Virginity Pledges, Risk Behavior, and STD's

Bearman and Bruckner ostensibly raise the issue of oral and anal sex among virginity pledgers as a way of explaining why the STD rates of virginity pledgers, as a whole, are higher than expected relative to non-pledgers. This argument makes no sense. The fact that one percent of pledgers are more likely to engage in risky anal sex cannot raise the STD rates of all pledgers as a whole compared to non-pledgers, if the remaining 99 percent of pledgers are less likely to engage in anal sex relative to non-pledgers. In reality, the lower level of risk behavior among the 99 percent vastly outweighs the higher risk behavior of the one percent. The same logic applies to oral sex.

The bottom line is simple: to the extent that anal or oral sex are contributing factors in the comparative STD rates of pledgers and non-pledgers, these risk behaviors will reduce,

¹⁶ Bearman and Bruckner, *op. cit.*, p. 277.

¹⁷ Bearman and Bruckner are correct in concluding that the differences between pledgers and non-pledgers with respect to oral sex without vaginal sex are statistically significant. They are also correct in asserting that for male pledgers and non-pledgers the differences in the rates of anal sex without vaginal sex are also statistically significant. However, the fact that these differences are statistically significant does not indicate that they are meaningful in terms of public policy. The fact that a very tiny groups of pledgers may be more likely to engage in risky sex activity is dwarfed by the fact that pledgers, as a whole, are substantially less likely to engage in risky sex activity

not increase, the STD risks of pledgers compared to those who do not pledge. This truth, obviously, is the exact opposite of Bearman and Bruckner suggest.

Finally, it is important to note that Bearman and Bruckner's assertion that pledgers and non-pledgers have the same STD rates is also inaccurate. This topic exceeds the scope of the present paper, but is discussed in a related paper.¹⁸

Pledging and Contraceptive Use

Peter Bearman charges that youth who participate in abstinence education are ignorant and afraid of contraception. He states that virginity pledgers "have been taught that condoms don't work; they're fearful of them. They don't know how to use them... They have no experience with them. They don't know how to get them."¹⁹ While it is true that participants in abstinence programs are taught about the limitations of contraception; there is no evidence to substantiate the rest of Bearman's claim. The wave II interviews of the Add Health survey contain a "knowledge quiz" that tests individuals' knowledge of contraception and reproduction. The differences between pledgers and non-pledgers in this knowledge are marginal; moreover, the degree of contraceptive knowledge does not predict lower STD rates.

While it is true, that virginity pledges are less likely to use contraception during their very first experience of intercourse, by young adult years differences in contraceptive use between sexually active pledgers and non-pledgers have completely disappeared. The main importance of contraceptive or condom use at first intercourse as a variable is that it predicts subsequent contraceptive use; lower rates of contraceptive use at first intercourse may indicate lower contraceptive use in later years. However, as noted, sexually active virginity pledgers are not less likely to use contraceptives by Wave III of the Add Health survey.²⁰ Thus, the fact that pledgers are less likely to contracept at first intercourse seems to have little significance.

Cascade of Misinformation

Accurately stated, Bearman and Bruckner's "finding" about oral and anal sex and virginity pledgers would be something like the following:

Adolescents who make virginity pledges are less likely to have engaged in oral or anal sex by the time they become young adults. Sexually active virginity pledgers are less likely to engage in oral and anal sex. Minute sub-groups of pledgers are more likely to engage in these activities, but that is substantially outweighed by

¹⁸ See Robert Rector and Kirk A Johnson, Ph.D. "Adolescent Virginity Pledges, Condom Use, and Sexually Transmitted Diseases among Young Adults," paper presented at The Eighth Annual National Welfare Research And Evaluation Conference of the Administration for Children and Families, U.S. Department of Health and Human Services, June 14, 2005

¹⁹ Peter Bearman on "Taking the Pledge," *Sixty Minutes*, May 22, 2005.

²⁰ This fact as been acknowledged by Bearman and Bruckner. See Bruckner and Bearman, *op. cit.*, p. 276.

the fact that the bulk of pledgers are, conversely, less likely to engage in them. Because they are less likely to engage in oral or anal sex, virginity pledgers are at lower risk of STD's.

