



Published in final edited form as:

*Perspect Sex Reprod Health*. 2014 December ; 46(4): 211–221. doi:10.1363/46e2214.

## Correlates of Adolescent and Young Adult Sexual Initiation Patterns

**Bianka M. Reese [Doctoral Student],**

Department of Maternal and Child Health, Gillings School of Global Public Health, University of North Carolina at Chapel Hill

**Sophia Choukas-Bradley [Doctoral Student],**

Department of Psychology, University of North Carolina at Chapel Hill

**Amy H. Herring [Professor],** and

Department of Biostatistics, Gillings School of Global Public Health, University of North Carolina at Chapel Hill

**Carolyn T. Halpern [Professor]**

Department of Maternal and Child Health, Gillings School of Global Public Health, University of North Carolina at Chapel Hill

---

### Introduction

Sexual activity before marriage is now the typical developmental pathway for most U.S. adolescents and young adults. In recent national surveys, approximately 47 percent of 9<sup>th</sup>–12<sup>th</sup> graders reported ever having vaginal intercourse (1). By their late twenties, approximately 90% of males and females have engaged in vaginal sex (2). Noncoital sexual activity is also common among youth; more than half of adolescents (aged 15–19 years) have received or performed oralgenital sex, and approximately 11 percent have engaged in anal sex (3). Noncoital sexual activity is higher among youth who have had vaginal sex; 87 percent also report oral-genital sex and 21 percent also report anal sex (3).

Although the emergence of sexual expression during adolescence and early adulthood is nearly universal, little is known about patterns of initiation – including the timing, sequencing, and spacing of different sexual behaviors – or the determinants of those patterns. Most research on adolescent sexual behavior has focused on the predictors and implications of the timing and circumstances of first vaginal intercourse. Although first vaginal intercourse is clearly an important transition, adolescents engage in other types of sexual behavior that also have implications for health and well-being. Different factors may determine initiation of these behaviors (3), and reducing adolescent sexuality to a single event or behavior (i.e., transition to first intercourse) does not allow examination of normative developmental processes. An understanding of normative processes requires the

---

Address Correspondence to Bianka Reese, Carolina Population Center, CB # 8120, University of North Carolina, Chapel Hill, NC, USA 27516-2524. Phone: (919)358-8949. Fax: (919) 966-6638. bmreese@live.unc.edu.

None of the authors has a conflict of interest related to this work.

consideration of adolescent sexuality in the context of broader development, includes a full repertoire of sexual and romantic experiences, and examines how these various behaviors interact with other biological, psychological, and social factors to contribute to the emergence of a sexual self (4). Integrating information about timing, sequencing, spacing, and variety of sexual behaviors may provide greater explanatory power for multiple aspects of later well-being than simply examining these measures in isolation.

### Prior Research on Patterns of Sexual Initiation

In one of the first studies to describe multifaceted patterns of sexual initiation in a nationally representative sample of adolescents, Haydon et al. used latent class analysis (LCA) to group adolescents in the National Longitudinal Study of Adolescent Health (Add Health) into one of five latent classes on the basis of first sexual behavior initiated (vaginal, oral-genital, or anal sex), timing of first sexual experience, number/variety of behaviors, spacing between first and second behavior, and whether anal sex was initiated before age 18 (4). Respondents who initiated vaginal sex first and then waited at least 1 year before initiating another behavior (typically oral-genital sex, as less than 10% reported anal sex before age 18 years) comprised the largest class (*Vaginal Initiators/Multiple Behaviors*; 49%). The second largest class (*Dual Initiators*; 32%) consisted solely of respondents who initiated oral-genital and vaginal sex within the same year and did not have anal sex during adolescence. In the third class (*Vaginal Initiators/Single Behavior*; 8%) more than three-quarters of its members had only engaged in one type of behavior (typically vaginal sex). The two most statistically atypical classes were the *Postponers* (6%) and *Early/Atypical Initiators* (6%). Postponers delayed all sexual activity until almost 22 years of age, on average, but reported a relatively fast progression once sexual initiation had occurred; 85% of respondents in this class initiated oral-genital and vaginal sex within the same year. In contrast, the Early/Atypical class was characterized by an early age of initiation (15 years, on average) in combination with initiation of two or more behaviors within the same year. Most significantly, all Early/Atypical Initiators reported having had anal sex by age 18.

Two later papers examined the implications of these sexual initiation patterns for selected aspects of young adult sexual and reproductive health. First, Haydon et al. investigated associations with several indicators of sexual risk-taking: diagnosis of sexually transmitted diseases (STDs), concurrent sexual partners, and exchanging sex for money (5). They found that although Postponers had lower odds of each outcome relative to the normative class (i.e., Vaginal Initiators/Multiple Behaviors), Early/Atypical Initiators had outcomes similar to those of the normative class. Early/Atypical Initiators also had a higher likelihood of reporting concurrent sexual partnerships but were no more likely to report STDs or exchanging sex for money. Subsequently, Huerta, Harris, and Halpern (working paper) examined the association between class membership and romantic relationship satisfaction in young adulthood (6). Findings parallel those of Haydon et al. Specifically, controlling for relationship type (marriage, cohabitation, dating), Postponers reported better romantic relationship satisfaction than the normative class. However, Early/Atypical Initiators did not differ from the normative class in satisfaction. In a separate but related set of analyses of Add Health data, Reese et al. found that adolescents who initiated oral sex first, and waited at least a year before having vaginal intercourse, were significantly less likely to experience

a pregnancy during their teenage years (7). Collectively, these findings suggest potential benefits of sexual postponement, but also indicate that other, less common (and seemingly more risky) patterns of initiation are not necessarily associated with negative consequences for the outcomes examined to date.

Emergent sexual patterns likely reflect multiple influences. Although few studies have documented factors associated with the debut of noncoital behaviors, there is a large literature documenting factors associated with the initiation of vaginal sex, implicating sociodemographic characteristics (e.g., lower socioeconomic status, single parent households) (8), early pubertal timing (9–10), poor family communication (11), lower attachment to conventional institutions such as family, school, or religion (12–13), and general psychosocial or behavioral unconventionality, especially engagement in nonsexual risk behaviors such as smoking and drug use (14). Whether factors that predict vaginal initiation are similarly associated with noncoital behavior, and more specifically with complex patterns of sexual initiation, is not known.

### Theoretical Framework

Much of the literature examining predictors of first vaginal intercourse relies on Problem Behavior Theory (PBT). "Problem behavior" is behavior that is proscribed by society. PBT is based on the principle that human behavior results from dynamic and continuous interactions between person and environment (16). Three major systems define this relationship and predict involvement in problem behavior: the personality system, which includes expectations of achievement, locus of control, alienation, self-esteem, and religiosity; the perceived environment system, which includes perceived support, control, and expectations from parents and peers; and the behavior system, which includes both conventional (e.g., church attendance) and unconventional (e.g., expulsion from school) behaviors. Factors within and across these three systems determine an individual's "proneness" for engaging in behaviors that are deemed problematic by society. This overall level of proneness is termed psychosocial conventionality, and reflects an individual's commitment to the attitudes, values, and expectations of conventional society.

