Predictors of Varying Emergent Adolescent and Young Adult Sexual Patterns

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Abstract

Purpose. Using Problem Behavior Theory, this study identifies characteristics of adolescents and young adults who exhibited different patterns of sexual initiation (timing, sequence, pace of first oral-genital, anal, and vaginal sex).

Methods. Analyses are based on 12,378 respondents aged 24-32 who participated in Waves I and IV of the National Longitudinal Study of Adolescent Health (Add Health). Adolescent indicators reflecting sociodemographic, physical, personality, perceived environment, and behavioral characteristics were used to predict adolescent and young adult oral, vaginal, and anal sex initiation patterns (latent class membership) using multinomial logistic regression models.

Results. Individuals who are more committed to the attitudes, values, and expectations of conventional society (e.g., greater religiosity, better parent-adolescent relationship quality, higher educational aspirations) were more likely to postpone oral, vaginal, and anal sexual activity until early adulthood; however, these same psychosocial conventionality factors did not distinguish membership among other sexual initiation patterns, including an early/atypical pattern.

Conclusions. Identifying how diverse experience intersects with individual characteristics to influence sexual initiation is critical to a better understanding of the ways in which sexuality is integrated into identity and affects intimate relationships, and therefore how we can promote sexual health across the life course.

Keywords

Introduction

Sexual activity prior to marriage now represents the typical developmental pathway for the vast majority of American adolescents and young adults. In recent national surveys, approximately 47 percent of 9th-12th graders reported ever having vaginal intercourse (1). By the time they reach their late twenties, approximately 90% of both males and females report having engaged in vaginal sex (2). The prevalence of noncoital sexual activity is also high among youth; more than half of adolescents (aged 15–19 years) have ever received or performed oral-genital sex, and approximately 11 percent have ever engaged in anal sex (3). Noncoital sexual activity is higher among youth who have had vaginal sex; 87 percent also reported oral-genital sex and 21 percent also reported 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. Initiation of these behaviors might be determined by different factors (3-5), and reducing adolescent sexuality to a single event (i.e., transition to first intercourse) does not allow exploration of normative developmental processes. Normative perspectives consider adolescent sexuality in the context of broader development; include a full repertoire of sexual and romantic experiences, beyond vaginal sex; and examine how these various behaviors interact with other biological, psychological, and social factors to contribute to

the emergence of a sexual self (6). 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.

In one of the first studies to describe multifaceted patterns of sexual initiation in a nationally representative sample of adolescents, Haydon et al. (2011) used latent class analysis to group adolescents in the Add Health study into one of five classes (6). They found that approximately half of the respondents followed a pattern characterized predominately by initiation of vaginal sex first with an average age of initiation of approximately 16 years, and spacing of less than 1 year between initiation of the first and second behaviors (labeled "vaginal initiators/multiple behaviors") (6). The authors also found that almost one-third of the respondents initiated sexual activity slightly later but reported first experiences of oral-genital and vaginal sex within the same year ("dual initiators"). Other patterns were substantially less common, including those characterized by postponement of sexual activity ("postponers"), experience with only one type of sexual behavior ("vaginal initiators/single behavior"), and early initiation of sexual activity combined with adolescent initiation of anal sex ("early/atypical") (See additional detail below.) Two later papers examined the potential implications of these patterns for selected aspects of young adult sexual and reproductive health. Haydon et al. (2012) investigated associations between latent class membership and several indicators of sexual risk-taking in young adulthood: diagnosis of sexually transmitted diseases, concurrent sexual partners, and exchanging sex for money (7). They found that although "postponers" had lower odds of each outcome relative to the normative class ("vaginal initiators/multiple behaviors"), respondents in the "early/atypical" group had similar outcomes to those of the normative class. Those in "early/atypical" class had a higher likelihood of reporting concurrent sexual

partnerships, but were no more likely to report STDs or exchanging sex for money. Huerta, Harris, & Halpern (working paper), examined the association between class membership and romantic relationship satisfaction in young adulthood (8). Findings parallel those of Haydon et al. (2012). Controlling for relationship type (marriage, cohabitation, dating), "postponers" reported better relationship satisfaction than the normative ("vaginal initiators/multiple behaviors") class. However, respondents in the "early/atypical" class (as well as the other classes) did not differ from the normative class in satisfaction. These findings suggest potential benefits of sexual postponement, but also indicate that other, less common (and seemingly more risky) patterns of initiation do not necessarily confer negative consequences for the outcomes examined to date.

Emergent sexual patterns likely reflect several different influences, which are highlighted in previous research on the correlates of vaginal sex initiation (6). 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) (9-11), early pubertal timing (12-15), poor family communication (16-17), lower attachment to conventional institutions such as family, school, or religion (18-24), and general psychosocial or behavioral unconventionality, especially with engagement in nonsexual risk behaviors such as smoking and drug use (24). At young adulthood, greater opportunities for experimentation, reduced parental supervision, and a culture generally accepting of nonmarital sexual activity further facilitate sexual activity (26). Whether these same factors are similarly predictive of noncoital behavior, and more specifically of 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) (28-29). PBT is based on the principle that human behavior results from dynamic and continuous interactions between person and environment. 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 view of sexual development by examining how diverse aspects of behavior, personality, and context contribute to the way that adolescents "start" their sexual lives. Toward this end, we build on the work of Haydon et al. (2011). As described above, these investigators used latent class analysis (LCA) to assign participants in the National Longitudinal Study of Adolescent Health (Add Health) to five latent classes capturing emergent adolescent and young adult sexual patterns (6). Haydon et al. grouped individuals on the basis of several indicators related to sexuality: first behavior initiated (of 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. Class construction and composition is described in more detail below. We use Add Health data to examine the contributions of 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 as a proposal that adolescent sexuality is necessarily "problematic." However, because of PBT's prominence in the literature and its holistic inclusion of factors considered to be critical to development, we adopt this same theoretical framework to understand contributors to patterns of sexual initiation. Identifying how diverse experiences intersect with individual characteristics to influence sexual initiation is critical to a better understanding of the ways in which sexuality is integrated into identity and affects intimate relationships (27), and therefore how we can promote sexual health across the life course.

