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Sexual Initiation Patterns of US Sexual Minority Youth: A Latent Class Analysis

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Abstract

CONTEXT: Holistic examinations of sexual initiation are needed to understand implications for later sexual health; such examinations are not available for gay, lesbian, and bisexual sexual minorities [SM].

METHODOLOGY: Separate latent class analysis (LCA) identified patterns of sexual initiation among 1,628 SM females and 528 SM males in the National Longitudinal Study of Adolescent to Adult Health, Wave IV (2008), accounting for timing, sequence, and spacing of first oral, anal, and vaginal sexual encounter. Multinomial logistic regression assessed sociodemographic predictors of class membership.

RESULTS: SM female sexual initiation classes were characterized as ‘typical debut’ (41%; vaginal intercourse debut and short spacing between debut and second behavior); ‘dual-behavior debut’ (35%; oral sex + vaginal intercourse debut in same year); ‘early sexual debut’ (17%); and ‘delayed debut with oral sex,’ (6%). SM male sexual initiation was characterized as ‘single behavior debut’ (50%; oral sex initiation and long spacing between 1st and 2nd behaviors); ‘multi-behavior debut’ (32%; largely oral sex + vaginal intercourse in same year); ‘early anal sex’ (11%); and ‘very early debut’ (6%). Class membership was predicted by sociodemographic characteristics, including race/ethnicity, SES (females only), religiosity, and sexual victimization (males only).

CONCLUSION: Sexual initiation patterns of sexual minority adolescents reflect non-coital behaviors and characteristics beyond timing, yet current measures do not capture this variety. Researchers should consider adopting sexual initiation measures specific to SM populations.

INTRODUCTION

Throughout the sexual health literature, the single indicator ‘age of sexual debut,’ typically defined as age at first vaginal intercourse, has been used to link sexual and reproductive health (SRH) outcomes in young adulthood to early-life (sexual) experience and sexual risk.

One review of 65 studies found that earlier first vaginal intercourse was predictive of numerous lifetime risky sexual practices, including higher sexual partner counts, concurrent sexual partners, diagnosis of sexually transmitted diseases (STD), and transactional sex.¹ Informed by life course theory, which holds that adult attitudes, beliefs, and behaviors—including health behaviors—are determined not just by concurrent exposures, but by the accumulation of experiences across one's lifetime, and the timing/contexts of personally and developmentally significant milestones and transitions,^{2,3} this approach hypothesizes that sexual debut is one such critical 'life transition' *event*. The timing of the "critical transition" of first vaginal intercourse, dichotomized as transitioning from never having penis-in-vagina intercourse to having had this experience, is therefore theorized to have substantial implications for when and how the rest of one's sexual history and development unfolds.^{1,4}

For lesbian, gay, and bisexual sexual minority [SM] youth, however, penis-in-vagina intercourse may be less relevant to future sexual development. Though vaginal intercourse is common among SM adolescents,^{5,6} evidence from the qualitative literature suggests the emotional salience may differ between SM and heterosexuals. Previous studies have found SM respondents were significantly more likely than heterosexual peers to consider non-vaginal intercourse encounters (e.g., oral-genital contact) as 'sex,'⁷ identify a non-coital encounter as their own experience of virginity loss, or view vaginal virginity loss as just one stage in their overall sexual process, rather than as an emotionally meaningful 'gift' given to a partner.⁸ Most relevant to the present study, one focus group of SM adults (n=18) spoke of multiple virginity losses—distinguishing between first same-sex and other-sex encounters—and noted that typical virginity rhetoric (and its emphasis on heterosexual coitus) made the concept of virginity difficult to define, if not explicitly irrelevant, to SM populations.⁹

Determinants of sexual initiation (and early life sexual risk) may also differ by sexual orientation. Among the general [heterosexual] population, more religious adolescents typically report older age at first vaginal intercourse or a higher likelihood of remaining a virgin than less religious peers (see Cotton [2006]¹⁰), yet the opposite has been seen in SM samples, among whom religiosity has been found to be predictive of increased sexual risk.^{11–13} SM youth also report higher rates of behaviors and socio-environmental exposures associated with both earlier and riskier (without contraception; while intoxicated; etc.) sexual initiation, including sexual victimization.^{14–17} Given that across-sexual orientation differences exist in both sexual risk and sexual risk factors, SM specific measures and models of adolescent sexual initiation are needed.

The narrowly-defined operationalization of 'sexual debut' as the singular experience of vaginal intercourse ignores the fact that adolescent sexual experience often includes oral sex and, to a lesser extent, anal sex, and that timing and contexts of all of these behaviors may be important for later sexual health. An alternate life course-informed approach is to conceptualize sexual debut as a 'multiphasic' *succession of events* that, together, are important for future sexual development and trajectories. Both sequence and spacing of initiation behaviors may independently--and jointly--have important implications for SRH. Vastly different initiation sequences may reflect individual differences (e.g., higher sensation seeking, greater erotophilia) and/or contextual differences (e.g., opportunity/availability of partners, social/peer norms around sexuality and sexual orientation), which could intersect

with timing in important ways. From a developmental perspective, for example, we know that closer behavioral spacing (i.e., faster pace) could signal earlier pubertal timing, which has been linked with earlier vaginal initiation, multiple and riskier sexual behaviors during adolescence, possibly because ‘early’ physical developers may not possess the emotional maturity necessary to ‘handle’ sexual and romantic relationships, or may lack access to similarly aged—and similarly physically developed—peers.¹⁸

Recent studies have adopted this broader interpretation and explored how sequence and timing of multiple sexual behaviors are associated with later life SRH. Reese, Haydon, Herring, and Halpern (2013) found that, among heterosexual females respondents in the National Longitudinal Study of Adolescent to Adult Health (Add Health), teen pregnancy risk differs based on first behavior initiated: females who initiate with oral sex, or with multiple behaviors in the same year, have lower odds of a teen pregnancy than those who initiate with vaginal intercourse. Haydon and colleagues conducted a latent class analysis (LCA) to empirically derive *patterns* of sexual initiation, incorporating information about age of first oral, anal, and vaginal sex encounter, and the ‘timing’ (chronological age), ‘sequence’ (temporal order of behaviors; overall behavioral count), and ‘spacing’ (years between first instance of each encounter) of these behaviors, among a sample of exclusively heterosexual respondents (defined as reporting exclusively other-sex partners throughout their lifetime) within the nationally-representative Add Health.¹⁹ Respondents were characterized into one of five different ‘classes,’ each reflecting a distinct sexual initiation pattern incorporating the aforementioned information. Numerous differences in adolescent characteristics predicting class membership, and young adulthood SRH outcomes associated with membership, emerged. Respondents in the “postponers” class (defined partly by reporting the oldest age of debut of any behavior) reported higher parental relationship quality in adolescence than all other classes, and were less likely than “vaginal initiators/multiple behaviors” (the largest class, initiated with vaginal intercourse, also engaged with multiple other behaviors in the same year) to have ever been diagnosed with an STD or to report recent concurrent sexual partners.^{20–21}

Though these findings suggest that broader approaches to measuring sexual initiation may be necessary, as Haydon and colleagues’ sexual initiation classes were constructed among a heterosexual sample, the utility of the resultant initiation patterns for sexual minority-focused analyses remains unclear. While we know a bit about typical sexual behavior timelines for heterosexual youth,^{22,23} virtually nothing is known about what is typical or relevant for sexual minority youth. Following, the dimensions going into class construction (timing, spacing) can serve as proxies for multiple intersections that data on sexual minority SRH may not explicitly capture. Several studies have noted that SM adolescents engage in non-coital encounters (e.g., oral and anal sex) at different times, and in different sequences, than heterosexual peers, and preliminary evidence suggests differences exist between SM males and females: One study of sexually active female high school students in California found that SM females were significantly more likely than exclusively heterosexual females to have engaged in oral sex and anal sex, but were significantly less likely to have had heterosexual vaginal intercourse,²⁴ whereas a study of gay and bisexual adolescent males (aged 15–22) based in Chicago and Miami found that respondents were significantly more likely to have engaged in oral and/or anal sex with a male partner, than vaginal intercourse

with a female partner.²⁵ However, these studies have exclusively drawn from small, non-representative, single-sex samples.

