# Non-coital sexual activities among adolescents

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### **Abstract**

Purpose. While prior research has demonstrated that many adolescents engage in non-coital sexual behavior, extant peer-reviewed studies have not used nationally representative data or multivariate methods to examine these behaviors. We used data from Cycle 6 of National Survey of Family Growth (NSFG) to explore factors related to oral and anal sex among adolescents. Methods. Data come from 2,271 females and males aged 15-19 in 2002. Computer-assisted self-administered interviews were used to collect sensitive information, including whether respondents had ever engaged in vaginal, oral or anal sex. We used t-tests and multivariate logistic regression to test for differences and identify independent characteristics associated with experience with oral or anal sex.

Results. 54% of adolescent females and 55% of adolescent males have ever had oral sex, and one in 10 has ever had anal sex. Both oral sex and anal sex were much more common among adolescents who had initiated vaginal sex as compared to virgins. The initiations of vaginal and oral sex appear to occur closely together; by 6 months after first vaginal intercourse, 82% of adolescents also engaged in oral sex. The strongest predictor of anal sex involvement was time since initiation of vaginal sex and the likelihood of anal sex increased with greater time since first vaginal intercourse. White and higher SES teens were more likely than their peers to have ever had oral or anal sex.

Conclusions. Health professionals and sexual health educators should address non-coital sexual behaviors and STI risk, understanding that non-coital behavior commonly co-occur with coital behaviors.

# Introduction

Non-coital behaviors are common expressions of human sexuality. These non-coital sexual activities, which include mutual masturbation, oral sex, and anal sex, are commonly practiced by opposite sex and same-sex couples [1]. Yet these behaviors continue to carry an aura of taboo and prurience despite their pervasiveness [2]. Compared to vaginal intercourse these behaviors have been less studied, particularly among heterosexuals. While these behaviors carry little or no risk of pregnancy, engaging in non-coital sexual behaviors, particularly anal sex, may increase risk for sexually transmitted infections (STIs).

A range of forces combined to make oral, and to a lesser extent, anal, sex among teens a topic of social, scientific, and political interest. A small but growing body of research demonstrates that substantial numbers of adolescents have had oral sex [3-7], and that the incidence increases with age and ever having had vaginal sex [8-11]. A key concern, highlighted by an increased emphasis on "abstinence" and declining rates of vaginal intercourse among teens, was the perception that teens were substituting oral and anal intercourse for vaginal intercourse [12]. Likewise, a variety of clinic- and community-based studies suggest that many young people do not consider oral and anal sex to be "sex" [13] or see oral sex as more acceptable than vaginal sex and less risky in terms of health, social and emotional consequences [5,6]. Likewise, adolescents are unlikely to report barrier protection during oral sex [4,11,14] and professionals who work with adolescents report an increased concern about oral sex and STIs. Despite an nascent but growing body of research, these professionals also report an inability to separate anecdote from evidence in understanding the extent of oral sex and its implications [15].

Newly available data from the 2002 National Survey of Family Growth (NSFG) provide important new population-based data on oral and anal sex among men and women [10]. In fact, the 2002 NSFG marks the first time that the federal government has attempted to measure the prevalence of both types of non-coital sex. Comparison of 2002 NSFG data to surveys from the early and mid 1990s such as the 1991 National Survey of Men, the 1992 National Health and Social Life Survey, and 1995 National Survey of Adolescent Males finds little change in oral sex among opposite sex partners over the past decade for young women, 18-24 year old, or

adolescent men, 15-19 years, and little change in experience with anal sex among adolescent males [10].

