

Initiation of Oral Sex and Coitus in Emerging Adulthood:  
Sexual Sequencing in a National Sample

Karin L. Brewster<sup>1</sup>

Kathryn Harker Tillman<sup>1</sup>

Giuseppina Valle Holway<sup>2</sup>

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<sup>1</sup> Florida State University, Department of Sociology and Center for Demography & Population  
Health

<sup>2</sup> University of Texas at Austin, Postdoctoral Fellow, Population Research Center

## ABSTRACT

This study addresses the sequencing of first coitus relative to first oral sexual experience with a different-gender partner among youth ages 15-24. Using data from the 2006-2010 and 2011-2013 rounds of the National Survey of Family Growth, we estimate the prevalence of youth in six categories of sexual experience defined by the initiation and ordering of these two sexual activities. We use multinomial logistic regression to describe variation in sexual experience across groups defined by demographic characteristics and family background, and we evaluate the association of oral sexual experience with age at first coitus. Results reveal that the average marginal probability of experiencing first oral sex prior to first coitus is about 10 points higher for non-Hispanic whites than for Hispanic and non-Hispanic Black youth. Results also provide tentative evidence that oral sex engagement delays the onset of first coitus by about four months, on average, but only for non-Hispanic White youth.

## Initiation of Oral Sex and Coitus in Emerging Adulthood: Sexual Sequencing in a National Sample

A shift has occurred in the prevailing perspective in research addressing adolescent sexuality, from framing sexual engagement during adolescence as a normative violation with negative outcomes to recognizing sexuality as a normal component of adolescent development (Tolman & McClelland, 2011; Pearson & Wilkinson, 2013). This shift has spurred an emerging body of research aimed at providing a more complete description of the sexual experiences of teens and young adults, including their engagement in oral-genital sex and anal intercourse with same- and different-gender partners (Akers, Gold, et al., 2011; Brewster & Tillman, 2008; Halpern & Haydon, 2012; Hensel, Fortenberry & Orr, 2008; Lindberg et al., 2008). An important advantage of this more inclusive approach is its potential to more accurately identify youth at risk of sexually transmitted infections (STI). About half of the 20 million STI cases reported annually are to persons ages 15 to 24, including most cases of gonorrhea and chlamydia, half of human papillomavirus infections, 45% of genital herpes, and about one-quarter of HIV infections (CDC, 2012; Satterwhite et al., 2013). These infections can be transmitted through oral sex and anal intercourse, as well as coitus, so including the share of youth who have engaged in noncoital behaviors improves risk estimates.

Evidence from this growing literature suggests that the ordering of noncoital and coital behaviors during emerging adulthood, and the pace at which youth progress from one new behavior to the next, may have implications for health and well-being into adulthood. A “linear progression” from less to more penetrative behaviors is associated with delay of first vaginal intercourse and more consistent contraceptive use after first coitus, for example, and young women whose early sexual experiences were non-linear more often reported no condom use at

their last instance of anal intercourse (de Graaf, Vsanswesenbeeck, et al., 2009). A recent study reported that young women who initiated coitus more than a year prior to oral sex initiation had a higher likelihood of adolescent pregnancy than peers who initiated oral sex prior to first coitus (Reese, Haydon, Herring, Halpern, 2013).

The ordering of first coitus relative to first oral sex with a different-gender partner holds particular interest as these two activities comprise the first partnered sexual engagement for most youth (Halpern & Haydon, 2012; Herbenick, Reece, et al., 2010). Engagement in oral sex may delay the onset of vaginal intercourse—and pregnancy risk—by providing a form of sexual gratification that maintains “technical virginity”; in addition, oral sex is associated with substantially lower risks of most STIs than coitus (Bruce & Rogers, 2004; Brückner & Bearman, 2005; Satterwhite et al., 2013). In short, engagement in oral sex prior to first coitus may forestall some of the negative outcomes of coitus.

Extant evidence is unclear about the relationship between these two behaviors. Descriptive analyses indicate that more teens have engaged in oral sex than coitus; yet, those who have are more likely than other teens to have initiated coitus (Brewster & Tillman, 2008; Lindberg, Jones, & Santelli, 2008). A prospective longitudinal analysis of data from students at two California high schools found that earlier onset of oral sex was associated with earlier initiation of coitus, in part because most teens initiated both behaviors within the same six-month observation window (Song & Halpern-Felsher, 2011). An analysis based on the Add Health data similarly found that about one-third of youth initiated oral sex at the same age as first coitus (Halpern & Haydon, 2012). Among those respondents whose first sexual experience occurred a year or more prior to their second sexual transition, twice as many initiated coitus before oral sex than vice-versa.

These studies suggest that, for most teens, the initiation of one behavior is followed rather quickly by the initiation of the other. At the same time, because of data constraints, they leave unanswered the issue of sequencing and accordingly, whether oral sex engagement slows the onset of first coitus. The current study provides a more nuanced description of the role of oral sex in the sexual initiation of adolescents and young adults using recent, nationally representative data. Specifically, we estimate the prevalence of youth in six categories of sexual experience defined by the initiation and ordering of first oral sex and first coitus. We describe variation in experience across groups defined by demographic characteristics and family background. Finally, we evaluate the association of oral sexual experience on age at first coitus and consider differences by race/ethnicity. Data constraints necessitate a focus on sexual experience with different-gender partners; however, we do not drop youth who identify as lesbian, gay, or bisexual youth because most engage in sexual activity with different-gender partners (Brewster & Tillman, 2012; Savin-Williams & Ream, 2007).