The goal of the present study is to provide a more comprehensive understanding of sexual initiation by examining how diverse aspects of behavior, personality, and context are associated with the way that adolescents "start" their sexual lives. Building on the work of Haydon et al. (4), we use Add Health data to examine correlates of latent class membership using an extensive array of psychosocial, behavioral, physical, and sociodemographic characteristics (derived from PBT) that have been associated with timing of first vaginal sex. Our choice of PBT is not intended to imply that adolescents' engagement in sexual behavior is necessarily "problematic." Rather we adopt this theoretical framework because of its prominence in extant literature and its holistic inclusion of developmental factors.

Based on PBT, we hypothesized that characteristics representing greater psychosocial conventionality, most specifically greater attachment to three conventional institutions – family, school, and religion, would be associated with a higher likelihood of postponing all sexual activity until early adulthood. Conversely adolescents low in conventionality would be most likely to engage in sexual activity early. We also hypothesized, based on past

research on vaginal sex initiation, that early pubertal timing would be associated with a lower likelihood of postponing sexual activity. Given limited work examining weight-related variables (i.e., BMI and perceived weight status) and sexual initiation patterns, we also explored these associations. Given the novelty of our latent classes (i.e., capturing information on timing, sequence, pace and variety of coital and noncoital sexual behaviors), and the lack of relevant theory or empirical research, we did not have a priori hypotheses about whether, and which, variables might differentiate among identified sexual initiation patterns.

## METHODS

### Sample

We used data from Add Health, a nationally representative sample of US adolescents who were in grades 7–12 (ages 11–21) in the 1994–1995 school year; four waves of individual interviews have been completed to date (17). Add Health began with a school-based design and a stratified (by region, urbanicity, school type, ethnic mix, and size) sample of 132 high schools and feeder schools. The Wave I in-home sample consisted of 20,745 respondents selected to complete a ninety minute interview (response rate=78.9%). Also in Wave I, approximately 85% of parents (usually the resident mother) of participating adolescents completed a thirty-minute in-home interview. The Wave IV follow-up was completed in 2008 (n=15,701, ages 26–32; response rate=80.3%).

We used data from Waves I and IV, and restricted analyses to respondents who appeared at both waves and had a valid sampling weight (n=14,800). Respondents were excluded if they lacked data on ages of initiation of oral-genital, anal, or vaginal sex (n=969), any component measure of psychosocial conventionality (n=1,210), or sociodemographic characteristics (n=243). Applying these exclusion criteria yielded an analytical sample of 12,378 respondents (6,075 males and 6,303 females).

### Measures

**Outcome: Adolescent sexual patterns**—At Wave IV, respondents used computer assisted self-interviewing technology (CASI) to report whether they had ever engaged in vaginal, anal, and oral-genital sex.<sup>1</sup> For each endorsed behavior, respondents indicated the age (in years) of initiation. Haydon et al. (4) used these measures in their LCA of sexual initiation, described earlier. We use these same classes as our outcome.

**Main Independent Variables: Psychosocial conventionality**—Variables selected to capture the personality, behavior, and perceived environment components of psychosocial conventionality were measured at Wave I.

---

<sup>1</sup>Specifically, participants were asked the following questions: Vaginal sex: “Have you ever had vaginal intercourse? (Vaginal intercourse is when a man inserts his penis into a woman’s vagina.)” Oral-genital sex: “Have you ever had oral sex? That is, has a partner ever put his/her mouth on your sexual organs or you put your mouth on his/her sex organs?” Anal sex: “Have you ever had anal intercourse? (By anal intercourse, we mean when a man inserts his penis into his partner’s anus or butt hole.)”

**Personality**—Characteristics include educational aspirations, including the *desire* and *perceived likelihood of attending college*. Each question used a five-point Likert scale, with higher values indicating greater educational aspirations. *Self-esteem* (Cronbach's alpha=0.95) was measured by a composite of seven items from Rosenberg's self-esteem scale (18). All questions used a five-point Likert scale, with higher values indicating greater self-esteem. *Locus of control* measured the extent to which respondents agreed with the statement, "When you get what you want, it's usually because you worked hard for it" on a five-point Likert scale. Higher values reflect a greater sense of control. *Alienation* measured whether the respondent felt socially accepted and/or felt loved and wanted. Points were summed across each category to create an overall alienation score (range=2–10; higher values indicate greater feelings of alienation). Measures of religious subjective experiences included *how important religion is* to the respondent (five-point Likert scale; higher values reflect greater importance) and *how often you pray*; responses included at least once a day, once a week, once a month, less than once a month, or never. *Feelings toward premarital sex* (Cronbach's alpha=0.85) is a summary score measuring anticipated feelings of guilt, loneliness, and physical pleasure after sexual intercourse (range=3–15; higher values reflect less guilt and loneliness, and more physical pleasure).

**Behavior**—*Public dimensions of religiosity* are religious services attendance and participation in church-related youth activities in the past twelve months; responses include once a week or more, once a month or more, less than once a month, or never. *School attachment* (Cronbach's alpha=0.78) is a summary score measuring feelings of being close to people at school, feeling a part of school, feeling happy to be at school, and feeling safe at school. Each component was measured on a five-point Likert scale and summed to create an overall measure of school attachment (range=4–20; higher values indicate greater attachment to school). Last, we included ever *repeated a grade*, received an *out-of-school suspension* or *expulsion* from school.

**Perceived environment**—Characteristics include *parent-adolescent relationship quality*, measured by summing answers to four questions about perceptions of closeness, communication satisfaction, relationship satisfaction, and warmth with each resident parent (Cronbach's alpha=0.85). In households with two parents, we selected the higher of the two scores (range=4–20; higher values reflect better relationship quality). *Parental attitudes towards sexual activity* is a summary score based on respondents' reports of whether their mother would approve of their child having sex, and whether or not their mother would approve of their child having sex with a steady partner (Cronbach's alpha=0.95); scores were averaged across items and ranged from 3 to 15. Higher values indicate greater parental approval of sexual activity. *Parental attitudes toward education* (Cronbach's alpha=0.71) were measured by respondents' ratings of how disappointed their mothers would be if they did not graduate from high school and if they did not graduate from college. Scores were summed and ranged from 2 to 10; higher values reflect greater parental disappointment. Finally, *motivation and anticipated consequences of sex from peers* (Cronbach's alpha=0.68) were evaluated by four items including "If you had sexual intercourse, your friends would respect you more;" "If you had sexual intercourse, your partner would lose respect for you;" "If you had sexual intercourse, it would make you more attractive to men/women;" and "If

you had sexual intercourse, you would feel less lonely.” Higher values indicate higher levels of anticipated rewards (fewer negative consequences) from having sex (range=4–20).

