

# Reconceptualizing Adolescent Sexual Behavior: Beyond Did They or Didn't They?

By Daniel J. Whitaker, Kim S. Miller and Leslie F. Clark

**Context:** Adolescent sexual behavior is typically studied as a dichotomy: Adolescents have had sex or they have not. Broadening this view would lead to a greater understanding of teenagers' sexual behavior.

**Methods:** Interview data from 907 high school students in Alabama, New York and Puerto Rico were used to examine the relationships between sexual experience and a variety of social, psychological and behavioral variables. Four groups of teenagers are compared: those who did not anticipate initiating sex in the next year (delayers), those who anticipated initiating sex in the next year (anticipators), those who had had one sexual partner (singles) and those who had had two or more partners (multiples).

**Results:** Compared with delayers, anticipators reported more alcohol use and marijuana use; poorer psychological health; riskier peer behaviors; and looser ties to family, school and church. Similarly, multiples reported more alcohol and marijuana use, riskier peer behaviors and looser ties to family and school than singles. Risk behaviors, peer behaviors, family variables, and school and church involvement showed a linear trend across the four categories of sexual behavior.

**Conclusions:** The traditional sex–no sex dichotomy obscures differences among sexually inexperienced teenagers and among adolescents who have had sex. Prevention efforts must be tailored to the specific needs of teenagers with differing sexual experiences and expectations, and must address the social and psychological context in which sexual experiences occur.

Family Planning Perspectives, 2000, 32(3):111–117

The study of adolescent sexual behavior has been motivated largely by the health and social problems that may result when young people have unprotected sexual intercourse. Prevention efforts aimed at meeting national health objectives have focused on delaying sexual onset among adolescents who have not had sex and promoting condom use among adolescents who are sexually active. Although the proportions of adolescents who delay sexual onset and who use condoms have increased somewhat,<sup>1</sup> a great deal of risky sexual behavior continues.<sup>2</sup> As a result, teenagers experience a large number of unplanned pregnancies and sexually transmitted diseases, including HIV.<sup>3</sup>

Our understanding of adolescent sexuality is limited, and improving that understanding promises to speed the progress toward meeting the nation's public health objectives. For theoretical, practical and political reasons, most research has focused on examining the correlates of early sexual initiation and condom use, rather than on understanding adolescents' sexual experiences. Among these reasons are the secrecy surrounding sexual behavior, which has hindered open communication about sexuality,<sup>4</sup> and the fact that "sexuality is

conceptualized in a negative and problematic context," with the intent of preventing diseases and unplanned pregnancies.<sup>5</sup> For these and other reasons, adolescent sexuality is typically conceptualized and studied as a dichotomy: Adolescents have had sex or they have not.

However, the dichotomous sex–no sex view does not take into account the psychological and social context in which sexual behavior occurs—for example, such factors as whether an adolescent has had one partner or many, how long the young people have known each other, whether alcohol is used at the time of a sexual encounter and the age difference between partners.<sup>6</sup> As a result, this view limits the ability of programs, educators and others to prevent teenagers from engaging in risky behaviors.<sup>7</sup>

A broader conceptualization of adolescent sexual experiences will improve the understanding of adolescent sexuality and aid in preventing risky sexual behaviors. In this article, we examine social, psychological and behavioral differences across an expanded typology of adolescent sexual experience.

A typology advanced by Miller and colleagues considers the readiness to engage in sex among adolescents who have not

yet had sex, and the number and types of partners among adolescents who have.<sup>8</sup> It classifies adolescents into five groups, on the basis of their experiences or expectations with regard to heterosexual activity: those who have not had sex and have a low expectation that they will do so in the next year (delayers), those who have not had sex but have a high expectation that they will in the next year (anticipators), those who have had sex one time (one-timers), those who have had sex more than once but with only one partner (steadies) and those who have had sex more than once and with two or more partners (multiples).

Previous research indicates that compared with delayers, anticipators engage in more pre-coital behaviors (kissing, touching)<sup>9</sup> and have less informational support;<sup>10</sup> multiples begin sexual activity earlier and use condoms less than one-timers and steadies.<sup>11</sup> Other findings support the validity of the typology: Adolescents who anticipate having sex in the next six months are more likely to do so than are those who do not expect to,<sup>12</sup> and teenagers who have had multiple partners begin sexual activity earlier and use condoms less than those who have had only one.<sup>13</sup>

For our study, we adapted Miller and colleagues' typology by combining one-timers and steadies into one group of adolescents who had had one sex partner, whom we term singles. We focused on comparisons between groups of teenagers who had had sex (i.e., singles and multiples) and between those who had not had sex (i.e., delayers and anticipators), because these comparisons are obscured by the traditional sex–no sex dichotomy. In addition, we examined the linear trend across the four groups to better understand the association between the social, psychological and behavioral variables and teenagers' level of sexual experience.

