

# Early Sexual Initiation and Subsequent Sex-Related Risks Among Urban Minority Youth: The Reach for Health Study

By Lydia O'Donnell, Carl R. O'Donnell and Ann Stueve

**Context:** Since the 1980s, the age at which U.S. teenagers, especially minority youth, begin having sex has decreased. There is limited information on the relationship between early sexual initiation and subsequent risky sexual behaviors.

**Methods:** A sample of 1,287 urban minority adolescents completed three surveys in seventh and eighth grade, and 970 completed a follow-up in 10th grade. Logistic regression was used to test the effects of timing of initiation on 10th-grade sexual behaviors and risks, adjusting for gender, ethnicity and age.

**Results:** At baseline, 31% of males and 8% of females reported sexual initiation; by the 10th grade, these figures were 66% and 52%, respectively. Recent intercourse among males increased from 20% at baseline to 39% in eighth grade; 54% reported recent sex and 6% had made a partner pregnant by 10th grade. Among females, recent intercourse tripled from baseline to eighth grade (5% to 15%); 42% reported recent sex and 12% had been pregnant by grade 10. Early initiators had an increased likelihood of having had multiple sex partners, been involved in a pregnancy, forced a partner to have sex, had frequent intercourse and had sex while drunk or high. There were significant gender differences for all outcomes except frequency of intercourse and being drunk or high during sex.

**Conclusions:** Minority adolescents who initiate sexual activity early engage in behaviors that place them at high risk for negative health outcomes. It is important to involve parents and schools in prevention efforts that address sexual initiation in early adolescence and that target youth who continue to place themselves and their partners at risk.

Family Planning Perspectives, 2001, 33(6):268–275

During the 1980s, the proportion of adolescents in the United States who reported having had sexual intercourse before the age of 15 began to increase. Although some recent surveys indicate that this trend may be stabilizing, the U.S. age of sexual onset has continued to decline.<sup>1</sup> This is of concern because early initiation of sexual intercourse places adolescents, particularly females, at elevated risk of being involved in an unintended pregnancy, of acquiring HIV or another sexually transmitted disease (STD), and of other negative social and psychological outcomes.<sup>2</sup> It also is troubling because early sexual debut, as well as the overall level of sexual initiation and recent intercourse, is especially high among black and Hispanic youth, and thus contributes to ongoing health disparities between minority and white teenagers and young adults. Notably, rates of HIV and other STDs, such as chlamydia and trichomoniasis, are increasing most rapidly among minority youth, and unintended pregnancies, while in decline overall, remain disproportionately high in these populations.<sup>3</sup>

The 1997 Youth Risk Behavior Survey, conducted by the Centers for Disease Con-

trol and Prevention (CDC), reported that black males (33%) are three times as likely as Hispanics (11%) and nearly seven times as likely as whites (5%) to have had intercourse before the age of 15. While females are less sexually active than males, there is a similar pattern by race and ethnicity: 11% of black females report having had intercourse before age 15, compared with 3% of Hispanics and whites.<sup>4</sup> Despite its prevalence, there is strikingly little information on early sexual debut and its effects on subsequent sexual risk-taking during adolescence, especially among minority youth.

The lack of a developmental perspective is due to a number of factors, including the need to rely on retrospective accounts of sexual initiation; the paucity of longitudinal studies in which individuals are tracked through the teenage years; and the difficulties associated with surveying young adolescents (much less preadolescents) about developmentally sensitive and often politically charged issues such as sex. The Youth Risk Behavior Survey, the National Survey of Family Growth and the National Survey of Adolescent Males have restricted their samples to those 15 years of age and older.

Although the more recently undertaken National Longitudinal Survey of Adolescent Health is designed to include younger participants and to oversample minorities, it too has limitations in focusing on developmental patterns of sexual risk-taking among minority youth. Despite the size of the overall effort, the actual number of minority youth of each gender surveyed during early adolescence remains relatively small. For example, the data available for public use include reports from more than 6,000 respondents; only about 400 are from black or Hispanic youth aged 13 or younger.<sup>5</sup> Furthermore, while the inclusion of minority youth from diverse socioeconomic backgrounds is a distinct advantage for studying many issues, it limits what can be learned about subgroups of those at greatest risk of early sexual initiation. Minority adolescents, however, tend to reside in communities where the prevalence of HIV and other STDs is disproportionately high, thus making high levels of sexual risk-taking especially dangerous.

Increasing our knowledge of adolescent sexuality is essential to informing prevention efforts that meet the needs of youth with different sexual expectations and experiences.<sup>6</sup> Findings from a number of cross-sectional studies suggest that early initiators may indeed continue with patterns of behavior that place them at higher risk than peers who have delayed first intercourse. Retrospective reports of early sexual debut have been correlated with a greater number of sexual partners,

Lydia O'Donnell is senior scientist and Carl R. O'Donnell is statistical consultant, both with Education Development Center, Inc. (EDC), Newton, MA. Ann Stueve is associate professor of clinical epidemiology with the Joseph Mailman School of Public Health, Columbia University, New York. Since the inception of the Reach for Health Study, the efforts of EDC project directors and field supervisors Richard Duran, Alexi San Doval and Renée Wilson in establishing and maintaining the contacts with participating youth, parents and members of the school communities have made this longitudinal study possible. Athi Myint-U has contributed to questionnaire design, and Elizabeth Perry and Molly McBride have maintained the tracking database. At Columbia University, Juliana Bass and Pam Geller have created and managed data files used in these analyses. This research was supported with funding from the National Institute of Child Health and Human Development, grant 1RO1HD35378.