**Physical characteristics**—Self-reported *pubertal timing* relative to other male or female age peers was assessed using the following categories: looking younger, looking average, or looking older compared to others their age. We used Centers for Disease Control and Prevention (2003) guidelines for assigning age- and sex-specific BMI percentiles for youth and classifying BMI scores into categories for underweight (BMI  $\leq$  5th percentile), normal weight (BMI  $>$  5th and  $<$  85th percentile; reference category), overweight (BMI  $\geq$  85th and  $<$  95th percentile), and obese (BMI  $\geq$  95th percentile) (19). *Perceived weight status* measured respondents’ self-perceptions about being underweight, normal, or overweight.

**Sociodemographic characteristics**—We derived a combined measure of *race/ethnicity* (Hispanic, any race; non-Hispanic black; non-Hispanic white; Asian/Pacific Islander; and other) from respondents’ Wave I self-report. We created a four-category measure of *parental educational attainment* (less than high school; high school diploma or General Education Development (GED); some college or post-high school vocational education; or college graduate [reference category]) using data from the Wave I parent interview, selecting the highest level attained in households with two resident parents. When parental reports were unavailable (approximately 15% of the sample), we substituted the adolescent’s report of their parents’ educational attainment. Wave IV chronological *age* was calculated by subtracting the date of birth from the Wave IV interview date. Biological sex was based on respondents’ self-report.

## Analysis

After examining descriptive statistics for all variables, we conducted multinomial logistic regression models, stratified by biological sex, to examine correlates of class membership. All variables were entered simultaneously. For ease of comprehension of regression coefficients (i.e., all significant coefficients are hypothesized to be in the same direction but possibly of varying magnitude), we used the Postponers class as the referent in all models (20). All analyses were conducted using SAS 9.2 and STATA 12 and were adjusted to account for Add Health’s complex survey design. Sampling weights were used to yield nationally-representative population estimates. We viewed this analysis as descriptive and conducted all tests at  $\alpha=0.05$  significance level with no adjustment for multiple comparisons. Tables show 95% confidence intervals, and footnotes are used to depict  $p<0.05$ ,  $p<0.01$ , and  $p<0.001$ .

## RESULTS

Table 1 (males) and 2 (females) present descriptive statistics by latent class. The distribution of sociodemographic characteristics differed significantly across all classes among both males and females. Regardless of race/ethnicity, the Vaginal Initiator/Multiple Behaviors class was generally the most heavily populated for both males and females. However, Black males were more heavily concentrated in this class (57% of Black male respondents) than were White males (39% of White male respondents). Among females, the Dual Initiators

class contained a greater proportion of White females (30%) than any other race/ethnicity group, while the Vaginal Initiators/Single Behavior class contained a greater proportion of Black females (21%) than any other group. The Vaginal Initiators/Multiple Behaviors and Dual Initiators classes were the most common classes for both males and females across parental education categories, although substantial proportions of respondents whose parents did not complete high school also appeared in the Vaginal Initiators/Single Behavior class (17%) and Early/Atypical Initiators class (9%).

Table 3 (males) and 4 (females) present results from the adjusted multinomial logistic regression analyses, stratified by biological sex. Only measures with significant associations are shown. In terms of sociodemographic characteristics, Black males were more likely than their White counterparts to appear in the Vaginal Initiators/Multiple Behaviors class (relative risk ratio [RRR] =2.6) or the Vaginal Initiators/Single Behavior class (2.9), than in the Postponers class. Black females were more likely than their White counterparts to appear in the Vaginal Initiators/Single Behavior (1.5) or the Early/Atypical Initiators class (1.9) than the Postponers class. Compared to females with parents who graduated from college, female respondents living in households where the highest parental education attainment was a high school diploma or GED were more likely to appear in the Dual Initiators (2.1) or Early/Atypical Initiators (3.1) classes compared to the Postponers class.

BMI, perceived weight status, and pubertal timing were also associated with class membership. For males, compared to those of normal weight, those with a BMI in the overweight range were less likely to appear in the Vaginal Initiators/Multiple Behaviors (RRR=0.5), Dual Initiators (0.5), and Vaginal Initiators/Single Behavior (0.2) classes than in the Postponers class. However, males who *perceived* themselves as overweight were more likely than those who perceived themselves as normal weight to appear in the Vaginal Initiators/Multiple Behaviors class (1.9) compared to the Postponers class. Similarly, compared to females with a BMI classification of normal, overweight and obese females were less likely to be in the Vaginal Initiators/Multiple Behaviors class (0.5 and 0.4, respectively) than in the Postponers class. Pubertal timing was also significantly associated with class membership for females. Females who perceived themselves as maturing early (versus average) were significantly more likely to appear in the Early/Atypical class (3.1) compared to the Postponers class.

For both males and females, aspects of religiosity were significantly associated with class membership. In the behavior domain, compared to males who attended religious services at least once a week, males who attended less than once a month were more likely to be in the Vaginal Initiators/Multiple Behaviors (RRR= 2.3), Dual Initiators (2.1), or Early/Atypical (2.4) classes than the Postponers class. Also, males who never attended services were more likely to be in the Vaginal Initiators/Multiple Behaviors class (2.5) compared to the Postponers class. In the personality domain, compared to males who prayed every day, those who never prayed were less likely to appear in the Vaginal Initiators/Multiple Behaviors class (0.3) than in the Postponers class. In contrast, compared to females who prayed at least once a day, females who never prayed were more likely to appear in the Vaginal Initiators/Single Behavior class (2.0) compared to the Postponers class.

Two variables associated with school attachment were significant for males and females. Males who repeated a grade were more likely to appear in the Vaginal Initiators/Single Behavior class (RRR=1.9) compared to the Postponers class. For females, educational aspirations were associated with emergent sexual patterns. The more females believed they would go to college, the more likely they were to appear in the Vaginal Initiators/Multiple Behaviors (1.5) and Dual Initiators (1.5) classes compared to the Postponers class.

Finally, in the perceived environment domain, parent-adolescent relationship quality was associated with membership in particular classes for both males and females. For males, the higher the parent-adolescent relationship quality, the less likely the respondent was to appear in the Vaginal Initiators/Single Behavior class (RRR=0.9) compared to the Postponers class. For females, the higher the parent-adolescent relationship quality, the less likely the respondent was to appear in the Vaginal Initiators/Multiple Behaviors (0.8), Dual Initiators (0.9), and Early/Atypical (0.8) classes compared to the Postponers class. For males, individuals who perceived that their mother would be disappointed if they did not graduate from high school or college were more likely to appear in the Early/Atypical Initiators class (1.2) compared to the Postponers class.

## DISCUSSION

Using data from a nationally representative sample of youth, this study is among the first to examine the associations of an extensive array of theoretically derived demographic, psychosocial, and biosocial characteristics with patterns of emerging coital and noncoital sexual behaviors. The key finding of this study is that higher psychosocial conventionality (i.e., lower levels of proneness to engage in behaviors that are deemed problematic by society) distinguishes members of the non-normative Postponers class (6% of respondents) from the other classes, which represent varying degrees of typicality. Overall, results suggest that individuals who are more adherent, and presumably more committed, to the attitudes, values, and expectations of conventional society are more likely to delay oral, vaginal, and anal sexual activity (regardless of sequence of initiation) examined here until early adulthood. However, it is important to note that there is variation between males and females in terms of which variables are significantly associated with class membership, and which specific classes those variables distinguish from Postponers. These complex patterns of associations are consistent with a recent review paper that synthesized findings from 35 studies of the correlates of timing of initiation of vaginal intercourse (21); the review also found mixed and inconsistent patterns of association for most of the domains examined in the current study.