METHODS

Sample

We used data from the National Longitudinal Study of Adolescent Health (Add Health), which includes a nationally representative sample of US adolescents who were in grades 7-12 in the 1994-1995 school year; four waves of individual interviews have been completed to date (30). Add Health began with a school-based design and a stratified (by region, urbanicity, school type [public, private, parochial], 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. Wave II in-home interviews were completed in 1996 (n=14,738, ages 12-18; response rate=88.2%), Wave III in-home interviews were completed between 2001 and 2002 (n=15,197, ages 18-26; response rate=77.4%), and Wave IV in-home interviews were completed in 2008 (n=15,701, ages 26-32; response rate=80.3%). The original purpose of Add Health was to

examine the determinants of adolescent health and health behavior; contextual factors were emphasized. Add Health data thus provide an opportunity to prospectively examine developmental trajectories of sexual and romantic partnering over multiple life course transitions ranging from adolescence to young adulthood for a large, contemporary, and nationally representative sample of individuals.

The present analysis used data from Waves I and IV, and was restricted to respondents who appeared at both waves and had a valid sampling weight (n=14,800). Respondents were excluded if they lacked data on lifetime history and 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.

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, based on 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.)" For each endorsed behavior, respondents indicated the age (in years) of initiation.

Haydon et al. (2011) used latent class analysis (LCA) to assign respondents to latent classes describing their emergent adolescent and young adult sexual patterns, distinguished on the basis of five variables measuring first 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 (6). Five classes of sexual patterns emerged (Appendix A). Respondents who were likely to initiate vaginal sex first and then wait 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. The third class (*Vaginal Initiators/Single Behavior*; 8%) was distinguished by the fact that more than three-quarters of its members had only engaged in one type of behavior (typically vaginal sex). The two smallest classes—*Postponers* (6%) and *Early/Atypical Initiators* (6%)—represented the most non-normative patterns. Postponers delayed 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.

Main Predictors: Psychosocial conventionality. The variables selected to capture the personality, behavior, and perceived environment components of psychosocial conventionality were measured at Wave I. Personality characteristics included 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 score including seven items from Rosenberg's self-

esteem scale (31). 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, loved and wanted. Points were summed across each category to create an overall alienation score, ranging from 2 to 10. Higher values indicate greater feelings of alienation. Measures of religious subjective experiences included *how important is religion* to the respondent (measured on a five-point Likert scale with higher values reflecting greater importance of religion) and *how often you pray,* with responses including: at least once a day (reference category), once a week, once a month, less than once a month, or never. Last, an indicator of *feelings toward premarital sex* (Cronbach's alpha=0.85) was included as a summary score measuring anticipated feelings of guilt, loneliness, and physical pleasure after sexual intercourse. Scores ranged from 3 to 15, with higher values reflecting less guilt and loneliness, and more physical pleasure after sexual intercourse.

Behavior characteristics included public dimensions of religiosity such as *religious services attendance* and *participation in church-related youth activities* in the past twelve months. For both behaviors, responses included: once a week or more (reference category), once a month or more, less than once a month, or never. *School attachment* (Cronbach's alpha=0.78) was 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, ranging from 4 to 20 with higher values indicating greater attachment to school. Ever having received an *out-of-school suspension* or *expulsion* from school, as well as *on-time educational*

progress, measured by whether the respondent ever repeated a grade or was held back a grade, were also included as behavior characteristics (coded 0/1).

Respondents' perceived environment characteristics included *parent-adolescent relationship quality*, which was measured by summing answers to four questions regarding perceptions of closeness, communication satisfaction, relationship satisfaction, and warmth with each resident parent (Cronbach's alpha=0.85), and by selecting the higher of the two scores in cases in which both parents were present in the household. Scores ranged from 4 to 20 with higher values reflecting better parent-adolescent relationship quality. *Parental attitudes towards sexual activity* was 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 with higher values indicating greater parental approval of sexual activity. *Parental attitudes toward education* (Cronbach alpha=0.71) was 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 across both items and ranged from 2 to 10 with higher values reflecting greater parental disappointment if the respondent did not graduate from high school or college. Finally, *motivation and anticipated consequences of sex from peers* (Cronbach alpha=0.68) was 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." Answers to these questions were coded and summed so that higher values indicated

higher levels of anticipated rewards (fewer negative consequences) from having sex. Values ranged from four to 20.

Physical characteristics. The following characteristics have been found to be associated with initiation of sexual activity and are included in our models (32-34). Self-reported *pubertal timing* relative to other male or female age peers was assessed using the following categories: looking younger, looking average (reference category), 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 < 5th percentile), normal weight (BMI ≥ 5th and < 85th percentile; reference category), overweight (BMI ≥ 85th and < 95th percentile), and obese (BMI ≥ 95th percentile) (35). *Perceived weight status* measured perceived body image and categorized respondents as perceived underweight, perceived normal (reference category), and perceived overweight.

Sociodemographic characteristics. We derived a combined measure of *race/ethnicity* (Hispanic, any race; non-Hispanic black; non-Hispanic white [reference category]; Asian/Pacific Islander; and other) from respondents' Wave I self-report. We then created a four-category measure of *parental educational attainment* (less than high school; high school diploma or GED [General Educational Diploma/General Equivalency Diploma]; some college or post-high school vocational education; or college graduate [reference category]) using data from the Wave I parent interview. Next, we selected the highest level attained in households with two resident parents. When parental reports were unavailable (approximately 15% of the total adolescent 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, multinomial logistic regression models, stratified by biological sex, examined associations between measures of psychosocial conventionality, pubertal timing, BMI, perceived weight status, sociodemographic characteristics, and class membership. All predictors were entered simultaneously. Postponement of sexual expression until young adulthood is inconsistent with the experiences of the vast majority of adolescents in the United States. Although research suggests that delaying sexual activity is neither normative nor the optimal pathway of sexual development for all adolescents, for ease of comprehension of regression coefficients, the Postponers class served as the referent class in all models (36). 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 national population estimates.

RESULTS

Table 1 (males) and Table 2 (females) present descriptive statistics by latent class. As reported by Haydon et al. (2011), among both males and females, approximately half of all respondents followed a pattern characterized predominately by initiation of vaginal sex prior to oral-genital or anal sex (Vaginal Initiators/Multiple Behaviors class) (6). Approximately one-third were characterized as Dual Initiators (initiating both oral-genital and vaginal sex in the same year). Also, for both males and females, membership in the Early/Atypical or Postponers classes was relatively rare.

