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Sexual Timetables for Oral-Genital, Vaginal, and Anal Sex: Sociodemographic Comparisons in a Nationally Representative Sample of Adolescents

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Abstract

Objectives—We document the prevalence and relative timing of oral-genital, vaginal, and anal sex during adolescence, and examine whether they vary by sociodemographic factors..

Methods—We use data from almost 14,000 Wave IV respondents to the National Longitudinal Study of Adolescent Health to generate prevalence estimates for adolescents who reached age 18 by 2001, and logistic and ordinary least squares regression to examine sociodemographic correlates of sexual patterns.

Results—One in five adolescents experienced none of these sexual behaviors by age 18. Over two-thirds reported vaginal or oral-genital experience, but only about half experienced both. One in 10 reported anal sex experience. A third initiated two or more behaviors within a one year period. In longer timetables, vaginal sex was more often initiated first. Most sociodemographic characteristics examined were uniquely associated with prevalence and sexual timing.

Conclusions—Diversity in patterns of sexual initiation occurring in the 1990s underscores the ongoing need for comprehensive and nuanced examinations of adolescent sexual trajectories and their implications for sexual health in more recent cohorts.

Keywords

Adolescent Health; Sexual Health; national sample

Sexual behavior patterns have evolved significantly since the “first sexual revolution” of the 1920s.¹ Less than 10% of individuals born early in the 20th century had sex by age 18, compared with more than 50% of persons born between 1968 and 1973.² By age 20, 75% of individuals 15–44 years old in 2002 had had premarital vaginal sex;³ almost 90% of individuals ages 18–27 in 2001 had had premarital vaginal sex.⁴

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Contributors CT Halpern and AA Haydon both participated in conceptualizing and planning analyses, and in writing the article. CT Halpern supervised data analyses; AA Haydon conducted data analyses.

Prevalence of vaginal, oral-genital, and anal sex during adolescence

Most adolescent sexuality research focuses exclusively on vaginal intercourse. Two cross-sectional US national surveys routinely measure vaginal sex in adolescent samples. Estimates from the CDC's 2009 Youth Risk Behavior Survey (YRBS) indicate approximately 60% of male and 65% of female high school seniors have had vaginal intercourse.⁵ Similarly, in the 2006–2008 National Survey of Family Growth (NSFG) 66% of males and 62% of females ages 18 and 19 had had vaginal sex.⁶

In contrast, estimates of adolescent oral-genital and anal sex experience vary widely, probably because most, except NSFG figures, are based on smaller community samples.^{7–10} During the 1980s and 1990s, estimates of adolescent oral-genital sexual experience ranged from 35 to 66%. In the 2006–2008 NSFG, 70% of males and 63% of females ages 18–19 reported oral-genital experience.⁶ Community sample prevalence estimates of adolescent anal sex range from 20% to 32%.¹⁰ Recent NSFG data indicate almost 17% of males and 15% of females ages 18–19 years have ever had anal sex.⁶ The YRBS does not ask about oral-genital or anal sex.

Order and timing of initiation

The order of initiating vaginal versus oral-genital sex is of interest because initiating oral-genital sex first, which carries lower risk of sexually transmitted infections (STI) than vaginal or anal sex, could substitute for vaginal and/or anal sex, postpone their onset, or hasten the transition to coital or anal experience. Community sample estimates of initiating oral-genital sex first range from 14 to 50%.^{7–9,11,12} Some analyses indicate that “vaginal virgins” are less likely to have had oral-genital sex than “vaginal nonvirgins,” implying vaginal sex typically occurs first.^{10,13,14} However, about half of males and females ages 15–24 reported they had oral sex before vaginal in 2006–2008 NSFG data.⁶ The NSFG does not measure the amount of time separating oral-genital and vaginal initiation. There has been less investigation of anal sex, but given its low prevalence (10% of respondents ages 15–19, in the 2006–2008 NSFG),⁶ if anal sex is initiated during adolescence, it will typically occur last.

Timing of first sexual experience may have implications for the sexual sequence and pace that follows.¹⁴ There has been extensive research on the timing of first vaginal intercourse in particular. In the US, the average age of first vaginal intercourse is about 17.¹⁵ Mean ages of oral-genital and anal sex initiation have not been reported for current national data.

