

# Correlates of Heterosexual Anal Intercourse Among At-Risk Adolescents and Young Adults

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Unprotected anal intercourse is a significant HIV risk because the odds of contracting HIV are calculated as 5 times as risky for receptive anal intercourse than for receptive vaginal intercourse.<sup>1</sup> In addition, anal intercourse appears to be increasing: a survey of adults aged 18 to 39 years showed that the rate of anal sex had doubled from 1995 to 2004.<sup>2</sup> In the most recent National Survey of Family Growth, 35% of women and 40% of men reported engaging in heterosexual anal intercourse in their lifetime.<sup>3</sup>

Many adolescents have engaged in anal intercourse, and the prevalence increases with age. In the National Survey of Family Growth, 8% of adolescent boys and 6% of adolescent girls aged 15 to 17 years reported having had heterosexual anal intercourse. Among those aged 20 to 24 years, 33% of men and 30% of women reported the experience. Data also show that anal intercourse among adolescents and young adults is often unprotected<sup>4–6</sup> and that condom use is less likely than during vaginal intercourse.<sup>5,7</sup> Most studies that have examined race as a factor have not found a significant correlation,<sup>7–9</sup> although some evidence exists that Whites engage in anal intercourse more frequently.<sup>4</sup>

Despite the prevalence of anal intercourse among adolescents and young adults, little research exists about related factors. Among adults, substance use is often described as a precipitant or cofactor for heterosexual anal intercourse. In one study, adults who had engaged in anal intercourse were more likely than were those who had not to use alcohol once a week or more; to have used marijuana in the past year; to have used cocaine, crack, or LSD in the past year; or to have ever injected drugs.<sup>8</sup> Among injection drug users, amphetamine use has been associated with heterosexual anal intercourse,<sup>10</sup> and in a sample of adult women, drug use was significantly associated with engaging in anal intercourse.<sup>9</sup> This relationship may reflect lowered inhibition during drug use or a common attitude that fosters experimentation with both substances and anal intercourse.

**Objectives.** We sought to learn what factors are associated with anal intercourse among adolescents and young adults. We examined demographic, behavioral, relationship context, attitudinal, substance use, and mental health correlates of recent heterosexual anal intercourse among adolescents and young adults who reported engaging in recent unprotected sex.

**Methods.** Among 1348 at-risk adolescents and young adults aged 15 to 21 years in 3 US cities, we assessed sexual risk behavior with each sexual partner in the past 90 days. Data were collected from 2000 to 2001.

**Results.** Recent heterosexual anal intercourse was reported by 16% of respondents. Females who engaged in anal intercourse were more likely to be living with a sexual partner, to have had 2 or more partners, and to have experienced coerced intercourse. For males, only a sexual orientation other than heterosexual was a significant predictor of engaging in heterosexual anal intercourse.

**Conclusions.** Our findings document the prevalence of heterosexual anal intercourse among adolescents and young adults who had recent unprotected sex. Among females, the variables associated with anal intercourse relate to the context and power balance of sexual relationships. Different influences for males and females suggest different foci for interventions. (*Am J Public Health.* 2009; 99:1131–1136. doi:10.2105/AJPH.2007.123752)

A significant relationship exists between anal intercourse and other sexual behaviors. Heterosexual anal intercourse has been associated with a greater number of sexual partners for adults,<sup>8</sup> college students,<sup>11,12</sup> and male injection drug users.<sup>10</sup> Women who had engaged in anal intercourse also reported more episodes of unprotected vaginal intercourse than did women who had not.<sup>13</sup> In addition, anal intercourse has been found to be related to other HIV risk behaviors, including injection drug use, having sex with an HIV-positive partner, having sex with a man who has sex with men, or exchanging drugs or money for sex.<sup>4,6–8</sup>

Halperin has suggested that power in relationships exerts a strong influence in the practice of anal intercourse.<sup>14</sup> Indeed, having a main partner dictate sexual practices was associated with unprotected anal intercourse in a study of women aged 18 to 24 years.<sup>9</sup> This may be particularly relevant for adolescents and young adults, who may be less sexually experienced and more likely to follow a partner's lead in sexual activities.

Because little is known about factors associated with anal intercourse among adolescents

and young adults or their prevalence, we sought to identify demographic, behavioral, relationship context, attitudinal, substance use, and mental health correlates of recent (previous 90 days) experience with anal intercourse among adolescents and young adults. The scant adolescent literature, along with the adult literature, led us to hypothesize that older age, other risky sexual practices (e.g., multiple sexual partners, unprotected vaginal intercourse), and more substance use would be significantly associated with recently engaging in anal intercourse. We also hypothesized that those with a history of aggression (as a proxy for power) in relationships would be more likely to engage in anal intercourse. Because we identified no previous research on the association between anal intercourse and sexual attitudes or mental health, we formulated no hypotheses about these variables.