We analyzed dependent measures from the perspective that sexual risk behavior is

Daniel J. Whitaker is research psychologist and Kim S. Miller is research sociologist, both at the Centers for Disease Control and Prevention, Atlanta. Leslie F. Clark is associate professor, Department of Health Behavior, School of Public Health, University of Alabama at Birmingham.

determined by multiple factors at multiple levels.<sup>14</sup> For example, teenagers' sexual activity or abstinence may be supported by various levels of factors—individual (e.g., intellect and drug use), peer (e.g., norms and behavior), familial (e.g., parental monitoring and socioeconomic status) and institutional (e.g., school and church).<sup>15</sup> Teenagers who have had sex differ from those who have not with respect to attitudes and beliefs,<sup>16</sup> peer norms,<sup>17</sup> alcohol and drug use,<sup>18</sup> parental factors,<sup>19</sup> school involvement<sup>20</sup> and church involvement.<sup>21</sup> We examined whether differences for those variables existed for typology groups within the traditional sex–no sex dichotomy and linearly across the typology groups.

## Methods and Variables

### *Sample and Procedure*

Participants were drawn from the Family and Adolescent Risk Behavior and Communication Study, a cross-sectional study of adolescent-mother pairs conducted in 1993–1994 in Montgomery, Alabama; New York City; and San Juan, Puerto Rico. Participants were recruited through high schools that had an overrepresentation of black or Puerto Rican adolescents. A more complete description of the sample has been published elsewhere.<sup>22</sup>

Interested adolescents telephoned researchers and were screened for eligibility at that time. Eligible adolescents were 14–16 years old at enrollment, were in grades 9–11 and had lived with their mother and in the recruitment area for at least the past 10 years. Eligible mothers were the biological or adoptive mother or stepmother of the adolescent. Of the 1,733 students who provided screening information, 1,124 were eligible; 982 (87%) of the eligible pairs were interviewed.

An interviewer matched by ethnicity and gender to the participant conducted separate interviews with the mother and the adolescent. Mothers were interviewed first whenever possible (91% of the pairs), to ease the adolescents' concerns that their responses would be discussed with their mother. Analyses of the interview data revealed that 907 of the 982 pairs met all eligibility requirements. We used both the adolescents' and the mothers' responses for our analyses.

### *Typology*

We used three items to classify adolescents according to our adapted typology: whether teenagers had ever had penile-vaginal intercourse; the extent to which teenagers who had not had penile-vaginal intercourse expected to do so in the next

year (rated on a scale from one, indicating that they were sure it would not happen, to five, indicating that they were sure it would happen); and the number of partners sexually experienced teenagers had had. Data for one or more items were missing for 13 participants, who thus could not be classified; our analyses are therefore based on data for 894 adolescents.

In all, 37% of the sample had never had intercourse and rated their expectation for having intercourse in the next year as less than 50%; we categorized these adolescents as delayers. Another 22% had never had intercourse but rated their expectations for doing so in the next year as 50% or more; we considered this group anticipators. Some 13% of participants had had intercourse with only one partner (singles), while 27% had had sex with more than one partner (multiples).

### *Individual-Level Factors*

• *Risk behaviors.* The risk behaviors we examined were similar to those discussed in earlier research.<sup>23</sup> Adolescents reported whether they had ever smoked cigarettes, whether they had ever used alcohol, whether they had had five or more drinks on a single occasion during the past 12 months (heavy alcohol use) and whether they had ever used marijuana. They also reported the number of physical fights they had been in during the last 12 months, how often they had carried a weapon to school during the past 12 months (rated on a scale from one, indicating never, to five, indicating always) and whether they had ever been held overnight in jail or a detention center.

• *Psychological factors.* Six psychological factors were measured: self-esteem, perceived control, future outlook, hopelessness, whether the adolescent has a role model and whether he or she is a role model. All of these measures were based on the adolescent's report; the first four were developed from items taken from validated scales. The four scaled items were factor-analyzed.

First, we factor-analyzed 11 items from Coopersmith's self-esteem scale<sup>24</sup> that had been presented to the adolescents as a single scale. Four of the items loaded onto the largest factor, which accounted for 36% of the variance. Those four items ("I wish I were different"; "I often wish I were someone else"; "I like the kind of person I am"; and "I am very happy the way I am") were retained as a measure of self-esteem.

Next, we factor-analyzed 12 items that had been presented to the adolescents as a single scale; three factors emerged. Per-

ceived control was made up of five items ("I have little control over the things that happen to me"; "There is really no way I can solve some of the problems I have"; "Sometimes I feel that I'm being pushed around in life"; "There is little I can do to change many of the important things in my life"; and "I often feel helpless in dealing with the problems of life"). Positive future outlook comprised four items ("What happens to me in the future mostly depends on me"; "I can do just about anything I really set my mind to do"; "My future is what I make of it"; and "I have great faith in the future"). Hopelessness included three items ("Sometimes I feel there is nothing to look forward to in the future"; "I just live for today"; "It's really no use worrying about the future, because what will be will be"). Scales were formed so that higher scores indicate higher self-esteem, greater control, a more positive future outlook and greater hopelessness.

Each of the final two psychological measures—having a role model and being a role model—was measured with a single yes-or-no question.

### *Peer-Level Factors*

We assessed adolescents' perceptions of peer group norms regarding having sex, being pregnant or having gotten someone pregnant, using alcohol and having been in jail. We computed the proportion of an adolescent's close friends who had engaged in each behavior on the basis of the participant's reports of how many close friends he or she had and how many of those had engaged in each behavior.