Implications of order and timing

Documenting variation and typicality in the order and timing of life experiences – including sexual experience -- across cohorts is important, as they may differentially affect physical and emotional health within and across historical time.¹⁶ For example, initiating intimate behaviors (e.g., vaginal sex) before less intimate ones (e.g., kissing) has been linked to inconsistent contraception.¹⁷ Findings suggest differential psychosocial implications of oral-genital versus vaginal sex,^{18–20} which may make order of initiation important. Compared to adolescents with vaginal experience (with or without oral sex), adolescents who have only had oral sex are less likely to feel guilty or used, or to get into trouble with parents because of sex. However, they are also less likely to experience sexual pleasure or to report feeling good about themselves.²⁰ Regarding timing, early coitus is linked to higher likelihood of sexual risk-taking, including inconsistent condom use, more sex partners, and, at least during adolescence, a higher likelihood of STIs.^{21–24} Heterosexual anal sex is also a marker for sexual risk taking.²⁵

The present study

In summary, despite potential implications for sexual health and general well-being, few studies have documented the typicality of sexual timetables based on multiple behaviors, and much of the available information is based on relatively small and geographically limited samples. To date, only NSFG data from 2002 forward allow estimates of adolescent oral-genital and anal sex for a nationally representative sample. Although a valuable resource, NSFG data do not include ages of initiation of noncoital behavior, limiting opportunities to evaluate implications of sexual timing.

The present study provides unique information about the timing (age of initiation) of oral-genital, vaginal, and anal sex, and order of initiation for adolescents in grades 7–12 in the 1994–95 school year. Documenting sexual timetables during adolescence provides a foundation for examining developmental implications of patterns, and offers a point of reference to examine historical changes. We use data from the National Longitudinal Study of Adolescent Health (Add Health) to examine the:

- 1) prevalence of vaginal, oral-genital, and anal sexual experience during adolescence, and whether prevalence varies by age cohort, biological sex, pubertal timing, race/ethnicity, family structure, and parent education;
- 2) typicality of the earliest behavior (i.e., which is initiated first) across groups defined above;
- 3) average timing (age) of initiation of oral-genital, vaginal, and anal sex, and whether timing varies by groups defined above;
- 4) overlap in experience of oral-genital, vaginal, and anal sex during adolescence, and whether overlap varies by biological sex.

Method

Participants

Add Health is a nationally representative, prospective cohort study of approximately 20,000 adolescents in grades 7–12 in the 1994–1995 school year. Four waves of in-home interviews have followed Add Health respondents from adolescence into adulthood. At Wave I (1994–1995), 20,745 respondents were selected from school rosters to complete an in-home interview. Wave IV interviews were conducted in 2008 with 15,701 original respondents, ages 24–32 (80.3% of eligibles). More details are available elsewhere.²⁶ Add Health protocols were approved by the Institutional Review Board at the University of North Carolina, Chapel Hill. Current analyses were deemed exempt.

We use data from Waves I and IV, and exclude respondents missing valid Wave IV sample weights ($n=901$), data on history of oral-genital, vaginal, or anal sex or the ages at which these behaviors first occurred ($n=575$), or sociodemographic information ($n=424$), yielding an analytic sample of 13,835.

Measures

Sexual experience—At Wave IV, respondents reported whether they had ever engaged in vaginal [“Have you ever had vaginal intercourse? (Vaginal intercourse is when a man inserts his penis into a woman's vagina.)”], oral-genital [“Have you ever had oral sex? That is, has a partner ever put his/her mouth on your sexual organs or you put your mouth on his/her sex organs?”], or anal sex [“Have you ever had anal intercourse? (By anal intercourse, we mean when a man inserts his penis into his partner's anus or butt hole.)”] using computer-assisted

self-interviewing. For each endorsed behavior, respondents indicated their age (in years) at first experience. We created dichotomous variables indicating initiation of each behavior by age 18 (1=yes; 0=no). For respondents reporting a year or more between initiation of first and second behaviors, we created dummy variables indicating the first behavior (e.g., vaginal sex first; 1=yes; 0=no). We also created variables indicating none of the three behaviors was initiated by age 18 (1=yes; 0=no), and whether the two (or three) behaviors were initiated at the same age.

