Sexual Intercourse and Oral Sex Among Public Middle School Students: Prevalence and Correlates

CONTEXT: *Early sexual initiation is associated with elevated teenage pregnancy and STD risk, yet little is known about the prevalence and correlates of sexual behavior among young adolescents. Better information is needed to guide interventions to prevent early sexual debut.*

METHODS: *Data from a 2005 survey of 4,557 sixth-, seventh- and eighth-grade students at 14 urban public schools in Southern California were analyzed using chi-square tests and logistic regression, to identify correlates of oral sex, intercourse and both.*

RESULTS: *Overall, 9% of youth had ever had sexual intercourse, and 8% had had oral sex. Three percent reported having had oral sex only, 4% intercourse only and 5% both. Among those who reported intercourse, 69% had used a condom at last intercourse, and 43% had had multiple partners. Being male, being black and having at least one friend who had ever been involved in a pregnancy were positively associated with having had intercourse only and both intercourse and oral sex (odds ratios, 1.7–4.2). Being in eighth grade, expecting to have intercourse in the next six months and currently having a boyfriend or girlfriend were positively associated with all three outcomes (2.1–7.2). Intercourse and oral sex were highly correlated.*

CONCLUSIONS: *Interventions addressing oral sex, intercourse and multiple partners should begin before sixth grade and continue throughout the middle school years. Health professionals should target adolescent risk reduction counseling toward males, blacks, youth with a boyfriend or girlfriend, and those with a friend who has been involved in a pregnancy.*

Perspectives on Sexual and Reproductive Health, 2010, 42(3):197–205, doi: 10.1363/4219710

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Studies of sexual behavior among high school students have established that some adolescents experience sexual intercourse prior to entering high school: According to nationally representative 2009 Youth Risk Behavior Surveillance (YRBS) data, 32% of ninth graders had initiated sexual intercourse—8% before the age of 13.[1] Yet, little is known about the sexual behavior of middle school students. Available evidence suggests that compared with other adolescents, those who initiate sexual activity before age 15 are more likely to have multiple sex partners, report more frequent recent intercourse, and have higher STD and pregnancy rates.[2] Among sexually active adolescents, those aged 15 or younger are less likely than their older peers to practice protective behaviors or be screened for STDs.[3,4] These findings, however, are based largely on retrospective data from high school students.

To address the lack of information on the risk and protective practices of sexually experienced young adolescents, this study investigates the sexual behavior of middle school students. A better understanding of early sexual behavior and its correlates would allow health care and other professionals to identify adolescents at risk of early sexual activity and to target them for counseling and risk reduction interventions.

BACKGROUND

In national studies conducted between 1994 and 1997, 4–5% of 12-year-olds, 10–13% of 13-year-olds and 18–19% of 14-year-olds reported having had sexual intercourse.[4] Data from the same period among predominantly minority inner-city samples found higher rates. For example, in middle schools in New York City and an urban area of New Jersey, 52–75% of males and 20–28% of females reported having had sexual intercourse by the end of eighth grade.[2,5] More recent national and school-based studies found that 12–15% of seventh graders reported sexual experience.[6,7] Taken together, these studies indicate that age at initiation of sexual intercourse may vary by gender, ethnicity, setting and other unknown factors. Elevated rates of early sexual debut among inner-city and minority adolescents may contribute to continuing ethnic disparities in reproductive health, and need to be addressed.

Health care professionals, researchers, school personnel and others have expressed concern that oral sex among adolescents is increasing; yet, empirical evidence is scarce.[8] Some adolescents and young adults may not consider oral sex to be "sex," and may consider themselves abstinent even if they engage in this activity.[8–10] Whether adolescents choose oral sex because they think of it as a lower risk alternative to sexual intercourse is unknown,[11]

but STDs prevalent among adolescents (chlamydia, gonorrhea, human papillomavirus and herpes simplex virus) are transmissible through oral sex and are most often asymptomatic.[12,13] According to some research, oral sex is more common than sexual intercourse among adolescents aged 14 and older;[14–16] however, other studies indicate that most youth that age who report having had oral sex also have had sexual intercourse.[17,18] Little information regarding middle school students' experience with oral sex is available. In one study, a smaller proportion of seventh-grade students reported oral sex than vaginal sex (8% vs. 12%), and greater proportions of black students than of Hispanic students reported either oral sex (11% vs. 5%) or vaginal sex (19% vs. 5%).[6] National Survey of Family Growth (NSFG) data collected in 2002 among 15–19-year-olds also showed that whites reported higher rates of oral sex than blacks or Latinos.[17,18] It is unclear how patterns of sexual behavior observed among older adolescents compare with those among younger adolescents.