### ***Conceptual framework***

We start from the assumption that, by mid-adolescence, most youth understand that sexual gratification can be obtained through a variety of behaviors and hold nascent attitudes toward participating in these various sexual behaviors. These attitudes reflect what the individual perceives as the potential outcomes of specific sexual behaviors, the likelihood that these outcomes will occur, and the desirability of these outcomes (Jaccard, 2004). As youth begin to experiment sexually, they do not simply choose between sexual intercourse and chastity; rather, they weigh—albeit not necessarily consciously or deliberately—their feelings toward potential partners, their desires for physical and emotional gratification, and their attitudes toward the

array of sexual behaviors of which they are aware (Michels, Kropp, Eyre, Halpern-Felsher, 2005).

The calculus youth employ during the process of sexual decision-making is shaped by contextual factors, including *environmental constraints* (e.g., parental supervision) and *social normative pressures* (e.g., peer scrutiny), and factors specific to the individual, including emotional reactions to specific sexual behaviors and consistency between behavior and self-image (Buhi & Goodson, 2007; Jaccard, 2004). A substantial body of research indicates that environmental constraints and perceived normative pressures, as well as the propensity to engage in coitus and in oral sex, are correlated with demographic and family background characteristics. In the following paragraphs, we briefly review this research and speculate about the association of demographic and family background characteristics with the sequencing of the initiation of oral sex and coitus.

Age, gender, and race/ethnicity are particularly important predictors of youths' initial sexual experiences. Youths' independence from their parents and parentally-circumscribed social networks increases with age, as does their sense of sexual selfhood (Miller, 2002; Tolman & McClelland, 2011). Not surprisingly, then, the likelihood of having engaged in coitus and in oral sex both increase with age (Akers, Gold, et al., 2011; Brewster & Tillman, 2008; Halpern & Haydon, 2012; Lindberg et al., 2008). The longstanding gender gap in the share of youth with coital experience has narrowed considerably in recent decades (Martinez, Copen, & Abma, 2011; Schwartz & Rutter, 2000), but gender differences in the dynamics of sexual decision-making and in the physical and emotional outcomes of sexual activity persist (Brady & Halpern-Felsher, 2007; Halpern-Felsher et al., 2005; Else-Quest, 2014; Kaestle 2009 ). Pregnancy, for example, has greater costs for young women and these costs likely loom larger in their sexual calculus,

perhaps leading them to prefer oral sex to coitus, all else equal. We might expect, then, to find that gender is associated with the relative sequencing of first oral sex and first coitus, although we note that roughly equal shares of young women and men report oral sexual experience (Brewster & Tillman, 2008; Lindberg et al., 2008). Race/ethnic differences in initial sexual experiences are well-documented, with Black youth experiencing first intercourse at younger ages, on average, than their White, Hispanic, and Asian peers. Some researchers find that more White youth have oral sexual experience (Brewster & Tillman, 2008; Lindberg et al., 2008), although others report finding no race or ethnic differences (Song & Halpern-Felsher, 2011; Halpern & Haydon, 2012).

Many studies have found that family characteristics play a key role in youths' emerging adult identities, and shape their knowledge and attitudes about sex and its consequences. Youths' perceptions of their parents' attitudes are, at best, only weakly predictive of sexual involvement (Akers, Gold et al., 2011), but sexual experience is associated with some measures of family background. Youth from families headed by married biological (or adoptive) parents, immigrant families, and families of higher socioeconomic status tend to delay first intercourse, presumably because they are more closely supervised and more likely to perceive the possible consequences of sexual intercourse as unacceptably high (Buhi & Goodson, 2007; Harris, 1999; Miller, 2002). These same characteristics, however, also are associated with higher odds of oral sexual engagement (Brewster & Tillman, 2008). If oral sexual engagement serves to delay first intercourse, then we would expect to find these characteristics to be associated with the relative sequencing of these two behaviors.

## **METHODS**

### ***Data and sample***

Data are from the 2006-2010 and 2011-2013 rounds of the National Survey of Family Growth (NSFG). The NSFG was designed by the National Center for Health Statistics (NCHS) to produce national estimates of trends and differentials in fertility and reproductive health, and is administered to a multistage area probability sample representative of individuals ages 15 through 44 in the household population of the United States. In-person interviews, conducted in English or Spanish by female interviewers, were fielded from June 2006 through June 2010 and from September 2011 through September 2013. Questions about experience with oral sex and other sensitive behaviors were administered using audio computer-assisted self-interviewing (ACASI). Respondents signed consent forms after receiving oral and written information about the survey, and minors participated only with the signed consent of a parent/guardian. More details about the NSFG, including comparability across survey rounds, are available elsewhere (Lepkowski et al, 2010; NCHS, 2014).

Together, the 2006-2010 and 2011-2013 rounds interviewed 33,098 individuals (17,880 females, 15,218 males), with oversamples of Blacks, Hispanic, and teen-aged respondents. The item on the ordering of first oral sex and first coitus—our dependent variable—was added to the NSFG questionnaire in June 2007. Respondents interviewed prior to that point were not included in this analysis (3,106 females, 2,504 males), nor were respondents older than 24, who were not asked this question because of potential recall error (9,547 females, 7,719 males). Also excluded were respondents for whom the sequencing of first oral sex and first coitus could not be determined because of question ordering or missing data (57 females, 38 males). The analyses



are based on the responses of 10,125 individuals, 6,270 from the first round of data collection and 3,855 from the second.