A related limitation of existing data on SM sexual initiation is the lack of exploration of within-SM differences by characteristics such as race/ethnicity and socioeconomic status. Understanding differences in sexual initiation patterns may be critical to understanding later life SRH disparities. For example, race/ethnicity strongly moderates the stressors SM youth encounter. SM adolescents of color report higher rates of bullying, skipping school due to safety concerns, and suicidal ideation than their white SM peers,²⁶ as well as higher rates of STDs in young adulthood.²⁷ Understanding the intersecting influences of multiple demographic and contextual characteristics on sexual initiation may elucidate potential points of intervention, and further understanding of the social determinants of later-life SRH.

The present study will address these gaps by replicating the sexual initiation LCA conducted by Haydon and colleagues among an exclusively sexual minority population, stratified by biological sex, using data from the nationally representative Add Health Study. This study will also explore sociodemographic differences of resulting classes, addressing a major gap in the sexual minority adolescent literature. This will be the first study to develop a model of sexual initiation specific to lesbian, gay, and bisexual SM adolescents, as well as the first to utilize a large, racially and socioeconomically diverse, nationally representative sample to explore differences between and within biological sex.

METHODS

Data and Sample

This project uses data Add Health, an ongoing prospective study of a nationally representative probability sample of 20,745 adolescents in grades 7–12 during the 1994–1995 school year. To date, four waves of in-home interviews have been completed, most recently in 2008 (n=15,170), when respondents were aged 24–32. Detailed information on the Add Health study design is reported elsewhere.²⁸

Inclusion in the present analysis was limited to sexually experienced (engaged in at least one sexual behavior [i.e., oral, anal, or vaginal sex] as of the Wave IV interview) sexual minority respondents who participated in Waves I and IV, had a valid sampling weight, and non-missing data on all sexual initiation indicators and model covariates. Following approaches utilized elsewhere,^{29–31} a respondent was considered a sexual minority if they self-reported a lifetime history of one or more same-sex sexual partners at the Wave IV interview, and/or if they self-identified as “mostly heterosexual,” “bisexual,” “mostly homosexual,” or “100% homosexual.” Respondents who identified as 100% heterosexual but reported a previous same-sex partner, as well as respondents who provided a sexual minority response on one indicator but did not provide a report on the other indicator (n=6), were included as well.

Measures

Sexual Orientation Indicators: In addition to Sexual Identity and Lifetime Sexual Partnering (Other-sex only; Other-sex + Same-sex; Same-sex only) as described above, Pre-18 Sexual Partnering (same categories, with addition of None) was constructed from

summing Wave IV retrospective self-reports of the number of male and female sexual partners—“*considering all types of sexual activity*” the respondent had prior to age 18.

Sexual Initiation Indicators (class components): Five separate indicators of sexual initiation were constructed based on self-reports from the Wave IV interview. Indicators replicated those used by Haydon et al (2012)¹⁹ in the heterosexual sample (including coding schemes, unless otherwise indicated), allowing for comparisons of initiation patterns across sexual orientation.

Respondents were asked (in separate questions) if they had ever had vaginal intercourse (“*when a man inserts his penis into a woman’s vagina*”), oral sex (“*a partner put his/her mouth on your sex organs or you put your mouth on his/her sex organs*”), and anal intercourse (“*when a man inserts his penis into his partner’s anus or butt hole*”), and, if answered in the affirmative, their age at “*the very first time*?” Using these answers, five indicators were constructed: **Number of Types of Sexual Behaviors**, defined as the number of the three behaviors assessed (e.g. oral, anal, and vaginal sex) the respondent had ever engaged in over their lifetime (range 1–3). **First Sexual Encounter**, reflected the earliest sexual behavior the respondent engaged in, and was categorized in the interest of parsimony (Vaginal Intercourse only/ Oral Sex only/ Vaginal Intercourse + Oral Sex in same year/ Anal Intercourse without Vaginal Intercourse [includes anal intercourse-only & anal intercourse + oral sex in same year]/ Anal Intercourse + Vaginal Intercourse in same year [with or without oral sex in same year]) with the two anal intercourse categories included as unique categories for the present analysis, reflecting common patterns seen in the SM sample. **Timing of First Sexual Behavior**, reflected initiation age at earliest sexual behavior of the three assessed (range: 10–29 [all ages reported as less than 10 years old were coded as 10]). **Spacing Between 1st and 2nd Behavior**, reflected the number of years lapsed between initiating first and second sexual behavior (1 year/2 years/ 3–5 years/6+ years/ Single Lifetime Behavior/ Multi-Behavior debut [multiple behaviors initiated during same year of age]). Finally, **Anal Sex Before Age 18**, was included as a dichotomous variable (yes/no).

Sociodemographic Predictors: Several sociodemographic characteristics (measured at Wave I/adolescence, unless otherwise indicated) were included as predictors of sexual initiation, based on their strong associations in the general adolescent literature with timing of sexual debut and adolescent sexual risk:^{32,33} Demographic characteristics included **Wave IV Age** (categorized as 24–26/ 27–29 [*Referent*]/ 30–34); **Race/Ethnicity** (Hispanic Ethnicity-any Race/ Non-Hispanic (NH) –White [*Referent*]/ NH-Black/ NH-Asian) based on respondents’ self-report at Wave I, with supplemental self-reported race/ethnicity from Wave III used as needed; **Parental Educational Attainment** (Less than High School [HS]/ HS diploma or GED/ Some college or post-HS education/Bachelor’s Degree or Higher [*Referent*]), a proxy measure for Wave I socioeconomic status, defined as the highest educational level obtained by 1 respondent’s parent/guardian; and **Neighborhood poverty**, reflecting the proportion of families in the respondents’ Census block group with dependents younger than 18 years and income below the federal poverty level (FPL) in 1989, categorized as low (<11.6% of families below FPL; referent), medium (between 11.6% and 23.9% below FPL), and high (>23.9% below FPL).³⁴

Two measures of religiosity were included, based on evidence that sexual orientation may moderate the association between religiosity and sexual initiation.¹² **Past year public religious participation**, was constructed by summing responses (4-item Likert scale, 0=never; 3= once/week) to two measures, ‘*frequency of attending religious services*’ and ‘*frequency of participating in religious youth activities*’ (standardized Cronbach’s $\alpha=0.77$). Possible scores ranged from 0–6. **Private religiosity** was constructed by summing responses to two measures (standardized Cronbach’s $\alpha=0.86$): “*how important religion is to you*” (4-item Likert scale; 0= not important at all; 3=very important), and “*how often do you pray*” (5-item Likert scale; 0= never; 4=once/day). Possible scores ranged from 0–7. For both measures, higher scores indicated stronger religiosity.

Several measures of ‘pre-debut’ sexual victimization were included (all reported at Wave IV), to assess how victimization may influence debut, as well as control for non-consensual initiation experiences: **Childhood sexual abuse** (CSA), which reflected encounters (“*touched you in a sexual way, forced you to touch him or her in a sexual way, or forced you to have sexual relations*”) perpetrated by a parent or adult guardian before age 18, and two measures which reflected encounters perpetrated by a non-parent/caregiver: **Physically forced sex** (“*forced physically to have any type of sexual activity against your will*”); and **Coerced sex** (“*forced non-physically*”). The latter two variables were treated separately because of biological sex differences in prevalence. An indicator of **Any Sexual Victimization**, which reflected experience of at least one of the aforementioned forms of victimization was also included. Only victimization encounters that first occurred before or at the respondent’s age at their earliest debut experience were included.