It has been speculated that oral sex among adolescents consists largely of females performing oral sex on males,[8] which would expose females to greater risk of STDs from oral sex. Two studies using 2002 NSFG data explored gender differences in the proportions of older adolescents who have performed and received oral sex; however, the findings conflicted somewhat, and differences were limited to white youth. One study indicated that females were more likely than males to have performed oral sex (44% vs. 39%), although similar proportions of both genders had received oral sex.[18] The other study found no gender differences in the proportions who had performed oral sex.[17] Insufficient information is available about the prevalence and correlates of oral sex among young adolescents, their level of STD risk from sexual intercourse and oral sex, and which subgroups are at highest risk.

According to problem behavior theory, problem behaviors such as early sexual activity are influenced by adolescents' individual and social-contextual risk and protective factors;[19] protective factors are believed to ameliorate or attenuate the influence of risk factors on adolescent behavior. Problem behavior theory is useful not only to understand the antecedents of adolescent risk behavior, such as early sexual initiation, but also to gain insight into potentially effective avenues for intervention at multiple levels of influence.

A 2007 review article outlined risk and protective factors that tend to correlate with adolescent sexual risk behavior.[20] On an individual level, a strong and consistent risk for early sexual initiation is intending or expecting to have sex.[20,21] Behavioral expectations have correlated consistently with current sexual activity, subsequent sexual initiation and involvement in potentially risky situations among males and females, early and middle adolescents, and ethnically diverse adolescents in a variety of geographic areas.[20]

Two of the most important social-contextual influences on adolescents are their family and peers, who are known to influence sexual initiation. Parental disapproval of adolescent sexual activity has been associated with later sexual onset and with avoidance of risky situations and pregnancy.[22–26] In contrast, adolescents with siblings who were teenage parents are more likely than others to be involved in a pregnancy themselves.[26] Adolescents who have peers who report being sexually active are more likely than those who do not to be sexually active themselves, and those who believe that their peers are sexually active are more likely than others to anticipate initiating sexual intercourse.[27,28] Other features of a youth's social context also come into play. Sexual initiation is more likely among adolescents with a boyfriend or girlfriend, as most adolescent sexual activity occurs within a romantic relationship.[29–31] Finally, time spent unsupervised by an adult can provide the opportunity for sexual activity and has been correlated with its onset.[32]

Relatively little is known about influences on the initiation of oral sex. Some evidence suggests that the risk and protective factors may overlap with those for sexual intercourse, at least in part. For example, a study of adolescents aged 12–16 found that along with age and gender, school bonding, heavy drinking and negative health expectancies were associated with both oral sex and sexual intercourse.[33] In addition, perceived peer behavior and norms with respect to either oral sex or sexual intercourse were associated with that activity, but not with the other.

For this study, we examined data from a sample of predominantly ethnic minority (Latino and black) public middle school students in areas with high rates of teenage births and STDs, to identify the prevalence of oral sex and sexual intercourse, and of certain risk and protective behaviors of sexually experienced students—overall and by gender, race, ethnicity and grade. In addition, we tested whether selected characteristics and risk and protective factors were associated with youth's having had oral sex, sexual intercourse or both. Such information should inform interventions to reduce risky sexual behavior among public middle school students in areas at high risk for reproductive health disparities.