Sociodemographics—We selected five sociodemographic indicators associated with timing of vaginal sex initiation. Biological sex and race/ethnicity were self-reported; categories for the latter are Hispanic, any single race; non-Hispanic (NH) black; NH white, NH Asian, NH American Indian, and Other. Family structure is coded as two biological parents, other two parents (e.g., stepfamily), single mother, single father, or other. As a proxy for socioeconomic status, we use highest educational attainment of resident parent(s), categorized as less than high school, high school diploma/GED, some college/vocational training, or college graduate and above. Chronological age is at Wave IV and categorized as 24–29 years or age 30 and older. Self-perceived pubertal timing (“early,” “typical,” “late”), which is correlated with sex-specific indicators of pubertal status,²⁷ reflects adolescent reports of looking older, about average, or younger than same-age, same-sex peers. Sociodemographics, except chronological age, were measured at Wave I.

Analyses

Using weighted percentages and means, we describe sociodemographic differences in the prevalence of each sexual behavior and which behavior is initiated first, and biological sex differences in experiential overlap. We regress each sexual experience by age 18 on sociodemographics in three multivariate logistic models, and regress age at first experience of each behavior on sociodemographics in three OLS models. We used SAS 9.1.3 and STATA 10.0, and applied survey commands to adjust for design and sampling weights to yield national estimates.

Results

Prevalence of adolescent experience of oral-genital, vaginal, and anal sex

Table 1 displays sociodemographic characteristics of our analytic sample, the prevalence of experiencing oral-genital, vaginal, or anal sex during adolescence (i.e., by age 18) for the total sample and by sociodemographic groups, and adjusted odds ratios for associations between each sociodemographic characteristic and behavior. Overall, about two-thirds of adolescents experienced oral-genital sex and three-quarters experienced vaginal sex. Anal sex was the least common, at about 11%.

Higher percentages of females than males experienced vaginal sex during adolescence, but males were more likely to experience oral-genital and anal sex (Table 1). About three-quarters of non-Hispanic (NH) whites and NH American Indians had oral-genital sex by age 18; among other race/ethnic groups, percentages ranged from 50 to 68%. Prevalence of vaginal sex experience also varied by race/ethnicity, although NH Asians were the only group with significantly lower odds of experiencing vaginal sex compared to NH whites. With the exception of NH whites and American Indians, vaginal sex was more prevalent than oral-genital sex during adolescence. This difference was especially striking for NH blacks, with 81% reporting vaginal sex but only 50% reporting oral-genital sex. Differences between NH black and NH white males and females were similar in magnitude and direction for vaginal and anal sex, but strikingly different for oral-genital sex. Three quarters of white and 79% of black males reported adolescent oral-genital sex experience. However, among

females, 70% of whites but only 38% of blacks report oral-genital experience (results not shown). Overall, NH blacks were also the least likely to report adolescent anal sex (6%), and were the only group whose odds of experiencing anal sex were significantly lower than NH Whites.

Respondents from family structures other than two biological parents were more likely to report oral-genital and vaginal sex, with higher percentages reporting vaginal than oral-genital sex. In contrast, similar percentages of respondents from households with two biological parents reported oral-genital and vaginal sex during adolescence. Percentages reporting anal sex were similar across family structure groups (10% to 12%), with the exception of the single father family structure (18%).

Respondents with college-graduate parents were least likely to report vaginal sexual experiences, but unlike other groups, similar percentages reported oral-genital and vaginal experience (about 67% for each behavior). Higher percentages of respondents with less educated parents reported anal sex. Compared to respondents with typical pubertal timing, earlier maturing adolescents had greater odds of reporting each type of experience. Later-maturing respondents had lower odds of oral-genital experience. Older respondents were more likely to report adolescent oral-genital and vaginal sex.

Typicality of earliest behavior

Table 2 shows the percentages who initiated each of the three sexual behaviors first, as well as percentages reporting no oral-genital, vaginal, or anal sex by age 18. The last column indicates percentages who reported the same age at initiation for two or three behaviors. Overall, similar percentages (33%) either had vaginal sex first or initiated two (typically oral-genital and vaginal) or three behaviors at the same age (i.e., within a 12 month period) versus initiating oral-genital sex first (15%). Less than one percent reported anal sex as their first behavior. About one in five respondents reported no experience as of age 18.