lower levels of condom use, a greater chance of unintended pregnancy and a higher risk of self-reported STDs, as well as with other risk behaviors, including weapon-carrying and drug use.<sup>7</sup>

While they are informative, cross-sectional studies leave open questions about both causal direction and whether the relationship of sexual behaviors to other risk-taking is as strong as among minority youth, especially blacks.<sup>8</sup> Among females, younger age at first sex has been correlated with both less-frequent contraceptive use at first intercourse and subsequent lower use of condoms with other contraceptives.<sup>9</sup> Among males, even a relatively small difference in the age of onset (12–13 years vs. 14 years) may influence condom use.<sup>10</sup> While the proportion of adolescents, especially females, who report using condoms and contraceptives at first intercourse has increased, studies have also found that condom use may decline with sexual experience.<sup>11</sup> Indeed, as older youth enter steadier relationships, they may use other contraceptive methods in lieu of condoms. Longitudinal studies are better suited to untangling factors related to age of onset, extent and duration of sexual experience, and subsequent risks.

The Reach for Health Study (RFH) is well positioned for examination of trajectories of behavior among minority adolescents at risk of early sexual initiation and its potential consequences. Using data collected from an exclusively minority sample of urban males and females who were surveyed at multiple time points from the seventh through 10th grades, this article is aimed at contributing to our understanding of the relationship between early sexual debut and subsequent sexual risk-taking in this population. We address the following questions: Are minority youth who report sexual initiation during early adolescence more likely than others to develop and sustain patterns of sexual behaviors that continue to place them at risk? And if so, to what extent do these patterns differ with gender?

## Data and Methodology

### *The Reach for Health Study*

All seventh graders who attended one of three participating middle schools in Brooklyn, New York, during two consecutive school years (1994–1995 and 1995–1996) were eligible to participate in RFH. At its inception, RFH was one of the seven programs involved in a multisite research agreement supported by the Office of Minority Health and the National Institute

of Child Health and Human Development to explore strategies for promoting health and reducing risk in minority communities. Subsequent funding provided resources to resurvey the youth in spring of their 10th grade year.

At each of four assessment points (seventh grade fall, seventh grade spring, eighth grade spring and 10th grade spring), participants provided information on a range of health-related issues associated with the major causes of disproportionate morbidity and mortality among young minorities: early and unprotected sex, violence and substance use. Young adolescents completed their first survey at an average age of 12.2 and have been followed for about four years, to an average age of 16.1. Thus, this longitudinal study provides an opportunity to examine the developmental progression of risk behaviors during those years in which many minority youth become sexually active.

In addition to providing a longitudinal database on the health behaviors of minority youth, RFH has evaluated the effectiveness of interventions delivered during middle school in reducing risk behaviors. In previous reports, we have shown that participation in the RFH service learning intervention reduced levels of risky sex and, to a lesser extent, violence;<sup>12</sup> this program was identified by the National Campaign to Prevent Teen Pregnancy as one of a handful of effective pregnancy prevention programs.<sup>13</sup> About 200 youth, whose data are included in these analyses, participated in this experimental program. Our analyses take into account the potential bias that could be introduced because of their inclusion.

### *The RFH Sample*

Each of the three participating middle schools was located in an economically disadvantaged area where health statistics indicated high rates of teenage pregnancy, HIV and STD infection, violence-related injuries and other sources of morbidity. Each school also had a high-risk profile (i.e., greater than 80% of students eligible for free lunch programs; below grade-level and city averages on standardized test scores; and comparatively low high school graduation rates). All seventh graders who attended classes in one of the three schools were invited to participate. At one of the schools, no special programs or services were offered. At the two other schools, teachers were trained to deliver the RFH curriculum, which contained 40 lessons spanning top-

ics such as substance use, violence and sexual risk prevention. At one of these schools, students were randomly assigned by classroom either to receive the curriculum only or to participate in the RFH service learning intervention. As part of their regular school week, service learning students were assigned to work in community agencies, such as day care and senior centers.

Following procedures approved by the institutional review boards at Education Development Center, the New York City public schools and Columbia University, we obtained written parental permission and the youth's assent prior to study enrollment. Field procedures for getting written permission, survey administrations and initial survey completion rates are described elsewhere.<sup>14</sup> Parental consent was provided for 89% of all eligible students; completed baseline surveys were obtained from more than 95% of those with parental permission.

The RFH sample used in the following analyses includes those youth who remained in their middle school through eighth grade spring and completed three middle school surveys (seventh grade fall, seventh grade spring and eighth grade spring). We excluded youth who entered middle school after the baseline survey or who exited prior to eighth grade spring. Given the urban setting, loss due to relocation was surprising low: Of 1,729 participants enrolled during seventh grade fall, 15% were excluded because they left the school prior to the eighth grade spring survey. Of the 1,471 who remained, 88% completed surveys at each of the three time points, leaving a sample of 1,287 youth.

Tracking youth from middle school to high school within New York City presented a special challenge, since there is an open policy on high school enrollment. Many families take advantage of this option: RFH middle school students enrolled in more than 120 high schools across the five boroughs. We located and resurveyed youth with the cooperation of the five district superintendents, of more than 100 principals and of many local school administrators throughout the city. With their approval, we recontacted youth through mailings to parents and through direct contacts in more than 150 high schools.