METHODS

Study Design

Project Connect is a teenage pregnancy and STD prevention study conducted in a public school district in the Los Angeles area. To identify areas with the greatest unintended teenage pregnancy and STD prevention needs, we mapped 2001 rates of chlamydia and births among 15–19-year-olds within each of the geographic areas that define which high school students attend (i.e., high school attendance areas). Twelve high schools in areas with STD and pregnancy rates exceeding Healthy People 2010 goals,[34] and 14 of their feeder middle schools, were recruited to participate. For the present study, we used baseline data, collected in a 2005 survey of sixth-, seventh- and eighth-grade students attending the 14 participating middle schools. All study

materials and protocols were approved by the school district and collaborators' institutional review boards.

We randomly selected sixth-, seventh- and eighth-grade health and science classes, and invited all students in those classes to participate. Study information and consent forms were distributed in each classroom two or more weeks prior to data collection. Only students who returned signed parental consent and assent forms participated. Of the 15,190 students enrolled in selected classes, 7,618 returned parental consent forms, of which 5,098 indicated consent. Among students with parental consent, 2% chose not to participate and another 6% were absent on the day the survey was conducted. Overall, 4,557 students (89% of those with parental consent) completed a 30-minute questionnaire during a single class period and constituted the study sample.

Measures

Survey items were adapted from existing questionnaires whenever possible and covered demographic characteristics, sexual behavior and factors known to correlate with sexual behavior. English and Spanish versions of the instrument were pilot-tested with approximately 1,000 middle and high school students. Certified translators associated with the school district translated the questionnaire into Spanish; bilingual project staff back-translated it into English to ensure consistency. Translations of sexual behavior items were consistent with those of the YRBS,[1] and "oral sex" was translated literally ("*sexo oral*"). Study staff conferred with teachers and students to determine which version to distribute. Ninety-four students completed the questionnaire in Spanish. Comparison of outcome and covariate frequencies by language revealed no significant differences.

Three considerations guided the selection of covariates. First, on the basis of problem behavior theory, we selected risk and protective factors at both the individual and the social-contextual levels.[19] Second, we selected risk and protective factors that have consistently been associated with adolescent sexual risk behavior.[20] Third, we selected factors that were most amenable to change or to use by health professionals in identifying students at risk of early sexual onset.

•***Demographic characteristics.*** Respondents reported their age, grade, gender, and race and ethnicity. For race and ethnicity, they were asked to "mark all that apply"; responses were recoded as Latino, black or other.*

•***Sexual behavior***. Sexual behavior questions were based on items from the YRBS,[1] which are widely accepted for use in high school populations. We chose these questions to maintain comparability with the population-based YRBS, which has also been used with middle school students.[7] Respondents were asked if they ever had had sexual intercourse (yes or no), and with how many people (none, one, two, three, or four or more); the term "sexual intercourse" was not explicitly defined. Youth who reported intercourse were asked whether they had used a condom at last intercourse. One question, based on an NSFG item used with older adolescents,[14] measured oral sex experience: "Have you ever given or received oral sex?" The four response options were "yes, given only"; "yes, received only"; "yes, both"; and "no." We combined the three affirmative responses to create a dichotomous variable for oral sex. To study the correlation between risk and protective factors and sexual behavior, we categorized respondents by sexual experience into four mutually exclusive groups: neither oral sex nor intercourse, oral sex only, intercourse only, and both. For logistic regression analyses, we created three dichotomous outcome variables: oral sex only, intercourse only, and oral sex and intercourse.

•***Risk and protective factors***. We measured one individual-level risk factor: expectation of sexual intercourse. Respondents were asked the likelihood that they would have intercourse in the next six months; response options were "I am sure it won't happen," "It probably won't happen," "Even chance (50–50) that it will happen," "It probably will happen" and "I am sure it will happen." We created a dichotomous measure of expectation, by combining the first two responses into "no expectation" and the other three into "expectation."

In addition, we included three social-contextual risk factors. A dichotomous question used in previous surveys of adolescent females asked respondents whether they have any siblings who had been a teenage parent. Another previously used question asked youth how many of their close friends had ever been involved in a pregnancy;[35] response options ranged from none to four. Respondents also were asked whether they currently had a boyfriend or girlfriend; we did not define the terms "boyfriend" and "girlfriend."