For males, beyond race/ethnicity and age, there are relatively few conventionality indicators consistently associated with class membership. Respondents who are older and overweight are more likely to be in the Postponers class compared with each of the other classes (the one exception is overweight and Early/Atypical). Moderate (approximately monthly) religious service attendance, compared with weekly or more, is associated with a lower likelihood of postponement versus membership in most of the other classes. This finding is consistent with prior work using Add Health data that found associations between public religiosity and likelihood of intercourse (e.g., 22). Repeating a grade, parent-adolescent



relationship quality, and perceived maternal attitudes toward education are associated only in single class comparisons.

For females, age was similarly associated with class membership, but in contrast to males, overweight/obesity only distinguished Postponers from the most normative class. Perceived pubertal timing distinguished females in the Early/Atypical class from Postponers. Unlike for males, two indicators of conventionality were associated with class membership: expectations for achievement, which distinguished the two most normative classes from Postponers, and even more consistently, parent-child relationship quality, which distinguished Postponers from each other class except for Vaginal Initiators/Single Behavior.

With regard to weight, past research suggests that overweight and obese adolescents are less likely to be in dating and romantic relationships in adolescence, and such relationships usually provide the context for sexual activity (28). Our results are consistent with these findings, with overweight adolescents having a higher likelihood of membership in the Postponers class. In contrast to the findings regarding actual weight, males who perceived themselves as overweight were *less* likely to be classified in the Postponers class than the Vaginal Initiators/Multiple Behaviors class compared to males who perceived themselves to be in the normal weight range. It may be that males who perceive themselves to be overweight are motivated to engage in sexual activity to improve their self-perceptions or reputations among peers (20); however, little is known about the association between perceived weight status and sexual activity among males. No association was revealed between perceived weight status and class membership among females. The findings for females stand in contrast to some past studies, including a study using Add Health data in which self-perceptions about weight were found to be more closely related to psychological well-being among females than among males (29), and a study in which females' perceptions of being overweight were linked to sexual risk behaviors (30).

For females only, perceived pubertal timing distinguishes Early/Atypical Initiators from Postponers, but is unrelated to membership in the other, more normative classes. Extensive research has documented an association between early pubertal timing and early initiation of sexual behavior, including both vaginal intercourse and other sexual behaviors (9–10). One review of research on the onset of sexual intercourse suggested that early pubertal development and physical maturation best differentiate individuals with early versus late sexual onset, as opposed to individuals with normative ages of onset (21). Our findings are consistent with this pattern, and suggest the association is also relevant to a broader range of sexual indicators. Early pubertal timing captures both biological and social mechanisms. The hormonal changes of puberty are associated with increased sexual interest and changes in sexual behavior (26). Additionally, psychosocial models point to processes of perception and expectations from both the self and others. Females who look older are attractive to older males, and thus may have older boyfriends who expect and push for sexual activity. Although not evident in our findings, other studies have also found associations between earlier pubertal timing and earlier initiation of myriad sexual behaviors among males (10).

Two conventional “institutions” were significantly associated with emergent sexual patterns for females: expectations for achievement and parent-child relationship quality. In contrast to earlier work finding that adolescents with higher educational aspirations and better academic performance tend to postpone first intercourse (16), in our latent class analyses we find that respondents who had higher achievement expectations were more likely to be members of the two normative classes (Vaginal Initiators/Multiple Behaviors and Dual Initiators) versus the Postponers class. This is somewhat unexpected given other patterns identified here and in earlier research. Further, we did not find any other school attachment variables, such as the school social environment (feelings of being close to people at school, feeling a part of school, feeling happy to be at school, and feeling safe at school), to be associated with the timing, sequencing, and spacing of sexual activity. Further work is needed to determine if this is a replicable finding capturing more nuanced associations between educational aspirations and different patterns of sexual initiation.

Beyond age, the characteristic that most consistently distinguished females in the Postponers class from all the other classes was quality of parent-child relationship. Relationships characterized by greater warmth, communication, closeness, and satisfaction were associated with extended postponement of multiple types of sexual activity, not just vaginal intercourse as has been demonstrated in other work (24).

Although not all comparisons on dimensions of conventionality are significant, where they exist patterns of risk ratios in our analyses consistently and similarly distinguished each of the other four classes from the Postponers class. This lack of variation in association across classes is somewhat surprising, especially in regards to the Early/Atypical class. Members of the Postponers and Early/Atypical classes are the most behaviorally distinct. We hypothesized that the magnitude of correlations with the psychosocial conventionality construct would be especially strong in comparisons of these two groups, yet this does not appear to be the case.

Our findings are reminiscent of the findings of Haydon et al. (2012) and Huerta et al. (working paper), who found few meaningful differences in health outcomes between the Early/Atypical class and the most common patterns of emerging sexuality (5–6). PBT would predict that unconventional adolescents would be the most likely to be in the Early/Atypical class, and that membership in that class (which captures “risky” sexual initiation) would have the most obvious negative implications for reproductive health and well-being. However, we find that for the most part the construct of psychosocial conventionality is similarly associated with membership in multiple classes, relative to the Postponers.

Taken together, our findings offer some support for the extension of psychosocial conventionality indicators as correlates of patterns of sexual initiation that capture more than the timing of first vaginal intercourse. The utility of expanding the search for more discriminating correlates of membership rests partly on the ultimate utility of the latent classes for understanding and predicting health outcomes in adolescence and young adulthood. Two examinations conducted to date suggest that, other than some apparent benefit of extended postponement of sexual activity until well beyond the U.S. norm, there may be little benefit or harm for the small set of examined outcomes that follows from

engagement in the other emergent patterns (5–6). However, other analyses do suggest that sequences of initiation (i.e., what type of sex is initiated first) are associated with the likelihood of teen pregnancy (7). Thus, it may be that these latent classes do not optimally capture or configure the most informative aspects of emergent sexual patterns, or alternatively, that the relevance of different aspects of sexual initiation varies, depending on the outcome of interest.

A second implication is the implicit importance of later experiences after sexual initiation. Based on available literature and theory, one would predict that having first sex at age 15 and rapidly moving to a broad range of sexual behaviors (Early/Atypical) versus postponing first sex until age 21 would have both distinct predictors and differential implications for subsequent developmental trajectories. However, there appear to be few characteristics that are distinctively associated with membership in the Early/Atypical class, and psychosocial conventionality appears to be most relevant to identifying who will delay sexual activity until early adulthood. Furthermore, no single pattern appears to be clearly associated with substantially worse (or better) health outcomes (5). Combined, these findings suggest that sexual experiences after initiation, regardless of timing or pattern of initiation, may be more relevant for longer term health. Our future work will examine associations between these latent classes and long-term trajectories of sexual partnering to further investigate the utility of the classes.