### *Family-Level Factors*

• *Parenting variables.* Multiple aspects of the mother's parenting were examined from the reports of the adolescent and the mother: monitoring, closeness, communication and parenting locus of control. We focused on mothers rather than fathers because the adolescents in the study had differing amounts of contact with their fathers (46% did not live with their father, whereas living with their mother was an inclusion criterion for the study), and because the mothers' responses were used in some of the measures.

Monitoring represents the extent to which parents are aware of their child's behavior. Four items, from the strictness/supervision scale,<sup>25</sup> were used to assess the extent to which the mother knew where the adolescent went at night, what the adolescent did with his or her free time, where the adolescent went most afternoons after school and who the ado-

**Table 1. Individual-level correlates of sexual activity, by teenagers' sexual experience, and p-values showing significance of various effects and comparisons, Family and Adolescent Risk Behavior and Communication Study, 1993–1994**

Measure	Sexual experience				p-value				
	Delayers	Anticipators	Singles	Multiples	Sexual experience		Delayers vs. anticipators	Singles vs. multiples	Effect of increasing experience
					Main effect	Interaction with gender			
<b>RISK BEHAVIOR</b>									
<b>Percentages</b>									
Ever smoked	19.8	37.4	42.7	52.6	<.001	.86	<.001	.08	<.001
Ever used alcohol	na	na	na	na	<.001	.004	na	na	na
Females	58.5	71.2	59.7	83.3	<.001	na	.02	<.001	<.001
Males	37.2	60.0	76.0	78.8	<.001	na	.003	.67	<.001
Used alcohol heavily ( 5 drinks) in past year	4.9	14.4	14.9	35.8	<.001	.64	<.001	<.001	<.001
Ever used marijuana	4.5	13.1	15.4	34.3	<.001	.65	<.001	<.001	<.001
Ever held in jail	0.9	1.0	0.9	5.7	<.001	.42	.89	.03	<.001
<b>Means</b>									
No. of times in fight	0.60	0.86	1.55	2.14	<.001	.73	.50	.11	<.001
Carried a weapon to school in past year	1.17	1.36	1.41	1.77	<.001	.98	.03	<.001	<.001
<b>PSYCHOLOGICAL FACTORS</b>									
<b>Percentages</b>									
Has role model	na	na	na	na	.007	.04	na	na	na
Females	66.4	63.9	76.1	75.0	.025	na	.64	.87	.07
Males	66.7	41.1	60.0	54.7	.002	na	<.001	.51	.57
Is role model	63.2	53.7	71.2	66.5	<.001	.37	.03	.38	.15
<b>Means</b>									
Self-esteem	12.73	12.22	12.35	12.35	.05	.10	.02	.23	.06
Perceived control	na	na	na	na	.52	.01	na	na	na
Females	14.73	13.96	14.03	13.86	.02	na	.02	.72	.03
Males	13.67	13.77	13.84	14.52	.04	na	.80	.10	.02
Positive future outlook	13.77	13.55	13.67	13.60	.90	.88	.41	.92	.95
Hopelessness	6.18	6.76	6.72	6.59	<.001	.34	<.001	.66	.004

Notes: na=not applicable because comparison was not performed. Where the interaction between sexual experience and gender was significant, remaining comparisons were performed separately for females and males. Linear effect was tested using the Mantel-Haenszel chi-square for categorical data and a contrast with weights of -3, -1, +1 and +3 for the four sexual experience levels for the continuous data. Scaled items are scored so that the higher the score, the greater the feelings of self-esteem, control, etc.

lescent's friends were. Adolescents and mothers responded to these items, so we computed two indices of monitoring ( =.68 for adolescents; =.71 for mothers).

The index of mother-child closeness was based on adolescents' responses to four items ("My mother and I are good friends"; "My mother and I are really close to one another"; "I trust my mother"; and "My mother really loves me"). The items were summed to form the index of maternal closeness ( =.86).

We used seven questions from Barnes and Olson's communication scale<sup>26</sup> to construct mother-child communication indices. Both adolescents and their mothers responded to the items (e.g., "My mother and I can talk about almost anything"; "When I ask questions, I get honest answers from my mother"), so we summed each set of responses to form separate indices ( =.90 for adolescents; =.85 for mothers).

Parental locus of control is the degree to which a parent feels in control of her child's behavior. We assessed 10 items, which were adapted from an established scale for parenting locus of control<sup>27</sup> (e.g., "I find that sometimes my son/daughter can get me to do things I really did not

want to do"; "I feel in control when it comes to my son/daughter"; "I allow my son/daughter to get away with things"). Negatively worded items were reversed, and we summed the 10 items to form the index of parental locus of control ( =.85).

•*Family structure.* We assessed four measures of the family's structure. On the basis of the mother's report, we assigned the family's monthly income to one of seven categories, ranging from less than \$200 to \$4,000 or more; we treated this variable as a continuous measure. Each parent's education, as reported by the mother, was classified as less than high school graduate, high school graduate or beyond a high school degree. Finally, we assessed whether the household was single- or dual-parent from the adolescent's report of whether a biological father, adoptive father or stepfather was present.