Furthermore, two social-contextual protective factors were included. Youth's perception of their parents' attitudes about their having sex was measured with the question "What would your parents think about you having sexual intercourse?" The four possible responses were "They are against it," "They don't care," "They think I should if I want to" and "Don't know"; we created a dichotomous measure comparing "they are against it" with all other responses. Parental supervision was measured with one dichotomous question from our formative research that correlated significantly with onset of sexual intercourse:[36] "Thinking back over Monday through Friday of last week, was there usually a parent, teacher or other adult with you from 3:00 to 5:00 in the afternoon?"

Analysis

We calculated frequencies for all variables. We also calculated frequencies of experience with intercourse and oral sex by gender, grade and ethnicity; among sexually

*For the 6% of respondents who reported more than one ethnicity, we selected the ethnic group marked that made up the largest proportion of the sample.

TABLE 1. Percentage distribution of a sample of adolescents from 14 middle schools in Southern California, by selected characteristics, 2005

Characteristic	% (N=4,557)
Gender	
Male	44
Female	56
Grade	
Sixth	46
Seventh	19
Eighth	36
Race/ethnicity	
Latino	71
Black	16
Other	13
Ever had sexual intercourse	
Yes	9
No	91
Used condom at last intercourse†	
Yes	69
No	31
No. of intercourse partners†	
1	57
2	24
3	8
≥4	12
Oral sex experience	
Given and received	3
Only received	3
Only given	2
None	92
Expectation to have sex in next six mos.	
Won't happen	65
Probably won't happen	14
Even chance it will happen	10
Probably will happen	6
Will happen	6
Currently has a boyfriend/girlfriend	
Yes	32
No	68
Has ≥1 friends who have ever been involved in pregnancy	
Yes	12
No	88
Has a sibling who was a teenage parent	
Yes	14
No	86
Perceived parents' attitude about respondent's having sex	
They are against it	57
They don't care	2
They think I should if I want to	2
I don't know	39
Supervised by an adult 3–5 P.M. last week	
Yes	79
No	21
Total	100

†Among those who reported sexual intercourse. *Note:* Percentages may not add to 100 because of rounding.

experienced respondents, we tabulated number of partners and condom use at last intercourse. Differences in sexual behavior by gender, grade and ethnicity were assessed in chi-square tests. Where 2x3 chi-square tests were statistically significant, we performed individual 2x2 analyses to determine which cells differed, adjusting the significance level to correct for multiple comparisons.

In addition, we used chi-square tests to examine the association between oral sex and sexual intercourse. We performed 2x4 tests, to compare the proportions for each risk and protective factor across the sexual behavior groups (oral sex only, intercourse only, both and neither) and to identify variables to be included in a multiple regression model.

Finally, we conducted three logistic regression analyses,* to study the relationship between sexual behavior and the risk and protective factors. We created one model for each dichotomous outcome variable: oral sex only, intercourse only and both. The covariates were all demographic characteristics and risk and protective factors that were associated with sexual behavior in bivariable analyses.

RESULTS

Descriptive Findings

Overall, 56% of respondents were female and 44% were male (Table 1). The proportion of adolescents in seventh grade was smaller than the proportions in sixth and eighth grades (19% vs. 46% and 36%, respectively); the sampling design called for more sixth and eighth graders, as we were planning to follow these youth longitudinally for five years. Seventy-one percent of the youth were Latino, 16% black and 13% of other races and ethnicities; the ethnic distribution of the sample was similar to that reported by the school district for the 2004–2005 school year.[37]

Nine percent of youth reported ever having had sexual intercourse. Of these, 69% reported having used a condom at last intercourse, and 43% reported having had more than one sexual partner. Eight percent of adolescents had any experience with oral sex: Three-percent reported having given and received oral sex, 3% had only received and 2% had only given.

Two-thirds of youth (65%) were sure that they would not have sexual intercourse in the next six months; one-third (32%) reported currently having a boyfriend or girlfriend. Twelve percent of adolescents had at least one friend who had been involved in a pregnancy, and 14% had a sibling who had been a teenage parent.