Of the 1,287 youth who completed all three middle school surveys, 970 (75%) were successfully located and surveyed during the 10th grade spring follow-up. There were no significant differences in

**Table 1. Percentage distribution of urban minority youth participating in the Reach for Health survey, by selected characteristics, according to school**

Characteristic	Middle school* (N=1,287)	High school† (N=970)
<b>Sex</b>		
Male	47.9	44.2
Female	52.1	55.8
<b>Race/ethnicity</b>		
Black	78.7	78.4
Hispanic	19.7	18.4
Missing information	1.6	3.2
<b>Expects to complete high school</b>		
Yes	91.4	87.2
No	8.6	12.8
<b>Resides with mother</b>		
Always	86.6	85.7
Sometimes	3.9	4.5
Never	9.5	9.8
<b>Resides with father</b>		
Always	38.7	36.8
Sometimes	8.2	8.2
Never	53.1	54.9
Total	100.0	100.0

\*At seventh grade baseline. †Baseline characteristics as of seventh grade of those retained through 10th grade.

follow-up rates by year of study enrollment. By offering surveys in multiple locations (including schools, as well as other community sites) and on different days and times, we were able to include youth who attended school regularly, as well as those who did not.

At study entry, the sample was 52% female, 79% non-Hispanic black and 20% Hispanic (Table 1). The proportion of females was slightly higher at the high school follow-up (56%) than at the seventh grade baseline ( $p < .01$ ). Racial and ethnic composition remained the same. In seventh grade, 87% of the sample reported always living with their mother (or with a female guardian); 39% always lived with their father (or with a male guardian). At study entry, the average age of males and females was 12.3 and 12.2 years, respectively; during the high school follow-up, the average age of respondents was 16.1 years (not shown).

To assess potential biases caused by sample attrition from middle school to high school, we compared middle school reports of lifetime and recent sex among youth who completed the high school survey and those who did not. We found no significant differences in these reports; youth who were sexually active in mid-

dle school were not significantly more likely to drop out of the study. Similarly, there were no significant baseline differences in other indices between the two samples, including age, expectation to complete high school and living in a household with a mother or father. There were also no significant differences in attrition by intervention status.

**Survey Instrument and Administration**

During middle school, the youth were given a pencil-and-paper questionnaire during a block of two class periods. The self-report questionnaire contained approximately 250 items, including a core set of measures developed by the multisite research agreement steering committee. Items were submitted for cognitive testing prior to use and were pilot-tested extensively. Care was taken to avoid skip patterns or other potentially confusing elements. Experienced field staff acted as survey monitors to answer questions and assist individual students with directions or reading. Teachers remained in the rooms for classroom management but did not distribute, collect or review the questionnaires. The youth placed their completed surveys in envelopes, which were sealed and delivered to the field administrator.

The 10th grade surveys were administered either individually or, more commonly, in small groups. The surveys took place during study hall and after-school hours in the high schools that the students were attending, as well as during non-school hours in other community locations where privacy could be assured. Besides youth who came to school regularly, chronic truants\* were invited to complete surveys, making it important to provide nonschool locations.

The middle school questionnaires were available in both English and Spanish, although fewer than 3% of the sample chose to complete the Spanish form. The Spanish version was discontinued for the 10th grade survey, since the youth were no longer in bilingual classrooms.

At each time, the core of the survey remained the same, with care taken to use the same wording to allow similar assessments over time. Noncore items, however, were added (and some removed) to keep with the increasing age of participants and to combat fatigue.

**Measures**

The following items were asked to assess sexual behaviors at each of the four time periods:

- “Have you ever had sexual intercourse?”

This is sometimes called ‘going all the way.’”

- “In the past three months (90 days), did you have sexual intercourse?”
- “In the past three months (90 days), how much of the time was a condom (rubber) used when you had sexual intercourse?”
- “Have you ever made someone have sexual intercourse when they didn’t really want to?”
- “Have you ever been pregnant or gotten someone pregnant?”

Questions about pregnancy were also asked regarding the period of the past year, and forcing sex was asked for the past three months.

These questions were developed by the multisite research agreement steering committee for use with adolescents as young as 11 and 12. Caution was taken to always provide a “no” response first to questions about sexual relationships. The number of items on sexual behavior was relatively limited because of the age of respondents and because of the fact that the surveys took place primarily in schools.<sup>15</sup> The youth were asked if they forced a partner to have sex but not if they themselves were forced to do so because of issues related to mandatory reporting and breaking of confidentiality.

Two additional questions were included in the 10th grade follow-up:

- “How many people have you had sexual intercourse with during your life?”
- “In the past three months (90 days), have you been drunk or high while having sexual intercourse?”

For several analyses, we recoded outcome measures with more than two responses (recent sex; lifetime partners; frequent sex within the last three months; and inconsistent condom use in the last three months) into binary categories. We also recorded whether students were involved in the RFH service learning program or the RFH curriculum.

**Statistical Analyses**

We tabulated descriptive information on sexual behaviors by gender at three times (seventh grade fall, seventh grade spring and eighth grade fall) for the youth who completed the three middle school surveys and at a fourth point (10th grade spring) for the youth who completed the middle school surveys plus the high school follow-up. Next, we categorized respondents into four groups according to the timing of reported sexual initiation: those who reported sexual initiation at seventh grade fall; those who reported initiation between seventh grade fall and end

\*As long as they are under the age of 16, all youth remain on school rosters.

of eighth grade; those who did not report initiation until 10th grade spring; and those who had never had sex. We then tabulated sexual behaviors at 10th grade by timing of initiation for males and females. We conducted cross-tabulations to examine distributions and determine whether there are significant differences in outcomes by gender, race, ethnicity, age and year of study enrollment (fall 1994 or 1995).

Furthermore, we examined the relationship between timing of initiation and 10th grade sexual behaviors using logistic regression analyses that controlled for gender, ethnicity, race, age and year of enrollment. Ethnicity, race, age and gender were recoded so that black, older (13–14-year-olds vs. 11–12-year-olds) and male were entered as 1, with others (reference groups) as 0. After initial regression analyses were performed, interactions of gender by timing of initiation were examined; none of the interaction terms were significant, and they are not included in the tables.