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 Table 4 (females) present results from the adjusted multinomial logistic regression analysis, stratified by biological sex. 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; 95% CI: 1.1, 6.6) or the Vaginal Initiators/Single Behavior class (RRR=2.85; 95% CI: 1.7, 3.6), than in the Postponers class. Black females were more likely than their white counterparts to appear in the Vaginal Initiators/Single Behavior (RRR=1.46; 95% CI: 1.1, 2.1) or the Early/Atypical Initiators class (RRR=1.87; 95% CI: 1.1, 3.2) 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 (RRR=2.06; 95% CI: 1.1, 3.8) or Early/Atypical Initiators (RRR=3.13; 95% CI: 1.3, 6.1) classes compared to the Postponers class.

Physical characteristics of BMI, perceived weight status, and pubertal timing had varying associations for males and females. For males, compared to those categorized as normal weight,

those with a BMI in the overweight range were less likely to appear in the Vaginal Initiators/Multiple Behaviors (RRR=.45; 95% CI: .25, .81), Dual Initiators (RRR=.49; 95% CI: .28, .85), and Vaginal Initiators/Single Behavior (RRR=.21; 95% CI: .08, .51) 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 (RRR=1.92; 95% CI: 1.1, 3.5) 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 (RRR=.51; 95% CI: .26, .97; RRR=.44; 95% CI: .20, .98 respectively) than in the Postponers class. Pubertal timing was also important for females. Females who perceived themselves as maturing early (versus average timing) were significantly more likely to appear in the Early/Atypical class (RRR=3.10; 95% CI: 1.4, 6.7) compared to the Postponers class.

For both males and females, aspects of religiosity played an important role in membership in particular classes. 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=2.34; 95% CI: 1.2, 4.4), Dual Initiators (RRR=2.08; 95% CI: 1.1, 3.9), or Early/Atypical (RRR=1.42; 95% CI: 1.1, 5.6) classes than the Postponers class. Also, males who never attended services were more likely to be in the Vaginal Initiators/Multiple Behaviors class (RRR=2.47; 95% CI: 1.1, 5.8) 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 (RRR=.34; 95% CI: .12, .97) 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 (RRR=1.95; 95% CI: 1.2, 2.7) compared to the Postponers class.

Two predictors associated with school attachment in the behavior domain were significant for males and females. Males who repeated a grade were more likely to appear in the Vaginal Initiators/Single Behavior class (RRR=1.91; 95% CI: 1.08, 3.39) compared to the Postponers class. For females, educational aspirations were associated with emergent sexual patterns. The more females believed they would be to go to college, the more likely they were to appear in the Vaginal Initiators/Multiple Behaviors (RRR=1.49, 95% CI: 1.07, 2.09) and Dual Initiators (RRR=1.46, 95% CI: 1.05, 2.03) classes compared to the Postponers class.

Finally, in the perceived environment domain, parent-adolescent relationship quality showed similar effects on 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=.86; 95% CI: .74, .98) compared to the Postponers class. Likewise, for females, the higher the parent-adolescent relationship quality, the less likely the respondent was to appear in the Vaginal Initiators/Multiple Behaviors (RRR=.83; 95% CI: .76, .92), Dual Initiators (RRR=.86; 95% CI: .79, .93), and Early/Atypical (RRR=.82; 95% CI: .73, .92) classes compared to the Postponers class. Parent-adolescent relationship quality and perceived parental attitudes toward education affected membership differently for males. For instance, males who perceived that their parents would be disappointed if they did not graduate from high school or college were more likely to appear in the Early/Atypical Initiators class (RRR=1.17; 95% CI: 1.01, 1.36) compared to the Postponers class.

DISCUSSION

Using nationally representative data, this study is among the first to examine the contributions of an extensive array of characteristics (derived from the Problem Behavior Theory [PBT] and previously found to be associated with timing of first vaginal sex) to patterns of emerging coital and noncoital sexual behaviors. Findings provide a psychosocial and demographic profile of adolescent and young adult emergent sexual patterns and also highlight the influence of biosocial factors such as pubertal timing, BMI, and perceived weight status. The key finding of this study is that psychosocial conventionality (i.e., the overall level of proneness to engage in behaviors that are deemed problematic by society) consistently distinguishes members of the Postponers class (6% of respondents) from each of the other classes, which represent varying degrees of typicality in the sample. Individuals who are more adherent, and presumably more committed, to the attitudes, values, and expectations of conventional society are more likely to delay all three types of sexual activity examined here until early adulthood.

Three conventional "institutions" exerted significant influence on emergent sexual patterns: religion, parents, and school. Religiosity was found to be a predictor of class membership, with interesting differences across gender and religious domains. In multiple cases, religiosity distinguished some Vaginal Initiators from Postponers for males and females. For instance, compared to other males who attended church at least once a week, males who never attended church or only attended once a month (i.e., low religiosity) were more likely to appear in classes categorized by initiating vaginal sex first relative to Postponers. These associations reflect an adoption of more traditional values concerning nonmarital sexual activity. However, other measures of religiosity, such as how often one prays, did not reflect traditional values, as males who never prayed were less likely to appear in the Vaginal Initiators/Multiple Behaviors class compared to males who prayed at least once a day. These findings suggest that public

dimensions of religiosity (e.g., church attendance) may serve different functions than private dimensions (e.g., praying) for boys and girls. However, these results should be interpreted with caution given the different findings for males versus females and the lack of theoretical explanation for why this gender difference may have occurred. A prior study using Add Health data found that private religiosity (i.e., frequency of prayer and importance of religion) was associated with a lower likelihood of having had sexual intercourse among both boys and girls, although the association between public religiosity and likelihood of intercourse was significantly stronger (37). Additionally, some theorists have proposed a framework in which distal religious domains are considered separately from proximal domains; in such a framework, both religious service attendance and frequency of prayer are considered to be distal domains, which have been found to be inversely related to a variety of health risk behaviors (38). Further work is needed that examines associations between proximal religious domains and sexual activities, given evidence that higher levels of such forms of religiosity are associated with lower rates of sexual risk behaviors (39-40).

In associations with parents, we found that parent-adolescent relationships characterized by greater warmth, communication, closeness, and satisfaction were associated with postponing sexual initiation of any type of sex. These patterns are consistent with past research demonstrating the importance of parental relationship quality in decisions regarding sexual initiation (27,41); however, unlike previous studies (42-43), we found similar trends for both males and females. Since these previous studies only investigated factors associated with the transition to first vaginal intercourse, our results suggest that these parental relationship qualities are similarly important for males and females in predicting patterns of initiation. Nonetheless, these results highlight the importance of communication between teens and their parents,

especially in conversations regarding sexual activity. Promoting family environments conducive to open communication about sex could make meaningful contributions toward adolescents' choices regarding the initiation of sexual behaviors. These mechanisms appear to operate for both males and females; however, there might be other factors not accounted for in this study (such as depression or substance use) that could potentially mediate the effects of parent-adolescent relationships on adolescent sexual patterns.