More than half of respondents (57%) perceived that their parents were against their having sex. Very few thought their parents either did not care or thought that they should have sex if they wanted to (2% each), but a substantial minority (39%) did not know what their parents thought. Four out of five respondents reported that

*We explored the appropriateness of using hierarchical linear models, because students were sampled and surveyed by classroom, raising the possibility of intraclass correlation. We fitted several binary logistic regressions with multiple covariates, using school as a fixed effect and classroom as a random effect. None of the random effects were statistically significant even at the 20% level, which suggested that use of hierarchical linear models was not necessary.

they had usually been supervised by an adult during the hours of 3:00 and 5:00 P.M. during the past week.

Sexual intercourse experience and any oral sex experience were highly correlated. Among respondents who reported having had intercourse, 59% also reported having had oral sex (not shown). Among those who had never had sexual intercourse, 3% had had oral sex (p<.001).

Bivariable Findings

At the bivariable level, males were significantly more likely than females to report having had sexual intercourse (14% vs. 5%—Table 2), oral sex (11% vs. 5%) and, if they had had intercourse, two or more partners (49% vs. 31%); they were also more likely to expect to have intercourse in the next six months (31% vs. 15%). Type of experience with oral sex and condom use at last intercourse did not differ by gender. Eighth-grade students were more likely than sixth or seventh graders to have had intercourse (14% vs. 6% each) and oral sex (13% vs. 4% and 6%, respectively), and were more likely to expect to have intercourse in the next six months (29% vs. 18% and 16%). Black youth were more likely than Latinos and other youth to have had intercourse (16% vs. 8% and 9%, respectively) and to expect to have intercourse in the next six months (29% vs. 21% and 17%). In addition, blacks were more likely than Latinos to have had oral sex (12% vs. 7%).

Overall, 3% of adolescents reported having had oral sex only, 4% intercourse only and 5% both (Table 3). A larger proportion of males than of females reported having had either or both sexual activities (16% vs. 7%). Eighteen percent of eighth graders had had oral sex only, intercourse only or both, compared with 7% of sixth graders and 8% of seventh graders. A greater proportion of blacks than of Latino or other youth had engaged in either or both sexual activities (18% vs. 10% and 12%).

Most of the selected risk and protective factors were associated with youth's sexual experience (Table 3). Adolescents who expected to have sex in the next six months were more likely than others to report having had oral sex only (5% vs. 2%), intercourse only (11% vs. 2%) or both (18% vs. 2%). Similarly, greater proportions of youth with a current boyfriend or girlfriend than of those without had had only oral sex (5% vs. 2%), only intercourse (7% vs. 2%) or both (12% vs. 2%). Respondents with at least one friend who had been involved in a pregnancy were more likely than others to have had intercourse (8% vs. 3%) or both intercourse and oral sex (17% vs. 3%). Finally, smaller proportions of youth who thought their parents were against their having sex and of youth who had usually been supervised between 3:00 and 5:00 P.M. were less likely than others to have had both intercourse and oral sex (4% vs. 7–8%).

Multivariable Findings

In the multivariable analyses, males were more likely than females to report having had intercourse only or both intercourse and oral sex (odds ratios, 2.8 and 3.2,

TABLE 2. Percentage of adolescents, by sexual behaviors, according to gender, grade, and race or ethnicity

Sexual behavior	Gender		Grade			Race/ethnicity		
	Male (N= 2,021)	Female (N= 2,533)	Sixth (N= 2,073)	Seventh (N= 853)	Eighth (N= 1,631)	Latino (N= 3,186)	Black (N= 697)	Other (N= 601)
Ever had intercourse	14***	5	6†	6†	14	8‡	16	9‡
Ever had oral sex	11***	5	4†	6†	13	7‡	12	10
Oral sex experience§								
Given and received	39	41	35	35	42	42	29	46
Only received	42	40	38	41	43	38	56	35
Only given	19	19	28	25	14	20	16	20
≥2 intercourse partners††	49**	31	49	42	41	40	48	51
Used condom at last intercourse††	69	69	65	78	70	68	77	62
Expects to have sex in next six mos.	31***	15	18†	16†	29	21‡	29	17‡

Significantly different from females at p<.01.*Significantly different from females at p<.001.†Significantly different from eighth grade at p<.01.‡Significantly different from black at p<.01.§Among those who ever had oral sex.††Among those who ever had intercourse. *Note:* Ns may not add to 4,557 because of missing data.