### Strengths and Limitations

Strengths of this analysis include the use of a nationally representative and sociodemographically diverse sample, inclusion of both coital and noncoital sexual behaviors, and attention to broader and complex patterns of sexual initiation, moving beyond the traditional focus on the timing of the first coital experience. Most research on emerging adolescent sexual behaviors has only considered the correlates and implications of the timing of the first vaginal intercourse. In addition, the use of LCA to identify and describe classes of individuals with distinct patterns of sexual behaviors allows scientists to better understand their associations with multiple factors, and thereby inform future prevention and intervention efforts.

Although this analysis makes significant contributions to the field of adolescent sexuality, the findings should be considered with certain limitations in mind. First, because respondents reported ages of initiation in whole years, temporal ordering of behaviors that occurred within the same chronological year was not possible in the original construction of latent classes (4). Second, not all potential correlates of emergent sexual patterns were examined, and interactions among variables were not tested. Future investigation of moderating and mediating processes for key correlates identified here would be useful. Finally, subjective measures such as self-reported physical maturity relative to peers may be biased.

### Conclusions

Although we examined the timing, sequencing, and spacing of multiple types of sexual acts, we found that most characteristics associated with class membership are similar to the

characteristics predicting age at first vaginal sex found in previous studies. Therefore, these variables appear to be important, even when expanding the definition of sexual initiation to include more complex patterns. The findings lend support for PBT in each of the three domains: personality, behavior, and perceived environment. As PBT implies, we found that patterns of adolescent sexual behavior reflect both individual and environmental characteristics. As practitioners and researchers, our focus should be on understanding the diversity of pathways that lead to the development of a sexual self by integrating information about timing, sequencing, spacing, and variety of sexual behaviors, as well as both direct and distal predictors of sexual patterns.

## Acknowledgments

Effort by Reese was supported by the North Carolina Minority Presence Fellowship for Doctoral Study in Maternal and Child Health provided by the University of North Carolina at Chapel Hill Graduate School. Effort by Herring and Halpern was supported by grant R01-HD57046, CT Halpern, Principal Investigator, from the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development, and by grant 5 R24 HD050924, Carolina Population Center, awarded to the Carolina Population Center at The University of North Carolina at Chapel Hill by the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development. Effort by Reese was also partially supported by 3R01HD057046-01A2S1, a supplement.

This research uses data from Add Health, a program project directed by Kathleen Mullan Harris and designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris at the University of North Carolina at Chapel Hill, and funded by grant P01-HD31921 from the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development, with cooperative funding from 23 other federal agencies and foundations. Special acknowledgment is due Ronald R. Rindfuss and Barbara Entwisle for assistance in the original design. Information on how to obtain the Add Health data files is available on the Add Health website (<http://www.cpc.unc.edu/addhealth>). No direct support was received from grant P01-HD31921 for this analysis.

## REFERENCES

- Centers for Disease Control and Prevention. Youth risk behavior surveillance—United States, 2011. *MMWR*. 2012; 61(No. SS-4):24–29.
- Herbenick D, Reece M, Schick V, Sanders SA, Dodge B, Fortenberry JD. Sexual behavior in the United States: Results from a national probability sample of men and women ages 14–94. *J Sex Med*. 7:255–265. [PubMed: 21029383]
- Lindberg LD, Jones R, Santelli JS. Noncoital sexual activities among adolescents. *J Adolesc Health*. 2008; 43:231–238. [PubMed: 18710677]
- Haydon AA, Herring AH, Prinstein MJ, Halpern CT. Beyond age at first sex: Patterns of emerging behavior in adolescence and young adulthood. *J Adolesc Health*. 2012; 50(2):456–463. [PubMed: 22525108]
- Haydon AA, Herring AH, Halpern CT. The association between patterns of emerging sexual behavior and reproductive health in young adulthood. *Perspectives on Sexual and Reproductive Health*. 2012; 44(4):218–227. [PubMed: 23231329]
- Huerta P, Harris KM, Halpern CT. The association between sexual initiation patterns and young adult relationship satisfaction. Working Paper.
- Reese BM, Haydon AA, Herring AH, Halpern CT. The association between sequences of sexual initiation and the likelihood of teenage pregnancy. *J Adolesc Health*. 2013; 52(2):228–233. [PubMed: 23332489]
- Upchurch DM, Aneshensel CS, Sucoff CA, et al. Neighborhood and family contexts of adolescent sexual activity. *J Marriage Fam*. 1999; 61:920–933.
- Mendle J, Ferrero J. Detrimental psychological outcomes associated with pubertal timing in adolescent boys. *Dev Rev*. 2012 Mar; 32(1):49–66.

10. Mendle J, Turkheimer E, Emery R. Detrimental psychological outcomes associated with early pubertal timing in adolescent girls. *Developmental Review* [serial online]. 2007 Jun; 27(2):151–171.
11. Karofsky PS, Zeng L, Kosorok MR. Relationship between adolescent parental communication and initiation of first intercourse by adolescents. *J Adolesc Health*. 2001; 28:41–45. [PubMed: 11137905]
12. Bearman PS, Bruckner H. Promising the future: Virginity pledges and first intercourse. *Am J Sociol*. 2001; 106:859–912.
13. Paul C, Fitzjohn J, Herbison P, et al. The determinants of sexual intercourse before age 16. *J Adolesc Health*. 2000; 27:136–147. [PubMed: 10899475]
14. Santelli J, Carter M, Orr M, et al. Trends in sexual risk behaviors, by nonsexual risk behavior involvement, US high school students, 1991–2007. *J Adolesc Health*. 2009; 44:372–379. [PubMed: 19306796]
15. Halpern CT, Waller MW, Spriggs AL, Hallfors DD. Adolescent predictors of emerging adult sexual patterns. *J Adolesc Health*. 2006; 39(6):e1–e10. [PubMed: 17116527]
16. Jessor R. Risk behavior in adolescence - a psychosocial framework for understanding and action. *J Adolesc Health*. 1991; 12(8):597–605. [PubMed: 1799569]
17. Harris, KM.; Halpern, CT.; Whitsel, E., et al. [Accessed November 30, 2011] The National Longitudinal Study of Adolescent Health: Research Design. 1999. Available at: <http://www.cpc.unc.edu/projects/addhealth/design>
18. Rosenberg, M. *Society and the Adolescent Self-Image*. Princeton, NJ: Princeton University Press; 1965.
19. Centers for Disease Control and Prevention. [Accessed September 1, 2012] About BMI for children and teens. 2011 Sep 13. Available at: [http://www.cdc.gov/healthyweight/assessing/bmi/childrens\\_bmi/about\\_childrens\\_bmi.html](http://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html) Updated
20. Harden KP, Mendle J, Hill JE, Turkheimer E, Emery RE. Rethinking timing of first sex and delinquency. *J Youth Adolescence*. 2008; 37:373–385.
21. Zimmer-Gembeck M, Helfand M. Ten years of longitudinal research on U.S. adolescent sexual behavior: Developmental correlates of sexual intercourse, and the importance of age, gender and ethnic background. *Dev Rev*. 2008 Jun; 28(2):153–224.
22. Nonnemaker J, McNeely C, Blum R. Public and private domains of religiosity and adolescent health risk behaviors: Evidence from the National Longitudinal Study of Adolescent Health. *Social Science & Medicine* [serial online]. 2003 Dec; 57(11):2049–2054. Available from: PsycINFO, Ipswich, MA.
23. Cotton S, Zbracki K, Rosenthal S, Tsevat J, Drotar D. Religion/spirituality and adolescent health outcomes: A review. *Journal Of Adolescent Health* [serial online]. 2006 Apr; 38(4):472–480.
24. Dittus PJ, Jaccard J. Adolescents' perceptions of maternal disapproval of sex: relationship to sexual outcomes. *J Adolesc Health*. 2000; 26:268–278. [PubMed: 10734274]
25. Hamburg, BA. Subsets of adolescent mothers: Developmental, biomedical, and psychosocial issues. In: Lancaster, JB.; Hamburg, BA., editors. *School-age pregnancy and parenthood: Biosocial dimensions*. New York: Aldine De Gruyter; 1986. p. 115-145.
26. Ellis BJ. Timing of pubertal maturation in girls: an integrated life history approach. *Psychological bulletin*. 2004; 130:920. [PubMed: 15535743]
27. Zimmer-Gembeck M, Siebenbruner J, Collins W. A Prospective Study of Intraindividual and Peer Influences on Adolescents' Heterosexual Romantic and Sexual Behavior. *Arch Sex Behav*. 2004 Aug; 33(4):381–394. [PubMed: 15162084]
28. Cheng Y, Landale N. Adolescent overweight, social relationships and the transition to first sex: Gender and racial variations. *Perspectives On Sexual And Reproductive Health* [serial online]. 2011 Mar; 43(1):6–15.
29. Vogt Yuan A. Body perceptions, weight control behavior, and changes in adolescents' psychological well-being over time: A longitudinal examination of gender. *Journal Of Youth And Adolescence* [serial online]. 2010 Aug; 39(8):927–939.
30. Akers A, Lynch C, Bost J, et al. Exploring the relationship among weight, race, and sexual behaviors among girls. *Pediatrics* [serial online]. 2009 Nov; 124(5):e913–e920.