Stated honestly in this fashion, Bearman and Bruckner's finding would have plummeted into an immediate and well-deserved media oblivion. By omitting most of the critical facts, Bearman and Bruckner generated a widespread media sensation that severely misrepresented and maligned virginity pledge and abstinence education programs.²¹

Overall Impact of Virginity Pledges

Adolescents who make virginity pledges promise to remain virgins until marriage. Most pledgers fall short of this goal. By the time they become young adults, some 81 percent of pledgers have engaged in some type of sex activity. Such a result, viewed in isolation, seems to provide evidence that virginity pledge programs are unsuccessful. But this is only part of the picture: while most virginity pledgers fall short of their goal of abstinence until marriage, virginity pledging is still associated with dramatic improvements in a broad array of sex behaviors and life outcomes.

Taking a virginity pledge can often be an isolated event in an individual's life. Many years will transpire between the time an adolescent takes a pledge and the time he or she reaches adulthood. Each of the intervening years will be full of events and forces that either reinforce or undermine the initial commitment to abstinence. Obviously, these subsequent events (about which the Add Health survey can tell us little or nothing) can be as, or more important, than the virginity pledge in determining sexual behavior.

As a consequence, one would expect that, the greater the time that elapsed since a pledge was taken the more diminished its effects will be, *ceteris paribus*. The Add Health data bear this out; virginity pledges have their most dramatic effects in adolescence.²² For example,

- Pledgers substantially delay sexual activity; on average, pledgers begin sexual intercourse some 21 months later than non-pledgers.
- Some 39 percent of pledgers have intercourse before leaving high school compared to 63 percent of non-pledgers.

²¹ It is possible that Bearman and Bruckner made innocent remarks in their article which were misinterpreted by the press; however, in the time since the *Journal of Adolescent Health* article was released both Bearman and Bruckner have made public statements that intensified and reinforced the press's misinterpretation of their finding rather than correcting it. This is particularly true with respect to Bearman's appearance on *Sixty Minutes* on May 22, 2005.

²² Robert Rector, Kirk A. Johnson, Ph.D. and Jennifer Marshall, "Teens Who Make Virginity Pledges Have Substantially Improved Life Outcomes" *Report of the Center for Data Analysis, CDA04-07*, The Heritage Foundation, September 21, 2004.

- Girls who pledge are one third less likely to become pregnant before their 18th birthday when compared to non-pledgers.

Most of these positive effects continue in the young adult years. As young adults, pledgers, on average, will have had roughly half as many sexual partners as non-pledgers. When compared to non-pledgers of the same age, race, gender, family background, and religiosity, pledgers in their young adult years are substantially:

- Less likely to have a baby out-of-wedlock;
- Less likely to have children as teens and young adults;
- Less likely to contract sexually transmitted diseases;
- Less likely to engage in non-marital sex activity.²³

This is a considerable record of success. While most pledgers do not sustain virginity until marriage, pledgers do have dramatically improved outcomes across a wide range of behaviors.

Conclusion

This paper has shown that, contrary to wide-spread media reports, virginity pledgers are less likely to engage in anal and oral sex. Virginity pledgers are also less likely to engage in sex with prostitutes. Sexually active pledgers (those who have engaged in any vaginal, oral or anal sex) are also less likely to engage in these risk behaviors when compared to sexually active non-pledgers. These lower levels sexual risk behavior put virginity pledgers at lower risk of STD's compared to non-pledgers.

Virginity pledging is strongly associated with a wide range of positive life outcomes. Moreover, there are no real negatives associated with pledging. Pledgers are somewhat less likely to use contraception during their very first intercourse, but this difference quickly disappears. By young adult years, sexually active pledgers are as likely to use contraception as are non-pledgers.

However, virginity pledge programs are not omnipotent. Such programs compete with a huge array of cultural influences, nearly all of which push youth in the direction of early, casual sex with multiple partners. The messages in virginity pledge programs can strongly contribute to the mental and physical well-being of youth. These messages should be reinforced, not undermined, by government.