There are striking differences across sociodemographic groups. Almost 40% of males reported initiating two or more behaviors within the same year, compared to only a quarter of females. Among those who staggered initiation, females were much more likely to have vaginal sex first, whereas similar percentages of males initiated oral-genital and vaginal sex first. Across race/ethnicity, non-Hispanic Asians, at 38%, had the largest representation in the no experience category. NH blacks were the least likely to have initiated more than one type of sexual behavior within the same year (17% versus 30 to 42% of other groups). Although a greater percentage of NH whites reported initiating vaginal sex first (26%) than initiating oral-genital sex first (18%), the difference is smaller than that for other race/ethnic groups. The difference is especially striking among NH blacks; only 7% first experienced oral-genital sex; 62% initiated with vaginal sex.

Higher percentages of respondents from all family structures reported having vaginal before oral-genital sex, although differences are smaller for respondents from two biological parent households. The latter were the least likely to initiate adolescent vaginal sex and the most likely to report no experience. Higher percentages of respondents with less educated parents had vaginal before oral-genital sex. Similar percentages of respondents with a college graduate parent reported initiating oral-genital and vaginal sex first. Initiating two or more behaviors within a year was relatively more common among earlier maturers while teens who matured later were more likely to report no experience.

Timing of initiation

Overall, average age at first vaginal sex was slightly younger (weighted mean = 15.5 years, standard error = 0.02) than age at first oral-genital sex (weighted mean = 15.8 years,

standard error = 0.02). The average age of first anal sex, among those who had had anal sex by age 18, was almost a year older (weighted mean = 16.4 years, standard error = 0.06) and more variable (results not shown). Mean ages of initiation are listed by sociodemographic characteristics in Table 3; with few exceptions, sociodemographics were associated with ages of initiating vaginal and oral-genital sex in multivariate OLS regression models. Respondents who were male, from a household structure other than two biological parents, or matured earlier were younger at first oral-genital experience. NH Asians were significantly older. For age at first vaginal sex, associations with family structure and pubertal timing were similar to those seen for oral-genital sex. However, NH blacks were younger than NH whites at first vaginal sex (versus a similar age at first oral-genital sex), and any parent education less than a college degree was associated with a younger age at first vaginal sex. Being male was the only characteristic associated with age at first anal sex.

Comparisons between patterns in Tables 1 and 3 indicate that behavior prevalence and timing of onset are not necessarily in tight synchrony. For example, NH blacks were a third as likely as NH whites to have had oral-genital sex by age 18 (Table 1), but mean age was the same among those who did initiate (Table 3). Similarly, adolescents whose parents had less than a high school diploma had the lowest prevalence (within this characteristic) of experiencing oral-genital sex (Table 1), but their average age of initiation did not differ from teens with college educated parents (Table 3).

Overlap in sexual experiences during adolescence

Figure 1 shows percentages of males and females who experienced different combinations of oral-genital, vaginal, and anal sex by age 18. The most common combination is to have both vaginal and oral-genital experience during adolescence (56% of males, and 51% of females). However for males, the next most common pattern is experience with all three types (11%), followed by vaginal sex only (8%), and oral-genital sex only (6%). For females, the most common pattern after the vaginal/oral-genital combination is vaginal sex only (19%), having all three types (9%), and oral-genital sex only (4%). The remaining patterns were uncommon for males and females.

Discussion

Using nationally representative data for individuals who were adolescents between 1994 and 2001 (including understudied groups such as American Indians), we have documented the prevalence of oral-genital, vaginal, and anal sex experience during adolescence, the typicality of earliest behaviors, and mean ages of initiation. One in five adolescents from these cohorts had experienced none of these sexual behaviors by age 18. More than two-thirds reported vaginal or oral-genital experience, but only about half experienced both. Anal sex experience was reported by about one in 10 adolescents from these cohorts. About a third of adolescents initiated oral-genital and vaginal sex within a one year period, and another third initiated vaginal sex first, suggesting oral-genital sex did not postpone vaginal sex for most adolescents. This pattern is consistent with findings for more recent cohorts of community based samples of high school students.²⁸

Although we did not test for statistical significance, differences in the typicality of the earliest behavior were evident for most sociodemographic characteristics. The similar prevalence of oral-genital and vaginal sex in adolescence for some groups but not others indicates complex patterns of differential acceptance of oral-genital sex during adolescence across multiple sociodemographic indicators. In multivariate models, we found these characteristics were significantly and uniquely associated with timing of sexual initiation. Some patterns (e.g., earlier mean age of first vaginal sex among NH black adolescents; associations between early pubertal timing and early coital transition) have been previously

reported,^{29,30} others are unique. For example, to our knowledge, this is the first report of linkages between early pubertal timing and greater likelihood of oral-genital and anal sex experience during adolescence. Finally, our analyses indicate independence of demographic typicality of a sexual behavior and individual timing of initiation. Future research should examine whether different patterns (e.g., NH black adolescents who initiate oral-genital sex early in adolescence) have differential implications for individual sexual development and for population health.