A better understanding of non-coital activities among teens is needed. It would be useful to know how these activities fit into larger patterns and correlates of sexual activity for teens. Do patterns in non-coital sex and initiation of vaginal sex suggest that adolescents use oral and anal intercourse as strategies for avoiding vaginal intercourse and remaining "technical virgins?" [12,16]. What are the characteristics associated with having oral or anal sex? Should certain populations of adolescents be targeted for messages about the relevant STI risks posed by these behaviors and ways to engage in these behaviors more safely? The STI risk posed by non-coital sex is also dependent on the number of oral (and vaginal) sexual partners a teen has. Thus, it would be useful to know if sexual partnership patterns vary by involvement in these behaviors.

In this article, we use the 2002 NSFG to examine levels of ever having had heterosexual oral and anal sex among adolescent males and females. We examine characteristics associated with non-coital behaviors and subgroup differences including: younger and older teens, experience with vaginal intercourse, socioeconomic status (SES), race/ethnicity and attitudinal factors that are related to involvement in these behaviors. We also estimate the probability of engaging in oral and anal sex in relationship to the timing for initiation of vaginal sex, as well as examine the number of sexual partners in the context of coital and non-coital sex.

### **Methods**

## Data

Data for this analysis are drawn from the 2002 NSFG, a nationally representative household survey. In-person interviews were conducted with 7,643 women and 4,928 men ages 15-44, including 1,505 females aged 15-19 and 1,121 males aged 15-19. Most questions were administered via face-to-face interviews. Additionally, a computer-assisted, self-administered survey (ACASI) contained items on sensitive topics including non-coital sex; use of the ACASI has been demonstrated to improve reporting of sensitive behaviors in similar surveys [17].

Further information about the design of the NSFG is available elsewhere (hhp://www.cdc.gov/nchs/nsfg.htm).

## Measures

Sexual Behaviors. Respondents were asked separately if they had ever received oral sex from an opposite sex partner and if they had ever given oral sex on an opposite sex partner. In addition to these two measures, we also combined both items to create a single measure of lifetime experience with oral sex. Lifetime experience with anal sex with an opposite sex partner was taken from a single item. Comparable data for same-sex behaviors were not available for both males and females. Because of these data limitations, we limit our analysis to heterosexual activity.

Our analysis also includes measures of ever having had vaginal sex and months elapsed since initiation of vaginal intercourse. Respondents were asked if they had ever had vaginal sex during both the face-to-face interview and the ACASI. A small proportion of respondents (6% female, 5% male) provided inconsistent reports. When possible, we rely on the measure of vaginal sex obtained from the ACASI, as this information is likely to be more accurate and because this format is consistent with the one used to collect information about non-coital sexual activities. However, we rely on the information from the face-to-face interviews when we examine associations between non-coital sex and time since initiation of vaginal intercourse, as this was the only format in which date of initiation of vaginal intercourse was collected. For ease of discussion, we distinguish between respondents who have never or ever had vaginal sex as virgins and non-virgins.

Finally, we assess associations between non-coital sexual behaviors and number of sexual partners. During the ACASI, respondents were asked to "think about any [fe]male with whom you have had vaginal intercourse, oral sex, or anal sex -- any of these" and to enumerate how many they had had in their lifetime. Thus, sexual partners as examined in this analysis potentially incorporate a range of sexual behaviors with an opposite-sex partner.

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<sup>\*</sup> Respondents were asked to report only opposite-sex partners.

Demographics. We examine subgroup differences according to several characteristics. We include measures of age and race/ethnicity (Hispanic, non-Hispanic white, non-Hispanic black and non-Hispanic other). We also have a measure of sexuality attitudes based on respondents' agreement to the following statement: "It is all right for unmarried 18 year olds to have sexual intercourse if they have strong affection for each other." We compare teens who disagreed with this item to those who agreed or had a "neutral" attitude. Family socio-economic status (SES) is included as a three-part variable (low, medium, high) based on separate measures of family income and mother's education.