**Table 1**  
 Characteristics of male respondents in Waves I and 4 of the National Longitudinal Study of Adolescent Health, by latent class (n=6,075)

Characteristic	n	Vaginal Initiators/ Multiple Behaviors %	Dual Initiators %	Vaginal Initiators/Single Behavior %	Postponers %	Early/ Atypical Initiators %
<b>Sociodemographic Characteristics</b>						
Race/ethnicity*						
Non-Hispanic White	2,863	39.4	41.4	4.9	6.4	7.8
Non-Hispanic Black	1,181	57.0	22.1	15.2	3.0	2.7
Hispanic	946	45.5	30.9	9.1	4.6	10.0
Non-Hispanic Asian/Pacific Islander	501	53.7	28.9	3.9	11.8	1.7
Non-Hispanic Other Race	584	35.3	40.9	48.1	9.3	6.9
Highest parental education attainment						
Less than HS	891	31.8	25.7	12.4	4.3	10.0
HS graduate/GED	2,138	38.0	38.2	7.1	6.2	8.1
Some college	772	40.7	35.9	5.1	5.3	6.4
College graduate or more	2,274	37.0	15.0	5.3	6.9	6.1
Age at Wave I interview, mean (SD)		15.6 (1.72)	15.7 (1.71)	15.9 (1.79)	16.0 (1.67)	15.6 (1.71)
<b>Physical Characteristics</b>						
Pubertal timing (self-reported)*						
Look younger	1,322	43.4	32.6	9.4	7.8	6.9
Look average	2,366	44.8	37.7	5.6	5.8	6.2
Look older	2,311	35.6	39.5	7.5	5.0	8.5
BMI classification*						
Normal	4,066	43.3	38.3	6.8	5.5	6.2
Overweight	1,313	44.3	36.4	5.1	5.7	8.6
Obese	629	3.05	34.6	10.9	8.5	10.9
Perceived weight status						
Underweight	1,354	44.5	38.3	5.3	6.2	5.7
Normal	3,352	42.4	36.8	8.5	5.2	7.2
Overweight	1,365	40.7	37.2	6.1	7.1	9.0

Characteristic	n	Vaginal Initiators/ Multiple Behaviors %	Dual Initiators %	Vaginal Initiators/Single Behavior %	Postponers %	Early/ Atypical Initiators %
<b>Psychosocial Convententionality</b>						
<b>Personality</b>						
Self-esteem, mean (SD)		29.60 (2.67)	29.26 (3.64)	29.39 (3.59)	28.93 (3.92)	29.23 (3.91)
Locus of control, mean (SD)		3.95 (0.83)	3.92 (0.85)	3.92 (0.90)	4.03 (0.80)	3.86 (0.92)
Alienation, mean (SD)		3.47 (1.20)	3.55 (1.21)	3.57 (1.29)	3.64 (1.35)	3.50 (1.20)
Value of achievement, mean (SD)		4.38 (1.06)	4.33 (1.12)	4.31 (1.16)	4.40 (1.10)	4.22 (1.18)
Expectation for achievement, mean (SD)		4.04 (1.6)	4.02 (1.21)	3.97 (1.24)	4.19 (1.21)	3.83 (1.27)
Feelings toward premarital sex, mean (SD)		9.74 (2.06)	7.98 (2.15)	9.27 (2.31)	8.85 (2.34)	10.29 (2.20)
Importance of religion, mean (SD)		3.32 (0.76)	3.22 (0.78)	3.47 (0.71)	3.42 (0.72)	3.16 (0.79)
<b>How often pray*</b>						
Once a day or more	2,240	43.1	35.9	8.1	6.0	6.2
Once a week	1,321	44.4	35.4	7.5	5.9	6.8
Once a month	599	44.8	36.2	4.0	4.4	10
Less than once a month	560	42.3	41.3	3.1	5.1	8.2
Never	488	37.8	42.9	6.8	5.3	7.2
<b>Behavior</b>						
<b>How often attend religious services*</b>						
Once a week or more	2,246	42.2	35.9	7.7	8.5	5.8
Once a month or more	1,197	46.8	36.8	5.4	3.8	7.3
Less than once a month	1,059	41	39.6	6.3	4.7	8.4
Never	708	42.6	37.8	6.8	4.1	8.8
<b>How often participate in youth activities*</b>						
Once a week or more	1,243	41.4	37.1	8.8	7.1	5.6
Once a month or more	829	45.7	35.2	8.7	5.5	4.9
Less than once a month	780	45.1	38.6	4.8	4.7	6.8
Never	2,360	42.3	37.3	6.0	5.8	8.6
Ever repeated a grade*	1,550	42.9	33.5	11.1	5.4	7.1
Ever received out-of-school suspension*	2150	46.3	35.6	7.5	2.9	7.7
Ever been expelled*	353	47.4	29.9	13.5	2.7	6.5