Approach

To develop a broader measure of sexual initiation, we used the person-centered approach of latent class analysis (LCA). In LCA, multiple observable variables (‘indicators’) are used to capture a single unobservable (latent) construct, and *respondents* who are highly similar to each other, but highly distinct from other respondents on indicator variables, are grouped together in a class.³⁵

After identifying the sexual minority sample, sexual initiation indicator variables were constructed in STATA (v. 13.0),³⁶ and descriptive bivariate analyses (chi²-test [categorical variables], F-tests [continuous variables]) were conducted to compare biological sex differences in the distributions of sexual orientation and sexual initiation (Table 2). Sexual initiation indicators were then output to Latent Gold, a specialized latent class software package, to conduct the LCA. LatentGold was selected for its ability to handle survey weights, categorical and continuous indicator variables, and ease of use.³⁷ Within biological sex, parallel solutions ranging from 1 to 9 classes were fit and compared, incorporating survey weights, adjusting for the complex Add Health survey design, and utilizing 250 iterations/250 start values to avoid producing a local solution. No a priori hypotheses were made about the number or structure of the resulting classes; determination of the final number of classes was based on interpretability of solutions, size of resultant classes, goodness-of-fit-tests (AIC, BIC, CAIC, and entropy; lower AIC/BIC/CAIC, and higher entropy, indicate better fit), and violations of local independence.³⁸

Once the solution was selected, respondents were ‘assigned’ to the single class for which their posterior probability of membership was highest, and class membership assignment was output to STATA for subsequent analyses: Descriptive bivariate were conducted to explore within-class distributions of sexual orientation and sociodemographic characteristics, as well as test for significant differences between classes (within biological sex). Finally, multinomial logistic regression models, regressing class membership on sociodemographic predictors, were fit to assess whether sociodemographic characteristics were associated with likelihood of class membership (e.g., if Black males were more likely than White males to be assigned to class i).

RESULTS

Sample Characteristics

A total of 2,154 sexual minority respondents were included for analysis; the majority were non-Hispanic White, aged 27–29, and spent adolescence in a moderately educated (some college or Bachelor’s degree or higher) household in a low poverty neighborhood (Table 1). The sample was majority female, largely due to differences in the number of respondents self-identifying as mostly heterosexual, which was reported by significantly more females than males (endorsed by 66% females vs. 42% males, respectively, $p<.001$; Table 2).

There were significant differences in sexual initiation by biological sex (Table 2). For example, females reported an age of first sexual encounter approximately half a year earlier than males (15.5 vs. 16.2, respectively; $p<.05$), a higher proportion of males than females had engaged in only a single behavior over their lifetime (16% vs. 4%; $p<.001$), and the most common initiation behavior was vaginal intercourse for females and oral sex for males.

Patterns of sexual initiation

Overall, sexual initiation involved non-vaginal intercourse behaviors for the majority of the sample. Only 33% of respondents (41% females /20% males) initiated exclusively with vaginal intercourse, and over 28% (19% females /62% males) reported an initiation pattern that did not include vaginal intercourse at all (Table 2). After comparing the 1–9 class solutions (Supplemental Material) fit statistics indicated that either a 4- or 5-class solution was the best fit for both males and females. For females the 5-class solution produced a class that was indistinguishable from others, and for males, the 5-class solution produced two classes with small cell sizes (<40), so a 4-class solution was selected for both. Local independence violations were considered by examining bivariate residuals (BVR) between each of the indicators; BVR greater than 1.0 were considered indicative of a violation. Two indicator pairs were above this threshold for females (first sexual act/ anal sex prior to age 18; spacing between 1st and 2nd behavior/anal sex prior to age 18). To account for this violation, a local dependent model was fit, conditioning on first the former pair, which had the larger BVR of the two pairs, then on the second pair, until no further BVR violations were noted. For males, one indicator pair was above this threshold (spacing between 1st and 2nd behavior/anal sex prior to age 18); conditioning on this pair resulted in no further violations. As the 4-class, local dependent solutions explained approximately 84% of the variance in sexual initiation indicators for females, and approximately 97% of the variance

for males; as well as produced low classification errors for both (8% for females; 1% for males), these solutions were selected.

Distributions of sexual initiation indicators (Table 3) were explored to determine the defining characteristics of each class. As respondents were assigned to the class for which they had the highest probability of membership, there was some within-class variability in sexual initiation patterns; following, labels for each class discussed below are based on the modal distribution for the class. In addition, though not used to define the initiation classes, differences in sexual identity/partnering history (Table 4) across classes were also explored.

For SM females, **the largest class, “typical debut”** (41%; n=655) was characterized by an initiation pattern similar to that of the whole female sample (e.g., timing of first sexual encounter [15.3 years] close to average age for all females [15.5 years]). Females in this class reported the shortest spacing between their 1st and 2nd sexual behavior (>69% of females in this class had spacing of 1–2 years), and largely initiated with vaginal intercourse (58%), though approximately 15% debuted with multiple behaviors. Typical debut females were the most likely to have engaged in early-life (e.g., pre-age 18) bisexual sexual partnering, with 17% females in this class having done so, relative to 11%–16% in other classes.

All females assigned to the **second-largest class, “dual behavior debut”** (35%; n=564), initiated with multiple behaviors, ~96% of whom did so with vaginal intercourse and oral sex. Females in this class were largely ‘minority-identified/heterosexually experienced;’ relative to other classes, they had the highest probability of identifying as mostly heterosexual, yet also had highest probability of lifetime partnering exclusively with men.

Females in **the third class, “early sexual debut”** (17%; n=293), reported the youngest timing of first behavior (mean age=13.3), but the longest spacing between 1st and 2nd behaviors (21% of females in this class waited 6+ years). All respondents reported a single-behavior debut (88% with vaginal intercourse). Early anal intercourse was common, with a little under 28% engaging in anal sex before age 18. Early sexual debut females were the most likely to report lifetime bisexual partnering (reported by 67% respondents, compared with 43%–61% of females in other classes), though largely did not do so until later in life, with 84% reporting exclusively male partners before age 18.

Females in the **fourth class, “delayed debut with oral sex”** (6%; n=116), reported the oldest average age of debut (mean=18.1 years old), and were the most likely to report oral sex as their initial—if not only--sexual behavior (these females were the most likely to have engaged in a single sexual behavior in their lifetime). This class contained the most ‘consistent’ SM females: this class had the highest proportion of females identifying as bisexual, mostly homosexual, or 100% homosexual, as well as all the highest proportion of females reporting either bisexual or exclusively same-sex partnering both prior to age 18, and across their lifetime (all females reporting exclusively same-sex lifetime sexual partners were in this class, comprising 27% of the class).

Initiation classes for males followed somewhat similar patterns, though the behaviors that defined each class, and the relative size of each class, differed. As with females, the **largest**

male class, “single-behavior debut” (50%; n=273) was distinguished by an exclusively single behavior initiation. However, whereas the majority of females in the typical debut class initiated with vaginal intercourse, the majority of males in this class (76%) initiated with oral sex (an additional 23% initiated with vaginal intercourse, the largest proportion of any of the classes), and did so approximately 1 year later than the typical debut females. This class also included the highest proportion of males who had engaged in only a single lifetime behavior (14%).

The **second male class, “multi behavior debut”** (32%; n=169) was distinguished by the oldest timing of first encounter, which largely involved dual initiation with vaginal intercourse+ oral sex during the same year of age (82%), somewhat paralleling the female sample. In contrast to females, an additional 13% initiated with anal intercourse +oral sex, and 6% initiated with all three behaviors. As with females, this class largely contained ‘sexual minority-identified/heterosexually experienced’ respondents. More than one third (35%) reported only other-sex lifetime sexual partners (the largest proportion of any class), yet only 19% identified as exclusively heterosexual.