Our overall estimates of vaginal sex experience during adolescence are higher than those from the most recent YRBS¹ and NSFG.^{5,6} However, our estimates of oral-genital sex are similar to estimates in the 2006–2008 NSFG for both males and females, and our estimates for anal sex are lower. We cannot isolate the sources of these differences (e.g., sampling, question wording, period of retrospection, cohorts), but it is possible that they partly represent differential changes over historical time in adolescent initiation of these behaviors. For vaginal sex, these differences are consistent with documented declines in adolescent initiation during the 1990s.⁵ Historical comparisons are more difficult for oral-genital and anal sex, but – to the extent that they represent historical variation rather than methodological differences – comparisons of Add Health patterns to those of the more recent NSFG suggest relatively little change in adolescent oral-genital activity since the 1990s but perhaps increases in anal sex.

Limitations

Because respondents were 24 to 32 years old when they reported ages of first sexual experiences, the time period of retrospection may be lengthy for some individuals and behaviors. Respondents reported ages at first experiences in whole years, and therefore we were unable to order behaviors initiated at the same age. Data limitations also prevented us from distinguishing whether first experiences of oral-genital and anal sex were in the context of same- or opposite-sex relationships. This limitation may contribute to differences in prevalence estimates and sociodemographic correlates between our findings and NSFG data reported here, which were limited to opposite-sex experiences. Our analyses of partnered sexual experiences do not distinguish between giving/receiving oral-genital or anal sex – experiences that have different implications for STI risk. Finally, our analyses do not reveal the interpersonal contexts and psychosocial experiences associated with differential timing of sexual initiation. Understanding the developmental implications of differences in sexual timetables must ultimately be informed by the meaning of the sexual act at that time point for the adolescent.

Conclusions

This work is one of several ongoing efforts to develop a more comprehensive description of adolescent sexual experience and development in the US. Present analyses represent a useful point of comparison, especially for non-coital activity, between adolescent experiences toward the end of the 20th century (i.e., during the 1990s) and experiences in the 21st century that are being documented in more recent cross-sectional samples such as the NSFG.

Few studies have examined the developmental implications of sexual timetables based on multiple behaviors. More longitudinal work is needed to understand the sources and meaning of sociodemographic differences documented here and their potential implications. For example, it is unclear whether departures from typicality of behavior versus timing of behavior have different consequences for health and well-being, or how sexual timetables

¹YRBS estimates for high school seniors varied between 60.9% and 68.3% between 1993 and 2001.³¹ NSFG estimates for 18 & 19 year old males varied between 75% (1995) and 64% (2002); for females estimates varied from 68% (1995) and 69% (2002).³²

relate to patterns of contraceptive use, partner accumulation, and sexual risk behaviors into adulthood. Better understanding of these patterns could inform future policy, education, and prevention efforts.

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Human Participant Protection The Public Health-Nursing IRB at the University of North Carolina at Chapel Hill determined that this research does not constitute human subjects research and therefore does not require IRB approval.

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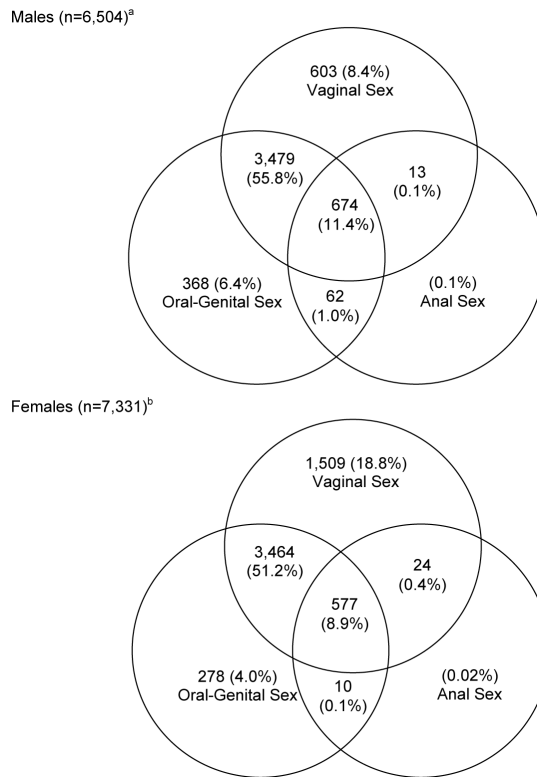


Figure 1.