Characteristic	n	Vaginal Initiators/ Multiple Behaviors %	Dual Initiators %	Vaginal Initiators/Single Behavior %	Postponers %	Early/ Atypical Initiators %
Attachment to school, mean (SD)		15.1 (3.01)	15.0 (3.15)	15.2 (2.97)	15.4 (3.01)	14.6 (3.21)
<b>Perceived Environment</b>						
Anticipated consequences of premarital sex from mother, mean (SD)		6.6 (3.14)	6.5 (3.07)	6.3 (3.07)	5.6 (2.88)	7.1 (3.14)
Parent-adolescent relationship quality, mean		17.9 (2.29)	17.8 (2.41)	18.0 (2.23)	17.9 (2.45)	17.9 (2.33)
Perceived maternal attitudes toward education, mean (SD)		9.1 (2.13)	9.0 (2.07)	9.0 (2.17)	8.99 (2.08)	9.15 (2.17)
Motivation and anticipated consequences of sex from peers, mean (SD)		11.7 (2.63)	11.7 (2.48)	11.2 (2.96)	10.6 (2.86)	12.0 (2.42)

\* Distribution of characteristic differs significantly across latent classes,  $p < 0.05$

Note: Percentages represent row percentages, and are weighted to yield national population estimates.



**Table 2**

Characteristics of female respondents in Waves I and 4 of the National Longitudinal Study of Adolescent Health, by latent class (n=6,303)

Characteristic	n	Vaginal Initiators/ Multiple Behaviors %	Dual Initiators/ %	Vaginal Initiators/Single Behavior %	Postponers %	Early/ Atypical Initiators %
<b>Sociodemographic Characteristics</b>						
Race/ethnicity*						
Non-Hispanic White	2,847	55.5	30.0	4.6	5.2	4.7
Non-Hispanic Black	1,431	64.3	11.6	20.8	2.2	1.1
Hispanic	989	53.4	22.2	10.4	9.6	4.3
Non-Hispanic Asian/Pacific Islander	478	57.5	23.1	2.6	11.3	2.4
Non-Hispanic Other Race	531	53.5	25.4	8.7	8.9	3.6
Highest parental education attainment						
Less than HS	800	54.0	21.0	14.6	6.9	3.5
HS graduate/GED	1,751	59.8	24.4	8.3	3.3	4.3
Some college	1,336	58.5	26.4	5.9	4.5	4.8
College graduate or more	2,416	53.3	29.9	5.5	8.2	3.2
Age at Wave I interview, mean (SD)		15.6 (1.73)	15.5 (1.71)	15.8 (1.73)	15.7 (1.63)	15.3 (1.77)
<b>Physical Characteristics</b>						
Pubertal timing (self-reported)*						
Look younger	1,245	53.3	23.7	12.9	7.3	2.8
Look average	2,483	55.0	27.0	8.3	5.7	3.2
Look older	2,516	59.7	25.1	5.9	3.9	5.4
BMI classification*						
Normal	4,036	57.6	26.6	7.4	5.1	3.3
Overweight	930	51.0	27.4	9.6	7.1	4.9
Obese	438	54.4	19.3	12.2	7.3	6.8
Perceived weight status						
Underweight	717	58.4	26.0	8.8	4.7	2.0
Normal	3,001	57.0	26.4	8.2	4.6	3.9
Overweight	2,576	55.5	25.2	8.0	6.6	4.7

Characteristic	n	Vaginal Initiators/ Multiple Behaviors %	Dual Initiators %	Vaginal Initiators/Single Behavior %	Postponers %	Early/ Atypical Initiators %
<b>Psychosocial Conventionalality</b>						
<b>Personality</b>						
Self-esteem, mean (SD)		27.68 (4.17)	27.58 (4.06)	27.97 (4.55)	27.68 (3.88)	27.62 (4.56)
Locus of control, mean (SD)		3.87 (0.90)	3.84 (0.87)	3.99 (0.94)	4.05 (0.81)	3.87 (0.93)
Alienation, mean (SD)		3.68 (1.31)	3.71 (1.27)	3.73 (1.36)	3.76 (1.24)	3.63 (1.27)
Value of achievement, mean (SD)		4.54 (0.90)	4.59 (0.85)	4.47 (1.03)	4.71 (0.79)	4.47 (0.96)
Expectation for achievement, mean (SD)		4.31 (1.04)	4.36 (1.04)	4.15 (1.19)	4.49 (0.94)	4.33 (1.06)
Feelings toward premarital sex, mean (SD)		7.9 (2.14)	7.9 (2.15)	7.19 (2.35)	6.74 (2.22)	8.09 (2.25)
Importance of religion, mean (SD)		3.38 (0.72)	3.34 (0.74)	3.64 (0.61)	3.56 (0.66)	3.25 (0.82)
<b>How often pray</b>						
Once a day or more	3,043	54.3	25.2	9.7	6.8	4.0
Once a week	1,282	57.2	27.0	7.2	5.0	3.6
Once a month	497	59.2	27.7	6.4	3.6	13.1
Less than once a month	432	58.6	27.5	5.3	4.1	4.6
Never	295	57.1	25.6	8.1	3.4	5.5
<b>Behavior</b>						
<b>How often attend religious services*</b>						
Once a week or more	2,562	52.5	24.7	10.7	7.7	4.1
Once a month or more	1,249	56.4	28.3	7.7	3.4	4.2
Less than once a month	1,142	62.0	26.1	5.1	3.8	2.9
Never	599	58.0	26.1	5.5	5.1	5.2
<b>How often participate in youth activities*</b>						
Once a week or more	1,474	52.3	23.0	12.6	8.6	3.3
Once a month or more	924	55.2	29.1	8.0	3.8	3.9
Less than once a month	881	54.8	27.9	7.1	4.9	5.1
Never	2,268	59.2	25.6	6.3	4.9	4.0
Ever repeated a grade*	1,026	55.1	21.1	17.0	3.5	3.4
Ever received out-of-school suspension*	1,189	63.9	16.8	13.1	2.4	3.9
Ever been expelled	156	68.9	15.2	3.4	1.5	1.5

Characteristic	n	Vaginal Initiators/ Multiple Behaviors %	Dual Initiators %	Vaginal Initiators/Single Behavior %	Postponers %	Early/ Atypical Initiators %
Attachment to school, mean (SD)		14.9 (3.25)	15.2 (3.10)	15.1 (3.11)	15.6 (2.77)	15.1 (3.20)
<b>Perceived Environment</b>						
Anticipated consequences of premarital sex from mother, mean (SD)		5.7 (2.91)	5.3 (2.80)	5.4 (2.57)	4.7 (2.24)	5.3 (2.79)
Parent-adolescent relationship quality, mean (SD)		17.4 (2.99)	17.4 (2.91)	17.7 (2.57)	18.1 (2.38)	17.5 (2.91)
Perceived maternal attitudes toward education, mean (SD)		9.1 (2.12)	9.1 (2.00)	8.9 (2.35)	8.9 (1.86)	9.14 (1.84)
Motivation and anticipated consequences of sex from peers, mean (SD)		9.5 (2.67)	9.4 (2.73)	9.1 (2.96)	8.35 (3.04)	9.57 (2.65)

\* Distribution of characteristic differs significantly across latent classes,  $p < 0.05$

Note: Percentages represent row percentages, and are weighted to yield national population estimates.