Finally, to address the potential bias that may be introduced by RFH middle school programs, we examined the interactions of intervention participation by timing of initiation. This was done for both curriculum-only and service learning, even though the curriculum alone has not been shown to have significant effects on risk behaviors. Again, there were no significant interactions. Thus, while participation in service learning has been shown to reduce sexual risk-taking, it does not appear to influence the relationships between timing of initiation and subsequent risk behaviors that are explored here.

## Results

Table 2 shows the proportions of males and females reporting sexual behaviors at the four data-collection points. Five measures were included in all surveys: sexual initiation; recent intercourse; having ever been pregnant or having ever impregnated a partner; ever forcing a partner to have sex; and (among those who had recent sex) inconsistent condom use. Three additional measures were included in the 10th grade survey: having had four or more lifetime partners (among those who had ever had sex); having engaged in intercourse more than once per month (among those who had recent sex); and having been drunk or high during recent sex.

At baseline, 31% of males and 8% of females reported having already had intercourse; by 10th grade spring, these figures rose to 66% and 52%, respectively. The

**Table 2. Percentage of adolescents in baseline and follow-up surveys who reported sexual behaviors, by gender and grade**

Sexual behavior	Males				Females			
	Middle school			High school	Middle school			High school
	Fall 7th (N=616)	Spring 7th (N=616)	Spring 8th (N=616)	10th (N=429)	Fall 7th (N=671)	Spring 7th (N=671)	Spring 8th (N=671)	10th (N=541)
Ever had intercourse	31.0	41.3	51.8	66.0	8.4	12.6	20.3	52.0
Had recent intercourse	20.2	31.4	38.8	53.8	5.2	7.5	14.9	41.9
Used condom <half of the time*	24.5	30.0	34.6	17.0	37.0	28.9	26.3	25.5
Involved in pregnancy	1.0	3.6	3.8	5.7	0.6	1.1	2.3	12.4
Ever forced partner to have sex	4.2	5.3	7.5	5.5	0.2	1.0	1.3	3.0
Had ≥4 sex partners†	na	na	na	53.8	na	na	na	17.7
Had sex >1 per month*	na	na	na	52.0	na	na	na	54.5
Was drunk/high during sex*	na	na	na	26.2	na	na	na	18.0

\*Among those reporting recent sex. †Among those reporting sexual initiation. Note: na=not applicable.

proportion of males reporting having had recent intercourse nearly doubled from seventh grade fall to eighth grade spring (from 20% to 39%), with 54% reporting having had recent sex by 10th grade. Among females, a similar pattern is evident: The proportion reporting having had recent intercourse triples from seventh grade fall to eighth grade spring (from 5% to 15%), with 42% reporting having had recent sex at the last follow-up.

Gender differences in initiation of intercourse and in recent sex were significant ( $p < .01$ ) at each wave of data collection; however, by 10th grade, gender differences narrowed substantially. Males at baseline were approximately four times as likely as females to report having had recent intercourse; by 10th grade, this ratio had narrowed to about 1.3 times (54% vs. 42%). The proportion of males reporting inconsistent condom use seems to have increased from fall of seventh grade to the spring of eighth grade and then declined substantially from eighth grade to 10th grade (35% vs. 17%). We did not find a similar decrease from eighth to 10th grade among females (26% at each point). By 10th grade, 6% of males reported having impregnated a partner, while 12% of females reported having been pregnant.

Age is related to early sexual initiation and reports of recent sex among males but not among females (not shown). At baseline, 37% of 13–14-year-old males report-

ed having already had intercourse, compared with 23% of 11–12-year-olds ( $p < .01$ ); older males were also more likely than younger males to have reported recent sex at baseline (24% vs. 16%,  $p < .05$ ). By the eighth grade, 57% of older males and 44% of younger males reported ever having had intercourse ( $p < .05$ ); 43% and 30%, respectively, reported having had recent sex ( $p < .01$ ). By high school, age no longer appears to be a significant factor. There were no significant age differences for condom use for either gender at any time point. There were also no differences in these reports in regard to year of study enrollment.

Consistent with national surveys, Hispanic youth appear to be somewhat less likely than blacks to have reported having had intercourse at baseline (14% vs. 20%,  $p < .001$ ). By high school, more than one-third (36%) of Hispanic females reported sexual initiation, compared with more than half (55%) of blacks ( $p < .001$ ); among males, the proportions are 57% and 68%, respectively ( $p < .05$ ). Similarly, black males and females (56% and 44%, respectively) are more likely than Hispanics (44% and 30%, respectively) to have reported having recent sex at the 10th grade. Hispanics, however, reported less-consistent condom use at each point. By 10th grade, 7% of black males reported having impregnated a partner. Although no Hispanic males reported doing so, this could be a reflection of the small sample size of

**Table 3. Percentage of all sexually experienced adolescents and percentage of sexually experienced adolescents having had recent sex who reported selected risk behaviors at 10th grade, by timing of first intercourse and gender**

Risk behavior	Males (N=283)			Females (N=281)		
	Fall 7th	Spring 8th	10th	Fall 7th	Spring 8th	10th
<b>ALL EXPERIENCED</b>						
<b>Had recent intercourse</b>	85.0	69.2	71.3	85.0	71.9	76.4
<b>Lifetime no. of partners</b>						
1	13.1	11.3	27.7	37.0	37.5	56.7
2-3	25.5	28.3	31.9	33.3	31.3	29.2
≥4	61.2	39.6	38.3	29.6	20.3	14.0
<b>Involved in pregnancy</b>	13.0	1.9	4.3	33.3	28.1	17.4
<b>Ever forced partner to have sex</b>	12.2	3.8	4.3	7.4	6.3	4.5
<b>REPORTING RECENT SEX</b>						
<b>Had sex &gt;1 per month</b>	57.5	45.9	42.1	65.2	63.9	48.4
<b>Was drunk/high during recent sex</b>	31.4	25.0	17.5	18.2	19.7	16.1
<b>Used condom &lt;half of the time</b>	15.1	10.5	13.3	20.5	18.4	18.9

this group, as well as a somewhat delayed onset of sexual initiation. There are no differences in reported pregnancy among females. As expected, most pregnancies were reported in the 10th grade survey.