Venn diagram illustrating the overlap among vaginal, oral-genital, and anal sex, by biological sex, by age 18.

Note: Denominator is all males and all females. Percentages do not sum to 100 because respondents with no sexual experience by age 18 are not shown. Dash indicates that cell size is too small to be displayed.

^a1,300 males reported no sexual experiences by age 18.

^b1,466 females reported no sexual experiences by age 18.

Table 1

Sociodemographic characteristics of the analytic sample, prevalence of oral-genital, vaginal, and anal sex by age 18 by sociodemographic characteristics, and adjusted odds ratios (aOR)^a (n=13,835)

	Sociodemographic characteristics			Oral-genital sex		Vaginal sex		Anal sex	
	%	n	%	aOR (95% CI)	%	aOR (95% CI)	%	aOR (95% CI)	
Total	100.0	13,835	67.4	-	75.2	-	10.7	-	
Biological sex									
Male	50.7	6,504	72.3	1.68 (1.52-1.87)***	73.5	0.85 (0.77-0.94)**	12.2	1.42 (1.22-1.66)***	
Female	49.3	7,331	62.3	1.00	77.0	1.00	9.1	1.00	
Race/ethnicity									
NH White	66.6	7,494	73.2	1.00	74.9	1.00	11.2	1.00	
NH Black	15.4	2,919	50.3	0.36 (0.29-0.43)***	81.3	1.20 (0.97-1.49)	6.4	0.51 (0.41-0.65)***	
Hispanic	11.7	2,181	59.7	0.61 (0.51-0.73)***	73.5	0.88 (0.73-1.08)	13.6	1.23 (0.98-1.54)	
NH Asian	3.3	872	52.0	0.45 (0.33-0.61)***	57.8	0.54 (0.38-0.77)**	8.7	0.83 (0.49-1.42)	
NH Am. Indian	2.0	249	75.4	1.02 (0.71-1.48)	76.7	0.93 (0.58-1.51)	14.2	1.20 (0.67-2.14)	
NH Other race	1.0	120	67.5	0.73 (0.44-1.19)	74.7	0.99 (0.59-1.67)	8.6	0.71 (0.29-1.76)	
Family structure									
Two bio parents	55.7	7,415	66.1	1.00	69.6	1.00	10.1	1.00	
Other two parent	16.9	2,524	74.6	1.53 (1.30-1.81)***	83.1	2.01 (1.64-2.47)***	11.7	1.16 (0.95-1.43)	
Single mom	20.1	2,899	64.1	1.20 (1.04-1.37)*	80.7	1.56 (1.34-1.81)***	10.1	1.11 (0.87-1.41)	
Single dad	2.9	396	72.8	1.44 (1.04-1.98)*	81.2	1.83 (1.27-2.64)**	18.1	1.90 (1.27-2.83)**	
Other	4.4	601	66.9	1.55 (1.23-1.95)***	86.0	2.36 (1.66-3.36)***	12.0	1.44 (0.99-2.08)	
Parent education									
Less than HS	12.0	1,722	56.1	0.79 (0.65-0.96)*	75.6	1.40 (1.12-1.77)**	11.6	1.17 (0.85-1.60)	
HS diploma or GED	27.2	3,483	70.1	1.26 (1.09-1.47)**	81.8	2.00 (1.71-2.33)***	12.4	1.32 (1.04-1.67)*	
Some college	29.9	4,049	70.2	1.18 (1.03-1.35)*	77.3	1.53 (1.32-1.77)***	9.8	0.99 (0.80-1.23)	
College grad	30.8	4,581	66.7	1.00	67.2	1.00	9.8	1.00	
Pubertal timing									
Early	41.1	5,517	72.8	1.38 (1.23-1.55)***	79.2	1.34 (1.18-1.51)***	12.9	1.37 (1.13-1.66)**	