### ***Variables***

*Sexual experience.* Outcomes in this analysis are two indicators of sexual experience: a qualitative measure describing engagement in and sequencing of first oral sexual experience with a different-gender partner and first coitus, and a quantitative measure of age at first coitus. The qualitative measure distinguishes among the six possible categories of coital and different-gender experience with oral sex: oral sexual but no coital experience; coital but no oral sexual experience; first oral sexual experience preceded first coitus; first coitus preceded first oral sexual experience; first oral sexual experience and first coitus occurred on the same occasion; and no coital or different-gender oral sexual experience. We used an NCHS-provided variable to determine whether respondents had experienced first coitus prior to interview. Experience with oral sex was based on an item in the ACASI about *any* engagement in oral-genital contact with a different-gender partner; the NSFG did not determine whether the first oral sex experience consisted of cunnilingus, fellatio, or both. Respondents with one form of sexual experience, but not both were coded as such. Respondents who had both oral sexual and coital experience were asked in the ACASI, “Thinking back to when you had oral sex with [a different-gender partner] for the first time, was it before, after, or on the same occasion as your first vaginal intercourse with [a different-gender partner]?” Respondents who indicated that they had not experienced either first coitus or oral sex with a different-gender partner were coded as such and treated as the base category in the multinomial logistic regression models. *Age at first coitus* was determined from NCHS-generated recodes for the subsample of 6,575 respondents (3,444 females, 3,131 males) who had experienced first coitus.

*Demographic characteristics and family background.* Age was determined by NCHS based on respondent's birth date and is measured here in single years. Race/ethnicity is constructed from an NCHS-generated variable that integrates respondent's self-identified race and Hispanic identity into a four-category indicator distinguishing among Hispanics, non-Hispanic Whites, non-Hispanic Blacks, and non-Hispanic respondents of "other races." Nativity status is measured as a dummy indicator coded one for respondents born outside of the U.S. and zero for those born in the U.S. We created a dummy indicator of respondent's *gender* based on whether the respondent completed the female or male questionnaire. Family structure also was represented by a dummy indicator, coded one if the respondent had always lived with two biological or adoptive parents or, for respondents older than 18 years, until establishing an independent residence, and zero otherwise. Mother's educational attainment was measured as the highest degree attained by the respondent's mother or mother-figure. It is coded as a set of four dummy indicators: did not complete high school; attained a high school diploma or its equivalent but not a bachelor's degree; earned at least a bachelor's degree; or respondent reported growing up without a mother or mother-figure.

### ***Analyses***

The descriptive analyses start with estimates of the prevalence of each sexual experience category, presented for the full sample, by survey period, and by demographic and family characteristics. Percentages are weighted to represent the national population aged 15 to 24 using NCHS-provided sampling weights. Next, we use multinomial logistic regression to estimate age-specific predicted probabilities of each sexual experience category and the marginal contribution of each predictor to these probabilities. Finally, for those youth who had coital experience, we test differences in mean age at first coitus for three sequencing patterns: oral sex before first

coitus, no oral sex before first coitus, and first oral sex and first coitus on the same occasion.

Analyses were conducted in Stata SE 13.0.using the *svy* commands to adjust for the multistage probability sampling and continuously-fielded survey design.

## RESULTS

### *Prevalence estimates*

Table 1 shows the weighted percentage in each sexual experience category for the full sample, by survey period, by mean age at interview, and by demographic and family background characteristics. Overall, nearly 60% of youth had engaged in coitus and oral sex: one-quarter initiated oral sex prior to first coitus, one-quarter experienced first coitus prior to first oral sex, and 10% reported experiencing first coitus and first oral sex on the same occasion. Experience with just one behavior was uncommon, with about 6% reporting only coital experience and about the same share reporting only oral sexual experience. Less than 30% of youth had not experienced either coitus or oral sex. Prevalence of sexual experience type was stable across the two survey periods.

--- Table 1 about here ---

Youth who had initiated coitus, regardless of its ordering with respect to oral sex, were two to three years older at interview, on average, than youth with no sexual experience and youth who had initiated oral sex but not coitus. Although males more frequently reported initiating oral and vaginal sex on the same occasion, females were more likely than males to report first coitus prior to first oral sex. Other gender differences were small, with approximately equal shares of both genders reporting no sexual experience or initiation only of oral sex. Engagement in oral sex prior to first coitus was most common among non-Hispanic White youth and

engagement in first coitus prior to first oral sex was most common among non-Hispanic Black youth. Youth in the residual race/ethnicity category reported no sexual experience more frequently than their peers. Compared to native-born youth, foreign-born youth less often reported oral sex prior to first coitus and more frequently reported either coitus only or no sexual experience.

Youth who grew up with two biological or adoptive parents more often reported no sexual experience than youth from other family backgrounds, and less often reported initiating coitus prior to first oral sex or on the same occasion as first oral sex. No sexual experience and oral sexual experience only were most commonly reported among youth with college-educated mothers, and least commonly reported among youth whose mothers had not completed high school. Youth of the least-educated mothers more frequently reported experiencing coitus only, however, or first coitus and first oral sex on the same occasion.

### ***Multivariate findings***

Figure 1 shows predicted probabilities for each sexual initiation category by age at interview, estimated from a multinomial logistic regression model including all covariates and with no coital or oral sexual experience as the base category (see Appendix for coefficients). The age-graded nature of sexual experience is evident in the bottom-right panel, which illustrates the steep drop with age in the probability of remaining inexperienced with both oral sex and coitus. The remaining panels suggest, first, that the initiation of sexual activity is slightly more likely to occur as oral sexual experience (i.e. oral sex only) earlier in adolescence and as coitus (i.e. coitus only or coitus and oral sex on same occasion) later in adolescence and, second, that most youth appear to move quickly from one behavior to the next.

At age 15, youth who had any sexual experience were more likely to have had oral sex only (10.4%) or prior to coitus (8.2%) than coitus only (3.4%) or first coitus prior to first oral sex (6.9%). The probability of having experienced oral sex only is lower in each subsequent year of age; in contrast, the probability of having first coitus without oral sexual experience is higher in each subsequent year, up until age 21 when the probability peaks at 7.1%. Overall, the probability of experiencing oral sex first is higher from age 15 through 18, while the probability of experiencing coitus first is higher from age 19 forward. Meanwhile, the probability of having experienced both forms of sex increases with each year over the entire age range.