## Analysis

We first estimate lifetime experience with oral and anal sex for all adolescents and by gender, according to the subgroups identified above. T-tests are used to test for differences within subpopulations, as well as by gender. For purposes of comparison, we provide statistics for lifetime experience with vaginal sex. We next identify associations between time since initiation of vaginal intercourse and non-coital activities to examine how frequently oral and anal sex precede vaginal sex and how common non-coital activities are among adolescents who have had vaginal sex. Since the date of first vaginal sex is collected in the 2002 NSFG, we are able to calculate the time since initiation of vaginal sex for all non-virgins. Unfortunately, date of first oral sex or first anal sex was not asked, and we are unable to directly assess the sequencing of the different events. We are limited to measuring the likelihood of ever having engaged in oral or anal sex given the time since first vaginal intercourse.

We use multivariate logistic regression to simultaneously examine associations between the sociodemographic characteristics, time since first vaginal sex and non-coital sex. Due to lack of gender differences in the bivariate models, the multivariate models combine data for both females and males. We estimate the likelihood of engaging in oral sex separately for virgins and non-virgins; because very few virgins have had anal sex, we restrict this latter model to non-virgins. Finally, we examine differences in number of sexual partners dependent upon involvement in non-coital activities. In all analyses, we computed standard errors and tests of

statistical significance using the *svy* series of commands in Stata 9.2 to account for the stratified survey design [18].

## **Findings**

# Characteristics of teens who engage in oral and anal sex

Slightly more than one-half of adolescents have engaged in heterosexual oral sex (55% overall); in fact, higher proportions of teens have engaged in this activity than have engaged in vaginal sex (50%) (*p-value* <.000, not shown). Substantially fewer (11%) had ever had anal sex (Table 1).

We found some noteworthy patterns in oral sex according to whether it was given or received. Females are significantly more likely than males to indicate that they had given oral sex (44% female vs. 39% male) while there was no significant difference by gender in reports of receiving oral sex. Additionally, for each gender significantly higher proportions indicated that they had received oral sex as compared to giving it (significance tests not shown)

Adolescents who had ever had vaginal sex were significantly more likely to have had non-coital sex. The overwhelming majority of non-virgin teens, 87%, had ever had oral sex, compared to 23% of virgins. Gender differences in giving oral sex were limited to non-virgins. One in five adolescents who had had vaginal sex had engaged in anal sex (21%), while 1% of virgins had done so. Age maintained a strong positive association with vaginal, oral and anal sex. Moreover, older adolescent females were more likely than males to have given oral sex.

Some of the patterns across race/ethnicity differ by gender. While the likelihood of anal intercourse did not differ by race/ethnicity overall, Hispanic males were more likely than non-Hispanic White males to report ever having engaged in anal intercourse (16% Hispanic vs. 10% White). In contrast, Hispanic teens were less likely than non-Hispanic whites to engage in oral sex (50% Hispanic vs. 57% White); when considered separately by gender, this difference remained significant only among females (47% vs. 58%, respectively). White females were significantly more likely than white males to indicate that they had given oral sex and also

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<sup>&</sup>lt;sup>†</sup> Teens of "other" races are included in the total, but not broken out separately due to small sample sizes.

significantly more likely than their Hispanic and Black counterparts to have done so. Remarkably, white adolescent females were the only subgroup that indicated similar levels of giving and receiving oral sex (51% and 53%). Differences across giving and receiving oral sex behaviors were particularly marked for Black adolescents, both males and females, where twice as many teens indicated they had received oral sex than had given it.

Household SES is positively associated with the prevalence of non-coital behaviors.

Teens with low SES were significantly less likely to have engaged in any type of oral sex. This relationship contrasts with the pattern for vaginal sex, in which teens with the highest SES are significantly less likely to have ever had vaginal intercourse. Finally, adolescents who disagreed with the statement that sex at age 18 is ok were significantly less likely to have engaged in non-coital as well as vaginal sex.

# [INSERT TABLE 1]

We next consider the relationship between oral and anal sex in relation to timing of first vaginal sex. While associations between these behaviors provide a limited understanding of the sequencing of these sexual activities, they may suggest general patterns for exploration in future research. Subsequent analyses focus on the combined measure of oral sex.