Table 2 also shows sexual risk-taking behaviors that become increasingly frequent as youth get older. By 10th grade, more than half (54%) of sexually initiated males reported having had four or more lifetime sexual partners, while less than one-fifth (18%) of females did so; ethnic differences within gender are not significant (not shown). Of those who reported having engaged in recent sex, the proportion who reported having a frequency of intercourse of more than once per month is similar for males and females (52% and 55%, respectively), although more males than females (26% vs. 18%) reported having been drunk or high during recent sex ( $p < .01$ ). Hispanic females were somewhat more likely than blacks to report having been drunk or high during recent sex (24% vs. 17%) and having had four or more sexual partners (28% vs. 16%, not shown). There were no ethnic differences in these behaviors for males. Relatively small proportions of males and females (6% and 3%, respectively) reported ever forcing a partner to have sex. As with pregnancy, most of these reports occurred at 10th grade.

Table 3 narrows the focus to consider risk behaviors of sexually experienced 10th graders (N=564). For each gender, we show data for three subgroups: those who reported having had intercourse at baseline, those between the seventh grade and the end of the eighth grade, and those in 10th grade spring. The proportion of adolescents who at 10th grade had had four

or more partners is much greater among those who had first intercourse at baseline than among those whose first intercourse was in 10th grade. Differences by timing, however, are not as large for reports of recent intercourse. Pregnancy, in particular, appears to be a substantial risk for those who initiated intercourse earliest. Timing is also associated with reports of frequent sex during the last three months. The same is true for reports by males of being drunk or high during recent sex. Inconsistent condom use, however, appears relatively constant for both genders regardless of the timing of initiation of sex.

Table 4 provides the odds ratios and confidence intervals for sexual risks at 10th grade by timing of initiation and gender; the figures are adjusted for race, ethnicity and age. The likelihood of having four or more lifetime partners and of having been pregnant or having impregnated a partner are examined for those youth who reported sexual initiation by the 10th grade, as well as for the whole sample of 10th graders.

Overall, among all 10th graders, those who had initiated sex by spring of eighth grade were more than four times as likely as all other 10th graders to have had four or more sex partners (odds ratio, 4.1). Among sexually experienced 10th graders, the earlier the timing of first intercourse, the greater the likelihood of having had multiple partners at 10th grade. For example, those who reported sexual experience in fall of seventh grade (at baseline) were more than twice as likely as those who abstained through the end of middle school to have had four or more sex partners by 10th grade (odds ratio, 2.2). Similarly, there is a dose-response re-

lationship between timing of initiation and reports of pregnancy: Delaying sexual onset appears to reduce the risk of involvement in a pregnancy, even if only from early seventh grade (odds ratio, 2.1) until later in middle school (1.5).

In contrast to number of partners and pregnancy experience, reports of recent sex showed no relationship to the timing of initiation among those who were sexually experienced. However, among youth who reported recent sex, timing was associated with frequency. Both those who had had sex at baseline and those who initiated intercourse in seventh or eighth grade were more likely than those who did so in early high school to report frequent intercourse (odds ratios, 2.0 and 1.7, respectively). Youth who were sexually experienced at baseline (but not those whose first intercourse came later in seventh grade or in eighth grade) were also more likely to have forced a partner to have sex (2.4); those having had intercourse in the last three months were more likely to have been drunk or high during recent sex (1.9). Inconsistent condom use, however, did not vary by timing of initiation. This proportional measure of condom use masks the fact that those whose first intercourse came at early ages are likely to engage in more unprotected intercourse because they are engaging in more frequent intercourse, and thus are at increased risk of HIV and other STDs, as well as pregnancy.

Age is not significantly associated with any of the outcomes after controlling for gender, ethnicity, race and timing of sexual initiation. There are also no differences by year of enrollment. In these analyses, ethnicity and race are significantly associated with one outcome: inconsistent condom use. In contrast, gender remains significant for several of the 10th grade outcomes. Males are about four times as likely as females to report having had four or more partners, while females are about four times as likely as males to report being involved in a teenage pregnancy and are about half as likely to say they used condoms regularly. Among those with sexual experience, gender is not significantly associated with recent or frequent intercourse, with being drunk or high during sex, or with forcing someone to have sex. The interactions of gender by timing of initiation were examined for each of the reported outcomes and are not significant.