TABLE 3. Percentage distribution of adolescents, by sexual experience, according to selected characteristics

Characteristic	N	None	Oral sex only	Intercourse only	Both	Total
All	**4,557**	**89**	**3**	**4**	**5**	**100**
Gender* **						
Female	2,330	93	2	2	3	100
Male	1,790	83	3	5	8	100
Grade* **						
Sixth	1,831	93	1	3	3	100
Seventh	786	92	2	2	4	100
Eighth	1,506	82	5	5	8	100
Race/ethnicity* **						
Latino	2,872	90	3	3	4	100
Black	635	82	3	6	9	100
Other	556	89	3	2	7	100
Expects to have sex in next six mos.* **						
Yes	827	66	5	11	18	100
No	3,113	95	2	2	2	100
Currently has a boyfriend/girlfriend* **						
Yes	1,219	76	5	7	12	100
No	2,627	95	2	2	2	100
Has ≥1 friends who have ever been involved in pregnancy* **						
Yes	485	71	4	8	17	100
No	3,588	91	3	3	3	100
Has a sibling who was a teenage parent						
Yes	562	85	3	5	7	100
No	3,504	89	3	3	5	100
Parents are against respondent's having sex* **						
Yes	2,044	90	2	4	4	100
No	1,508	86	3	4	7	100
Supervised by an adult 3–5 P.M. last week* **						
Yes	3,067	90	3	3	4	100
No	801	85	3	4	8	100

***p<.001. *Note:* Percentages may not add to 100 because of rounding.

TABLE 4. Adjusted odds ratios (and 95% confidence intervals) from logistic regression analyses assessing adolescents' risk of oral sex, intercourse or both

Characteristic	Oral sex only	Intercourse only	Both
Gender			
Female (ref)	1.00	1.00	1.00
Male	1.41 (0.90–2.22)	2.80 (1.78–4.41)	3.21 (2.12–4.88)
Grade			
Sixth (ref)	1.00	1.00	1.00
Seventh	2.04 (0.96–4.34)	1.17 (0.62–2.21)	1.24 (0.69–2.24)
Eighth	4.76 (2.63–8.62)	2.05 (1.27–3.30)	2.52 (1.63–3.91)
Race/ethnicity			
Latino (ref)	1.00	1.00	1.00
Black	0.95 (0.53–1.71)	2.11 (1.30–3.40)	1.65 (1.03–2.65)
Other	0.86 (0.44–1.66)	0.49 (0.21–1.18)	2.14 (1.29–3.55)
Expects to have sex in next six mos.			
No (ref)	1.00	1.00	1.00
Yes	2.09 (1.30–3.34)	5.90 (3.79–9.18)	7.24 (4.87–10.74)
Currently has a boyfriend/girlfriend			
No (ref)	1.00	1.00	1.00
Yes	2.93 (1.87–4.62)	2.56 (1.65–3.98)	4.41 (2.93–6.64)
Has ≥1 friends who ever been involved in pregnancy			
No (ref)	1.00	1.00	1.00
Yes	1.10 (0.60–2.03)	2.34 (1.42–3.86)	4.24 (2.81–6.41)
Parents are against respondent's having sex			
No (ref)	1.00	1.00	1.00
Yes	0.77 (0.50–1.20)	1.52 (0.98–2.36)	0.89 (0.61–1.30)
Supervised by an adult 3–5 P.M. last week			
No (ref)	1.00	1.00	1.00
Yes	1.11 (0.66–1.89)	0.98 (0.60–1.60)	0.69 (0.46–1.03)

Note: ref=reference group.

respectively—Table 4). Eighth-grade students were more likely than sixth graders to report all types of sexual experience (4.8 for oral sex only, 2.1 for intercourse only and 2.5 for both). Compared with Latinos, black students had greater odds of intercourse only and of both intercourse and oral sex (2.1 and 1.7, respectively); youth of other races and ethnicities were more likely than Latinos to have had both intercourse and oral sex (2.1). Expecting to have intercourse in the next six months and currently having a boyfriend or girlfriend were positively associated with all types of sexual experience (odds ratios, 2.1–7.2). Having at least one friend who had been involved in a pregnancy was associated with intercourse only (2.3) and both oral sex and intercourse (4.2).