--- Figure 1 about here ---

Table 2 shows the average marginal effects of the covariate values on the log-odds of each sexual experience type, estimated from the full multinomial logistic regression model. Each “effect” represents the predicted probability of a particular sexual experience associated with the specified covariate value, holding all other covariates constant at their means. Within covariate values, these probabilities sum to one across the six categories of sexual experience. The *F*-statistics indicate the statistical significance of a covariate’s association with each type of sexual experience, comparable to *t*-statistics for coefficient estimates. Consider, for example, the marginal association of gender with the probability of initiating coitus and oral sex on the same occasion. For females, the predicted probability of this sexual experience category is 8% compared to 12% for males, holding all other covariates at their mean values; the *F*-statistic indicates that this four-point difference is statistically different from zero.

--- Table 2 ---

Although the estimates suggest that the sequencing of initial sexual experiences differ little by gender, other demographic characteristics and family background are associated with

sexual sequencing. The initial sexual experiences of youth are differentiated most strikingly by race and Hispanic background. Non-Hispanic White youth are more likely than their peers to have engaged in oral sex prior to first coitus; the predicted probability of this sequence is more than ten points higher than that of non-Hispanic youth of ‘other’ races and eight points higher than their non-Hispanic Black peers. Non-Hispanic Black youth have a higher probability of experiencing coitus before oral sex and to have experienced coitus but not oral sex. Hispanic youth have a slightly higher probability of experiencing both first coitus and first oral sex on the same occasion, and non-Hispanic youth of ‘other’ races have the lowest probability of sexual experience overall.

Native-born youth are more likely than their foreign-born peers to have both coital and oral sexual experience; their probability of initiating coitus prior to or following first oral sex is significantly higher than their foreign-born peers. Youth who lived in a family with two biological or adopted parents through the end of adolescence are less likely than their peers from other family types to have experienced any sexual activity; their lower probabilities for coitus only, coitus before first oral sex, and first coitus and first oral sex on the same occasion suggest that their first sexual experience is more often oral sex than coitus. Youth whose mothers had not completed high school had a higher probability of sexual experience than their peers; the difference attains statistical significance for first coitus, whether alone or prior to first oral sex.

To assess differences in sexual sequencing by gender, we re-specified the full multinomial model to include gender-by-covariate product terms. Only the gender-by-race/ethnicity term yielded an improvement in model fit, and outcome-specific statistics revealed that the improvement was statistically significant ( $F_{3, 125} = 3.93, P = .01$ ) for just one outcome category, first oral sex prior to first coitus. As shown in Figure 2, the predicted probability of

experiencing oral sex prior to first coitus is higher for Black men than for Black women, with the specific probability estimates differing by over eight points (23.7% versus 15.0%, respectively).

--- Figure 2 about here ---

### ***Oral sex and age at first coitus***

As a final step in our consideration of sexual sequencing, we consider the possibility that oral sex engagement delays the onset of first coitus. Because our data are retrospective and cross-sectional, we are limited to testing differences in the mean age at first coitus across three sequencing categories: first oral sex before first coitus, no experience with oral sex prior to first coitus, and first coitus occurred on the same occasion as first oral sex. We conduct linear difference of mean tests for all youth with coital experience. Given the strong race/ethnic differences in sequencing revealed by the multivariate analysis, we also conduct linear difference of mean tests within each of the race/ethnic groups. Table 3 shows the results.

--- Table 3 ---

Youth who engaged in oral sex before initiating coitus were over three months older at first coitus, on average, than their peers who did not and nearly nine months older than their peers who initiated both types of sex on the same occasion. Looking within race/ethnic groups suggests that, if oral sex does delay first coitus, it does so only for non-Hispanic White youth. Among all four race/ethnic groups, however, initiation of both oral sex and coitus on the same occasion occurs at significantly younger ages, on average, than first coitus without oral sex.

## **DISCUSSION**

We used nationally representative data for individuals aged 15-24 between 2007 and 2013 to describe the ordering of first coitus relative to first oral sex with a different-gender

partner. Results from a multivariate analysis reveal that the average marginal probability of experiencing first oral sex prior to first coitus is 6 to 11 points higher for non-Hispanic white youth than for their peers. Prior studies based on nationally representative data also pointed to a strong relationship between race/ethnicity and the early sexual experiences of teens and young adults (Brewster & Tillman, 2008; Lindberg et al., 2008), but, to our knowledge, this study is the first to report race differences in the sequencing of oral sex and first coitus. Results also provide tentative evidence that engaging in oral sex prior to coitus delays the onset of first coitus by about one-third of a year, on average, but only for non-Hispanic white youth.

Considered together with a recent report of lower pregnancy risk for young women whose first oral sex preceded first coitus (Reese et al., 2013), these two findings suggest the potential benefits of a more inclusive conceptualization of sexual initiation for understanding race/ethnic differences in the adverse consequences of coital activity. If engagement in oral sex and, potentially, other noncoital experiences delay the onset of coitus—reducing exposure to unintended pregnancy and STIs—but do so only for non-Hispanic White youth, then race/ethnic differences in the effects of these noncoital behaviors may be implicated in the greater prevalence of parenthood and STIs among Hispanic and non-Hispanic Black youth. Although our use of cross-sectional data makes us hesitant to push this argument too far, the value of better describing youths' sexual trajectories, including the sequencing of coital and noncoital behaviors and the pace at which youth transition from one behavior to the next, seems clear (de Graaf et al., 2009; Haydon et al., 2012; Halpern & Haydon, 2012).