	Sociodemographic characteristics			Oral-genital sex			Vaginal sex			Anal sex		
	%	n	%	aOR (95% CI)	%	aOR (95% CI)	%	aOR (95% CI)	%	aOR (95% CI)	%	aOR (95% CI)
Typical	38.6	5,418	66.3	1.00	73.1	1.00	73.1	1.00	9.8	1.00	9.8	1.00
Late	20.3	2,900	58.6	0.78 (0.68–0.90)**	71.2	0.88 (0.77–1.01)	71.2	0.88 (0.77–1.01)	8.1	0.81 (0.62–1.06)	8.1	0.81 (0.62–1.06)
Age												
24–29	70.3	9,399	69.2	1.31 (1.17–1.46)***	76.1	1.19 (1.04–1.37)*	76.1	1.19 (1.04–1.37)*	11.1	1.21 (1.00–1.46)	11.1	1.21 (1.00–1.46)
30	30.0	4,436	63.2	1.00	73.1	1.00	73.1	1.00	9.7	1.00	9.7	1.00

Note: Percentages are weighted to yield national probability estimates. Based on chi-square tests, all characteristics were significantly associated with each type of sexual behavior at $p < .05$ except for age group and anal sex. Odds ratios for each sociodemographic characteristic are adjusted for all other sociodemographic characteristics (e.g., odds ratios for the effect of age on each type of sexual behavior are adjusted for biological sex, race/ethnicity, family structure, parent education, and pubertal timing).

* $p < 0.05$,

** $p < 0.01$,

*** $p < 0.001$

Table 2

Weighted percentages of respondents who report, by age 18, no sexual activity, oral-genital sex first, vaginal sex first, anal sex first, or report first two or three behaviors initiated at the same age, by sociodemographic characteristics (N=13,835)

	None		Oral-Genital first		Vaginal first		Anal first		First two or three behaviors reported at same age	
	%	n	%	n	%	n	%	n	%	n
Total	19.2	2766	14.7	1829	33.3	4901	0.3	41	32.6	4298
Biological sex										
Male	19.3	1300	18.3	1104	23.6	1643	0.4	23	38.4	2434
Female	19.0	1466	11.0	725	43.3	3258	0.2	18	26.6	1864
Race/ethnicity										
NH White	18.9	1464	17.7	1279	26.5	2018	0.2	16	36.7	2717
NH Black	14.5	422	6.8	206	61.7	1780	0.4	13	16.6	498
Hispanic (any race)	21.9	483	10.3	217	37.9	805	0.3	-	29.7	667
NH Asian	38.0	335	6.7	74	22.5	166	0.2	-	32.6	294
NH American Indian	17.9	37	16.5	37	33.1	91	0.0	0	32.6	84
NH Other race	18.6	25	13.3	16	26.4	41	0.0	0	41.7	38
Family structure										
Two biologic parents	23.6	1866	16.7	1073	26.1	2105	0.1	10	33.5	2361
Other two parent	12.4	323	13.0	332	39.0	993	0.3	10	35.3	866
Single mom	15.1	461	12.6	313	43.5	1326	0.6	18	28.3	781
Single dad	15.5	59	11.9	59	36.6	142	0.0	0	36.0	136
Other family structure	10.9	57	8.2	52	52.7	335	0.5	-	27.7	154
Parent education										
Less than HS	20.4	362	8.8	136	43.8	770	0.3	-	26.7	447
HS diploma or GED	13.9	529	11.8	388	40.1	1441	0.3	13	33.9	1112
Some college	18.1	721	13.9	500	33.5	1472	0.2	-	34.4	1347
College grad	24.5	1154	20.3	805	22.9	1218	0.3	12	32.0	1392
Pubertal timing										
Early	15.1	880	14.6	743	35.0	2028	0.3	13	35.0	1853
Typical	20.9	1195	16.0	760	30.6	1800	0.3	19	32.2	1644
Late	24.1	691	12.3	326	34.9	1073	0.2	-	28.5	801

Age	None		Oral-Genital first		Vaginal first		Anal first		First two or three behaviors reported at same age	
	%	n	%	n	%	n	%	n	%	n
24–29	18.0	1785	15.8	1333	33.4	3315	0.2	26	32.6	2940
30 +	22.0	981	12.1	496	33.1	1586	0.4	15	32.5	1358

Note: Dash indicates that cell size is too small to be displayed. Percentages reflect row percents. Bivariate tests and multivariate modeling were not conducted because of the small cell sizes for some combinations.