The patterns of oral sex by timing of first vaginal sex demonstrate evidence of sharp differentials (Table 2). Twenty-six percent of virgins have ever engaged in oral sex, as compared to more than eight in 10 adolescents who initiated vaginal sex within six months of the interview. In contrast, there are smaller differences in the likelihood of oral sex the greater the length of time since first vaginal intercourse. There is a ten percentage point difference in the rates of oral sex between teens who initiated vaginal sex within 6 months of the interview as compared to those who initiated vaginal intercourse more than three years prior to the interview (82% versus 92%).

A different pattern is evident between anal sex and timing of first vaginal intercourse.

While relatively lower than oral sex, the proportion of adolescents ever engaging in anal sex differs substantially between virgins and non-virgins. However, exposure to anal sex increases

more sequentially, from 6% for adolescents who first had vaginal intercourse up to six months prior to the interview to 27% for those whose first experience of vaginal sex was more than three years before the interview.

## [INSERT TABLE 2]

We used multivariate logistic regression to assess the relative impact of time since first vaginal sex, sociodemographic and attitudinal characteristics on the likelihood of engaging in oral or anal intercourse (Table 3). Because there were few differences between females and males in the bivariate analysis, we combined information for both groups and controlled for gender. Model 1 indicates that the most important predictor of having had oral sex is time elapsed since first vaginal sex. Relative to adolescents who had not had vaginal sex, those who had sex within zero to six months of the survey were 9 times more likely to have had oral sex, and this effect was incremental. Adolescents who had had vaginal sex more than three years prior to the interview were 33 times more likely than those who had not had vaginal sex to have had oral sex.

Among teens that have had vaginal intercourse, one concern is that time since initiation of vaginal intercourse might be a proxy measure for age at first intercourse. Teens with longer time elapsed since first sex likely started at an earlier age. To address this issue, Model 3 also controls directly for age at initiation of sexual activity, distinguishing between initiation of sex before age 15 and later. We find that early initiation of sexual activity is not significantly associated with the likelihood of oral sex among teens. Even after controlling for this measure, among adolescents who had had vaginal sex, those who initiated vaginal intercourse more than three years prior to the interview were 3.5 times as likely to have had oral sex as those who had initiated vaginal sex within the six months prior to the interview.

Even after controlling for time since vaginal sex, many of the associations with other characteristics were maintained. Relative to 15-17 year olds, those aged 18-19 were 1.4 times as likely to have had oral sex. Lack of gender differences in oral sex persisted. White adolescents were significantly more likely than other adolescents to have had oral sex. Household SES was positively associated with oral sex; teens in high SES households were 2.9 times as likely to have

oral sex as teens in low SES households. Finally, teens with more conservative attitudes toward sex were significantly less likely than those with more liberal attitudes to have had oral sex.

Additional analyses (not shown) found similar relationships in multivariate models predicting giving or receiving oral sex as separate outcome variables; one distinction was that females were significantly more likely than males to report giving oral sex even after multivariate controls.

The large odds ratios for vaginal sexual experience suggest that predictors of oral sex may operate differently for virgins and non-virgins, motivating us to examine separate logistic regression models for each group (Models 2 and 3). Some important differences are seen between those these two populations. The positive association between age and oral sex exists only among virgins. In contrast, the reduced likelihood of oral sex among Hispanics is limited to non-virgins. Among both virgins and non-virgins, household SES and attitudes towards teen sex were significant predictors of oral sex, while Black teens are less likely than Whites to engage in oral sex.