#### *Institutional-Level Factors*

We also examined participants' involvement with two extrafamilial institutions—school and the church. For school involvement, we asked several questions: "How important is it to do well at school?" (possible responses ranged from one, in-

dicating not at all, to five, indicating very important); "How much do you like school?" (choices ranged from one, signifying not at all, to four signifying a lot); "How far would you like to go in school?" (adolescents could choose from among five responses, ranging from not caring if they graduate from high school to wanting to graduate from high school, technical school, college, or graduate or professional school); and "How far do you think you will actually go in school?" (with the same five possible answers). To assess school performance, we asked the adolescents what their grade point average is, whether they had been suspended in the past year and whether they had ever been held back a grade.

We asked two questions to assess religiousness: how often the adolescents attend religious services (four possible responses ranged from never to about once a week or more) and how important their religious beliefs are to them (five choices ranged from not at all to very). The questions were conceptually similar, and although they were not highly correlated ( $r=.34$ ), we averaged them to form a single index.

**Table 2. Percentage of respondents reporting various peer behaviors, by teenagers' sexual experience, and p-values showing significance of various effects and comparisons**

Measure	Sexual experience				p-value				
	Delayers	Anticipators	Singles	Multiples	Sexual experience		Delayers vs. anticipators	Singles vs. multiples	Effect of increasing experience
					Main effect	Interaction with gender			
Ever had sex	34.0	51.7	70.0	83.2	<.001	.61	<.001	<.001	<.001
Ever used alcohol	41.8	61.1	54.8	71.1	<.001	.37	<.001	<.001	<.001
Ever pregnant/made someone pregnant	na	na	na	na	<.001	.05	na	na	na
Females	9.2	8.8	22.2	27.1	<.001	na	.89	.22	<.001
Males	3.2	3.1	3.6	15.0	<.001	na	.96	<.001	<.001
Ever in jail	na	na	na	na	<.001	.03	na	na	na
Females	3.6	7.9	1.5	10.4	<.001	na	.02	<.001	.03
Males	1.7	10.8	5.2	19.8	<.001	na	.02	<.001	<.001

Notes: na=not applicable because comparison was not performed. Where the interaction between sexual experience and gender was significant, remaining comparisons were performed separately for females and males. Linear effect was tested using the Mantel-Haenszel chi-square for categorical data and a contrast with weights of -3, -1, +1 and +3 for the four sexual experience levels for the continuous data.

### Analytic Plan

We conducted the analyses in several steps. First, for each dependent measure, we examined the overall effect of adolescents' level of sexual experience and whether that effect differed for female and male teenagers. To determine gender differences in the effects of sexual experience, we tested the interaction between sexual experience and gender by using analyses of variance for continuous dependent measures and log-linear analysis for categorical dependent measures. If the interaction was significant, the remaining analyses for that variable were conducted separately for females and males; if not, gender was not considered further for that variable.

Next, for dependent variables that showed a significant main effect for sexual experience or a significant interaction between sexual experience and gender, we tested the hypotheses by comparing delayers and anticipators, comparing singles and multiples, and testing the linear trend across the four groups. We used planned comparisons (which use the error term from the omnibus test) for continuous dependent variables and two-group chi-square tests for categorical dependent variables. To test the linear trend, we used a planned com-

parison (cell weights, -3, -1, +1, +3) for continuous variables and the Mantel-Haenszel chi-square for categorical variables.

## Results

### Sexual Experience and Gender

Adolescents' level of sexual experience had a significant main effect on every risk behavior and every psychological variable except perceived control (for the sample overall) and positive future outlook (Table 1, page 113).<sup>\*</sup> It also had a significant impact on all peer behaviors (Table 2), all parenting variables (Table 3) and all school and religion variables (Table 4, page 116). In contrast, sexual experience had a significant effect on only one family structure variable: living in a single-parent household (Table 3).

The interaction between sexual experience and gender was significant for seven variables: lifetime alcohol use, having a role model and perceived control (Table 1); having friends who had been involved in a pregnancy and having friends who had ever in been in jail or a detention center (Table 2); maternal closeness (Table 3); and the importance of doing well in school (Table 4). Therefore, we analyzed these variables separately for females and males.

### Delayers vs. Anticipators

Students who had not had sex and did not expect to within the next year (delayers) differed from those who expected to initiate sexual activity soon (anticipators) on some or all variables in every category except family structure. Compared with delayers, anticipators reported more cigarette use, lifetime alcohol use (both genders), heavy alcohol use, marijuana use and weapon carrying. They also reported lower self-esteem, less control (females only) and more hopelessness, and

they were less likely to have a role model (males only) and to be a role model for someone else (Table 1). For peer norms, students who expected to begin having sex soon were more likely than those who did not to say that their friends had engaged in sex, used alcohol and been in jail or a detention center (both genders).

Anticipators also reported less parental monitoring, less closeness with their parents (both genders) and poorer communication with their parents than delayers. Finally, they reported lower school enjoyment, lower expectations for school achievement, more suspensions from school and less involvement in a religious institution than their peers who did not expect to initiate intercourse within the next year.