The final social institution, school, was associated with emergent sexual patterns for both males and females. Males who repeated a grade and females with positive educational aspirations were more likely to appear in classes defined by initiating vaginal sex first, compared to the Postponers class. Previous studies have found that adolescents with higher educational aspirations and better academic performance tend to postpone first intercourse (27-28). Adolescents may engage in multiple types of sex earlier than others when they are coping with personal frustrations and anticipated failures associated with on-time school progress (29,44). Time spent in academic activities is usually negatively related to early intercourse (27); however, 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. Using data from Add Health, Bearman and Bruckner (2001) found effects of the school social environment on the timing of sexual initiation (19); however, these authors only examined the factors associated with first vaginal intercourse, and other factors might be associated with specific sexual initiation patterns when considering multiple types of sex.

Although not all comparisons on dimensions of conventionality are significant, patterns of risk ratios in our analyses consistently and similarly distinguish each of the other four classes from the Postponers class. This lack of variation in association across classes is surprising, especially in regards to the Early/Atypical class. Members of the Postponers and Early/Atypical classes are the most behaviorally distinct. One might anticipate that the predictive power of the psychosocial conventionality construct would be especially strong in comparisons of these two groups, yet this does not appear to be the case. The one exception to this pattern of consistency is early pubertal timing, which even in the context of an extensive array of other controls and predictors, is strongly associated with higher risk of membership in the Early/Atypical versus Postponers class. We return to a discussion of pubertal timing below.

Our findings of consistency of predictors across class membership are reminiscent of the findings of Haydon et al. (2012) and Huerta et al. (working paper) in terms of the absence of long term implications for early and "risky" patterns of sexual initiation (7-8). 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. However, we find that the construct of psychosocial conventionality is similarly predictive across classes, and Haydon et al. (2012) find few meaningful differences in health outcomes between the Early/Atypical class and the most common pattern of emerging sexuality ("Vaginal Initiators/Multiple Behaviors") (7). Similarly, Huerta et al. (working paper) did not find lower levels of relationship satisfaction among individuals in the Early/Atypical class compared with the normative group (8).

Taken together, these patterns of findings seem to have at least two implications. First, other than pubertal timing, discussed below, we have not identified factors that reliably predict

when, for example, an individual might be a member of the "Dual Initiator" class versus the more typical "Vaginal Initiator/Multiple Behaviors" class, or an "Early/Atypical" member versus a member of more normative groups. The utility of expanding the search for more discriminating predictors 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 US norm, there may be little benefit or harm that follows from engagement in the other emergent patterns (7-8). However, other analyses do suggest that sequences of initiation are associated with the likelihood of teen pregnancy. 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 teen years (45). Thus, it may be that these latent classes do not optimally capture the most informative information about 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 apparent importance of later experience. Based on available literature and theory, 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 seem to have both distinct predictors and differential implications for subsequent developmental trajectories. However, as we note above, there may be few characteristics that distinctively predict being in the Early/Atypical class, and psychosocial conventionality appears to be most relevant to predicting who will delay sexual activity until early adulthood. Further, no single pattern appears to clearly predict substantially worse (or better) health outcomes. Combined, these findings

suggest that experiences after sexual initiation, regardless of timing or pattern, may be more relevant for longer term health.

Consistent with past research, pubertal timing emerged as an important predictor of class membership among females, and it was the only characteristic that distinguished membership in the Early/Atypical class versus other classes. Extensive research has documented an association between early pubertal timing and early initiation of sexual behavior, including both sexual intercourse and other sexual behaviors (15). Early pubertal timing captures both biological social mechanisms. There is evidence linking the hormonal changes of puberty to increased sexual interest, and to changes in sexual behavior (46-47). Additionally, psychosocial models point to processes of perception and expectations from both the self and others. Girls 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 sexual intercourse among boys (48-49), including a study using Add Health data (12).

In addition to pubertal timing, both actual and perceived weight were found to predict class membership, with similar patterns emerging for boys and girls in regards to actual weight (i.e., BMI), but with gender differences observed with regard to weight perceptions. Among females, compared to those with a BMI in the normal weight range, those in the overweight and obese ranges were more likely to be classified in the Postponers class than in the Vaginal Initiators/Multiple Behaviors class. Similarly, among males, compared to those with a BMI in the normal weight range, those in the overweight range were more likely to be classified in the Postponers class compared to the vaginal initiatiors or dual initiators classes. It may be that adolescents who do not conform to society's ideal body types may have less opportunity to

participate in sexual relationships. Overweight and obesity have been found to be associated with lower odds of participation in dating and romantic relationships in adolescence, and such relationships usually provide the context for sexual activity (50-52). Our findings are consistent with past studies on associations between overweight and sexual initiation among females, but are inconsistent with some past work on males, including studies using Add Health data, that have found significant associations between overweight and delayed sexual onset among females and have not found significant associations among males (51,53). Overall, research on the associations between physical characteristics and emergent sexual behavior is still in its infancy; however, our study contributes to this growing literature using a large, population-based sample and noncoital sexual behaviors.

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 in order to improve their self-perceptions or reputations among peers (36); however, little is known about the association between perceived weight status and sexual activity among boys. No association was revealed between perceived weight status and class membership among girls. The findings for girls 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 girls than among boys (54), and a study in which girls' perceptions of being overweight were linked to sexual risk behaviors (55).

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 development, which moved beyond the traditional focus on the timing of the first coital experience. Most research on adolescent sexual emergence has only considered the predictors and implications of the timing of the first coital experience. In addition, the use of LCA to identify and describe classes of individuals with distinct patterns of sexual behaviors allows scientists to better understand the impact of multiple factors on sexual behaviors in order to 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, since respondents were asked to retrospectively report their age of initiation, there might be inaccuracies in recall, especially for older respondents. Second, since respondents reported ages of initiation in whole years, we were unable to determine the temporal ordering of behaviors that occurred within the same chronological year. Third, not all potential contributors to emergent sexual patterns were examined, and interactions among predictors were not tested. Future investigation of moderating and mediating processes for key factors identified here would be useful. Fourth, subjective measures such as physical maturity may be biased. Finally, since some respondents (35%) initiated sex before the Wave I interview, the analyses do not necessarily demonstrate causal relationships between predictors and class membership.