We found only three characteristics to significantly predict anal sex among non-virgin adolescents. First, the more time that had elapsed since first vaginal sex, the more likely the respondent was to have had anal sex; those who had initiated vaginal sex more than three years ago were six times as likely recent initiators to have had anal sex. Second, black adolescents were significantly less likely than white adolescents to have ever had anal sex. Finally, teens from higher SES families were significantly greater more likely than low SES teens to have had anal sex. (The difference between teens in low SES and high SES households was marginally significant, with a p-value of .059).

# [INSERT TABLE 3]

#### Non-coital sex and number of sexual partners

Most adolescent virgins who had ever had oral sex had only had one sexual partner in their lifetime (67%), and only 8% reported four or more (Figure 1). By way of comparison, we examined number of lifetime sexual partners for teens that had had vaginal sex, according to whether they had ever had oral sex. Adolescents who had had vaginal sex but not oral sex were

more similar to adolescents who had only had oral sex in regards to number of lifetime sexual partners. In contrast, adolescents who had engaged in both oral and vaginal sex were most likely to have had multiple partners: thirty-eight percent had four or more lifetime partners.

## [INSERT FIGURE 1]

### Discussion

It is clear that any discussion about adolescent sex now must recognize that adolescents engage in a range of sexual behaviors. Oral sex is more common than vaginal sex, with half of adolescents age 15-19 ever engaging in oral sex; one out of ten has engaged in anal sex.

Our analysis found large differences in the rates of oral and anal sex between adolescents according to whether or not they had had vaginal intercourse. Bivariate analyses revealed that non-virgins were almost four times as likely as virgins to have had oral sex.

Moreover, among teens who had initiated vaginal intercourse in the last six months, levels of oral sex were more than three times higher than those for virgins. This pattern suggests that vaginal sex and oral sex are closely related for many teens.

In contrast, anal sex follows a pattern that might be expected of more "taboo" sexual practices. The likelihood of engaging in anal intercourse increased significantly with greater time since first vaginal sex. For example, among non-virgins, teen who first had sex 7-12 months prior to the interview are 4 times as likely to have anal sex as teens that first had sex within 6 months of the interview. Both oral sex and anal sex are generally more common among white teens and those from higher SES households. These relationships contrast with the patterns for vaginal sex found in this analysis and others, where rates are higher among teens with lower household SES and non-white teens[19]. Another predictor of oral sex (among both virgins and non-virgins) was less conservative attitudes about sex.

It has been suggested that serial oral sex allows teens, especially girls, to engage in sexual relations while reducing or avoiding the risk of pregnancy or STIs [20]. We found little evidence of serial oral sex among adolescents who had not had vaginal sex. Instead, most adolescent virgins who had ever had oral sex had only one sexual partner in their lifetime.

Moreover, although adolescent females were significantly more likely than males to indicate they had given oral sex, this differential was relatively small and limited to non-virgins. Among virgin teens, males and females were equally likely to give or receive oral sex, indicating no differential use of oral sex of any type as a substitute for vaginal intercourse.

We found that higher proportions of both females and males indicated that they had received oral sex than had given it. These differences were particularly large among Black teens, where both genders were more than twice as likely to report receiving as giving oral sex. We do not know if these reports represent true behavioral patterns, reporting biases or some combination. Adolescents are not a closed population, and some may have older sexual partners. Yet in the 2002 NSFG adults also report higher rates of receiving than giving oral sex, albeit these difference are small then those measured among adolescents.[10] Given that there may be greater stigma associated with giving than receiving oral sex, individuals may underreport their engagement in this behavior.

Certain data limitations temper our conclusions. Most importantly, there is no direct information collected about the timing of first oral sex and in turn whether it occurred before or after first vaginal sex. However, our analysis suggests that the transitions between these behaviors occur closely together for many teens given that the difference in the lifetime experience with oral sex between virgins (26%) and those who first had vaginal sex up to six months earlier (82%) is substantial. Some teens may first experience oral sex soon prior to vaginal intercourse, while for others vaginal intercourse appears to precede oral sex by only a short period of time. Either way, by six months after first vaginal intercourse, more than four out of five adolescents also engaged in oral sex.