In sum, compared with delayers, anticipators are clearly in a high-risk context that is consistent with their expectation of pending sexual initiation.

### Singles vs. Multiples

Depending on whether they had had one partner or more, sexually experienced adolescents differed on risk behaviors, peer norms, parenting variables and involvement in school and church, but not on psychological or family structure variables. Compared with those who had had only one partner (singles), adolescents who had had at least two (multiples) reported more lifetime alcohol use (females only), heavy alcohol use, marijuana use, experience in jail or a detention center, and weapon carrying. Multiples also were more likely than singles to have friends who had had sex, who had used alcohol and who had been in jail or a detention center (both genders); young men who had had more than one partner were more likely to have a friend who had gotten someone pregnant than

<sup>\*</sup>There were no differences in age between delayers and anticipators, or between one-timers, steadies and multiples (see reference 8). However, when we combined the one-timers and the steadies into one group who had had one partner, that group (singles) was slightly younger than the multiples—15.4 vs. 15.6 years, on average ( $t[360]=2.04, p=.04$ ). Because there were age differences between singles and multiples, we included age as a covariate in these omnibus analyses. Age had almost no influence on the sexual experience effects. The only variable to be influenced was living in a single-parent household. When age was included, the sexual experience effect changed from a significant level ( $p=.04$ ) to a nonsignificant level ( $p=.10$ ). Because age had little effect on the results, none of the analyses reported include age as a covariate.

were their peers who had had one partner.

Multiples reported less parental monitoring and closeness (females only) than singles, and their mothers reported less monitoring and a lower locus of control than did the mothers of singles. Finally, students who had had multiple partners rated school as less important (females only), liked school less, expected lower achievement, reported more suspensions and were more likely to have been held back a grade than were those who had had one partner.

Thus, compared with singles, multiples reported higher risk not only with regard to their sexual behavior but also with regard to their peer groups, family and school involvement.

### Linear Trends

We expected to find higher scores across the levels of sexual experience for variables that support greater sexual activity (e.g., having peers who are sexually active), and lower scores for variables that support abstinence (e.g., parental monitoring). The predicted trends were strong for risk behaviors (Table 1), peer behaviors (Table 2), parenting factors (Table 3) and involvement with school or religion (Table 4): Within these categories, every

variable showed a significant linear trend.

For the psychological factors (Table 1), only perceived control and hopelessness showed significant linear trends. The trend for perceived control differed by gender: Females reported less control across higher levels of sexual experience, while the opposite was true for males. Hopelessness increased with higher levels of sexual experience.

Finally, one family structure variable—living in a single-parent household—showed a significant linear trend. The proportion of participants living with only one parent rose significantly as the level of sexual experience increased.

It is notable that for several variables—suspended in the past year, heavy alcohol use, marijuana use, being in jail, peer pregnancies (males only) and peers in jail (males only)—the linear effect does not appear to fully explain the pattern of data. Specifically, the effect associated with having had multiple partners is greater than the linear trend would predict.

### Discussion

Our results bear out our argument that a broader conceptualization of adolescent sexual experience is necessary to fully understand teenagers' sexual behavior and

to prevent risky behavior. The data show social, psychological and behavioral differences between groups of adolescents whom researchers and program planners typically group together: Sexually inexperienced teenagers who do not expect to have sex soon differ from those who do with respect to risk behaviors, psychological health, peer norms, parenting factors and school or religious involvement; except for psychological health, these factors also distinguish young people who have had one sexual partner from those who have had two or more.

Our findings for risk behaviors, peer norms, parenting factors, and involvement in school and religion are consistent with the findings of researchers who have used the dichotomous sex–no sex approach and examined similar dependent measures. However, our data expand these findings by revealing differences that the sex–no sex dichotomy obscures.

Family structure was not related to sexual experience in our sample, although other studies have shown a relationship.<sup>28</sup> No clear trend emerged for the psychological variables. Delayers reported greater psychological health than anticipators (e.g., greater self-esteem, less hopelessness), but singles and multiples did not dif-

**Table 3. Family-level correlates of sexual activity, by teenagers' sexual experience, and p-values showing significance of various effects and comparisons**

Measure	Sexual experience				p-value				
	Delayers	Anticipators	Singles	Multiples	Sexual experience		Delayers vs. anticipators	Singles vs. multiples	Effect of increasing experience
					Main effect	Interaction with gender			
<b>PARENTING FACTORS</b>									
<b>Means</b>									
<b>Monitoring</b>									
Adolescent's report	13.71	12.45	12.67	11.71	<.001	.13	<.001	.004	<.001
Mother's report	14.09	13.55	13.21	12.50	<.001	.49	.01	<.001	<.001
<b>Closeness</b>									
(adolescent's report)	na	na	na	na	<.001	.01	na	na	na
Females	13.99	13.39	13.15	12.34	<.001	na	.03	.04	<.001
Males	14.25	13.42	13.32	13.69	.02	na	.008	.25	.05
<b>Communication</b>									
Adolescent's report	21.63	20.35	19.36	18.89	<.001	.15	.003	.17	<.001
Mother's report	23.01	22.62	22.01	21.60	<.001	.35	.34	.26	<.001
Mother's locus of control	30.55	29.68	29.48	28.31	<.001	.07	.11	.02	<.001
<b>FAMILY STRUCTURE</b>									
<b>Percentages</b>									
<b>Mother's education</b>									
<high school	19.8	19.2	23.9	19.6	.92	.06	.57	.46	.92
High school	23.7	27.8	25.6	23.2					
>high school	56.5	53.0	50.4	57.1					
<b>Father's education</b>									
<high school	29.6	33.7	34.5	31.9	.49	.48	.23	.56	.76
High school	32.4	35.8	25.4	31.1					
>high school	38.0	30.5	40.0	37.0					
Single-parent household	42.9	43.9	45.3	51.8	.04	.48	.82	.24	.03
<b>Mean</b>									
Income	4.09	3.88	4.05	4.17	.29	.62	.30	.47	.22