Whereas a single early debut class (who typically initiated with vaginal intercourse) emerged for females, early initiation characterized the *two* remaining male initiation classes, each defined by a different initiation behavior: The **third male class, “early anal sex”** (11%; n=52) was distinguished by early engagement with anal intercourse, with ~65% reporting an initiation that involved anal intercourse (56% either as a single behavior or with oral sex), and 100% engaging in anal intercourse before age 18. This class contained the ‘most consistent’ sexual minority males, including the highest within-class proportion of bisexual or 100% homosexual identified males, as well as the highest proportion reporting lifetime same-sex sexual partners.

The **fourth male class, “very early debut,”** (6%; n=32) was distinguished by a mean age of first encounter 10 years old, and long spacing between 1st and 2nd sexual behavior (77% reported spacing of 6+ years). All respondents initiated with a single behavior, typically oral sex (81%). This class contained the highest proportion of homosexually-experienced-heterosexuals, as well as the highest proportion reporting lifetime bisexual partnering.

Bivariate associations

Among females, significant associations between class membership and sociodemographics emerged for all variables but age (Table 5). The dual behavior class contained a significantly higher proportion of White females than other classes, whereas the early debut class contained a significantly higher proportion of Black females, and lower proportion of Asian females. Females in both the early and typical debut classes were significantly more likely to be from lower SES backgrounds (e.g. high poverty neighborhoods, households with college-educated parents) during adolescence, however, these classes differed notably in terms of sexual victimization: Early debut females were the most likely class to have experienced any form of sexual victimization prior to their sexual debut, whereas those in the typical debut class were the least likely.

Among males, only sexual victimization significantly predicted class membership: Males in the early anal sex class were the most likely to report all forms of sexual victimization before sexual debut, and were significantly more likely to have experienced victimization than those in the multi behavior debut class, who were the least likely to report victimization.

Multivariate Associations

Among females, sexual initiation was significantly associated in final multivariate models (Table 6) with all sociodemographic predictors, except for age and sexual victimization. After adjusting for all sociodemographic characteristics, black females were significantly less likely to be in the dual behavior debut class (RRR: 0.47) than the referent typical debut class, as were those from families with less than HS education (RRR: 0.40) or HS diploma/GED (RRR: 0.64); in contrast, females from moderate neighborhood-level poverty were more likely to be in this class (RRR: 1.48). Females who reported stronger private religiosity (RRR: 1.11), and weaker public religiosity (RRR: .89) were significantly more likely to be in the early debut class, as were those who were Black (RRR: 2.22). Those with stronger private religiosity were also significantly more likely to be in the delayed debut class (RRR: 1.22).

Among males, sexual initiation was partially associated with all variables but neighborhood poverty. Hispanic males were significantly more likely to be in the early anal sex class (RRR: 3.02), and younger males (aged 24–26) were significantly less likely to be, relative to the referent single debut class. Asian males were significantly less likely to be in the very early debut class (RRR: 0.15), as were those with higher public religiosity (RRR: 0.81) and who reported CSA prior to sexual debut (RRR: 0.07). Those who experienced CSA prior to debut were also less likely to be in the multi-debut class (RRR: 0.25), as were those who grew up in a household where the highest level of parental educational attainment was a HS degree/GED.

DISCUSSION

In this study, we identified eight unique patterns of sexual initiation among sexual minorities, with patterns differing by timing, sequence, and initiating behaviors. Results differed from those seen among the heterosexual respondents examined by Haydon and colleagues (2012).¹⁹ For example, over 39% (51% females/29% males) of heterosexuals (vs. 33% of SM respondents) initiated exclusively with vaginal intercourse, and 17% of heterosexuals (vs. 28% SM respondents) initiated with a behavior other than vaginal intercourse. Taken together, results highlight how an exclusive focus on vaginal intercourse as ‘sexual initiation’ can misclassify sexually active adolescents as ‘pre-debut,’ particularly those who are sexual minorities.

Among the sexual minority sample, notable sociodemographic differences in initiation patterns emerged within biological sex: For example, black women were significantly more likely to be in the early debut class, and significantly less likely to be in the dual initiation class, both in the bivariate models, and after adjusting for other sociodemographic predictors. As the early debut class reported several indicators traditionally associated with

sexual risk, including earliest age of sexual debut (with less than 0.5% reporting no sexual partners before age 18), and highest likelihood of early anal sex, this result replicates findings in the general adolescent health literature that black females typically report more sexual risk taking (particularly earlier ages of vaginal intercourse initiation) than other-race peers, regardless of sexual orientation.^{39,40} Taking an intersectional approach, these results may reflect the ‘triple jeopardy’ faced by black SM females, who, as they exist at the intersection of three minority identities, may face unique stressors and stigmas which lead to increased sexual risk.^{41,42} That females in the early debut class were also significantly more likely than all other classes to experience at least one form of sexual victimization before sexual debut in bivariate models further corroborates this hypothesis. Though there were no significant differences between black and white males, Hispanic males were significantly more likely to be in the early anal sex class, and Asian males were significantly less likely to be in the very early debut class in final multivariate models, highlighting how the intersection of race/ethnicity and sexual orientation may influence sexual initiation for SM males as well.

Religiosity emerged as a significant predictor for both females and males. In final multivariate models, stronger public religiosity, reflecting religious participation, was associated with lower likelihood of early debut class membership for females, and very early debut class membership for males. As religious participation has often emerged as protective against sexual risk, including earlier sexual initiation, for heterosexual adolescents,^{10,43} findings suggest this protective effect may extend to sexual minorities. However, at the same time, stronger *private* religiosity, reflecting internal religious feelings and spirituality, was associated with *higher* likelihood of membership in both the early debut class and delayed debut classes for females (no significant associations emerged for private religiosity for males), a finding which is seemingly contradictory both to the public religiosity results, as well as to itself. Consideration of other demographic characteristics of these classes may offer an explanation: Though largely measured in SM male samples, previous studies exploring the impact of religiosity and religious climate on sexual health risk (e.g., more sexual partners, HIV and STD diagnosis) among sexual minorities, have noted that those who are affiliated with less gay-affirming denominations perceive their religious identity and sexual identity to be in conflict, leading to internalized homophobia and depression which subsequently increase risk of risky health behaviors—particularly for sexual minorities from racial/ethnic backgrounds such as black and Hispanic, for whom religion has traditionally played a central role in norms and values.^{11,44,45} That the early debut class had a larger proportion of black females, and the delayed debut class had a larger proportion of white females, may therefore explain these findings. Though we are unable to test these hypotheses, our results suggest that religion may be an important contributor to sexual behavior among SM females, and potentially worthy of targeting for future interventions.

This study has several limitations. Most notably, the biological sex of the partner involved in each initiation experience was not reported, so initiation patterns likely reflect a mixture of both same-sex and other-sex encounters (e.g., an oral sex encounter could be with either a male or female partner). Given qualitative evidence that first same-sex encounters may carry different emotional salience than first other-sex encounters,^{7–9} future studies should aim to distinguish between first same-sex and other-sex oral, anal, and vaginal sexual encounters. A

second limitation is that our sample is predominantly female, likely due to our operationalization of sexual minority, which included self-identification as ‘mostly heterosexual (endorsed by over 66% of females versus 41% of males). However, this pattern conforms to prevailing theories of the greater fluidity in how women conceive of their sexual identity.^{46–50} A third limitation is the potential for recall bias and misreported initiation ages, given retrospective reporting. However, a previous study found that over 85% of Add Health respondents were able to consistently report age of vaginal sex initiation between Waves III and IV (7 years apart),⁵¹ suggesting a high level of reliability in adult retrospective reports of early life sexual behavior. It is unclear if findings would be replicated with reports of oral and anal sex. Finally, results may be limited by the age of the data---though the majority of data for the present study were reported in 2008, the Add Health sample reflects the experiences of individuals who were in high school in 1994–95, and therefore may not be generalizable to the experiences of adolescents in high school today. Given that encountered stigma, victimization, and harassment have been linked with increased sexual risk among SM youth,^{14,52–56} societal and political shifts around homosexuality and LGBT individuals, and increased social acceptance of SM groups in recent years^{57,58} may mean that contemporary SM sexual initiation patterns do not resemble those seen in the present study.