Present findings 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-genital, anal, and vaginal sexual activity until early adulthood. These same psychosocial conventionality factors did not distinguish membership among other sexual

initiation patterns, including an early/atypical pattern. With the exception of early pubertal timing, we also found that no other physical or sociodemographic characteristic distinguished membership between the Early/Atypical class and other classes. Our findings suggest that the processes of sexual decision-making that underlie initiation of sexual activity might primarily distinguish those who postpone any sexual activity until young adulthood from others. Although we examined the timing, sequencing, and spacing of multiple types of sex, we found that most characteristics predicting class membership are similar to the characteristics predicting age at first vaginal sex found in previous studies. Therefore, these predictors appear to be important, even when expanding the definition of sex to include more complex patterns beyond the timing of first vaginal intercourse. 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 result from interactions between person and environment. 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 a variety of sexual behaviors, as well as both direct and distal predictors of sexual patterns.

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Table 1: Male descriptive statistics for total analysis sample, by latent class (n=6,075)

Characteristic	Vaginal Initiators/ Multiple Behaviors (n=2,600)	Dual Initiators (n=2,264)	Vaginal Initiators/Single Behavior (n=421)	Postponers (n=381)	Early/ Atypical Initiators (n=409)
Sociodemographic Characteristics					
Race/ethnicity, n (%)*					
Non-Hispanic White	1320 (39.4%)	1424 (41.4%)	158 (4.9%)	224(6.4%)	237(7.8%)
Non-Hispanic Black	691 (57.0%)	265 (22.1%)	140 (15.2%)	43 (3.0%)	42 (2.7%)
Hispanic	403 (45.5%)	334 (30.9%)	74 (9.1%)	46 (4.6%)	89 (10.0%)
Non-Hispanic Asian/Pacific Islander					
Non-Hispanic Other Race	186 (35.3%)	240 (40.9%)	49 (48.1%)	68 (9.3%)	41 (6.9%)
Highest parental education attainment, n (%)*					
Less than HS	209 (31.8%)	66 (25.7%)	73 (12.4%)	38 (4.3%)	51 (10%)
HS graduate/GED	659 (38.0%)	128 (38.2%)	118 (7.1%)	96 (6.2%)	137 (8.1%)
Some college	483 (40.7%)	76 (35.9%)	65 (5.1%)	71 (5.3%)	77 (6.4%)
College graduate or more	817 (37%)	48 (15.0%)	127 (5.3%)	163 (6.9%)	119 (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)
Physical Characteristics					
Pubertal timing (self-reported), n (%)*					
Look younger	593 (43.4%)	440 (32.6%)	121 (9.4%)	97 (7.8%)	71 (6.9%)
Look average	1032 (44.8%)	887 (37.7%)	144 (5.6%)	150 (5.8%)	153 (6.2%)
Look older	941 (35.6%)	911 (39.5%)	149 (7.5%)	132 (5%)	178 (8.5%)
BMI classification, n (%)*					
Normal	1767 (43.3%)	1536 (38.3%)	283 (6.8%)	235 (5.5%)	245 (6.2%)
Overweight	573 (44.3%)	482 (36.4%)	75 (5.1%)	77 (5.7%)	106 (8.6%)
Obese	234 (35%)	227 (34.6%)	52 (10.9%)	64 (8.5%)	52 (10.9%)
Perceived weight status, n (%)					
Underweight	611 (44.5%)	501 (38.3%)	88 (5.3%)	74 (6.2%)	80 (5.7%)
Normal	1452 (42.4%)	1234 (36.8%)	247 (8.5%)	194 (5.2%)	225 (7.2%)
Overweight	534 (40.7%)	528 (37.2%)	86 (6.1%)	113 (7.1%)	104 (9%)
Psychosocial Conventionality					
Personality					
Self-esteem, mean (SD)	29.6 (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 (.83)	3.92 (.85)	3.92 (.90)	4.03 (.80)	3.86 (.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 (.76)	3.22 (.78)	3.47 (.71)	3.42 (.72)	3.16 (.79)
How often pray, n (%)*					
Once a day or more	995 (43.1%)	777 (35.9%)	179 (8.1%)	169 (6.7%)	120 (6.2%)
Once a week	577 (44.4%)	496 (35.4%)	79 (7.5%)	83 (5.9%)	86 (6.8%)
Once a month	264 (44.8%)	217 (36.2%)	36 (4.6%)	29 (4.4%)	53 (10%)
Less than once a month	233 (42.3%)	235 (41.3%)	22 (3.1%)	23 (5.1%)	47 (8.2%)
Never	185 (37.8%)	202 (42.9%)	35 (6.8%)	27 (5.3%)	39 (7.2%)
Behavior					
How often attend religious services, n (%)*					
Once a week or more	966 (42.2%)	810 (35.9%)	166 (7.7%)	184 (8.5%)	120 (5.8%)
Once a month or more	546 (46.8%)	433 (36.8%)	86 (5.4%)	53 (3.8%)	79 (7.3%)
Less than once a month	442 (41%)	414 (39.6%)	54 (6.3%)	60 (4.7%)	89 (8.4%)
Never	301 (42.6%)	271 (37.8%)	44 (6.8%)	34 (4.1%)	58 (8.8%)
How often participate in youth activities, n (%)*					
Once a week or more	536 (41.4%)	431 (37.1%)	111 (8.8%)	102 (7.1%)	63 (5.6%)
Once a month or more	371 (45.7%)	306 (35.2%)	61 (8.7%)	50 (5.5%)	41 (4.9%)
Less than once a month	342 (45.1%)	303 (38.6%)	41 (4.8%)	40 (4.7%)	54 (6.8%)
Never	1007 (42.3%)	889 (37.3%)	137 (6%)	139 (5.8%)	188 (8.6%)
Ever repeated a grade, n (%)*	703 (42.9%)	509 (33.5%)	149 (11.1%)	82 (5.4%)	107 (7.1%)
Ever received out-of-school suspension, n (%)*	1000 (46.3%)	752 (35.6%)	162 (7.5%)	69 (2.9%)	167 (7.7%)
Ever been expelled, n (%)*	172 (47.4%)	105 (29.9%)	44 (13.5%)	4 (2.7%)	28 (6.5%)
Attachment to school, mean (SD)	15.1 (3.01)	15.0 (3.15)	15.2 (2.97)	15.4 (3.01)	14.6 (3.2)
Perceived Environment					
Anticipated consequences of premarital sex from parents, mean (SD)	6.6 (3.14)	6.5 (3.07)	6.3 (3.07)	5.6 (2.88)	7.1 (3.14)
Parent-child relationship quality, mean	17.9 (2.29)	17.8 (2.41)	18.0 (2.23)	17.9 (2.45)	17.9 (2.33)
Perceived parental 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) [value range: 4-20]	11.7 (2.63)	11.7 (2.48)	11.2 (2.96)	10.6 (2.86)	12.0 (2.42)

*Distribution of outcome differs significantly across latent classes, $p<0.05$
Note: Percentages represent row percents, and are weighted to yield national population estimates.