As a final step, we considered whether inconsistencies in the reporting of sexual initiation influence outcomes. While some level of inconsistent reporting is found in

**Table 4. Odds ratios (and 95% confidence intervals) from logistic regression analyses assessing the effects of timing of sexual initiation on subsequent sexual behaviors, by group**

Sexual behavior	Odds ratio*	p
<b>ALL 10TH GRADERS</b>		
<b>Number of lifetime partners 4</b>		
Intercourse by spring of 8th grade	4.10 (2.86–5.88)	<.0001
All others (ref)	1.00	na
Gender	4.67 (2.51–5.37)	<.0001
<b>Ever involved in pregnancy</b>		
Intercourse by spring of 8th grade	4.82 (2.89–8.02)	<.0001
All others (ref)	1.00	na
Gender	0.24 (0.14–0.42)	<.0001
<b>SEXUALLY EXPERIENCED 10TH GRADERS</b>		
<b>Lifetime no. of partners 4</b>		
1st sex at baseline	2.15 (1.29–3.57)	.003
1st sex in 7th/8th grade	1.75 (1.08–2.82)	.02
1st sex in early high school (ref)	1.00	na
Gender	4.35 (2.83–6.69)	<.0001
<b>Ever involved in pregnancy</b>		
1st sex at baseline	2.05 (1.07–3.92)	.03
1st sex in 7th/8th grade	1.51 (0.84–2.70)	ns
1st sex in early high school (ref)	1.00	na
Gender	0.24 (0.14–0.43)	<.0001
<b>Sexual intercourse in the past 3 months</b>		
1st sex at baseline	0.90 (0.55–1.47)	ns
1st sex in 7th/8th grade	0.87 (0.56–1.57)	ns
1st sex in early high school (ref)	1.00	na
Gender	0.91 (0.61–1.35)	ns
<b>Forced partner to have sex</b>		
1st sex at baseline	2.43 (1.01–5.87)	.05
1st sex in 7th/8th grade	0.79 (0.28–2.23)	ns
1st sex in early high school (ref)	1.00	na
Gender	1.19 (0.54–2.62)	ns
<b>SEXUALLY EXPERIENCED 10TH GRADERS WHO HAD RECENT SEX</b>		
<b>Had sex &gt;1 per month</b>		
1st sex at baseline	2.04 (1.18–3.53)	.01
1st sex in 7th/8th grade	1.70 (1.05–2.77)	.03
1st sex in early high school (ref)	1.00	na
Gender	0.73 (0.47–1.15)	ns
<b>Inconsistent condom use during recent sex</b>		
1st sex at baseline	1.03 (0.50–2.13)	ns
1st sex in 7th/8th grade	0.96 (0.52–1.77)	ns
1st sex in early high school (ref)	1.00	na
Gender	0.44 (0.25–0.79)	.007
<b>Drunk/high during recent sex</b>		
1st sex at baseline	1.89 (1.00–3.57)	.05
1st sex in 7th/8th grade	1.34 (0.74–2.46)	ns
1st sex in early high school (ref)	1.00	na
Gender	1.32 (0.78–2.25)	ns
<b>Forced partner to have sex</b>		
1st sex at baseline	3.25 (1.89–5.58)	.03
1st sex in 7th/8th grade	1.25 (0.71–2.23)	ns
1st sex in early high school (ref)	1.00	na
Gender	0.95 (0.60–1.51)	ns

\*Odds ratios are adjusted for gender, race, ethnicity and age. Age is not significantly associated with any outcomes. Race and ethnicity are associated only with inconsistent condom use (odds ratio, 0.50, 95% confidence interval=0.36–0.69, with black coded as 1 and Hispanic as 0). Notes: na=not applicable. ns=not significant. ref=reference group.

any longitudinal study with repeated measures, questioning young adolescents about sexuality may be particularly vulnerable to reporting errors and inconsistencies related to changes in their understanding of what is meant by sexual behaviors, as well as to reconstitution of past events. Of the youth surveyed

adolescents report first intercourse prior to high school; yet within the national statistics, it is easy to gloss over the high prevalence of early sexual initiation within some communities, such as the urban settings in which RFH operates. Few would argue that it is developmentally appropriate or healthy for one-third of males

throughout middle school, 20% of students who said that they had had intercourse by fall of seventh grade provided an inconsistent “no” response to the same question in the spring seventh grade follow-up. The proportion of inconsistent responses remained relatively constant throughout the subsequent surveys.

This level of inconsistency raises two related concerns: Was there differential attrition by consistency of reporting, and does inconsistent reporting influence the significance of our findings? Inconsistent reporters during middle school were somewhat more likely to have dropped out of the study; 75% of consistent responders completed the 10th grade follow-up, while only 68% of inconsistent responders did so. This is associated with the fact that males were more likely to report early sexual initiation and to be lost to follow-up. When we reran the regression analyses excluding inconsistent responders, the magnitude of the odds ratios and their level of significance were virtually identical.

## Discussion

It is unsettling to focus on the high rates of early sexual initiation that are brought to the forefront in an article such as this. National surveys have consistently found that a small percentage of

to have had sex before they entered middle school, or for one-fifth of females to have done so before they left eighth grade, yet that is what these youth report. The concern, however, is not only that some adolescents are beginning to have intercourse too early, but also that they are more likely than others to engage in a pattern of risky sexual behaviors known to be related to a host of negative outcomes. They are distinguishable from peers who initiate intercourse later by having had a greater number of sexual partners, as well as more frequent recent intercourse. Despite their greater experience, youth who initiate sex early do not use condoms more consistently, and by 10th grade they have experienced a disproportionate number of pregnancies.

It is essential to point out that the health and social consequences of early sexual onset are not equally distributed nationally among youth. The chance that a white adolescent experiences his or her first intercourse at the ages commonly reported in this sample is indeed small—one out of 20. It is clear that early sexual initiation and its subsequent pattern of risk-taking have not been receiving the attention they deserve or would get if the behaviors were more prevalent in wealthier communities. An important step toward addressing the risks of early onset is the acknowledgment that in some communities, such behavior has become normative.<sup>16</sup>

It is also evident, however, that even within a community where many young adolescents become sexually active, about one-third of males and half of females delay initiation of intercourse until after 10th grade. This range in age of sexual initiation presents its own challenge. For example, how can school-based sexuality education programs (which the majority of parents support<sup>17</sup>) be delivered with equal relevance and effectiveness to 10th graders when some have had three or more years of sexual experience, while others are still trying to abstain from sexual activity? The diversity of sexual histories in such a group is often overlooked when controversies center on such issues as abstinence and whether condoms can be discussed or distributed in schools.