However, this study has several notable strengths. To the authors’ knowledge, this represents the first attempt to understand sexual initiation patterns specific to SM populations, and the first to incorporate measures of multiple sexual behaviors. Use of LCA to model sexual initiation as a behavioral pattern, rather than a single dichotomous behavior, in this population is novel. Further, this methodology allows patterns to ‘emerge’ from the data, reflecting individuals’ own experiences, rather than assumptions about ‘typical’ or critical sexual initiation patterns. Perhaps most importantly, this study serves as a reminder to both clinicians and researchers of the importance of collecting information on sexual behaviors other than just vaginal intercourse. Existing sexual initiation measures suffer from a heteronormative view of sex that focuses almost exclusively on vaginal intercourse, which, by doing so, may lead to missed opportunities for health counseling and screening. For example, the approximately 20% of males who initiated with anal sex (but not vaginal intercourse, Table 3) would be viewed as virgins, and subsequently at low sexual risk, despite the fact that anal intercourse carries substantially higher risk of HIV/STD transmission than vaginal intercourse. Further, respondents who initiated with vaginal intercourse + oral sex in the same year (e.g., females in the dual initiators class, 96% of whom initiated with vaginal intercourse + oral sex) differed from those who initiated with vaginal intercourse alone (e.g., females in the typical debut class or early debut class, 58% and 89% of whom initiated with vaginal intercourse, respectively; Table 3), a nuance that would be missed if only vaginal intercourse were considered. Taken together, these findings highlight the importance of considering multiple sexual behaviors when assessing sexual initiation, particularly among SM youth.

From a research perspective, this is also a particularly salient reminder in light of recent and upcoming changes in the collection of sexual orientation data. Several nationally representative surveys have begun to include measures of sexual orientation, including the National Health Interview Survey (NHIS), which first incorporated a measure of sexual

identity into their nationally-representative survey of health care utilization in 2013,⁵⁹ and the YRBS, which included measures of both sexual identity and other-sex /same-sex sexual partnering behaviors in the standard demographic questionnaire portion in 2015, mandating its collection in any site administering the YRBS.⁶⁰ Similarly, it was announced in 2015 that, under the upcoming Stage 3 Meaningful Use roll-out of electronic health records (EHR) across US health care settings, all EHR systems must include space to assess both sexual orientation and gender identity of the patient, to be eligible for enhanced Medicaid/Medicare reimbursements.⁶¹ Though these changes will dramatically increase the availability of sexual orientation data, as suggested by the present study, it is crucial to ensure that any study of SM health is able to include behavioral indicators and predictors most relevant to SM individuals.

In conclusion, these results allow for further explorations that build off the present descriptive work, and situate the initiation classes in larger models predicting later-life sexual and reproductive health. Future studies will aim to devise a sexual minority-specific model of the pathways from sexual initiation to young adult sexual and reproductive health that account for the social determinants, stressors, and contexts unique to sexual minority individuals.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1.

Selected sociodemographic characteristics of the sample, sexual minority respondents in Waves I and IV of the National Longitudinal Study of Adolescent to Adult Health, by biological sex (n=2,154)

	Total (n=2,154)	Females (n=1,628)	Males (n=526)
Race/Ethnicity, %			
<i>Hispanic</i>	12.8	11.8	15.6
<i>NH-Black</i>	11.7	11.6	11.9
<i>NH-Asian</i>	3.3	3.4	2.8
<i>NH-White</i>	72.3	73.3	69.7
Wave IV Age, %			
<i>24–26</i>	22.6	25.1	15.8
<i>27–29</i>	52.7	53.7	50.0
<i>30–34</i>	24.7	21.2	34.3
Parental Education Level, %			
<i>< HS</i>	11.5	11.0	12.6
<i>HS diploma/GED</i>	25.4	26.5	22.3
<i>Some college</i>	29.7	30.8	26.7
<i>BA+</i>	33.5	31.7	38.3
Neighborhood Poverty, %			
<i>Low</i>	57.2	56.9	58.0
<i>Medium</i>	21.5	22.3	19.3
<i>High</i>	21.3	20.8	22.8
Religiosity, mean			
<i>Public (1–6)</i>	2.5	2.5	2.6
<i>Private (1–7)</i>	4.3	4.4	4.1
Sexual Victimization Prior to Debut, %			
<i>Coerced Encounter</i>	13.0	15.4	6.4
<i>Physically Forced</i>	8.7	9.9	5.6
<i>Sexual Abuse</i>	10.0	11.0	7.1
<i>Any</i>	21.0	23.8	13.0

SE= Standard Error; NH= Non-Hispanic

All column percentages weighted to reflect Add Health complex sampling design. Percentages may not add to 100 due to rounding and weights

Table 2.

Distribution of sexual orientation characteristics and sexual initiation indicators among respondents, by biological sex

	Total (n=2,154)	Females (n=1,628)	Males (n=526)
Sexual Orientation			
Sexual Identity, %^{***}			
<i>100% Heterosexual^a</i>	18.3	17.1	21.7
<i>Mostly Heterosexual</i>	59.7	66.3	41.4
<i>Bisexual</i>	9.1	9.6	7.8
<i>Mostly Homosexual</i>	4.4	3.4	7.3
<i>100% Homosexual</i>	8.5	3.6	22.0
Lifetime Sexual Partnering, %^{***}			
<i>Other-sex only</i>	37.3	40.8	27.8
<i>Same sex + other-sex</i>	56.3	57.5	52.9
<i>Same-sex only</i>	6.4	1.7	19.3
Pre-18 Sexual Partnering, %^{***}			
<i>None</i>	20.9	17.7	29.8
<i>Other sex only</i>	57.6	65.7	35.1
<i>Other sex + same sex</i>	15.7	14.5	19.3
<i>Same-sex only</i>	5.8	2.1	15.9
Sexual Initiation Indicators			
Number of types of sexual acts, mean^{***}			
	2.56	2.61	2.40
Timing of first sexual encounter (age), mean[*]			
	15.67	15.49	16.17
Anal sex Before age 18, %^{***}			
	13.4	11.0	20.2
Spacing Between 1st and 2nd Behaviors (yrs), %[*]			
<i>Multi-behaviors</i>	41.3	40.9	42.4
<i>1</i>	19.8	19.9	19.6
<i>2</i>	12.6	13.5	9.9
<i>3–5</i>	14.5	15.3	12.2
<i>6+</i>	7.1	6.8	8.2
<i>Single lifetime</i>	4.6	3.5	7.8
First sexual behavior, %^{***}			
<i>VI first</i>	32.9	40.7	11.7
<i>OS first</i>	24.8	18.2	43.1
<i>AI, no VI</i>	3.4	0.3	12.0
<i>VI/OS</i>	35.1	36.8	30.3
<i>AI/VI</i>	3.8	4.1	2.9

VI= Vaginal Intercourse; OS= Oral Sex; AI= Anal Intercourse

All column percentages weighted to reflect Add Health complex sampling design. Percentages may not add to 100% due to rounding and/or weighting. Sample included 6 respondents who had engaged in same-sex partnering, but did not report sexual orientation identity.