Notes: na=not applicable because comparison was not performed. Where the interaction between sexual experience and gender was significant, remaining comparisons were performed separately for females and males. Linear effect was tested using the Mantel-Haenszel chi-square for categorical data and a contrast with weights of -3, -1, +1 and +3 for the four sexual experience levels for the continuous data. Scaled items are scored so that the higher the score, the greater the level of monitoring, closeness, etc.

**Table 4. Institutional-level correlates of sexual activity, by teenagers' sexual experience, and p-values showing significance of various effects and comparisons**

Measure	Sexual experience				p-value				
	Delayers	Anticipators	Singles	Multiples	Sexual experience		Delayers vs. anticipators	Singles vs. multiples	Effect of increasing experience
					Main effect	Interaction with gender			
<b>Percentages</b>									
Suspended in past year	10.2	16.2	17.1	31.0	<.001	.60	.04	.005	<.001
Ever held back a grade	10.2	15.2	20.5	32.2	<.001	.95	.08	.02	<.001
<b>Means</b>									
Importance of doing well	na	na	na	na	<.001	.001	na	na	na
Females	4.87	4.75	4.88	4.42	<.001	na	.06	<.001	<.001
Males	4.70	4.71	4.64	4.65	.83	na	.95	.95	.40
Likes school	3.48	3.29	3.26	3.13	<.001	.38	.01	.05	<.001
Desired achievement	4.29	4.10	4.10	3.86	.005	.80	.13	.13	<.001
Expected achievement	4.08	3.73	3.86	3.53	<.001	.83	.002	.01	<.001
Grade point average	2.44	2.22	2.14	1.97	<.001	.62	.10	.23	<.001
Religious involvement	3.66	3.46	3.31	3.26	<.001	.89	.01	.59	<.001

Notes: na=not applicable because comparison was not performed. Where the interaction between sexual experience and gender was significant, remaining comparisons were performed separately for females and males. Linear effect was tested using the Mantel-Haenszel chi-square for categorical data and a contrast with weights of -3, -1, +1 and +3 for the four sexual experience levels for the continuous data. Scaled items are scored so that the higher the score, the greater the desired achievement, religious involvement, etc. Grade point average was measured on a four-point scale.

fer. Other work examining the relationship between self-esteem and sexual behavior among adolescents has had mixed results: Some researchers have reported no relationship,<sup>29</sup> and some have found different patterns for males and females.<sup>30</sup>

We found an intriguing interaction between sexual experience and gender with regard to psychological control: As sexual experience increased, males reported greater control, but females reported less. These relationships warrant further study.

The data also reveal linear relationships between level of sexual experience and several types of variables: Greater sexual experience was associated with greater risk behaviors, riskier peer norms, poorer parenting and less involvement in school and religion. However, the relationship between certain factors and sexual experience does not appear to be strictly linear; this finding also warrants further study.

### Implications for Interventions

The data have two primary implications for researchers and health educators who either study adolescents or provide young people with services related to their sexual behavior: They should assess adolescent sexual experience in greater detail, and they should assess and address the social and psychological context in which sexual experiences occur.

First, assessing adolescents' sexual experiences in greater detail is necessary to tailor interventions and messages from health educators. Prevention programs and messages are often targeted to specific groups on the basis of gender, ethnicity or age.<sup>31</sup> Targeting messages to adolescents' specific sexual experiences should make those messages even more relevant and therefore

more effective. This approach would be similar to Prochaska's stages-of-change model,<sup>32</sup> which has been used successfully to modify behavior such as smoking, mammography screening and fat intake.<sup>33</sup>

Abstinence-based messages about sexual behavior may be effective for adolescents who do not see themselves as ready for sex (delayers), but not for adolescents who do (anticipators). If anticipators initiate sex in a short time, as longitudinal studies suggest they do,<sup>34</sup> they may need messages that focus on the potential consequences of having sex, peer pressure and skills in safer-sex negotiation and condom use. Likewise, adolescents who are sexually active may need tailored messages that address their sexual experiences. Adolescents who have sex in the context of a committed relationship may respond best to interventions that address relationship issues such as trust and commitment, or that involve their partner. Teenagers who have multiple sex partners do so in an extremely high-risk context, as evidenced by our data, and additional work is needed to determine what kinds of interventions and messages will be most effective for them.