Unfortunately, the disinformation disseminated by Bearman and Bruckner has now become commonplace “knowledge” in press rooms and school boards across the nation. As a result, it appears that abstinence education programs are beginning to lose access to classrooms. It would be tragic if, as a result of disinformation, youth were blocked from receiving the abstinence messages that lead to so many positive life outcomes.

²³ Ibid.

Regression Table 1												
Logistic Regression Output for Virginty Pledge Models												
Dependent Variable: Had Vaginal/Oral/Anal Sex												
	Model I			Model II			Model III			Model IV		
Independent Variables	Odds Ratio	Prob.	Sign.	Odds Ratio	Prob.	Sign.	Odds Ratio	Prob.	Sign.	Odds Ratio	Prob.	Sign.
Any Virginty Pledge	0.285	0.000	***	0.325	0.000	***	0.336	0.000	***	0.406	0.000	***
Age at Interview				1.240	0.000	***	1.230	0.000	***	1.220	0.000	***
Gender = Female				1.147	0.346		1.124	0.422		1.165	0.289	
Race = Black				2.445	0.017	**	1.971	0.053	*	2.242	0.031	**
Race = American Indian				11.681	0.000	***	10.432	0.000	***	9.817	0.001	***
Race = Asian				0.427	0.000	***	0.431	0.000	***	0.445	0.000	***
Race = Hispanic				1.454	0.155		1.376	0.223		1.418	0.180	
Raised in Step/Cohabiting Family							3.161	0.029	**	2.793	0.049	**
Raised in Single Parent Family							1.707	0.014	**	1.556	0.031	**
Raised in Other Family Type							3.977	0.039	**	3.658	0.056	*
Religiosity Index Score										0.708	0.003	***
Source: National Longitudinal Study of Adolescent Health												
*** Significant at a 99 percent level												
** Significant at a 95 percent level												
* Significant at a 90 percent level												

Regression Table 2												
Logistic Regression Output for Virginity Pledge Models												
Dependent Variable: Had Vaginal Sex												
	Model I			Model II			Model III			Model IV		
Independent Variables	Odds Ratio	Prob.	Sign.	Odds Ratio	Prob.	Sign.	Odds Ratio	Prob.	Sign.	Odds Ratio	Prob.	Sign.
Any Virginity Pledge	0.336	0.000	***	0.358	0.000	***	0.368	0.000	***	0.407	0.000	***
Age at Interview				1.143	0.001	***	1.142	0.001	***	1.140	0.001	***
Gender = Female				1.280	0.002	***	1.268	0.003	***	1.298	0.001	***
Race = Black				1.464	0.020	**	1.295	0.077	*	1.391	0.041	**
Race = American Indian				1.548	0.336		1.400	0.452		1.351	0.492	
Race = Asian				0.464	0.000	***	0.476	0.000	***	0.501	0.000	***
Race = Hispanic				0.966	0.759		0.933	0.520		0.963	0.726	
Raised in Step/Cohabiting Family							3.063	0.000	***	2.867	0.000	***
Raised in Single Parent Family							1.426	0.003	***	1.360	0.005	***
Raised in Other Family Type							1.396	0.056	*	1.318	0.110	
Religiosity Index Score										0.830	0.003	***
Source: National Longitudinal Study of Adolescent Health												
*** Significant at a 99 percent level												
** Significant at a 95 percent level												
* Significant at a 90 percent level												