There are multiple reasons why early sexual onset is overlooked and why prevention programs are often started too late. Despite the importance of parental monitoring on reducing early sexual and other risk-taking, parents and teachers often underestimate children’s emergent sexual behaviors.<sup>18</sup> As reported in one study of black families with 14–17-year-olds, two factors

were at play: Mothers tended to underestimate the sexual activity of their teenagers, and teenagers underestimated the level of parental disapproval of their sexual activity.<sup>19</sup> Unfortunately, adult misperceptions about when youth initiate sex can be interpreted by adolescents as tacit approval.

The assumption that early adolescents are not sexually active (or the desire to believe this is the case) has resulted in serious limitations on what prevention and intervention programs can address at different developmental stages. The incongruity between what is discussed by parents and school programs for male adolescents and what young males are already doing is particularly striking; for females, clear messages about the importance of delaying sex or using protection are often delivered too late. Sexual initiation before high school is a clear risk for both genders. While parents have become increasingly supportive of programs that address sexuality in schools,<sup>20</sup> the content of such programs may be too delayed and too restricted to address the real challenges that face students. Indeed, a recent report on sexuality education indicates that school programs have focused increasingly on abstinence over the past decade, contrary to what teachers perceive are their students' needs. Ultimately, many students do not receive the information they need to protect their health.<sup>21</sup>

A difficult issue in sexuality education is also raised by the fact that males and females at the youngest ages may be at quite different levels of sexual activity. We have reported a difference of almost two years between when a significant proportion of males and females say they have initiated sex. Whether or how topics can be adequately and comfortably addressed within mixed-gender groups is unclear. Similar questions need to be asked about what messages we as adults give adolescents about the appropriateness, benefits and rewards of early sexual activity. A fuller understanding of culturally defined gender roles and their link to early sexual experimentation will be essential for the development of programs that address the needs of both young males and young females.

While this study provides a focus on sexual initiation among a group of at-risk youth, there are a number of cautionary notes in interpreting its findings. There are clear limitations in using survey accounts of sexual behaviors in any population, but with youth as young as 11–12 years old, still more questions are raised. Issues of comfort with questions, reliability of reporting and (perhaps most importantly)

interpretation of what is meant by “sexual intercourse” or “going all the way” may influence responses.<sup>22</sup> This is particularly true for questions like the item we included on forcing a partner to have sex. Does this mean the same thing to a seventh grader as to a 10th grader? Or to a male or a female? The answers to these questions are not provided in our data.

Similarly, we are limited by not having information on whether youth—especially those reporting very early experiences—feel that they were forced to have sex. Collecting this information would have required informing students and parents that a “yes” answer would necessitate breaking confidentiality and mandatory reporting. While such information is needed to help understand early sexual experiences and their implications, we had to make the trade-off between the amount of information we could gather from each student and the proportion of students and parents who would be willing to participate. However, the majority of youth who initiated sex before seventh grade were males, and early involuntary sex has typically been more closely linked with females. While young males as well as females certainly can be victims of sexual abuse, it is unclear whether male adolescents view the early encounters they report in a survey as abusive.

Because of reporting issues, we also did not collect data on the age of sexual partners, leaving open the question of with whom these young males were having sex: Same-age peers? Older females? Same-sex partners? We hope to obtain additional information on the circumstances of early encounters during subsequent rounds of surveys with RFH participants who are now young adults. While retrospective accounts may address some questions, they also raise additional ones about the accuracy of recall or the reconstitution of past events, particularly in a domain such as sexual initiation, which is personal, sensitive and subject to interpretation. Indeed in our surveys, some youth have provided inconsistent answers to questions about initiation; the meaning of these inconsistencies cannot be gleaned from our data.

In general, our understanding of early sexual experiences, what they involve and their meaning is very limited and needs to be clarified through combinations of qualitative and quantitative research. What is notable in our longitudinal study, however, is the remarkable consistency in reporting of sexual behaviors over nearly four years of follow-up. While we might

question what a 12-year-old male means by reporting “sexual intercourse” or what such an encounter might entail, it is clearly pertinent to what behaviors that youth reports subsequently.

Closing the discrepancy between communities and populations that differ dramatically in when their youth initiate sex should be a matter of greater public and community concern and discourse. As the accumulated experience of decades of HIV, STD and pregnancy prevention research shows, the need to address problems related to sexuality must be embraced at the community level, by families, by schools and by other organizations. Innovative approaches must be developed that aim not only to reduce the numbers of young adolescents having sex but also to break the pattern of sustained risk-taking among those who resist messages to abstain.