**Table 3**

Relative risk ratios for multinomial logistic regression of on latent class membership on psychosocial, physical, and social factors, males. (n=6,075)

Characteristic	Vaginal Initiators/Multiple Behaviors (n=2,600)	Dual Initiators (n=2,264)	Vaginal Initiators/Single Behaviors (n=421)	Early/Atypical Initiators (n=409)
	RRR (95% C.I.)	RRR (95% C.I.)	RRR (95% C.I.)	RRR (95% C.I.)
<b>Sociodemographic Characteristics</b>				
Race/ethnicity (White)				
Non-Hispanic White	1.00	1.00	1.00	1.00
Non-Hispanic Black	2.62 (1.12–6.62)*	1.10 (0.44–2.81)	2.85 (1.70–3.60)**	0.56 (0.17–1.82)
Age	0.51 (0.44–0.59)***	0.58 (0.51–0.66)**	0.66 (0.54–0.80)***	0.47 (0.40–0.55)***
<b>Physical Characteristics</b>				
BMI classification				
Normal	1.00	1.00	1.00	1.00
Overweight	0.45 (0.25–0.81)**	0.49 (0.28–0.85)*	0.21 (0.08–0.51)***	0.56 (0.29–1.14)
Obese	0.50 (0.20–1.21)	0.55 (0.23–1.45)	0.88 (0.26–2.95)	0.73 (0.23–2.34)
Perceived weight status				
Normal	1.00	1.00	1.00	1.00
Overweight	1.92 (1.12–3.52)*	1.56 (0.83–2.98)	1.93 (0.87–4.26)	1.71 (0.81–3.61)
<b>Psychosocial Conventionality</b>				
<b>Personality</b>				
How often pray				
Once a day or more	1.00	1.00	1.00	1.00
Never	0.34 (0.12–0.97)*	0.52 (0.19–1.42)	0.38 (0.12–1.21)	0.47 (0.12–1.81)
<b>Behavior</b>				
How often attend religious services				
Once a week or more	1.00	1.00	1.00	1.00
Once a month or more	2.34 (1.21–4.42)**	2.08 (1.11–3.91)*	1.84 (0.80–4.23)	2.42 (1.12–5.1)*
Never	2.47 (1.16–5.89)*	1.96 (0.78–4.94)	2.18 (0.78–6.06)	1.64 (0.56–4.82)
Ever repeated a grade	1.04 (0.63–1.71)	0.95 (0.55–1.67)	1.91 (1.15–3.47)*	1.26 (0.61–2.61)
<b>Perceived Environment</b>				
Parent-adolescent relationship quality	0.97 (0.86–1.17)	0.97 (0.88–1.14)	0.86 (0.75–0.98)*	0.95 (0.82–1.14)
Perceived maternal attitudes toward education	1.10 (0.98–1.23)	1.12 (0.99–1.29)	1.17 (0.99–1.48)	1.17 (1.14–1.42)*

\*\*\*  
p<.001

\*\*  
p<.01

\*  
p<.05.

Reference category is the Postponers class (n=381). Only measures with significant findings are shown. Models control for race/ethnicity, parent education, chronological age, pubertal timing, BMI, perceived weight status, self-esteem, locus of control, alienation, value of achievement,

expectation of achievement, feelings toward premarital sex, importance of religion, frequency of prayer, attendance at religious services, participation in church youth activities, ever repeated a grade, ever received an out-of-school suspension, ever been expelled, attachment to school, anticipated consequences of premarital sex from mother, parent-adolescent relationship quality, perceived maternal attitudes toward education, and motivation and anticipated consequences of sex from peers.

**Table 4**

Relative risk ratios for multinomial logistic regression of latent class membership on psychosocial, physical, and social factors, females. (n=6,303)

Characteristic	Vaginal Initiators/Multiple Behaviors (n=3,541)	Dual Initiators (n=1,601)	Vaginal Initiators/Single Behaviors (n=577)	Early/Atypical Initiators (n=354)
	RRR (95% C.I.)	RRR (95% C.I.)	RRR (95% C.I.)	RRR (95% C.I.)
<b>Sociodemographic Characteristics</b>				
Race/ethnicity				
Non-Hispanic White	1.00	1.00	1.00	1.00
Non-Hispanic Black	1.53 (0.58–4.12)	0.49 (0.20–1.23)	1.46 (1.15–2.15)**	1.87 (1.11–3.27)*
Highest parental education				
College graduate	1.00	1.00	1.00	1.00
HS graduate/GED	1.44 (0.78–2.71)	2.06 (1.1–3.84)*	1.62 (0.81–3.37)	3.13 (1.31–6.17)**
Age	0.52 (0.39–0.68)***	0.56 (0.44–0.72)***	0.82 (0.67–0.99)*	0.47 (0.34–0.63)***
<b>Physical Characteristics</b>				
Pubertal timing				
Look average	1.00	1.00	1.00	1.00
Look older	0.87 (0.56–1.38)	0.69 (0.46–1.11)	0.67 (0.41–1.11)	3.10 (1.40–6.69)**
BMI classification				
Normal	1.00	1.00	1.00	1.00
Overweight	0.51 (0.26–0.97)*	0.67 (0.32–1.43)	0.52 (0.21–1.35)	0.86 (0.34–2.21)
Obese	0.44 (0.20–0.98)*	0.43 (0.17–1.11)	0.51 (0.20–1.37)	1.83 (0.60–5.67)
<b>Psychosocial Conventionality</b>				
<b>Personality</b>				
Expectation for achievement	1.49 (1.10–2.10)*	1.46 (1.13–1.98)*	1.30 (0.94–1.84)	1.52 (0.93–2.51)
How often pray				
Once a day or more	1.00	1.00	1.00	1.00
Never	2.55 (0.61–5.74)	1.40 (0.58–3.84)	1.95 (1.20–2.70)*	1.87 (0.33–2.71)
<b>Perceived Environment</b>				
Parent-adolescent relationship quality	0.83 (0.76–0.92)***	0.86 (0.79–0.93)**	0.92 (0.81–1.13)	0.82 (0.73–0.92)**

\*\*\*  
p<.001

\*\*  
p<.01

\*  
p<.05.

Reference category is the Postponers class (n=230). Only measures with significant findings are shown. Models control for race/ethnicity, parent education, chronological age, pubertal timing, BMI, perceived weight status, self-esteem, locus of control, alienation, value of achievement, expectation of achievement, feelings toward premarital sex, importance of religion, frequency of prayer, attendance at religious services, participation in church youth activities, ever repeated a grade, ever received an out-of-school suspension, ever been expelled, attachment to school, anticipated consequences of premarital sex from mother, parent-adolescent relationship quality, perceived maternal attitudes toward education, and motivation and anticipated consequences of sex from peers.