Regression Table 3												
Logistic Regression Output for Virginity Pledge Models												
Dependent Variable: Had Oral Sex												
	Model I			Model II			Model III			Model IV		
Independent Variables	Odds Ratio	Prob.	Sign.	Odds Ratio	Prob.	Sign.	Odds Ratio	Prob.	Sign.	Odds Ratio	Prob.	Sign.
Any Virginity Pledge	0.539	0.000	***	0.557	0.000	***	0.561	0.000	***	0.592	0.000	***
Age at Interview				1.135	0.000	***	1.140	0.000	***	1.137	0.000	***
Gender = Female				1.078	0.351		1.076	0.363		1.090	0.299	
Race = Black				0.229	0.000	***	0.231	0.000	***	0.241	0.000	***
Race = American Indian				0.487	0.042	**	0.489	0.044	**	0.482	0.047	**
Race = Asian				0.441	0.000	***	0.445	0.000	***	0.452	0.000	***
Race = Hispanic				0.511	0.000	***	0.510	0.000	***	0.518	0.000	***
Raised in Step/Cohabiting Family							1.310	0.130		1.275	0.174	
Raised in Single Parent Family							1.009	0.932		0.980	0.844	
Raised in Other Family Type							0.861	0.355		0.841	0.290	
Religiosity Index Score										0.911	0.099	*
Source: National Longitudinal Study of Adolescent Health												
*** Significant at a 99 percent level												
** Significant at a 95 percent level												
* Significant at a 90 percent level												

Regression Table 4												
Logistic Regression Output for Virginity Pledge Models												
Dependent Variable: Had Anal Sex												
	Model I			Model II			Model III			Model IV		
Independent Variables	Odds Ratio	Prob.	Sign.	Odds Ratio	Prob.	Sign.	Odds Ratio	Prob.	Sign.	Odds Ratio	Prob.	Sign.
Any Virginity Pledge	0.658	0.000	***	0.697	0.000	***	0.699	0.000	***	0.776	0.003	***
Age at Interview				1.086	0.000	***	1.085	0.000	***	1.080	0.000	***
Gender = Female				0.931	0.277		0.929	0.268		0.947	0.407	
Race = Black				0.611	0.000	***	0.601	0.000	***	0.650	0.000	***
Race = American Indian				1.553	0.119		1.541	0.123		1.531	0.127	
Race = Asian				0.605	0.009	***	0.606	0.010	**	0.628	0.018	**
Race = Hispanic				1.037	0.652		1.034	0.680		1.073	0.389	
Raised in Step/Cohabiting Family							1.020	0.875		0.968	0.802	
Raised in Single Parent Family							1.054	0.488		1.000	0.998	
Raised in Other Family Type							1.036	0.793		0.988	0.927	
Religiosity Index Score										0.852	0.000	***
Source: National Longitudinal Study of Adolescent Health												
*** Significant at a 99 percent level												
** Significant at a 95 percent level												
* Significant at a 90 percent level												

Regression Table 5												
Logistic Regression Output for Virginty Pledge Models												
Dependent Variable: Had Vaginal Sex (Universe: Those Reporting Any Sexual Activity)												
	Model I			Model II			Model III			Model IV		
Independent Variables	Odds Ratio	Prob.	Sign.	Odds Ratio	Prob.	Sign.	Odds Ratio	Prob.	Sign.	Odds Ratio	Prob.	Sign.
Any Virginty Pledge	0.347	0.000	***	0.369	0.000	***	0.379	0.000	***	0.420	0.000	***
Age at Interview				1.158	0.000	***	1.156	0.000	***	1.151	0.000	***
Gender = Female				1.322	0.053	*	1.304	0.068	*	1.328	0.050	*
Race = Black				2.404	0.000	***	2.090	0.001	***	2.252	0.000	***
Race = American Indian				4.039	0.008	***	3.743	0.023	**	3.610	0.045	**
Race = Asian				0.688	0.198		0.698	0.213		0.710	0.244	
Race = Hispanic				1.009	0.953		0.972	0.861		0.994	0.970	
Raised in Step/Cohabiting Family							2.206	0.045	**	2.073	0.063	*
Raised in Single Parent Family							1.497	0.019	**	1.424	0.043	**
Raised in Other Family Type							1.558	0.268		1.487	0.320	
Religiosity Index Score										0.836	0.034	**
Source: National Longitudinal Study of Adolescent Health												
*** Significant at a 99 percent level												
** Significant at a 95 percent level												
* Significant at a 90 percent level												