This research has several policy implications. Adolescents need education and counseling about the STI risks from both coital and non-coital sex. Non-coital activities may or may not present considerable additional risk of STI infection, depending on type of activity and whether these behaviors are also engaged in with vaginal sex partners or other partners. Since oral sex does pose some risk of certain STIs, such as herpes, adolescents should be made aware of these risks along with those posed by vaginal sex. A substantial minority of youth has

had anal sex before age 20 and sexual health education programs need to provide info on HIV/STI risks as these are quite considerable.

Counseling and education should take into account the totality of STI risk and avoid focusing on oral or anal sex in isolation. Clinical counseling begins with an assessment of partnership patterns: the presence of concurrent or serial multiple partners, specific behaviors with each sexual partner, STI risk behaviors of each partner, types of partners, and use of barrier protection with each. Clinicians should also be knowledgeable of the prevalence of specific STIs in the community they serve, as this will guide screening practices.

Counseling should focus on reducing STI risk factors such as multiple partners, particularly concurrent partners. This may be more effective than discouraging sexual activity. Adolescents at risk of STIs should be encouraged to use barrier protection, perhaps in addition to other types of contraception. Behavioral prevention strategies for specific adolescents may include abstinence, mutual monogamy, limiting the number of partners, STI testing before engaging in sex activity with a new partner, and correct and consistent use of condoms.

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TABLE 1. Frequency distributions of oral, anal, and vaginal sex among adolescents aged 15-19, 2002 NSFG (A-CASI)