The second implication is that prevention programs and health educators should address the social and psychological context in which sexual behavior occurs as part of their intervention or message. Our data clearly show that riskier sexual experiences occur in a unique social and psychological context, which may be evident even before teenagers begin to engage in sex, as illustrated by the comparisons between delayers and anticipators. Interventions must better address factors such as peer norms, parenting and

connections to institutions such as school and religion that may motivate adolescents to delay sexual activity.

The typical approach is to provide information and skills to the individual adolescent. Although such information and skills are necessary, they may not be sufficient for adolescents whose context supports their having sex. Interventions are needed that improve important parenting skills (e.g., monitoring and communication) or increase young people's commitment to school. Such interventions should be carried out early—that is, with children who have not reached adolescence. Reductions in sexual activity have been found among youngsters who were involved in community service<sup>35</sup> or who participated in a program to increase commitment to school, if the program was implemented before grades five and six.<sup>36</sup> The idea of addressing the social context as a way to prevent risk behavior is not new, but has not been widely implemented.

From a research perspective, it will be important to examine adolescents' changing sexual experiences (e.g., how adolescents move from being delayers to being anticipators). Given the linear trends across levels of sexual experience in our data, it is tempting to conclude that the variables examined are causal. However, our data are strictly a snapshot of the social, psychological and behavioral context of adolescents with differing sexual experiences. We do not know whether the dependent measures we analyzed are antecedents or consequences of particular sexual experiences, nor do we know how those variables influence movement into new sexual experiences. Longitudinal research is needed to answer those questions.

## Limitations

Our study had several limitations. First, as noted, the data are cross-sectional; longitudinal data are needed to untangle cause and effect. A second limitation concerns the sample. Although we recruited students at three sites, we did not randomly sample adolescent-mother pairs. Participants volunteered for the study, which may have resulted in the inclusion of particularly motivated, well-adjusted participants. Still, the level of sexual behavior in the sample was considerable: More than one-quarter had had multiple sex partners.

A third limitation is that the data were self-reported, and thus contain all of the problems inherent to self-report measures. Given that we collected self-reports from two sources—the adolescent and the mother—and that those sources led to similar conclusions, self-report problems probably did not undermine the validity of our research. Finally, the study was conducted only with youth who identified themselves as heterosexual. We do not know whether the findings would be the same for homosexual youth; in fact, we do not know if and how the typology applies to homosexual youth at all.

## Conclusion

The typical dichotomizing of adolescents into sexually experienced and not sexually experienced is limiting because it narrows the range of sexual behavior. This, in turn, restricts our understanding of how sexual behavior develops and our ability to prevent risky behavior. Focusing on adolescents' sexual experiences and the social and psychological context in which those experiences occur can improve efforts to prevent risky sexual behaviors and promote sexual health.

## References

1. Trends in sexual risk behavior among high school students—United States, 1991–1997, *Morbidity and Mortality Weekly Report*, 1998, 47(36):749–752; and Ku L et al., Understanding changes in sexual activity among young metropolitan men: 1979–1995, *Family Planning Perspectives*, 1998, 30(6):256–262.
2. The Alan Guttmacher Institute (AGI), *Sex and America's Teenagers*, New York: AGI, 1994; and Trends in sexual risk behavior..., 1998, op. cit. (see reference 1).
3. AGI, 1994, op. cit. (see reference 2); and Valleroy LA et al., HIV infection in disadvantaged out-of-school youth: prevalence for U.S. Job Corps entrants, 1990 through 1996, *Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology*, 1998, 19(1):67–73.
4. Institute of Medicine, *The Hidden Epidemic: Confronting Sexually Transmitted Diseases*, Washington, DC: National Academy Press, 1996.