Regression Table 6												
Logistic Regression Output for Virginity Pledge Models												
Dependent Variable: Had Oral Sex (Universe: Those Reporting Any Sexual Activity)												
	Model I			Model II			Model III			Model IV		
Independent Variables	Odds Ratio	Prob.	Sign.	Odds Ratio	Prob.	Sign.	Odds Ratio	Prob.	Sign.	Odds Ratio	Prob.	Sign.
Any Virginity Pledge	0.721	0.001	***	0.746	0.005	***	0.745	0.005	***	0.749	0.011	**
Age at Interview				1.097	0.007	***	1.105	0.004	***	1.105	0.004	***
Gender = Female				1.037	0.706		1.040	0.685		1.040	0.697	
Race = Black				0.146	0.000	***	0.157	0.000	***	0.158	0.000	***
Race = American Indian				0.284	0.000	***	0.293	0.000	***	0.292	0.000	***
Race = Asian				0.483	0.002	***	0.485	0.002	***	0.485	0.002	***
Race = Hispanic				0.355	0.000	***	0.360	0.000	***	0.360	0.000	***
Raised in Step/Cohabiting Family							1.018	0.925		1.016	0.935	
Raised in Single Parent Family							0.857	0.176		0.856	0.168	
Raised in Other Family Type							0.679	0.025	**	0.677	0.026	**
Religiosity Index Score										0.992	0.898	
Source: National Longitudinal Study of Adolescent Health												
*** Significant at a 99 percent level												
** Significant at a 95 percent level												
* Significant at a 90 percent level												

Regression Table 7												
Logistic Regression Output for Virginty Pledge Models												
Dependent Variable: Had Anal Sex (Universe: Those Reporting Any Sexual Activity)												
	Model I			Model II			Model III			Model IV		
Independent Variables	Odds Ratio	Prob.	Sign.	Odds Ratio	Prob.	Sign.	Odds Ratio	Prob.	Sign.	Odds Ratio	Prob.	Sign.
Any Virginty Pledge	0.711	0.000	***	0.752	0.001	***	0.752	0.001	***	0.828	0.023	**
Age at Interview				1.077	0.000	***	1.077	0.000	***	1.073	0.000	***
Gender = Female				0.924	0.232		0.923	0.229		0.939	0.342	
Race = Black				0.599	0.000	***	0.594	0.000	***	0.641	0.000	***
Race = American Indian				1.477	0.169		1.472	0.171		1.466	0.173	
Race = Asian				0.636	0.018	**	0.636	0.018	**	0.656	0.031	**
Race = Hispanic				1.031	0.705		1.030	0.717		1.066	0.436	
Raised in Step/Cohabiting Family							0.984	0.898		0.937	0.613	
Raised in Single Parent Family							1.032	0.678		0.983	0.824	
Raised in Other Family Type							1.002	0.986		0.959	0.753	
Religiosity Index Score										0.861	0.000	***
Source: National Longitudinal Study of Adolescent Health												
*** Significant at a 99 percent level												
** Significant at a 95 percent level												
* Significant at a 90 percent level												

Technical Appendix

Throughout this paper, individuals are counted as engaging in a particular sexual behavior if they reported affirmatively with respect to that behavior in any part of the Add Health survey. In calculating the sexual activity rates for all young adults, the whole Wave III sample (14,116 observations) was included in the denominator. The denominator thus included a certain number of individuals with incomplete responses, that is, they failed to give either a “yes” or “no” answer to the relevant sex activity question for some relationships. The share of individuals with such “incomplete responses” is nearly identical for pledgers and non-pledgers. Omitting these incomplete responders from the denominators would raise the specific sex activity rates of both pledgers and non-pledgers slightly. It would not affect the proportionate differences of the two groups, nor the statistical significance of the differences.

The sexual activity rates for sexually active persons (those who have engaged in vaginal, oral or anal sex) presented in the text is based on 11,128 observations. This group contains only a very small number of incomplete respondents. The multivariate logistic regressions exclude incomplete respondents.