Results also suggest that the general age-profile of sexual initiation is similar whether first oral sex precedes or follows first coitus. Conditional probabilities estimated by age at interview indicate that, at age 15, about 8% of youth have initiated first coitus following oral sex



and 6% have initiated first coitus prior to first oral sex; at age 19, the probabilities for each sequence are approaching 30% and at age 24, the probability of each sequence is about 40%. The probability of having experienced only oral sex declines from about 10% at age 15 to less than 2% at age 24; the probability of having experienced only coitus is less than 4% at ages 15 and 24, and never rises above 8%. Together, these estimates suggest that the sexual repertoires of most youths include both coitus and oral sex, consistent with prior studies (Halpern & Haydon, 2012; Hensel et al., 2008; Herbenick et al., 2010).

Despite the overall consistency of the findings here with findings from prior work using other data, our estimate of sexually inexperienced youth—approaching 30% for both genders—is high compared to studies using Add Health (Halpern & Haydon, 2012; Haydon et al., 2012). This difference likely reflects questionnaire differences resulting in different operational definitions of sexual experience. The NSFG questionnaire is specific with regard to different-gender partners and its question addresses the ordering of first coitus relative to first different-gender oral sexual experience. The Add Health questionnaire asked age at first coitus and age at first oral sex and did not specify the gender of the first oral sex partner. Further, studies of sequencing based on the Add Health data included anal intercourse, something that was not possible with the NSFG, which did not ask respondents about the sequencing of first anal intercourse relative to first oral sex.

Another issue of concern, referred to above, is our reliance on cross-sectional, retrospective reports. Limiting the sample by age alleviates the problem of respondent recall to some extent; notably, the recollection period is not as long as that for Add Health, which determined the timing of first sexual experiences at Wave IV, when respondents were ages 24 to 32 years old (Halpern & Haydon, 2012). The broad similarity in findings is somewhat reassuring

in this respect. We also lack detail on the first oral sex experience. Although we do know that it occurred with a different-gender partner, we are unable to determine the specific behaviors (i.e., cunnilingus, fellatio, or both), the interpersonal and situational context (e.g., steady relationship, “rainbow” party), or whether any prophylactic (i.e., condom, dental dam) was employed.

### ***Conclusions***

This work is part of a growing body of research that aims to describe and better understand youths’ sexual repertoires. Beyond its use of recent, nationally representative data on teens and young adults, it is distinctive in documenting a significant delaying effect of oral sex engagement on age at first coitus. That this finding pertains only to non-Hispanic white youth reinforces previous work suggesting that early sexual trajectories differ along lines drawn by race and ethnicity. Much work remains, however, to fully understand the influence of race and ethnicity on youths’ patterns of sexual initiation. We need prospective quantitative and qualitative research to locate the sources of race and ethnic differences in sexual sequencing and to identify the longer-run implications of these differences, including potential implications for STI prevalence and teen parenthood. Beyond the issue of race and ethnicity, critical questions for future research include the relationship of sexual sequencing to indicators of positive sexual decision-making, such as contraceptive use, and potentially health-compromising behaviors, such as rapid accumulation of sexual partners or concurrent engagement with multiple sexual partners. The answers to these questions will be vitally important for health practitioners who work with youth and young adults, as well as professionals involved in the creation and implementation of sexual and reproductive health education programs for young people.

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Table 1. Weighted Percentage of Respondents in Each Sexual Experience Category, Full Sample and by Social and Demographic Characteristics: Respondents Aged 15 – 24, National Survey of Family Growth 2007-2013 (N = 10,125)

	<u>Oral Sex Only</u>		<u>Oral Sex First</u>		<u>Coitus Only</u>		<u>Coitus First</u>		<u>Same Occasion</u>		<u>No oral sex or coitus</u>		N
	%	(No.)	%	(No.)	%	(No.)	%	(No.)	%	(No.)	%	(No.)	
Full Sample	5.5	(557)	24.9	(2,307)	6.1	(674)	24.4	(2,573)	10.1	(1,066)	28.9	(2,948)	10,125
Survey period:													
2007 – 2010	6.2	(362)	24.0	(1,443)	5.5	(408)	25.1	(1,606)	9.6	(622)	29.7	(1,829)	6,270
2011 – 2013	5.1	(195)	25.6	(864)	6.5	(266)	23.9	(967)	10.5	(444)	28.4	(1,119)	3,855
Mean age at interview	17.9	(557)	20.6	(2,307)	19.8	(674)	20.7	(2,573)	20.2	(1,066)	17.6	(2,948)	10,125
Gender:													
Female (Ref)	5.6	(270)	25.1	(1,163)	6.2	(381)	26.1	(1,461)	8.2	(463)	28.8	(1,444)	5,182
Male	5.5	(287)	24.7	(1,144)	6.0	(293)	22.9	(1,112)	11.9	(603)	29.1	(1,504)	4,943
Race/Ethnicity													
Hispanic	3.8	(107)	20.3	(456)	9.5	(244)	25.2	(632)	12.8	(275)	28.5	(776)	2,490
N-H. White (Ref)	6.6	(333)	29.1	(1,373)	3.2	(140)	23.6	(1,152)	9.0	(460)	28.5	(1,394)	4,852
N-H. Black	4.4	(89)	19.7	(377)	10.7	(245)	30.3	(678)	11.8	(285)	23.1	(499)	2,173
N-H. Other	4.6	(28)	15.3	(101)	9.2	(45)	16.2	(111)	8.1	(46)	46.6	(279)	610