Table 3

Mean age of initiation (and standard errors) of first oral-genital, vaginal, and anal sex, and coefficients (and standard errors) from OLS regressions of age at initiation of each behavior on sociodemographic characteristics, among respondents who report initiation by age 18

	Oral-genital sex before age 18 (n=8,912)		Vaginal sex before age 18 (n=10,343)		Anal sex before age 18 (n=1,368)	
	Mean age of initiation (SE)	b (SE)	Mean age of initiation (SE)	b (SE)	Mean age of initiation (SE)	b (SE)
Biological sex						
Male	15.6 (0.03)	-0.43 (0.06)***	15.5 (0.03)	-0.06 (0.05)	16.3 (0.09)	-0.42 (0.17)*
Female	16.0 (0.03)	1.00	15.5 (0.02)	1.00	16.7 (0.08)	1.00
Race/ethnicity						
NH White	15.8 (0.03)	1.00	15.6 (0.02)	1.00	16.4 (0.08)	1.00
NH Black	15.8 (0.06)	0.16 (0.09)	15.1 (0.04)	-0.41 (0.09)***	16.4 (0.20)	0.25 (0.37)
Hispanic (any race)	15.7 (0.06)	-0.02 (0.13)	15.4 (0.06)	-0.14 (0.13)	16.4 (0.13)	0.20 (0.27)
NH Asian	16.3 (0.08)	0.37 (0.12)**	16.0 (0.08)	0.24 (0.13)	16.8 (0.28)	0.50 (0.49)
NH American Indian	15.9 (0.13)	0.19 (0.18)	15.4 (0.15)	-0.12 (0.18)	16.8 (0.26)	0.49 (0.29)
NH Other race	15.3 (0.33)	-0.44 (0.45)	15.4 (0.17)	-0.16 (0.24)	15.6 (0.59)	-0.67 (0.62)
Family structure						
Two biologic parents	16.0 (0.03)	1.00	15.8 (0.02)	1.00	16.7 (0.08)	1.00
Other two parent	15.7 (0.05)	-0.30 (0.07)***	15.3 (0.04)	-0.45 (0.06)***	16.4 (0.13)	-0.29 (0.18)
Single mom	15.5 (0.06)	-0.52 (0.09)***	15.2 (0.04)	-0.42 (0.08)***	16.1 (0.18)	-0.68 (0.35)
Single dad	15.4 (0.12)	-0.59 (0.19)**	14.9 (0.12)	-0.79 (0.18)***	16.4 (0.21)	-0.21 (0.24)
Other family structure	15.5 (0.12)	-0.55 (0.15)**	14.9 (0.08)	-0.71 (0.13)***	15.5 (0.42)	-1.13 (0.59)
Parent education						
Less than HS	15.6 (0.06)	-0.24 (0.13)	15.3 (0.06)	-0.42 (0.11)***	16.0 (0.20)	-0.44 (0.41)
HS diploma or GED	15.7 (0.04)	-0.19 (0.08)*	15.3 (0.04)	-0.43 (0.07)***	16.5 (0.10)	0.03 (0.28)
Some college	15.9 (0.04)	0.03 (0.07)	15.5 (0.03)	-0.23 (0.06)**	16.6 (0.11)	0.10 (0.32)
College grad	15.9 (0.03)	1.00	15.9 (0.03)	1.00	16.5 (0.13)	1.00
Pubertal timing						
Early	15.6 (0.03)	-0.34 (0.05)***	15.2 (0.03)	-0.45 (0.06)***	16.4 (0.09)	0.07 (0.20)
Typical	16.0 (0.03)	1.00	15.7 (0.03)	-	16.4 (0.12)	-

	Oral-genital sex before age 18 (n=8,912)		Vaginal sex before age 18 (n=10,343)		Anal sex before age 18 (n=1,368)	
	Mean age of initiation (SE)	b (SE)	Mean age of initiation (SE)	b (SE)	Mean age of initiation (SE)	b (SE)
Late	16.0 (0.05)	0.08 (0.09)	15.7 (0.05)	0.09 (0.08)	16.6 (0.14)	0.26 (0.23)
Age						
24–29	15.8 (0.02)	–0.08 (0.08)	15.5 (0.02)	–0.04 (0.08)	16.5 (0.07)	0.22 (0.23)
30 +	15.8 (0.04)	1.00	15.5 (0.04)	1.00	16.2 (0.15)	1.00

Note: Means are weighted to reflect national population estimates.

* $p < 0.05$,

** $p < 0.01$,

*** $p < 0.001$