Stars next to variable names indicate χ^2 -test [categorical variables]/F-tests [continuous variables] of significant difference in predictor distribution across class membership;

*
p<.05;

**
p<.01;

p<.001,;

^t
p<.10

^aThe sexual minority sample included those who either self-identified as a sexual minority, and/or who reported a history of sexual partnering with at least 1 partner of the same sex. Therefore, a number of respondents who identified as 100% heterosexual, yet had a history of same-sex sexual partnering, were included as sexual minorities.

Table 3.

Distribution of sexual initiation indicators within sexual initiation latent classes, by biological sex

FEMALES (n=1,628)					
	Typical Debut % (n)	Dual Behavior Debut % (n)	Early Sexual Debut % (n)	Delayed Debut with Oral Sex % (n)	
Class size	41.4% (655)	34.8 (564)	17.4 (293)	6.4 (116)	
Number of types of sexual acts, mean	2.7	2.6	2.8	1.6	
Timing of first sexual encounter, mean age (yrs)	15.3	16.36	13.25	18.14	
Anal sex Before age 18, %(n)	14.8 (74)	0	27.9(83)	0	
Spacing Between 1 st and 2 nd Behaviors, (yrs)					
Multi-behaviors		100	0	0	
1	14.8 (74)				
	40.8 (261)	0	14.6 (51)	8.1 (12)	
2	28.4 (198)	0	7.6 (19)	7.7 (9)	
3-5	11.3 (89)	0	56.5 (156)	12.0 (13)	
6+	4.6 (33)	0	21.3 (67)	17.7 (15)	
Single lifetime	0	0	0	54.6 (67)	
First sexual behavior, %(n)					
VI first	58.1 (407)	0	87.8 (256)	20.2 (30)	
OS first	27.1 (174)	0	11.1 (30)	79.8 (85)	
AI, no VI	<0.1 (3)	<0.1 (3)	1.1 (7)	<0.1 (3)	
VI/OS	8.4 (46)	95.8 (544)	0	0	
AI/VI	6.3 (26)	4.2 (19)	0	0	
MALES (n=526)					
	Single Behavior Debut % (n)	Multi Behavior Debut % (n)	Early Anal Sex % (n)	Very Early Debut % (n)	
Class size	50.4 (273)	32.3 (169)	11.2 (52)	6.2 (32)	
Number of types of sexual acts, mean	2.3	2.5	2.6	2.8	
Timing of first sexual encounter, mean age (yrs)	16.3	17.9	14.0	10.0	
Anal sex Before age 18, %(n)	11.0 (29)	0	100.0	56.9 (16)	

FEMALES (n=1,628)					
Class size	Typical Debut % (n)	Dual Behavior Debut % (n)	Early Sexual Debut % (n)	Delayed Debut with Oral Sex % (n)	
Spacing Between 1st and 2nd Behaviors, (yrs)					
<i>Multi-behaviors</i>					
1	0	99.8 (168)	91.2 (47)	0	
2	37.1 (96)	0	3.6 (3)	8.2 (3)	
3-5	19.0 (62)	0	0	4.8 (3)	
6+	23.0 (21)	0	2.3 (3)	5.9 (3)	
<i>Single lifetime</i>	6.7 (21)	<0.1 (3)	0	76.4 (25)	
14.2 (33)	0	3.0 (3)	4.7 (3)		
First sexual behavior, %(n)					
<i>VI first</i>	23.0 (81)	0	0	1.0 (3)	
<i>OS first</i>	75.7 (189)	0	0	80.8 (26)	
<i>AI no VI</i>	1.3 (3)	12.6 (25)	55.5 (29)	18.2 (4)	
<i>VI/OS</i>	0	81.6 (135)	35.1 (17)	0	
<i>AI/VI</i>	0	5.8 (9)	9.4 (6)	0	

VI= Vaginal Intercourse; OS= Oral Sex; AI= Anal Intercourse

All column percentages weighted to reflect Add Health complex sampling design; all N's are unweighted counts. Cells with counts 3 reported as such due to Add Health reporting requirements. Percentages may not add to 100% due to rounding and/or weighting.

Table 4.

Distribution of sexual orientation indicators across sexual initiation latent classes, by biological sex

Females (n=1,628)					
	Typical Debut % (n)	Dual Behavior Debut % (n)	Early Sexual Debut % (n)	Delayed Debut with Oral Sex % (n)	
Class size	41.4% (655)	34.8 (564)	17.4 (293)	6.4 (116)	
Sexual Identity ***					
<i>100% Heterosexual^a</i>	18.7 (118) ^d	15.3 (89)	19.5 (56) ^d	10.7 (13) ^{ac}	
<i>Mostly Heterosexual</i>	66.4 (437) ^{bd}	72.2 (397) ^{ad}	65.5 (190) ^d	35.4 (46) ^{abc}	
<i>Bisexual</i>	11.0 (63) ^b	7.0 (46) ^{ad}	8.5 (29) ^d	17.9 (18) ^{bc}	
<i>Mostly Homosexual</i>	2.0 (20) ^d	3.6 (19) ^s	2.4 (8) ^d	13.9 (9) ^{abc}	
<i>100% Homosexual</i>	1.9 (15) ^d	1.9 (12) ^d	4.1 (10) ^d	22.1 (29) ^{abc}	
Lifetime Sexual Partnering ***					
<i>Other-sex only</i>	39.2 (271) ^b	48.4 (269) ^{acd}	33.3 (92) ^b	29.9 (40) ^b	
<i>Same sex + other-sex</i>	60.8 (385) ^{bd}	51.6 (295) ^{ac}	66.7 (201) ^{bd}	43.4 (51) ^{ac}	
<i>Same-sex only</i>	0	0	0	26.7 (25)	
Pre-18 Sexual Partnering ***					
<i>None</i>	10.9 (92) ^{bcd}	27.9 (161) ^{acd}	0.3 (3) ^{abd}	53.5 (66) ^{abc}	
<i>Other sex only</i>	69.8 (456) ^{bcd}	60.5 (332) ^{acd}	83.7 (237) ^{abd}	19.2 (23) ^{abc}	
<i>Other sex + same sex</i>	17.4 (94) ^b	10.9 (63) ^a	16.0 (54)	11.1 (15)	
<i>Same-sex only</i>	2.0 (13) ^{cd}	0.8 (8) ^d	<0.01 (3) ^{ad}	16.2 (12) ^{abc}	
Males (n=528)					
	Single Behavior Debut % (n)	Multi Behavior Debut % (n)	Early Anal Sex % (n)	Very Early Debut % (n)	
Class size	50.4 (273)	32.3 (169)	11.2 (52)	6.2 (32)	

Females (n=1,628)				
	Typical Debut % (n)	Dual Behavior Debut % (n)	Early Sexual Debut % (n)	Delayed Debut with Oral Sex % (n)
Class size	41.4% (655)	34.8 (564)	17.4 (293)	6.4 (116)
Sexual Identity *				
100% Heterosexual ^a	23.3 (61) ^c	19.4 (36)	12.0 (8) ^{ad}	38.3 (9) ^c
Mostly Heterosexual	38.8 (99) ^b	51.9 (78) ^{acd}	28.7 (16) ^b	29.7 (9) ^b
Bisexual	5.6 (18)	7.2 (13)	16.8 (6)	8.7 (3)
Mostly Homosexual	6.3 (28)	8.1 (14)	6.9 (3)	12.2 (7)
100% Homosexual	25.9 (66) ^d	13.4 (28) ^c	35.6 (20) ^{bd}	11.2 (3) ^{ac}
Lifetime Sexual Partnering^f				
Other-sex only	28.7 (68) ^{cd}	34.9 (58) ^{cd}	15.5 (8) ^{ab}	5.0 (3) ^{ab}
Same sex + other-sex	48.3 (139) ^d	54.2 (92)	59.4 (29)	72.9 (24) ^a
Same-sex only	23.0 (66) ^b	10.8 (19) ^{ac}	25.2 (15) ^b	22.1 (7)
Pre-18 Sexual Partnering ***				
None	31.0 (95) ^{cd}	41.6 (77) ^{cd}	6.5 ^{ab}	0
Other sex only	32.8 (80) ^d	45.3 (67) ^d	28.5 (15)	11.8 (3) ^{ab}
Other sex + same sex	19.6 (53) ^{bd}	8.5 (19) ^{acd}	32.3 (16) ^b	49.0 (16) ^{ab}
Same-sex only	16.6 (45) ^{abc}	4.6 (7) ^{acd}	32.7 (19) ^{ab}	39.1 (13) ^{ab}

All column percentages weighted to reflect Add Health complex sampling design; all N's are unweighted counts. Percentages may not add to 100% due to rounding and/or weighting. Sample included 6 respondents who had engaged in same-sex partnering, but did not report sexual orientation identity.