## METHODS

### Participants and Recruitment

This study was conducted as part of Project SHIELD (Sexual Health Influencing Everyday

Life Decisions), a trial HIV prevention program for adolescents and young adults aged 15 to 21 years conducted from 1998 to 2002 in 3 US cities: Atlanta, Georgia, Providence, Rhode Island, and Miami, Florida.<sup>15</sup> A 4-hour, 1-time, skills-based workshop was designed specifically for at-risk adolescents and young adults, defined as those who had had unprotected sex in the past 90 days. This pilot project was intended to obtain a sample of high-risk adolescents and young adults that would be typical of patients seen in medical treatment settings and of participants in programs conducted by community-based organizations and that would be representative of the economic and racial diversity of urban areas.

Young people were recruited through contact at medical clinics, community outreach, posters and flyers, and self-referrals. Typically, potential participants were approached while in the waiting rooms of clinics or were screened by phone if they were self-referred. Many of the respondents were older than 18 years and could therefore consent to the screening. Some adolescents were screened during medical care in a clinic for sexually transmitted infections or family planning, where waivers of parental consent were obtained for screening purposes. In the case of prospective participants younger than 18 years, verbal permission was sought from parents to speak with the adolescent privately to obtain screening and inclusion information.

Prior to the intervention, participants completed assessments via audio computer-assisted self-interviews, administered individually. This format has been shown to be more effective than face-to-face interviews for collecting data on anal intercourse.<sup>13</sup> Participants were then directed by a URN randomization computer program to either the 4-hour workshop or a wait-listed control group. For the present analyses, only baseline data were examined. Participants were reimbursed \$50 for their time and effort for completing the baseline assessments.

Inclusion criteria for the study included being aged 15 to 21 years and reporting engaging in unprotected vaginal or anal intercourse at least once in the past 90 days. Potential participants were excluded if they were currently pregnant or had given birth in the past 90 days, were actively attempting to get pregnant, self-reported being HIV positive, or were currently participating in another HIV-prevention study.

Of 1867 eligible youths, 1386 (74%) were enrolled and completed the self-interview. For the present analyses, 1348 participants had data available for all of the constructs of interest. Fifty-six percent (759) of the participants were female. The mean age of the sample was 18.2 years (SD=1.8). Fifty-one percent of the respondents self-identified as Black, 24% as Hispanic, 20% as White, and 5% as another race. Ninety-two percent self-identified as heterosexual or straight, 5% as bisexual, 2.5% as undecided, and 0.1% as gay or lesbian. Estimated family income was categorized as less than \$10 000 (36%), \$10 000 to \$19 999 (17%), \$20 000 to \$29 999 (15%), \$30 000 to \$49 999 (14%), and \$50 000 or more (18%).

### Measures

The measures used in Project SHIELD were largely derived from Project LIGHT (Living in Good Health Together), a multisite HIV prevention trial for high-risk young adults funded by the National Institute of Mental Health, in which they were determined to be internally reliable and sensitive to intervention impact.<sup>16</sup>

**Sexual risk behaviors.** For each sexual partner, participants reported the number of sexual intercourse acts and the number of times a condom was used during those acts for anal and vaginal intercourse (recorded separately) in the past 90 days. Participants were also asked the gender of each sexual partner, their total number of sexual partners in the past 90 days, whether any of these partners was a sex trader or had other sexual partners, their age at first sexual intercourse, and whether they had ever been diagnosed with a sexually transmitted infection.

**Relationship context.** Participants reported whether they were living with a sexual partner and whether a partner had ever threatened or forced them to have sex.

**Sexual risk attitudes.** Scales were derived from a factor analysis of a measure of condom outcome expectancy attitudes (e.g., “no matter how I protect myself, I will probably get HIV”) used in Project LIGHT; associations of the longer outcome expectancy scale with sexual behaviors have been previously reported.<sup>16,17</sup> Attitudes and perceptions about condom use were measured with 5-point Likert items (strongly disagree to strongly agree). A measure of hedonism (4 items;  $\alpha=0.85$ ; range=4–20)

was used to assess unpleasurable expectations regarding condom use (e.g., “sex doesn’t feel as good when you use a condom”). Perceived invulnerability to HIV was assessed via 2 items (e.g., “I don’t need to use a condom because people like me don’t get HIV”; range=2–10). Perceptions of the influence of substances on sexual behavior (drug influence) were assessed via 2 items (e.g., “being drunk, buzzed or high makes sex better for me”; range=2–10).