DISCUSSION

This study adds to the growing body of literature on the sexual behavior of young adolescents, and points to risk and protective factors that can inform intervention strategies. In this sample of predominantly minority youth living in areas with high rates of teenage births and STDs, 7% of sixth graders, 8% of seventh graders and 18% of eighth graders reported having had oral sex, sexual intercourse or both. The difference between eighth-grade and younger students is remarkable, and suggests that this period may be critical for targeted interventions. As expected, males and black youth had increased odds of reporting sexual intercourse. Blacks were also more likely than Latinos to report both intercourse and oral sex. As in another study of young adolescents in predominantly minority inner-city communities,[6] ethnic patterns of sexual behavior among our sample did not necessarily parallel national patterns among older adolescents.

About the same proportion of youth reported having had sexual intercourse (9%) and oral sex (8%). Although studies of high school students have found oral sex to be more common than intercourse, this finding has held mostly for white youth.[14–16] Our findings align better with results from racial- or ethnic-specific and middle school samples that black and Latino youth report somewhat lower rates of oral sex than of intercourse.[6,7,18] As in previous research, youth who reported having had oral sex were also likely to have had sexual intercourse, which suggests that these behaviors tend to occur together.[6,17,18,33,38]

Our questionnaire did not include items about why students had engaged in oral sex versus intercourse or which they had initiated first; thus, we cannot determine if youth who engaged only in oral sex did so to avoid the risks of sexual intercourse. However, adolescents who reported only oral sex resembled those who had had sexual intercourse in that they were more likely than their sexually inexperienced peers to expect to have intercourse in the next six months. Although these adolescents may have had oral sex to avoid the risks of intercourse, they likely were at high risk for initiating intercourse.

Roughly equivalent proportions of youth reported having had only oral sex and only intercourse. Thus, for some young adolescents, oral sex may presage sexual intercourse, as evidenced by an increased expectation of intercourse among those who had had oral sex only; other youth progress directly to intercourse without engaging in oral sex. Consistent with reports for minority youth,[17,18] we found no gender difference in the proportion of youth who had performed oral sex. The precise role that oral sex plays in adolescent sexual development remains unclear and warrants future research attention. Adolescents may assume that oral sex carries relatively few social or health risks,[39] and may not know that it poses a risk of STD infection.[12,13] Given that oral sex is part of some young adolescents' sexual practices, it should be addressed in prevention interventions.

Our findings are consistent with previous research that indicates that behavior-specific factors are better correlated with outcomes related to the same behavior:[33] For example, youth who had a friend who had been involved in a pregnancy were more likely than others to have had intercourse, but not oral sex. In addition, our results support previous research findings that the onset of oral sex and sexual intercourse may share some risk and protective factors.[33] Expecting to have sex and having a boyfriend or girlfriend were associated with both oral sex and sexual intercourse, and could serve as markers for risk of sexual initiation in young adolescents.

Health professionals and researchers are increasingly recognizing the developmental importance of early romantic relationships.[30,31,40] For the vast majority of adolescents (85%), first intercourse occurs within a romantic relationship,[41] yet educational and intervention programs for young adolescents rarely touch upon relationship skills.[30,42] One-quarter of first sexual relationships involve physical abuse, verbal abuse or both, and 40% of sexually experienced adolescents never discussed contraception with their first partner;[41] for Latinos, these rates are higher. Adolescents who report higher relationship satisfaction are more likely than those with lower satisfaction to discuss contraception, and those able to discuss sexuality in their romantic relationships are more likely than others to use contraceptives consistently.[43] Education in relationship skills, delaying the onset of romantic relationships and parental monitoring of relationships may strengthen some of the protective factors that work against sexual risk behavior among young adolescents.