	<u>Oral Sex Only</u>		<u>Oral Sex First</u>		<u>Coitus Only</u>		<u>Coitus First</u>		<u>Same Occasion</u>		<u>No oral sex or coitus</u>		N
	%	(No.)	%	(No.)	%	(No.)	%	(No.)	%	(No.)	%	(No.)	
<b>Nativity status</b>													
Native-born (Ref)	5.7	(505)	25.7	(2,143)	5.6	(547)	24.3	(2,315)	9.9	(949)	28.6	(2,608)	9,067
Foreign-born	3.7	(52)	17.1	(164)	10.4	(127)	25.5	(258)	11.8	(117)	31.5	(340)	1,058
<b>Family Structure</b>													
Two-parent	6.1	(318)	25.5	(1,168)	5.3	(280)	21.8	(1,109)	8.2	(440)	33.1	(1,689)	5,004
Other (Ref)	4.9	(239)	24.2	(1,139)	7.0	(394)	27.6	(1,464)	12.3	(626)	24.0	(1,259)	5,121
<b>Mother's Education</b>													
< High School	3.4	(65)	20.5	(333)	10.0	(228)	27.8	(507)	12.5	(204)	25.9	(532)	1,869
High School (Ref)	5.0	(310)	26.2	(1,399)	5.9	(349)	25.4	(1,560)	10.1	(664)	27.5	(1,602)	5,884
College or more	8.1	(179)	24.6	(560)	4.2	(94)	20.1	(481)	8.8	(191)	34.2	(797)	2,302
No mother	4.9	(3)	29.4	(15)	2.3	(3)	30.4	(25)	10.8	(7)	22.3	(17)	70

Note: Design-weighted *F*-tests of the association between sexual experience and social and demographic characteristics significant at  $P < .001$  for all covariates except survey round.

Table 2. Average Marginal Effects of Covariate Values on Sexual Experience Type: Respondents Aged 15 – 24, National Survey of Family Growth 2007 – 2013 (N = 10,125)

	<u>Oral Sex Only</u> Margin (SE)	<u>Oral Sex First</u> Margin (SE)	<u>Coitus Only</u> Margin (SE)	<u>Coitus First</u> Margin (SE)	<u>Same Occasion</u> Margin (SE)	<u>No oral sex or coitus</u> Margin (SE)
<b>Gender:</b>						
Female	0.058 (0.006)	0.249 (0.010)	0.061 (0.005)	0.255 (0.009)	0.081 (0.005)	0.296 (0.010)
Male	0.053 (0.004)	0.249 (0.014)	0.060 (0.007)	0.233 (0.010)	0.121 (0.006)	0.283 (0.009)
<i>F</i> ( <i>df</i> =1, 125)	0.07	0.34	0.14	0.05	21.54***	ref
<b>Race/Ethnicity</b>						
Hispanic	0.043 (0.006)	0.221 (0.014)	0.082 (0.009)	0.249 (0.013)	0.124 (0.013)	0.279 (0.014)
N-H. White	0.063 (0.005)	0.283 (0.011)	0.035 (0.004)	0.240 (0.010)	0.093 (0.006)	0.286 (0.010)
N-H. Black	0.047 (0.007)	0.196 (0.020)	0.106 (0.009)	0.289 (0.015)	0.109 (0.009)	0.254 (0.013)
N-H. Other	0.045 (0.020)	0.169 (0.031)	0.093 (0.036)	0.175 (0.023)	0.085 (0.019)	0.434 (0.027)
<i>F</i> ( <i>df</i> =3, 125)	2.03	7.95***	18.31***	14.60***	7.19***	ref
<b>Nativity status</b>						
Native-born	0.054 (0.004)	0.255 (0.009)	0.059 (0.006)	0.245 (0.007)	0.101 (0.004)	0.284 (0.008)
Foreign-born	0.054 (0.011)	0.186 (0.025)	0.071 (0.012)	0.237 (0.019)	0.101 (0.016)	0.352 (0.022)
<i>F</i> ( <i>df</i> =1, 125)	1.22	9.88**	0.29	6.33*	1.95	ref



	<u>Oral Sex Only</u>	<u>Oral Sex First</u>	<u>Coitus Only</u>	<u>Coitus First</u>	<u>Same Occasion</u>	<u>No oral sex or coitus</u>
	Margin (SE)	Margin (SE)	Margin (SE)	Margin (SE)	Margin (SE)	Margin (SE)
<b>Family Structure</b>						
Two-parent	0.060 (0.005)	0.246 (0.010)	0.056 (0.006)	0.217 (0.008)	0.081 (0.005)	0.340 (0.010)
Other	0.050 (0.005)	0.252 (0.012)	0.065 (0.006)	0.276 (0.010)	0.125 (0.007)	0.232 (0.009)
<i>F</i> ( <i>df</i> =1, 125)	2.16	34.94***	27.11***	68.89***	75.20***	ref
<b>Mother's Education</b>						
< High School	0.039 (0.006)	0.231 (0.019)	0.080 (0.011)	0.277 (0.017)	0.114 (0.013)	0.258 (0.015)
High School	0.050 (0.005)	0.257 (0.010)	0.059 (0.007)	0.248 (0.008)	0.099 (0.005)	0.287 (0.009)
College or more	0.075 (0.007)	0.244 (0.015)	0.050 (0.008)	0.218 (0.014)	0.099 (0.008)	0.315 (0.016)
No mother	0.065 (0.039)	0.264 (0.068)	0.021 (0.014)	0.244 (0.076)	0.078 (0.029)	0.329 (0.061)
<i>F</i> ( <i>df</i> =2, 125)	2.01	1.49	5.67**	4.45**	1.99	ref

Note: SE=Delta-method standard error. *F*=*F*-test for the outcome-specific effect of the predictor. Marginal effects are the increment to the probability of each outcome, estimated from the results of a multinomial logistic regression of sexual experience and holding all other covariates at their mean values.