|                                    | Vaginal sex |         |                   | Oral sex |         |        |        |         |                   |        |         | Anal sex |        |         |                  |
|------------------------------------|-------------|---------|-------------------|----------|---------|--------|--------|---------|-------------------|--------|---------|----------|--------|---------|------------------|
|                                    |             |         |                   | Any      |         |        | Give   |         | Receive           |        |         |          |        |         |                  |
|                                    | Total       | Females | Males             | Total    | Females | Males  | Total  | Females | Males             | Total  | Females | Males    | Total  | Females | Males            |
| Total (N=2258)                     | 49.9        | 51.0    | 48.7              | 54.7     | 54.3    | 55.1   | 41.2   | 43.6    | 38.9 <sup>†</sup> | 50.6   | 49.6    | 51.5     | 11.1   | 10.9    | 11.2             |
| Vaginal Sex Experience             |             |         |                   |          |         |        |        |         |                   |        |         |          |        |         |                  |
| Ever had vaginal sex               | 100.0       | 100.0   | 100.0             | 87.0**   | 85.8**  | 88.1** | 69**   | 71.8**  | 66.2**†           | 81.6** | 79.3**  | 83.9**   | 21.2** | 21.0**  | 21.4**           |
| Never had vaginal sex <sup>a</sup> | 0.0         | 0.0     | 0.0               | 22.8     | 21.7    | 23.9   | 13.7   | 14.4    | 13.1              | 20.0   | 18.9    | 21.0     | 1.0    | 0.4     | 1.6              |
| Age at interview                   |             |         |                   |          |         |        |        |         |                   |        |         |          |        |         |                  |
| 15-17                              | 36.3**      | 36.4**  | 36.2**            | 43.0**   | 42.0**  | 44.0** | 29.4** | 30.4**  | 28.3**            | 39.1** | 38.0**  | 40.3**   | 6.9**  | 5.6**   | 8.1**            |
| 18-19 <sup>a</sup>                 | 68.4        | 72.3    | 64.8 <sup>†</sup> | 70.8     | 72.2    | 69.5   | 57.3   | 62.8    | 52.4 <sup>‡</sup> | 66.3   | 66.6    | 66.0     | 16.8   | 18.7    | 15.2             |
| Race/ethnicity                     |             |         |                   |          |         |        |        |         |                   |        |         |          |        |         |                  |
| Hispanic                           | 51.0        | 45.5    | 56.2*             | 49.9*    | 46.9*   | 52.7   | 35.2** | 33.7**  | 36.7              | 44.7*  | 41.1*   | 48.1     | 12.9   | 9.5     | 16.1*            |
| NH White <sup>a</sup>              | 47.4        | 50.3    | 44.6              | 57.4     | 58.0    | 56.9   | 47.8   | 51.3    | 44.5 <sup>†</sup> | 52.9   | 52.7    | 53.2     | 11.1   | 11.9    | 10.4             |
| NH Black                           | 63.0**      | 60.5*   | 65.5**            | 55.1     | 52.2    | 58.1   | 23.2** | 25.5**  | 20.9**            | 53.6   | 50.5    | 56.7     | 11.3   | 10.5    | 12.2             |
| SES                                |             |         |                   |          |         |        |        |         |                   |        |         |          |        |         |                  |
| Low                                | 55.3        | 57.4    | 52.6              | 46.8**   | 47.5*   | 45.8** | 31.7** | 34.1**  | 28.7**            | 42.7** | 42.4*   | 43.1*    | 10.3   | 10.1    | 10.6             |
| Medium <sup>a</sup>                | 50.6        | 50.2    | 51.0              | 57.5     | 56.4    | 58.6   | 42.9   | 45.5    | 40.5              | 53.2   | 52.0    | 54.5     | 11.9   | 11.7    | 12.1             |
| High                               | 40.7**      | 43.70   | 38.4**            | 56.0     | 57.8    | 54.6   | 47.7   | 52.1    | 44.4              | 52.3   | 53.0    | 51.7     | 9.5    | 9.6     | 9.5              |
| Attitude: sex at age 18 is 0       | OK?         |         |                   |          |         |        |        |         |                   |        |         |          |        |         |                  |
| Agree/ Neutral <sup>a</sup>        | 64.8**      | 66.0**  | 63.8**            | 69.1**   | 69.1**  | 69.2** | 53.7** | 58.1**  | 49.6**‡           | 64.0** | 63.0**  | 64.9**   | 15.2** | 14.4**  | 16.0**           |
| Disagree <sup>a</sup>              | 22.8        | 25.7    | 19.6              | 28.8     | 29.4    | 28.2   | 18.8   | 19.4    | 18.2              | 26.5   | 27.1    | 25.9     | 3.6    | 5.2     | 2.0 <sup>‡</sup> |

<sup>&</sup>lt;sup>a</sup> reference group

<sup>\*</sup> p ≤ .05 as compared to reference group

\*\* p ≤ .01as compared to reference group

† p ≤ .05 as compared to females

<sup>&</sup>lt;sup>‡</sup> p ≤ .01 as compared to females

**TABLE 2.** Percent of adolescents aged 15-19 who have engaged in oral or anal sex by time since first vaginal sex, 2002 NSFG

| Time since first vaginal sex | Oral sex | Anal sex | N    |
|------------------------------|----------|----------|------|
| Never had vaginal sex        | 26.3%    | 1.3%     | 1156 |
| 0-6 months                   | 81.7     | 5.8      | 109  |
| 7-12 months                  | 86.1     | 20.5     | 128  |
| 13-24 months                 | 86.2     | 17.9     | 207  |
| 25-36 months                 | 84.9     | 27.8     | 218  |
| More than 3 years            | 91.7     | 27.3     | 431  |