## References

1. Santelli JS et al., Adolescent sexual behavior: estimates and trends from four nationally representative surveys, *Family Planning Perspectives*, 2000, 32(4):156–165; Centers for Disease Control and Prevention (CDC), Trends in sexual risk behavior among high school students—United States, 1991–1997, *Morbidity and Mortality Weekly Report*, 1998, 47(3):749–752; and Manlove J et al., Explaining demographic trends in teenage fertility, 1980–1995, *Family Planning Perspectives*, 2000, 32(4):166–175.
2. Hofferth SL and Hayes CD, eds., *Risking the Future: Adolescent Sexuality, Pregnancy, and Childbearing*, Washington, DC: National Academy Press, 1987; Morris L, Warren CW and Aral SO, Measuring adolescent sexual behaviors and related health outcomes, *Public Health Reports*, 1993, 108(S1):31–36; Kellogg ND, Hoffman TJ and Taylor E, Early sexual experiences among pregnant and parenting adolescents, *Adolescence*, 1999, 34(134):293–303; and von Ronson KM et al., Longitudinal risk of STD acquisition in adolescent girls using a generalized estimating equations model, *Journal of Pediatric and Adolescent Gynecology*, 2000, 13(2):87.
3. CDC, *HIV/AIDS Surveillance Report*, 1999, Atlanta: CDC, 2000.
4. National Center for Chronic Disease Control and Health Promotion, CDC, Adolescent and school health, <<http://www.cdc.gov/nccdphp/dash/MMWRfile>>, accessed Jan. 20, 2001.
5. Carolina Population Center, The National Longitudinal Study of Adolescent Health, <<http://www.cpc.unc.edu/projects/addhealth>>, accessed Jan. 28, 2001.
6. Whitaker DJ, Miller KS and Clark LF, Reconceptualizing adolescent sexual behavior: beyond did they or didn't they? *Family Planning Perspectives*, 2000, 32(3):111–117.
7. Coker AL et al., Correlates and consequences of early initiation of sexual intercourse, *Journal of School Health*, 1994, 64(9):372–377; Santelli JS et al., Multiple sex partners among U.S. adolescents and young adults, *Family Planning Perspectives*, 1998, 30(6):271–275; and Jakobsen RT et al., Noncoital sexual interactions and problem behavior among young adolescents: the Norwegian longitudinal health behavior study, *Journal of Adolescence*, 1997, 20(1):71–83.

8. Stanton B et al., Early initiation of sex and its lack of association with risk behaviors among adolescent African Americans, *Pediatrics*, 1993, 92(1):13-19.
9. Doljanac RF and Zimmerman MA, Psychosocial factors and high-risk sexual behavior: race differences among urban adolescents, *Journal of Behavioral Medicine*, 1998, 21(5):451-467.
10. Santelli JS et al., The use of condoms with other contraceptive methods among young men and women, *Family Planning Perspectives*, 1997, 29(6):261-267.
11. Nguyet NT et al., Sexual behaviors and condom use: a study of suburban male adolescents, *Adolescence*, 1994, 29(113):37-48; Lindberg LD, Ku L and Sonenstein FL, Adolescent males' combined use of condoms with partners' use of female contraceptive methods, *Maternal and Child Health Journal*, 1998, 2(4):201-209; and Pleck JH, Sonenstein FL and Ku L, Changes in adolescent males' use of and attitudes toward condoms, 1988-1991, *Family Planning Perspectives*, 1993, 25(3):106-110 & 117.
12. O'Donnell L et al., The effectiveness of the RFH community youth service learning program in reducing early and unprotected sex among middle school students, *American Journal of Public Health*, 1999, 89(2):176-181; and O'Donnell L et al., Violence prevention and young adolescents' participation in community youth service, *Journal of Adolescent Health*, 1999, 24(1):28-37.
13. Kirby D, *Emerging Answers: Research Findings on Programs to Reduce Teen Pregnancy*, Washington, DC: National Campaign to Prevent Teen Pregnancy, 2001.
14. O'Donnell L et al., Obtaining written informed consent for school-based surveys of young adolescents, *Journal of Adolescent Health*, 1997, 2(6):376-383.
15. Blinn-Pike L, Berger T and Rea-Holloway M, Conducting adolescent sexuality research in schools: lessons learned, *Family Planning Perspectives*, 2000, 32(5):246-251.
16. Bowser BP, African American sexuality through the early life course, in: Rossi AS, ed., *Sexuality Across the Life Course*, Chicago: University of Chicago Press, 1997, pp. 127-150.
17. Schemo DJ, Survey finds parents favor more detailed sex education, *New York Times*, Oct. 4, 2000, p. 23.
18. Stanton BR et al., Parental underestimates of adolescent risk behavior: a randomized, controlled trial of a parental monitoring intervention, *Journal of Adolescent Health*, 2000, 26(1):18-26; Miller BC et al., Pubertal development, parental communication, and sexual values in relation to adolescent sexual behaviors, *Journal of Early Adolescence*, 1998, 18(1):27-52; and Li X, Feigelmann S and Stanton B, Perceived parental monitoring and health risk behaviors among urban low-income African American children and adolescents, *Journal of Adolescent Health*, 2000, 27(1):43-48.
19. Jaccard J, Dittus PF and Gordon VV, Parent-adolescent congruency in reports of adolescent sexual behavior and in communications about sexual behavior, *Child Development*, 1998, 69(1):247-261.
20. Sexuality Information and Education Council of the United States (SIECUS), Public support for sexuality education reaches highest level, press release, New York: SIECUS, June 2, 1999; Henry J. Kaiser Family Foundation (KFF), National study on sex education reveals gaps between what parents want and schools teach, press release, Menlo Park, CA: KFF, Sept. 26, 2000; and KFF, *Sex Education in America: A Series of National Surveys of Students, Parents, Teachers, and Principals*, Menlo Park, CA: KFF, 2000, pp. 30-31.
21. Darroch JE, Landry D and Singh S, Changing emphases in sexuality education in U.S. public secondary schools, 1988-1999, *Family Planning Perspectives*, 2000, 32(5):204-211.
22. Stueve A and O'Donnell L, Inconsistencies over time in young adolescents' self-reports of substance use and sexual intercourse, *Substance Use & Misuse*, 2000, 35(6-8): 1015-1034; and Stueve A and O'Donnell L, Missing data in self-reported sex behaviors, in: Bancroft J, ed., *Researching Sexual Behavior, Methodological Issues*, Bloomington, IN: Indiana University Press, 1997.