Table 2: Female descriptive statistics for total analysis sample, by latent class (n=6,303)

Characteristic	Vaginal Initiators/ Multiple Behaviors (n=3,541)	Dual Initiators (n=1,601)	Vaginal Initiators/Single Behavior (n=577)	Postponers (n=354)	Early/ Atypical Initiators (n=230)
Sociodemographic Characteristics					
Race/ethnicity, n (%)*					
Non-Hispanic White	1809 (55.5%)	1019 (30%)	169 (4.6%)	201 (5.2%)	49 (4.7%)
Non-Hispanic Black	944 (64.3%)	179 (11.6%)	253 (20.8%)	34 (2.2%)	21(1.1%)
Hispanic	546 (53.4%)	237 (22.2%)	102 (10.4%)	64 (9.6%)	40 (4.3%)
Non-Hispanic Asian/Pacific Islander					
Non-Hispanic Other Race	238 (53.5%)	165 (25.4%)	53 (8.7%)	55 (8.9%)	20 (3.6%)
Highest parental education attainment, n (%)					
Less than HS	430 (54%)	177 (21%)	125 (14.6%)	41 (6.9%)	27 (3.5%)
HS graduate/GED	1033 (59.8%)	418 (24.4%)	161 (8.3%)	78 (3.3%)	64 (4.3%)
Some college	786 (58.5%)	345 (26.4%)	85 (5.9%)	61 (4.5%)	59 (4.8%)
College graduate or more	1113 (53.3%)	593 (29.9%)	150 (5.5%)	167 (8.2%)	69 (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)
Physical Characteristics					
Pubertal timing (self-reported), n (%)*					
Look younger	661 (53.3%)	290 (23.7%)	171 (12.9%)	87 (7.3%)	36 (2.8%)
Look average	1378 (55%)	657 (27 %)	223 (8.3%)	154 (5.7%)	71 (3.2%)
Look older	1475 (59.7%)	638 (25.1%)	172 (5.9%)	108 (3.9%)	123 (5.4%)
BMI classification, n (%)*					
Normal	2303 (57.6%)	1056 (26.6%)	338 (7.4%)	206 (5.1%)	133 (3.3%)
Overweight	512 (51%)	230 (27.4%)	100 (9.6%)	56 (7.1%)	32 (4.9%)
Obese	232 (54.4%)	95 (19.3%)	52 (12.2%)	38 (7.3%)	21 (6.8%)
Perceived weight status, n (%)					
Underweight	414 (58.4%)	185 (26%)	62 (8.8%)	36 (4.7%)	20 (2%)
Normal	1701 (57%)	751 (26.4%)	292 (8.2%)	151 (4.6%)	106 (3.9%)
Overweight	1420 (55.5%)	664 (25.2%)	221 (8%)	167 (6.6%)	104 (4.7%)
Psychosocial Conventionality					
Personality					
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 (.90)	3.84 (.87)	3.99 (.94)	4.05 (.81)	3.87 (.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 (.90)	4.59 (.85)	4.47 (1.03)	4.71 (.79)	4.47 (.96)
Expectation for achievement, mean (SD)	4.31 (1.04)	4.36 (1.04)	4.15 (1.19)	4.49 (.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 (.72)	3.34 (.74)	3.64 (.61)	3.56 (.66)	3.25 (.82)
How often pray, n (%)					
Once a day or more	1642 (54.3%)	742 (25.2%)	338 (9.7%)	215 (6.8%)	106 (4%)
Once a week	750 (57.2%)	340 (27%)	98 (7.2%)	51 (5%)	43 (3.6%)
Once a month	287 (59.2%)	134 (27.7%)	36 (6.4%)	26 (3.6%)	14 (3.1%)
Less than once a month	263 (58.6%)	105 (27.5%)	24 (5.3%)	23 (4.1%)	17 (4.6%)
Never	159 (57.1%)	81 (25.6%)	29 (8.1%)	12 (3.4%)	14 (5.5%)
Behavior					
How often attend religious services, n (%)*					
Once a week or more	1364 (52.5%)	596 (24.7%)	310 (10.7%)	208 (7.7%)	84 (4.1%)
Once a month or more	711 (56.4%)	341 (28.3%)	114 (7.7%)	42 (3.4%)	41 (4.2%)
Less than once a month	676 (62%)	313 (26.1%)	58 (5.1%)	52 (3.8%)	43 (2.9%)
Never	352 (58%)	152 (26.1%)	44 (5.5%)	25 (5.1%)	26 (5.2%)
How often participate in youth activities, n (%)*					
Once a week or more	793 (52.3%)	328 (23.5%)	190 (12.6%)	124 (8.6%)	39 (3.3%)
Once a month or more	513 (55.2%)	241 (29.1%)	89 (8%)	50 (3.8%)	31 (3.9%)
Less than once a month	495 (54.8%)	241 (27.9%)	69 (7.1%)	37 (4.9%)	39 (5.1%)
Never	1299 (59.2%)	591 (25.6%)	178 (6.3%)	115 (4.9%)	85 (4%)
Ever repeated a grade, n (%)*	557 (55.1%)	220 (21.1%)	181 (17%)	39 (3.5%)	29 (3.4%)
Ever received out-of-school suspension, n (%)*	762 (63.9%)	200 (16.8%)	164 (13.1%)	23 (2.4%)	40 (3.9%)
Ever been expelled, n (%)*	106 (68.9%)	21 (15.2%)	23 (13.4%)	3 (1.5%)	3 (1.5%)
Attachment to school, mean (SD) [value range: 4-20]	14.9 (3.25)	15.2 (3.10)	15.1 (3.11)	15.6 (2.77)	15.1 (3.20)
Perceived Environment					
Anticipated consequences of premarital sex from parents, mean (SD)	5.7 (2.91)	5.3 (2.80)	5.4 (2.57)	4.7 (2.24)	5.3 (2.79)
Parent-child 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 parental 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 outcome differs significantly across latent classes, $p<0.05$
Note: Percentages represent row percents, and are weighted to yield national population estimates.