**TABLE 3.** Logistic regression models (odds ratios) predicting oral and anal sex among adolescents aged 15-19, 2002 NSFG

|                                | (Model 1) All |       | (Model 2)<br>Any oral sex<br>Virgins |       | (Model 3)  Non-virgins |       | (Model 4)<br>Anal sex |       |  |
|--------------------------------|---------------|-------|--------------------------------------|-------|------------------------|-------|-----------------------|-------|--|
|                                |               |       |                                      |       |                        |       | Non-virgins           |       |  |
|                                | OR            | р     | OR                                   | р     | OR                     | р     | OR                    | р     |  |
| Time since first vaginal sex   | ·             |       |                                      |       |                        |       |                       |       |  |
| Never had vaginal sex          | 1.00          |       |                                      |       |                        |       |                       |       |  |
| 0-6 months                     | 9.47          | 0.000 |                                      |       | 1.00                   |       | 1.00                  |       |  |
| 7-12 months                    | 15.30         | 0.000 |                                      |       | 1.58                   | 0.226 | 4.39                  | 0.001 |  |
| 13-24 months                   | 14.00         | 0.000 |                                      |       | 1.41                   | 0.373 | 3.53                  | 0.003 |  |
| 25-36 months                   | 14.90         | 0.000 |                                      |       | 1.60                   | 0.228 | 6.44                  | 0.000 |  |
| More than 3 years              | 32.78         | 0.000 |                                      |       | 3.51                   | 0.003 | 6.11                  | 0.000 |  |
| Age of first vaginal sex       |               |       |                                      |       |                        |       |                       |       |  |
| Before age 15                  |               |       |                                      |       | 1.47                   | 0.174 | 1.00                  |       |  |
| Age 15 or older                |               |       |                                      |       | 1.00                   |       | 1.24                  | 0.405 |  |
| Age at interview               |               |       |                                      |       |                        |       |                       |       |  |
| 15-17                          | 1.00          |       | 1.00                                 |       | 1.00                   |       | 1.00                  |       |  |
| 18-19                          | 1.44          | 0.016 | 1.77                                 | 0.003 | 1.05                   | 0.876 | 1.16                  | 0.484 |  |
| Gender                         |               |       |                                      |       |                        |       |                       |       |  |
| Female                         | 1.00          |       | 1.00                                 |       | 1.00                   |       | 1.00                  |       |  |
| Male                           | 0.96          | 0.775 | 1.00                                 | 0.990 | 0.89                   | 0.629 | 0.97                  | 0.897 |  |
| Race                           |               |       |                                      |       |                        |       |                       |       |  |
| Hispanic                       | 0.59          | 0.006 | 0.79                                 | 0.322 | 0.34                   | 0.000 | 1.10                  | 0.602 |  |
| NH White                       | 1.00          |       | 1.00                                 |       | 1.00                   |       | 1.00                  |       |  |
| NH Black                       | 0.45          | 0.000 | 0.58                                 | 0.029 | 0.28                   | 0.000 | 0.64                  | 0.048 |  |
| NH Other                       | 0.38          | 0.029 | 0.50                                 | 0.191 | 0.22                   | 0.003 | 0.48                  | 0.085 |  |
| Socioeconomic status           |               |       |                                      |       |                        |       |                       |       |  |
| Low                            | 1.00          |       | 1.00                                 |       | 1.00                   |       | 1.00                  |       |  |
| Medium                         | 2.18          | 0.000 | 1.99                                 | 0.006 | 2.33                   | 0.000 | 1.55                  | 0.036 |  |
| High                           | 2.93          | 0.000 | 2.56                                 | 0.001 | 4.18                   | 0.003 | 1.62                  | 0.059 |  |
| Attitude: sex at age 18 is OK? |               |       |                                      |       |                        |       |                       |       |  |
| Agree/ Neutral                 | 1.00          |       | 1.00                                 |       | 1.00                   |       | 1.00                  |       |  |
| Disagree                       | 0.35          | 0.000 | 0.34                                 | 0.000 | 0.38                   | 0.000 | 0.71                  | 0.177 |  |
| N                              | 2243          |       | 1151                                 |       | 1092                   |       | 1097                  |       |  |

Figure 1. Number of lifetime sex partners by sexual experience among adolescents aged 15-19, 2002 NSFG.