**Substance use.** Participants were asked how many days they used alcohol and marijuana in the past month (range for each=0–30). They also reported lifetime use of (1) heroin or other narcotics, (2) cocaine or other stimulants, (3) inhalants, and (4) needles to inject drugs. Scores were summed (range=0–4), with higher scores indicating use of more kinds of other drugs ( $\alpha=0.71$ ). Participants answered a yes or no question about whether they used drugs or alcohol the last time they had sex.

**Mental health.** Respondents answered 2 yes or no questions about mental health crises: (1) any history of hospitalization for psychiatric reasons and (2) ever having attempted suicide.

### Data Analyses

Because previous studies found differences in sexual behavior by gender and because little is known about predictors of anal intercourse among young people, we conducted separate analyses for males and females. First, rates of heterosexual anal intercourse were established for the sample. Next, we used bivariate analyses to compare those who reported engaging in anal intercourse in the past 90 days (113 females, 102 males) with those who had not (646 females, 482 males). Finally, we conducted unconditional logistic regression analyses with variables that were significant in the bivariate analyses to assess the relative contribution of each to multivariable models predicting engaging in heterosexual anal intercourse.

Categorical variables were reduced to 2 categories that resulted in the most meaningful groupings: White (20%) versus non-White (80%), estimated family income less than \$30 000 (68%) versus \$30 000 or more (32%), and sexual orientation heterosexual or straight (92%) versus other (8%). For ease of interpretation, continuous scales were dichotomized at a clinically relevant cutpoint for entry

into logistic regression. For the hedonism and drug influence scales, we established cutpoints at or near the median. A hedonism score of 11 or higher indicated agreement that condoms ruin the mood or reduce sexual pleasure or neutrality on this question; a drug influence score of 6 or higher indicated agreement that drugs make sex better or neutrality. The perceived invulnerability scale was significantly skewed, and a score of 3 or more (range=2–10) was reported by 45% of the sample, indicating some perceived invulnerability.

**RESULTS**

Sixteen percent (n=220) of participants with complete data reported engaging in anal intercourse in the past 90 days. The majority of anal intercourse encounters among males were heterosexual; only 5 reported anal intercourse exclusively with other males. These participants were excluded from the analyses so we could focus on acts of heterosexual anal intercourse. In addition, males who reported anal intercourse with both males and females (n=8) were included in the sample, but their acts of anal intercourse with other males were excluded from the analyses. Of the remaining participants who reported having anal intercourse with heterosexual partners, 102 (47%) were males and 113 (53%) were females.

The average number of acts of heterosexual anal intercourse among all participants who reported engaging in anal intercourse in the past 90 days was 4.0 (3.35 for females, 4.84 for males), with 29% of these acts being protected (18% for females, 40% for males). Tables 1 and 2 show the results of  $\chi^2$  and *t* test analyses comparing the group of respondents who had engaged in anal intercourse with those who had not.

**Females**

White participants composed a larger proportion of the group who engaged in anal intercourse than they did of the group who had not. The proportion of Black, Hispanic, and other participants was equivalent between groups ( $\chi^2_{(3)}=8.08$ ). Sexual orientation other than heterosexual was more commonly reported among those who engaged in anal intercourse. We found no other significant demographic differences (Table 1).

Analysis of relationship context and mental health variables showed that living with a

**TABLE 1—Demographic Characteristics and Risk Behaviors Among Adolescent Girls and Young Urban Women in 3 US Cities: Project SHIELD, 2000–2001**

	Have Had Anal Intercourse (n = 113), % or Mean (SD)	Have Not Had Anal Intercourse (n = 646), % or Mean (SD)	$\chi^2$ or <i>t</i> <sup>a</sup>	df
White	29	18	8.08*	3
Estimated family income <\$30 000	71	75	0.688	1
Sexual orientation other than heterosexual	15	8	8.26*	3
Living with partner	28	17	8.43**	1
Partner has threatened or forced sexual intercourse	1	4	16.95***	1
Has attempted suicide	29	18	6.75**	1
Used drugs/alcohol at time of last sexual act	19	19	0.004	1
Sexual partner had multiple partners	44	30	8.53**	1
Had sexual intercourse with sex trader	1	2	0.42	1
Ever diagnosed with STI	27	21	2.00	1
Age at sexual debut, y	14.6 (1.8)	14.9 (2.0)	-1.69	757
Sexual partners in prior 90 d, no.	2.03 (2.5)	1.52 (1.3)	2.09*	122
Percentage of vaginal sexual acts protected	0.22 (0.30)	0.39 (.38)	-4.89***	188
Drug influence scale score	6.6 (2.0)	5.9 (2.1)	3.05**	738
Hedonism scale for condom use score	11.5 (3.8)	10.2 (3.9)	3.38***	750
Perceived invulnerability scale score	2.9 (1.3)	2.8 (1.4)	0.659	750
Other drugs scale score	0.42 (.83)	0.26 (.71)	1.91	142
Alcohol use in previous 30 days, d	4.17 (6.5)	3.92 (5.8)	0.412	741
Marijuana use in previous 30 days, d	9.93 (11.6)	8.15 (10.1)	1.30	113

Note. STI = sexually transmitted infection.