\* *P* < .05; \*\* *P* < .01; \*\*\* *P* < .001

Table 3. Mean Age at First Coitus by Oral Sexual Experience, Full Sample and by Race/Ethnicity: Individuals Ages 15 – 24, National Survey of Family Growth 2007 – 2013. (N = 6,757)

	<u>First oral sex before coitus</u>		<u>No oral sex prior to first coitus</u>		<u>Same occasion</u>	
	Age	(SE)	Age	(SE)	Age	(SE)
Full sample	16.29	(0.08)	16.01 <sup>a</sup>	(0.07)	15.56 <sup>a, b</sup>	(0.12)
By race/ethnicity:						
Hispanic	15.98	(0.15)	16.09	(0.14)	15.44 <sup>b</sup>	(0.25)
Non-Hispanic White	16.55	(0.09)	16.23 <sup>a</sup>	(0.10)	15.87 <sup>a, b</sup>	(0.16)
Non-Hispanic Black	15.21	(0.16)	15.27	(0.11)	14.85 <sup>b</sup>	(0.18)
Non-Hispanic Other	16.65	(0.28)	16.54	(0.27)	15.70 <sup>c</sup>	(0.49)

Note: SE= Standard Error. <sup>a</sup>Mean differs from mean for oral sex first at  $P < .05$ ; <sup>b</sup>mean differs from mean for coitus first  $P < .05$ ; <sup>c</sup>mean differs from mean for oral sex first at  $P < .10$ .

Figure 1. Predicted Probabilities of Sexual Experience Type by Age at Interview: Respondents Ages 15 – 24, National Survey of Family Growth 2007 – 2013 (N = 10,125)

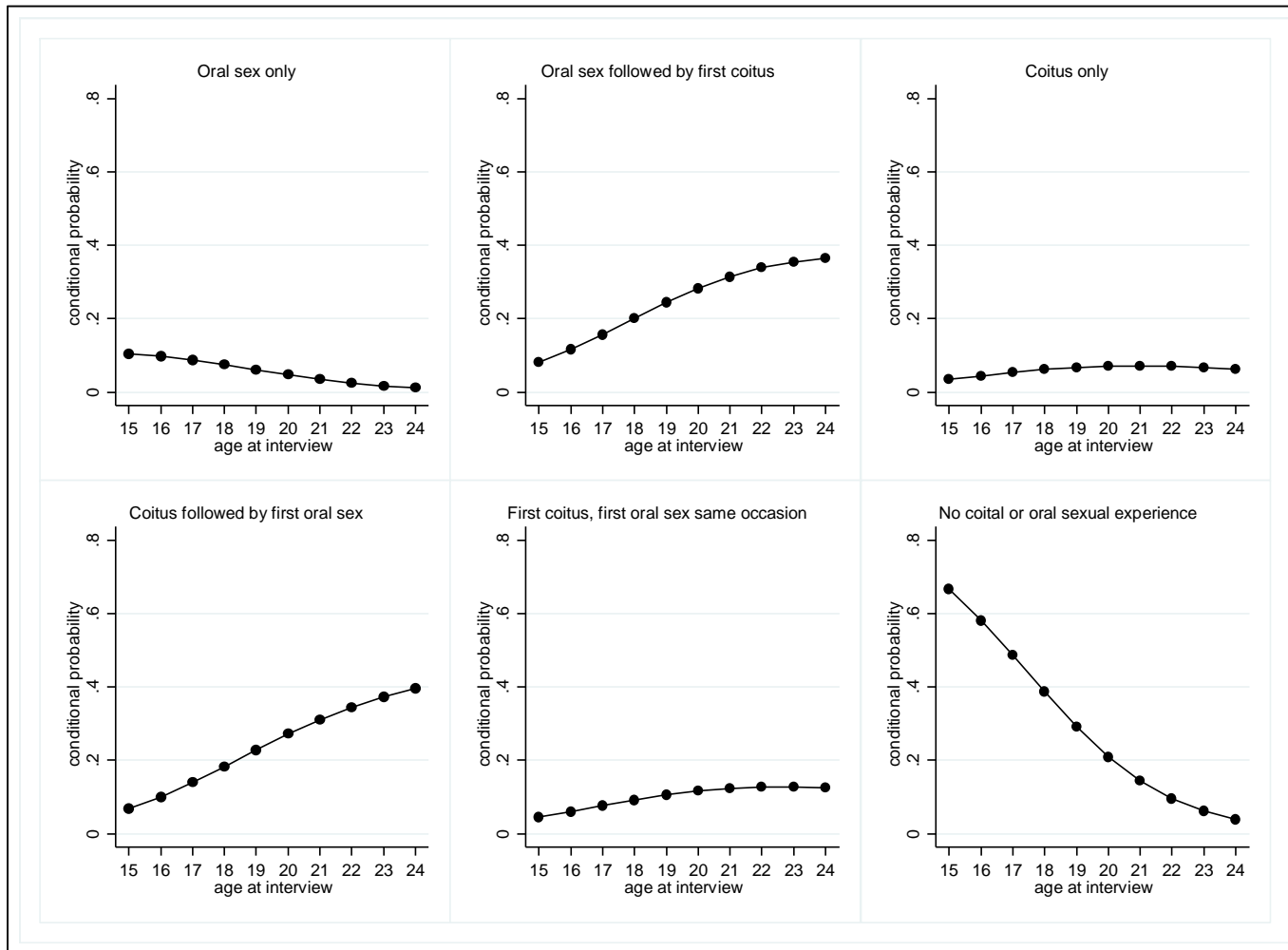
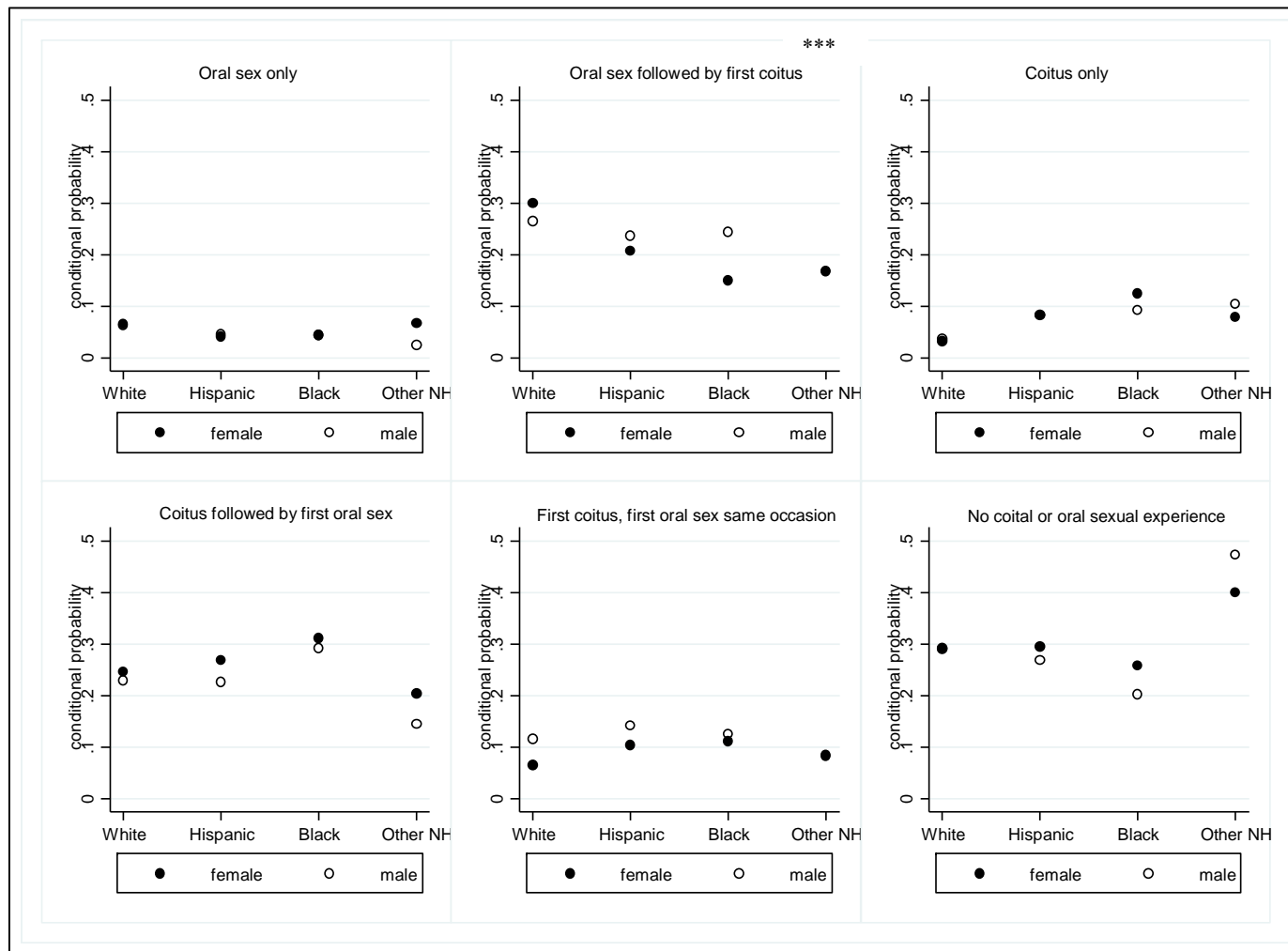