^aThe sexual minority sample included those who either self-identified as a sexual minority, and/or who reported a history of sexual partnering with at least 1 partner of the same sex. Therefore, a number of respondents who identified as 100% heterosexual, yet had a history of same-sex sexual partnering, were included as sexual minorities.

Stars next to variable names indicate chi²-test [categorical variables]/F-tests [continuous variables] of significant difference in predictor distribution across class membership;

* p<.05;

** p<.01;

*** p<.001;

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$p < .10$

Letter superscripts indicate if proportion in a given class is significantly different ($p < .10$) from other classes:

^a indicates significantly different than „Typical Debut“ for females / „Single Behavior Debut“ for males

^b indicates significantly different from „Dual Behavior Debut“ for females / „Multi Behavior Debut“ for males

^c indicates significantly different from „Early Debut“ for females / „Early Anal Sex“ for males

^d indicates significantly different from „Delayed Debut with Oral Sex“ for females / „Very Early Debut“ for males

Table 5.

Bivariate associations between sociodemographic predictors and sexual initiation latent class membership, by biological sex

FEMALES (n=1,628)				
	Typical Debut % (n)	Dual Behavior Debut % (n)	Early Debut % (n)	Delayed Debut with Oral Sex % (n)
Class Size	41.4 (655)	34.8 (564)	17.4 (293)	6.4 (116)
Race/Ethnicity ***				
<i>Hispanic</i>	12.3 (111)	10.2 (75)	14.1 (40)	9.8 (18)
<i>NH-Black</i>	11.1 (119) ^{bc}	5.2 (65) ^{acd}	22.8 (110) ^{ab}	18.7 (35) ^b
<i>NH-Asian</i>	4.0 (37)	3.4 (37) ^c	1.3 (8) ^b	5.2 (5)
<i>NH-White</i>	72.5 (388) ^{bc}	81.2 (387) ^{acd}	61.8 (135) ^{ab}	66.4 (58) ^b
Wave IV Age				
<i>24-26</i>	26.0 (138)	25.6 (113)	22.6 (52)	23.0 (25)
<i>27-29</i>	53.7 (360)	55.6 (309)	51.7 (164)	49.8 (57)
<i>30-34</i>	20.4 (157)	18.8 (142)	25.8 (77)	27.2 (32)
Parental Education Level ****				
<i>< High School</i>	14.1 (81) ^b	6.6 (46) ^a	12.2 (40)	12.1 (19)
<i>HS diploma/GED</i>	27.9 (165)	22.5 (122) ^c	31.5 (82) ^b	25.1 (31)
<i>Some college</i>	28.2 (185) ^d	34.1 (179) ^d	34.8 (94) ^d	18.8 (25) ^{abc}
<i>Bachelor's Degree</i>	29.8 (224) ^{bcd}	36.7 (217) ^{ac}	21.5 (77) ^{abd}	44.0 (41) ^{ac}
Neighborhood Poverty *				
<i>Low</i>	58.3 (404)	59.0 (340) ^c	49.4 (141) ^b	57.2 (58)
<i>Medium</i>	19.5 (126) ^b	25.8 (142) ^a	21.5 (70)	24.5 (29)
<i>High</i>	22.3 (125) ^b	15.3 (82) ^{ac}	29.1 (82) ^b	18.3 (29)
Religiosity In Adolescence				
<i>Public *</i>	2.52 (0.13) ^d	2.43 (0.13) ^d	2.38 (0.17) ^d	3.40 (0.30) ^{abc}

FEMALES (n=1,628)					
	Typical Debut % (n)	Dual Behavior Debut % (n)	Early Debut % (n)	Delayed Debut with Oral Sex % (n)	
Class Size	41.4 (655)	34.8 (564)	17.4 (293)	6.4 (116)	
<i>Private **</i>	4.20 (0.15) ^d	4.27 (0.15) ^d	4.55 (0.20) ^d	5.38 (0.24) ^{abc}	
Sexual Victimization Prior to Debut					
<i>Coerced Encounter</i>	13.2 (84)	15.8 (74)	21.0 (54)	11.9 (12)	
<i>Physically Forced</i>	8.7 (59)	9.6 (46)	13.7 (36)	8.8 (10)	
<i>Sexual Abuse</i>	9.7 (56)	10.9 (62)	15.0 (43)	9.3 (13)	
<i>Any *</i>	21.2 (138) ^c	23.5 (125) ^c	32.4 (85) ^{abd}	23.8 (371) ^c	
MALES (n=526)					
	Single Behavior Debut % (n)	Multi Behavior Debut % (n)	Early Anal Sex % (n)	Very Early Debut % (n)	
Class size	50.4 (273)	32.3 (169)	11.2 (52)	6.2 (32)	
Race/Ethnicity					
<i>Hispanic</i>	13.5 (49)	14.0 (29)	27.9 (20)	17.9 (6)	
<i>NH-Black</i>	13.5 (47)	9.7 (24)	12.5 (8)	8.9 (6)	
<i>NH-Asian</i>	1.7 (14)	4.6 (15)	4.0	0.2	
<i>NH-White</i>	71.3 (163)	71.6 (101)	55.6 (23)	73.0 (19)	
Wave IV Age					
<i>24–26</i>	18.9 (36)	16.0 (22)	4.5 (4)	9.1 (3)	
<i>27–29</i>	46.3 (142)	48.9 (93)	68.4 (29)	51.2 (18)	
<i>30–34</i>	34.7 (95)	35.1 (54)	27.1 (19)	39.4 (11)	
Parental Education Level					
<i>< High School</i>	13.5 (35)	9.7 (17)	16.9 (8)	12.8 (3)	
<i>HS diploma/GED</i>	24.9 (69)	14.9 (26)	23.9 (12)	37.5 (12)	
<i>Some college</i>	24.2 (68)	30.4 (52)	25.6 (15)	30.3 (8)	
<i>Bachelor's Degree</i>	37.4 (101)	45.0 (74)	33.7 (17)	19.3 (9)	
Neighborhood Poverty					

FEMALES (n=1,628)				
Class Size	Typical Debut % (n)	Dual Behavior Debut % (n)	Early Debut % (n)	Delayed Debut with Oral Sex % (n)
<i>Low</i>	41.4 (655)	34.8 (564)	17.4 (293)	6.4 (116)
<i>Medium</i>	59.2 (158)	62.7 (106)	44.6 (25)	47.7 (16)
<i>High</i>	19.2 (59)	18.1 (32)	22.2 (13)	20.3 (7)
	21.6 (56)	19.2 (31)	33.2 (14)	32.0 (10)
Religiosity In Adolescence				
<i>Public</i>	2.69 (0.21) ^d	2.45 (0.26)	2.74 (0.41)	1.81 (0.38) ^a
<i>Private</i>	4.30 (0.22)	4.08 (0.25)	3.79 (0.50)	3.59 (0.69)
Sexual Victimization Prior to Debut				
<i>Coerced Encounter</i> ***	6.1 (14)	1.8 (7) ^c	17.1 (96) ^b	14.2 (4)
<i>Physically Forced</i> *	5.6 (12)	1.3 (3) ^c	12.6 (5) ^b	13.1 (3)
<i>Sexual Abuse</i> **	8.3 (20) ^{bd}	2.0 (5) ^{ac}	19.5 (7) ^{bd}	1.0 (4) ^{ac}
<i>Any</i> **	13.7 (32) ^b	4.8 (14) ^{ac}	30.0 (11) ^b	19.6 (8)

All column percentages weighted to reflect Add Health complex sampling design; all N's are unweighted counts. Percentages may not add to 100% due to rounding and/or weighting.