The frequent occurrence of multiple sex partners in this young age-group is alarming, especially given their elevated STD and pregnancy risk owing to their early sexual initiation. It is encouraging that two-thirds of sexually experienced youth reported condom use at last intercourse; nevertheless, one-third did not use a condom, and even more had had multiple partners. Efforts to reduce the number of partners among young sexually experienced adolescents—not often a prevention strategy provided to this group—should be a priority.

Limitations

Although we used previously validated questions whenever possible, the sexual behavior questions were not explicitly defined. Defining them might improve their validity, but might mean increasing reading difficulty for adolescents, lengthening the survey and using more graphic language that might be objectionable to some parents, teachers, school administrators and other concerned adults. During survey development, we found no measures of oral sex that were validated for use with young adolescents on a self-administered survey, although similar questions have been used with older adolescents.[15,39,44] Future studies may benefit from exploring how young adolescents understand questions about their sexual behavior, especially oral sex. We did not gather in-depth, qualitative information to assess how well our study participants understood the questions. However, the proportions who had had sexual intercourse and oral sex were similar to those reported in previous research among middle school students, including a study using audio computer-assisted self-interviews;[6,33,45] this similarity adds strength to our findings.

The study is subject to other limitations as well. Our sample was drawn from urban areas of Southern California and consisted mostly of minority youth; thus, it may not be generalizable to all middle school populations. In addition, because the data are cross-sectional, developmental patterns may be suggested, but cannot be confirmed. As with findings from other studies of sexual behavior, ours are based on self-report, and the accuracy of respondents' answers to the survey questions cannot be verified. We did not ask whether sexual experience was coerced, which could change the implications of the findings. Finally, the requirement for active parental consent resulted in a lower participation rate than desired, although the racial and ethnic makeup of our final sample was similar to that of students enrolled in each of the middle schools. The few similar studies in the literature offered incentives for returned consent forms,[6,46] which we were unable to do. Nonrespondents in substance use research with young adolescents have been found to be at greater risk for negative health and behavioral outcomes than respondents.[47] If the same is true in this study, our findings underestimated sexual activity and overestimated protective factors. Meanwhile, given our study's focus on sexual behavior, highly involved parents may have withheld consent to prevent their child's exposure to the study materials; if that was the case, our findings overestimated adolescent sexual behavior.

Conclusions

Despite its limitations, this study takes a valuable step toward identifying adolescents who are at risk of early sexual activity, as well as avenues for intervention. School personnel and other health professionals who work with young adolescents can use the findings to intervene with at-risk youth. Asking students who present for health-related issues basic questions such as whether they have a boyfriend or girlfriend, or any friends who have been involved in a pregnancy, might identify young people at risk for early sexual initiation. A substantial proportion of students said they do not know if their parents are against their having sex, a factor that may be amenable to change. Health professionals might encourage young people to seek their parents' views on adolescent sexual activity as a way to open communication on the topic and encourage parents to share their values with their children. In addition, strategies that have been used in prevention programs targeting other adolescent risk behaviors, such as substance use, include correcting misperceptions about peers' behaviors.[48]

Although interventions should address oral sex as well as sexual intercourse, our findings support previous research that these two behaviors appear mostly to coincide and to be strongly influenced by relationships.[17,18,41] Because some middle school students are having sexual intercourse and oral sex, preventive interventions need to begin before middle school. Early romantic relationships frequently begin within peer groups,[49] and thus interventions might be targeted to elementary school students' development of relationship and communication skills, even within the context of friendships. Such a strategy may be less controversial than offering comprehensive sex education to preadolescents, and yet might improve

young adolescents' ability to form romantic relationships in which they are able to discuss sexuality and negotiate condom and contraceptive use. Interventions that address relationship skills should begin prior to sixth grade, and middle school interventions should address the entire range of adolescent sexual activity.

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Acknowledgments

This research was supported by grant U30/CCU922283-01 from the Centers for Disease Control and Prevention (CDC). The findings and conclusions in this article are those of the authors and do not necessarily represent the views of the CDC. The authors thank Robin A. Jeffries for her thorough review of the analysis and findings.

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