Table 3. Relative risk ratios for multinomial logistic regression of psychosocial, physical, and social factors on latent class membership, males. (n=6,075)

		RRR		**95% Confidence Interval**				
Characteristic	**Vaginal Initiators/Multiple Behaviors**		**Dual Initiators**		**Vaginal Initiators/Single Behaviors**		**Early/Atypical Initiators**	
Sociodemographic Characteristics								
Race/ethnicity								
Non-Hispanic White	1.00		1.00		1.00		1.00	
Non-Hispanic Black	2.62*	1.1-6.6	1.10	.44-2.8	2.85**	1.7-3.6	0.56	.17-1.8
Hispanic	0.92	.45-1.8	0.69	.37-1.3	1.11	.48-2.6	1.04	.43-2.6
Non-Hispanic Asian/Pacific Islander	0.56	.22-1.4	0.65	.24-1.7	1.30	.35-4.9	0.81	.21-3.0
Non-Hispanic Other Race	1.23	.45-3.6	0.88	.30-2.6	1.04	.22-4.8	0.48	.10-2.3
Highest parental education								
College graduate	1.00		1.00		1.00		1.00	
Some college	1.42	.72-2.8	1.52	.78-2.9	1.06	.42-2.7	1.54	.63-3.8
HS graduate/GED	0.71	.41-1.2	0.82	.46-1.5	0.58	.26-1.3	0.83	.39-1.8
Less than HS	1.59	.56-4.5	1.55	.59-4.1	1.57	.49-5.0	2.12	.71-6.4
Age	0.51***	.44-.59	0.58**	.51-.66	0.66***	.54-.80	0.47***	.40-.55
Physical Characteristics								
Pubertal timing								
Look average	1.00		1.00		1.00		1.00	
Look younger	0.73	.40-1.3	0.66	.36-1.1	0.79	.40-1.6	0.78	.33-1.9
Look older	0.85	.47-1.5	1.12	.66-1.9	1.10	.55-2.2	1.27	.57-2.8
BMI classification								
Normal	1.00		1.00		1.00		1.00	
Overweight	0.45**	.25-.81	0.49*	.28-.85	0.21***	.08-.51	0.56	.29-1.1
Obese	0.50	.20-1.2	0.55	.23-1.4	0.88	.26-2.9	0.73	.23-2.3
Perceived weight status								
Normal	1.00		1.00		1.00		1.00	
Underweight	0.88	.52-1.5	0.86	.53-1.4	0.55	.27-1.1	0.70	.35-1.4
Overweight	1.92*	1.1-3.5	1.56	.83-2.9	1.93	.87-4.2	1.71	.81-3.6
Psychosocial Conventionality								
Personality								
Self-esteem	0.98	.90-1.1	0.97	.90-1.1	0.96	.85-1.1	0.92	.82-1.1
Locus of control	0.87	.66-1.1	0.97	.75-1.3	0.93	.65-1.3	0.84	.57-1.2
Alienation	0.94	.72-1.2	0.95	.75-1.2	0.89	.63-1.3	0.85	.61-1.2
Value of achievement	1.31	.96-1.8	1.20	.92-1.6	1.14	.77-1.7	1.14	.77-1.7

	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Expectation for achievement	0.85	.63-1.1	0.86	.64-1.1	0.79	.56-1.2	0.78	.55-1.1
Feelings toward premarital sex	1.01	.86-1.2	1.07	.93-1.2	1.03	.85-1.2	1.16	.93-1.5
Importance of religion	1.01	.72-1.4	0.93	.66-1.3	0.92	.55-1.5	0.85	.55-1.3.
How often pray								
Once a day or more	1.00		1.00		1.00		1.00	
Once a week	0.73	.45-1.2	0.76	.46-1.2	0.82	.43-1.5	0.68	.39-1.4
Once a month	0.48	.22-1.1	0.48	.21-1.1	0.40	.15-1.1	0.67	.22-2.3
Less than once a month	0.55	.26-1.2	0.75	.34-1.7	0.47	.16-1.1	0.63	.19-2.1
Never	0.34*	.12-.97	0.52	.19-1.4	0.38	.12-1.2	0.47	.12-1.8

Behavior

	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
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**	1.2-4.4	2.08*	1.1-3.9	1.84	.80-4.2	2.42*	1.1-5.6
Less than once a month	2.08	.96-4.6	1.69	.78-3.7	2.22	.82-6.0	1.94	.77-4.8
Never	2.47*	1.1-5.8	1.96	.78-4.9	2.18	.78-6.0	1.64	.56-4.8
How often participate in youth activities								
Once a week or more	1.00		1.00		1.00		1.00	
Once a month or more	0.98	.50-1.9	1.24	.67-2.3	1.50	.66-3.4	1.06	.46-2.4
Less than once a month	1.13	.59-2.2	1.07	.58-2.0	1.11	.44-2.8	0.94	.32-2.7
Never	1.20	.55-2.6	1.22	.58-2.6	0.93	.33-2.6	1.24	.46-3.4
Ever repeated a grade	1.04	.63-1.7	0.95	.55-1.6	1.91*	1.1-3.4	1.26	.61-2.6
Ever received out-of-school suspension	0.90	.52-1.6	0.89	.51-1.6	0.87	.44-1.7	0.84	.44-1.6
Ever been expelled	1.16	.27-4.9	0.89	.25-3.1	1.39	.30-6.4	0.78	.17-3.5
Attachment to school	0.97	.90-1.1	0.98	.90-1.1	1.03	.95-1.1	0.98	.91-1.1

Perceived Environment

	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Anticipated consequences of premarital sex from parents	1.01	.91-1.2	1.06	.96-1.2	0.95	.81-1.1	1.07	.95-1.2
Parent-child relationship quality	0.97	.86-1.1	0.97	.88-1.1	0.86*	.75-.98	0.95	.82-1.1
Perceived parental attitudes toward education	1.10	.98-1.2	1.12	.99-1.2	1.17	.99-1.4	1.17*	1.1-1.4
Motivation and anticipated consequences of sex from peers	0.99	.89-1.1	0.99	.91-1.1	0.99	.86-1.1	0.99	.86-1.1

*** p<.001, ** p<.01, *p<.05. Reference category the Postponers class (n=381). Models control for race/ethnicity, parent education, chronological age, and all measures of psychosocial and physical characteristics.