Appendix Table 1

All Add Health Youth

	Non-Pledgers		Pledgers	
	% Engaging in Behavior	95% Confidence Interval	% Engaging in Behavior	95% Confidence Interval
Vaginal Intercourse	89.7**	(88.0 - 91.2)	75.4%**	(72.9 - 77.8)
Oral Sex	72.9**	(70.6-75.1)	62.5**	(59.8 - 65.1)
Anal Sex	21.8**	(20.3 - 23.4)	14.9**	(13.2 - 16.9)
Vaginal, Oral, or Anal Sex	92.2**	(90.5 - 93.6)	81.5**	(79.3 - 83.5)

** Differences in behavior are statistically significant at the 95 percent confidence level

Source: National Longitudinal Study of Adolescent Health

Appendix Table 2

Sexually Active Young Adults
Individuals Who Have Engaged in Vaginal, Oral, or Anal Sex

	Non-Pledgers		Pledgers	
	% Engaging in Behavior	95% Confidence Interval	% Engaging in Behavior	95% Confidence Interval
Vaginal Intercourse				
No Response	0.15	(.07 - .32)	0.43	(.19 - .96)
No	5.3	(4.5 - 6.7)	15.8	(13.5 - 18.41)
Yes	94.5**	(93.5 - 95.3)	83.8**	(81.2 - 86.2)
Oral Sex				
No Response	2.2	(1.74 - 2.7)	1.9	(1.2 - 3.0)
No	8.3	(7.0 - 9.9)	11.2	(9.2 - 13.6)
Yes	89.5	(87.7 - 91.0)	86.8	(84.0 - 89.2)
Anal Sex				
No Response	2.6	(2.2 - 3.2)	2.2	(1.5 - 3.4)
No	70.6	(68.7 - 72.4)	77.0	(74.3 - 79.4)
Yes	26.8**	(25.0 - 28.6)	20.8**	(18.4 - 23.3)
Any Sexual Activity	100		100	

** Differences are statistically significant at the 95 percent confidence level

Source: National Longitudinal Study of Adolescent Health

Appendix Table 3
All Add Health Youth

	Non-Pledgers		Pledgers	
	% Engaging in Behavior	95% Confidence Interval	% Engaging in Behavior	95% Confidence Interval
Vaginal Intercourse				
No	9.4	(8.3 - 10.6)	23.6	(21.2 - 26.2)
Yes	89.7**	(88.0 - 91.2)	75.4**	(72.9 - 77.8)
No Response	0.9	(0.3 - 2.1)	1.0	(0.7 - 1.5)
Oral Sex				
Reports No Vaginal Intercourse and No Romantic Relationships	4.9	(4.2 - 5.8)	11.2	(9.6 - 12.9)
With Relationships Answers No to Oral Sex	8.6	(7.5 - 9.9)	13.8	(12.1 - 15.6)
With Relationships Answers Yes to Oral Sex	72.9**	(70.6 - 75.1)	62.5**	(59.8 - 65.1)
Incomplete Response to Oral Sex Question	13.5		12.6	
Anal Sex				
Reports No Vaginal Intercourse and No Romantic Relationships	4.9	(4.2 - 5.8)	11.2	(9.6 - 12.9)
With Relationships, Answers No to Anal Sex	59.5	(57.8 - 61.3)	62.0	(59.5 - 61.5)
With Relationships, Answers Yes to Anal Sex	21.8**	(20.3 - 23.4)	14.9**	(13.2 - 16.9)
Incomplete Response to Anal Sex Question	13.7		11.9	
Vaginal, Oral or Anal Sex				
Not Sexually Active and No Romantic Relationships	4.9	(4.2 - 5.8)	11.2	(9.6 - 12.9)
With Relationships, No Sex Activity	1.8	(1.5 - 2.3)	5.7	(4.5 - 7.1)
With Relationships, Sexual Activity	92.2**	(90.5 - 93.6)	81.5**	(79.3 - 83.5)
Incomplete Data	1.0	(1.5 - 2.2)	1.7	(1.1 - 2.6)

** Differences between Pledge groups statistically significant at the 95 percent confidence level

Source: National Longitudinal Study of Adolescent Health