Figure 2. Predicted Probabilities of Sexual Experience Type by Sex and Race/Ethnicity: Respondents Ages 15 – 24, National Survey of Family Growth 2007 – 2013 (N = 10,125)



\*\*\* Gender difference for non-Hispanic Black youth significant at  $P < .001$

Appendix. Relative Risk Ratios from Multinomial Logistic Regression Models of the Ordering of First Oral and First Coital Sexual Experience: Respondents Aged 15 – 24, National Survey of Family Growth 2007-2013 (N = 10,125)

	Oral Sex Only	Oral Sex First (vs. No Oral or Coitus)	Coitus Only	Coitus First	Same Occasion
<b>Gender</b>					
Female (ref)	1.00	1.00	1.00	1.00	1.00
Male	0.96	1.07	1.06	0.98	1.61***
<b>Race/Ethnicity</b>					
Hispanic (ref)	1.00	1.00	1.00	1.00	1.00
N-H. White	1.42*	1.22	0.40***	0.92	0.71*
N-H. Black	1.19	1.01	1.47*	1.33	1.00
N-H. Other	0.64	0.37***	0.57	0.33***	0.33***
<b>Age at interview</b>					
	1.08*	1.66***	1.50***	1.71***	1.58***
<b>Survey period</b>					
2007 – 2010 (ref)	1.00	1.00	1.00	1.00	1.00
2011 – 2013	1.12	0.91	0.87	1.04	0.91
<b>Nativity Status</b>					
Native-born (ref)	1.00	1.00	1.00	1.00	1.00
Foreign-born	0.76	0.51**	0.88	0.67**	0.71
<b>Family Structure</b>					
Other (ref)	1.00	1.00	1.00	1.00	1.00
Two-parent	0.80	0.54***	0.49***	0.42***	0.36***
<b>Mother's Education</b>					
< High School (ref)	1.00	1.00	1.00	1.00	1.00
High School	0.77	1.29	5.76*	1.71	2.19
College or more	0.89	1.21	3.59	1.28	1.59
No mother	1.21	0.96	2.54	0.93	1.32

\* p≤0.05; \*\* p≤0.01; \*\*\* p≤0.001