Table 4. Relative risk ratios for multinomial logistic regression of psychosocial, physical, and social factors on latent class membership, females.(n=6,303)

	RRR			95% Confidence Interval				
Characteristic	**Vaginal Initiators/Multiple Behaviors (n=3,541)**		**Dual Initiators (n=1,601)**		**Vaginal Initiators/Single Behaviors (n=577)**		**Early/Atypical Initiators (n=354)**	
Sociodemographic Characteristics								
Race/ethnicity								
Non-Hispanic White	1.00		1.00		1.00		1.00	
Non-Hispanic Black	1.53	.58-4.1	0.49	.20-1.2	1.46**	1.1-2.1	1.87*	1.1-3.2
Hispanic	0.64	.27-1.5	0.40	.16-1.1	1.06	.45-2.5	0.84	.29-2.4
Non-Hispanic Asian/Pacific Islander	0.50	.27-1.1	0.64	.30-1.4	0.88	.33-2.3	1.44	.36-5.8
Non-Hispanic Other Race	1.65	.75-4.7	3.28	.57-6.8	3.98	.54-7.4	3.32	.30-6.9
Highest parental education								
College graduate	1.00		1.00		1.00		1.00	
Some college	1.71	.94-3.1	1.38	.74-2.6	1.23	.56-2.7	2.04	.86-4.9
HS graduate/GED	1.44	.78-2.7	2.06*	1.1-3.8	1.62	.81-3.3	3.13**	1.3-6.1
Less than HS	0.89	.43-1.8	1.02	.43-2.4	1.71	.72-4.1	0.89	.30-2.7
Age	0.52***	.39-.68	0.56***	.44-.72	0.82*	.67-.99	0.47***	.34-63
Physical Characteristics								
Pubertal timing								
Look average	1.00		1.00		1.00		1.00	
Look younger	0.97	.52-1.8	0.88	.50-1.5	1.07	.52-2.2	1.56	.54-4.6
Look older	0.87	.56-1.3	0.69	.46-1.1	0.67	.41-1.1	3.10**	1.4-6.7
BMI classification								
Normal	1.00		1.00		1.00		1.00	
Overweight	0.51*	.26-.97	0.67	.32-1.4	0.52	.21-1.3	0.86	.34-2.2
Obese	0.44*	.20-.98	0.43	.17-1.1	0.51	.20-1.3	1.83	.60-5.6
Perceived weight status								
Normal	1.00		1.00		1.00		1.00	
Underweight	1.08	.47-2.5	1.09	.50-2.4	0.96	.40-2.3	0.66	.20-2.2
Overweight	1.28	.79-2.1	1.26	.75-2.1	1.10	.56-2.2	0.99	.45-2.2
Psychosocial Conventionality								
Personality								
Self-esteem	1.03	.96-1.1	1.05	.97-1.1	1.02	.94-1.1	1.10	.99-1.2
Locus of control	0.83	.62-1.1	1.46	.65-2.1	0.83	.60-1.2	0.70	.44-1.1
Alienation	0.95	.71-1.3	0.95	.73-1.2	1.04	.73-1.5	1.08	.75-1.5
Value of achievement	0.65	.39-1.1	0.65	.40-1.1	0.62	.37-1.1	0.54	.28-1.1

	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Expectation for achievement	1.49*	1.1-2.1	1.46*	1.1-2.0	1.30	.94-1.8	1.52	.93-2.5
Feelings toward premarital sex	1.14	.95-1.4	1.12	.95-1.3	1.02	.86-1.2	1.09	.85-1.4
Importance of religion	1.16	.63-2.1	1.19	.63-2.2	1.63	.85-3.2	0.96	.46-2.0
How often pray								
Once a day or more	1.00		1.00		1.00		1.00	
Once a week	1.06	.49-2.3	0.89	.43-1.8	1.18	.52-2.7	0.70	.27-1.8
Once a month	1.01	.47-2.2	1.16	.53-2.6	1.36	.54-3.4	0.52	.27-1.8
Less than once a month	1.24	.47-3.2	1.54	.59-4.0	0.82	.28-2.4	0.54	.12-2.3
Never	2.55	.61-5.7	1.40	.58-3.8	1.95*	1.2-2.7	1.87	.33-2.7
Behavior								
How often attend religious services								
Once a week or more	1.00		1.00		1.00		1.00	
Once a month or more	1.30	.74-2.3	1.48	.87-2.5	1.11	.60-2.1	0.91	.36-2.3
Less than once a month	1.36	.60-3.1	1.12	.52-2.4	1.03	.42-2.5	0.47	.16-1.4
Never	0.57	.18-1.7	0.64	.23-1.8	0.64	.19-2.1	0.36	.08-1.7
How often participate in youth activities								
Once a week or more	1.00		1.00		1.00		1.00	
Once a month or more	1.04	.54-2.0	0.87	.47-1.7	1.10	.48-2.5	0.51	.18-1.4
Less than once a month	1.44	.70-2.9	1.61	.77-3.4	1.04	.43-2.5	1.99	.72-5.6
Never	0.61	.28-1.3	0.77	.32-1.8	0.61	.24-1.5	0.95	.96-2.5
Ever repeated a grade	1.02	.46-2.3	1.07	.46-2.5	2.04	.97-4.3	1.06	.34-3.3
Ever received out-of-school suspension	0.78	.34-1.8	0.52	.22-1.2	1.05	.46-2.4	0.58	.17-1.9
Ever been expelled	1.49	.08-1.6	1.07	.06-1.8	1.44	.10-2.2	0.30	.01-1.7
Attachment to school	0.97	.89-1.1	0.98	.91-1.1	1.02	.93-1.1	0.96	.87-1.1
Perceived Environment								
Anticipated consequences of premarital sex from parents	1.01	.89-1.2	0.98	.85-1.1	1.03	.90-1.2	1.02	.86-1.2
Parent-child relationship quality	0.83***	.76-.92	0.86**	.79-.93	0.92	.81-1.1	0.82**	.73-.92
Perceived parental attitudes toward education	0.95	.83-1.1	.98	.84-1.1	0.96	.83-1.1	1.02	.82-1.3
Motivation and anticipated consequences of sex from peers	0.89	.78-1.1	0.92	.81-1.1	0.97	.83-1.1	0.94	.78-1.1

*** $p<.001$, ** $p<.01$, *$p<.05$. Reference category is the Postponers class (n=230). Models control for race/ethnicity, parent education, chronological age, and all measures of psychosocial and physical characteristics.