Stars next to variable names indicate chi²-test [categorical variables]/F-tests [continuous variables] of significant difference in predictor distribution across class membership;

* p<.05;

** p<.01;

*** p<.001;

^f p<.10

Letter superscripts indicate if proportion in a given class is significantly different (p<.10) from other classes:

^a indicates significantly different than "Typical Debut" for females / "Single Behavior Debut" for males

^b indicates significantly different from "Dual Behavior Debut" for females / "Multi Behavior Debut" for males

^c indicates significantly different from "Early Debut" for females / "Early Anal Sex" for males

^d indicates significantly different from "Delayed Debut with Oral Sex" for females / "Very Early Debut" for males

Table 6.

Relative risk ratios (and 95% confidence intervals) from multinomial logistic regression analyses of sociodemographic predictors of sexual initiation latent class membership, by biological sex

FEMALES (n=1,628) ^a			
Race/Ethnicity	Dual Behavior Debut RRR (95% CI)	Early Debut RRR (95% CI)	Delayed Debut with Oral Sex RRR (95% CI)
<i>Hispanic</i>	.86 [.53, 1.37]	1.29 [.69, 2.40]	.87 [.43, 1.76]
<i>NH-Black</i>	.47 [.28, .77] **	2.13 [1.26, 3.61] **	1.71 [.79, 3.68]
<i>NH-Asian</i>	.83 [.36, 1.86]	.40 [.10, 1.64]	1.13 [.35, 3.59]
<i>NH-White</i>	Referent	Referent	Referent
Wave IV Age			
<i>24–26</i>	.91 [.60, 1.38]	.90 [.58, 1.40]	.90 [.50, 1.63]
<i>27–29</i>	Referent	Referent	Referent
<i>30–34</i>	.92 [.64, 1.33]	1.16 [.73, 1.85]	1.50 [.78, 2.88]
Parental Education Level			
<i>< High School</i>	.40 [.23, .69] ***	.89 [.48, 1.65]	.58 [.20, 1.69]
<i>HS diploma/GED</i>	.64 [.43, .94] *	1.22 [.74, 2.02]	.58 [.27, 1.23]
<i>Some college</i>	.96 [.69, 1.33]	1.47 [.87, 2.47]	.43 [.21, .87] *
<i>Bachelor's Degree</i>	Referent	Referent	Referent
Neighborhood Poverty			
<i>Low</i>	Referent	Referent	Referent
<i>Medium</i>	1.48 [1.03, 2.13] *	1.14 [.70, 1.84]	1.20 [.65, 2.22]
<i>High</i>	.88 [.56, 1.36]	1.17 [.69, 2.00]	.77 [.35, 1.68]
Religiosity In Adolescence			
<i>Public</i>	.93 [.85, 1.02]	.89 [.79, 1.01] †	1.06 [.84, 1.32]
<i>Private</i>	1.06 [.98, 1.15]	1.11 [1.01, 1.22] *	1.22 [.98, 1.51] †
Sexual Victimization Prior to Debut ^b			
<i>Coerced Encounter</i>	1.25 [.73, 2.15]	1.40 [.67, 2.90]	.84 [.32, 2.21]

FEMALES (n=1,628) ^a			
	Dual Behavior Debut RRR (95% CI)	Early Debut RRR (95% CI)	Delayed Debut with Oral Sex RRR (95% CI)
<i>Physically Forced</i>	1.02 [.55, 1.89]	1.28 [.63, 2.59]	1.17 [.36, 3.76]
<i>Sexual Abuse</i>	1.10 [.67, 1.80]	1.30 [.71, 2.39]	1.07 [.52, 2.22]
MALES (n=526) ^a			
	Multi Behavior Debut RRR (95% CI)	Early Anal Sex RRR (95% CI)	Very Early Debut RRR (95% CI)
Race/Ethnicity			
<i>Hispanic</i>	1.03 [.41, 2.56]	3.02 [.95, 9.60] [†]	.81 [.22, 2.94]
<i>NH-Black</i>	.88 [.39, 1.98]	.85 [.26, 2.85]	.45 [.13, 1.55]
<i>NH-Asian</i>	3.22 [.78, 13.23]	2.45 [.13, 46.11]	.15 [.03, .80] [*]
<i>NH-White</i>	Referent	Referent	Referent
Wave IV Age			
<i>24–26</i>	.76 [.30, 1.95]	.17 [.05, .59] ^{**}	.41 [.09, 1.86]
<i>27–29</i>	Referent	Referent	Referent
<i>30–34</i>	.90 [.49, 1.64]	.52 [.18, 1.47]	.87 [.30, 2.55]
Parental Education Level			
<i><High School</i>	.73 [.28, 1.90]	.62 [.15, 2.54]	1.11 [.10, 12.15]
<i>HS diploma/GED</i>	.49 [.23, 1.07] [†]	.74 [.28, 1.96]	2.54 [.59, 11.05]
<i>Some college</i>	1.03 [.47, 2.27]	.72 [.24, 2.18]	1.90 [.52, 6.87]
<i>Bachelor's Degree</i>	Referent	Referent	Referent
Neighborhood Poverty			
<i>Low</i>	Referent	Referent	Referent
<i>Medium</i>	1.00 [.43, 2.32]	1.52 [.44, 5.27]	1.07 [.28, 4.03]
<i>High</i>	1.12 [.52, 2.41]	1.94 [.73, 5.18]	1.98 [.68, 5.76]
Religiosity In Adolescence			
<i>Public</i>	.92 [.76, 1.11]	1.26 [.92, 1.73]	.81 [.65, .99] [*]
<i>Private</i>	1.01 [.88, 1.15]	.79 [.58, 1.05]	1.04 [.82, 1.32]

FEMALES (n=1,628) ^a			
	Dual Behavior Debut RRR (95% CI)	Early Debut RRR (95% CI)	Delayed Debut with Oral Sex RRR (95% CI)
Sexual Victimization Prior to Debut^b			
<i>Coerced Encounter</i>	.51 [.11, 2.45]	3.55 [.32, 39.14]	2.13 [.17, 26.06]
<i>Physically Forced</i>	.44 [.07, 2.93]	.77 [.08, 7.49]	1.81 [.13, 25.61]
<i>Sexual Abuse</i>	.25 [.07, .96][*]	2.65 [.80, 8.81]	.07 [.01, .37]^{**}

RRR = Relative Risk Ratio (from multinomial logistic regression). CI= Confidence Interval. NH= Non-Hispanic.

Bold text indicates statistically significant association (between predictor and corresponding class, relative to referent class) at

^{*} p<.05;

^{**} p<.01;

^{***} p<.001 ;

[†] p<.10.

All models weighted to reflect Add Health complex sampling design.

^a,"Typical Debut" served as the referent class for females; "Single Behavior Debut" served as the referent class for males

^b,"Any sexual victimization", prior to debut was not included in final multivariate model owing to multicollinearity with other included victimization variables