5. DiMauro D, *Sexuality Research in the United States: An Assessment of the Social and Behavioral Sciences*, New York: Social Science Research Council, 1995, p. 17.
6. Miller KS, Clark LF and Moore JS, Sexual initiation with older male partners and subsequent HIV risk behavior among female adolescents, *Family Planning Perspectives*, 1997, 29(5):212–214.
7. DiMauro D, 1995, op. cit. (see reference 5).
8. Miller KS et al., Adolescent heterosexual experience: a new typology, *Journal of Adolescent Health*, 1997, 20(3): 179–186.
9. Ibid.
10. Miller KS, Whitaker DJ and Clark LF, Informational support differences between delayers and anticipators, Atlanta: Centers for Disease Control and Prevention, 1999.
11. Miller KS et al., 1997, op. cit. (see reference 8).
12. Stanton BF et al., Longitudinal stability and predictability of sexual perceptions, intentions, and behaviors among early adolescent African-Americans, *Journal of Adolescent Health*, 1996, 18(1):10–19.
13. Santelli JS et al., Multiple sexual partners among U.S. adolescents and young adults, *Family Planning Perspectives*, 1998, 30(6):271–275.
14. Jessor R and Jessor SL, *Problem Behavior and Psychosocial Development: A Longitudinal Study of Youth*, New York: Academic Press, 1977; and Perkins DF et al., An ecological risk-factor examination of adolescent sexual activity in three ethnic groups, *Journal of Marriage and the Family*, 1998, 60(3):660–673.
15. Small SA and Luster T, Adolescent sexual activity: an ecological, risk-factor approach, *Journal of Marriage and the Family*, 1994, 56(1):181–192.
16. Basen-Engquist K and Parcel GS, Attitudes, norms, and self-efficacy: a model of adolescents' HIV-related sexual risk behavior, *Health Education Quarterly*, 1992, 19(2): 263–277.
17. DiClemente RJ, Predictors of HIV-preventive sexual behavior in a high-risk adolescent population: the influence of perceived peer norms and sexual communication on incarcerated adolescents' consistent use of condoms, *Journal of Adolescent Health*, 1991, 12(5):385–390; and Fisher JD, Misovich SJ and Fisher WD, Impact of perceived social norms on adolescents' AIDS-risk behavior and prevention, in: DiClemente RJ, ed., *Adolescents and AIDS: A Generation in Jeopardy*, Newbury Park, CA: Sage, 1992, pp. 117–136.
18. Lowry R et al., Substance use and HIV-related sexual behaviors among U.S. high school students: are they related? *American Journal of Public Health*, 1994, 84(7): 1116–1120.
19. Holtzman D and Rubinson R, Parent and peer communication effects on AIDS-related behavior among U.S. high school students, *Family Planning Perspectives*, 1995, 27(6):235–240 & 268; Metzler CW et al., The social context for risky sexual behavior among adolescents, *Journal of Behavioral Medicine*, 1994, 17(4):419–438; Resnick MD et al., Protecting adolescents from harm: findings from the National Longitudinal Study on Adolescent Health, *Journal of the American Medical Association*, 1997, 278(10):823–832; and Romer D et al., Social influences on the sexual behavior of youth at risk for HIV exposure, *American Journal of Public Health*, 1994, 84(6):977–985.
20. Resnick MD et al., 1997, op. cit. (see reference 19).
21. Mott FL et al., The determinants of first sex by age 14 in a high-risk adolescent population, *Family Planning Perspectives*, 1996, 28(1):13–18.
22. Miller KS et al., Family communication about sex: what are parents saying and are their adolescents listening? *Family Planning Perspectives*, 1998, 30(5):218–222 & 235.
23. Jessor R, Risk behavior in adolescence: a psychosocial framework for understanding action, *Journal of Adolescent Health*, 1991, 12(8):597–605.
24. Coopersmith S, *The Antecedents of Self-Esteem*, San Francisco: W. H. Freeman, 1967.
25. Steinberg L et al., Impact of parenting practices on adolescent achievement: authoritative parenting, school involvement, and encouragement to succeed, *Child Development*, 1992, 63(5):1266–1281.
26. Barnes HL and Olsen DH, Parent-adolescent communication and the circumplex model, *Child Development*, 1985, 56(2):438–447.
27. Campis LK, Lyman RD and Prentice-Dunn S, The parental locus of control scale: development and validation, *Journal of Clinical Child Psychology*, 1986, 15(3): 260–267.
28. Hogan DP and Kitagawa EM, The impact of social status, family structure, and neighborhood on the fertility of black adolescents, *American Journal of Sociology*, 1985, 90(4):825–855; and Flick LH, Paths to adolescent parenthood: implications for prevention, *Public Health Reports*, 1986, 101(2):132–147.
29. Robinson RB and Frank DI, The relation between self-esteem, sexual activity, and pregnancy, *Adolescence*, 1994, 29(113):27–35.
30. Kowaleski-Jones L and Mott FL, Sex, contraception and childbearing among high-risk youth: do different factors influence males and females? *Family Planning Perspectives*, 1998, 30(4):163–169.
31. Jemmott JB, Jemmott LS and Fong GT, Abstinence and safer sex HIV risk reduction interventions for African American adolescents: a randomized controlled trial, *Journal of the American Medical Association*, 1998, 279(19):1529–1536; and St. Lawrence JS et al., Cognitive-behavioral intervention to reduce African American adolescents' risk for HIV infection, *Journal of Clinical and Consulting Psychology*, 1995, 63(2):221–237.
32. Prochaska JO, DiClemente CC and Norcross JC, In search of how people change: applications to addictive behaviors, *American Psychologist*, 1992, 47(9):1102–1114.
33. Pallonen UE et al., A 2-year self-help smoking cessation manual intervention among middle-aged Finnish men: an application of the transtheoretical model, *Preventive Medicine*, 1994, 23(4):507–514; Rakowski W et al., Assessing elements of women's decisions about mammography, *Health Psychology*, 1992, 11(2):111–118; and Greene GW et al., Stages of change for reducing dietary fat to 30% of energy or less, *Journal of the American Dietetic Association*, 1994, 94(10):1105–1110.
34. Miller KS et al., 1997, op. cit. (see reference 8); and Stanton BF et al., 1996, op. cit. (see reference 12).
35. O'Donnell L et al., The effectiveness of the Reach for Health Community Youth Service learning program in reducing early and unprotected sex among urban middle school students, *American Journal of Public Health*, 1998, 89(2):176–181.
36. Hawkins JD et al., Preventing adolescent health-risk behaviors by strengthening protection during childhood, *Archives of Pediatric and Adolescent Medicine*, 1999, 153(3):226–234.