<sup>a</sup>Dichotomous variables were compared by the  $\chi^2$  test. All others were compared by the *t* test.

\**P* < .05; \*\**P* < .01; \*\*\**P* < .001.

partner, a history of forced sexual intercourse, and a history of a suicide attempt were more frequent among the group who had engaged in anal intercourse than among the group who had not.

Those who engaged in anal intercourse reported significantly more sexual partners and a lower proportion of protected vaginal sexual acts; they were also more likely to have had sex with someone with multiple sexual partners. No other sexual behaviors were significantly different between groups. Those in the anal intercourse group reported riskier attitudes on the drug influence and hedonism scales but not on the perceived invulnerability scale. There were no significant differences on measures of substance use.

In a logistic regression with simultaneous entry of all variables that were significant in our initial analyses (Table 3), we found that living with a sexual partner (adjusted odds ratio [AOR]=1.81; 95% confidence interval [CI]=1.09, 3.01), having 2 or more partners

(AOR=1.71; 95% CI=1.04, 2.80), and reporting having been forced to have sex (AOR=2.72; 95% CI=1.32, 5.60) were significantly predictive of engaging in anal intercourse (model  $\chi^2_{(10)}=40.26$ ).

**Males**

Our data showed greater proportions of males with a family income less than \$30 000 and a sexual orientation other than heterosexual among the group who engaged in anal intercourse than among those who had not. There were no differences by race or age (Table 2).

Relationship context and mental health variables were not significantly different between groups. However, having sex with a person who had multiple sexual partners or with a sex trader was significantly more prevalent among those who had engaged in anal intercourse. We found no other significant differences in the sexual risk variables.

Less favorable attitudes toward condom use and more confidence that they would not get

**TABLE 2—Demographic Characteristics and Risk Behaviors Among Adolescent Boys and Young Men in 3 US Cities: Project SHIELD, 2000–2001**

	Have Anal Intercourse (n = 102), % or Mean (SD)	Have Not Had Anal Intercourse (n = 482), % or Mean (SD)	$\chi^2$ or <i>t</i> <sup>a</sup>	df
White	20	19	.16	3
Estimated family income <\$30 000	70	58	5.04*	1
Sexual orientation other than heterosexual	4	1	13.84**	3
Living with partner	18	15	0.39	1
Partner has threatened or forced sexual intercourse	4	3	0.41	1
Has attempted suicide	13	7	3.76	1
Used drugs/alcohol at time of last sexual act	40	29	4.36*	1
Sexual partner had multiple partners	50	38	4.83*	1
Had sexual intercourse with sex trader	7	3	5.07*	1
Ever diagnosed with STI	6	7	0.13	1
Age at sexual debut, y	14.2 (2.2)	14.1 (2.5)	0.122	578
Sexual partners in prior 90 d, no.	2.88 (2.7)	2.41 (3.1)	1.42	576
Percentage of vaginal sexual acts protected	0.42 (0.35)	0.48 (0.39)	-1.61	535
Drug influence scale score	6.4 (2.2)	6.3 (2.1)	0.369	568
Hedonism scale for condom use score	12.5 (4.3)	11.5 (3.9)	2.22*	577
Perceived invulnerability scale score	3.2 (1.5)	2.8 (1.2)	2.70**	130
Other drugs scale score	0.58 (1.1)	0.38 (0.84)	1.90	130
Alcohol use in previous 30 days, d	6.96 (8.6)	6.51 (7.6)	0.525	568
Marijuana use in previous 30 days, d	16.30 (12.3)	14.10 (12.3)	1.40	425

Note. STI = sexually transmitted infection.

<sup>a</sup>Dichotomous variables were compared by the  $\chi^2$  test. All others were compared by the *t* test.

\**P* < .05; \*\**P* < .01.

HIV were reported by respondents who had engaged in anal intercourse than by those who had not. Those who had engaged in anal intercourse were more likely to have used drugs or alcohol at their last sexual encounter, but there were no other significant differences in substance use between groups.

A logistic regression (Table 4) showed that only a sexual orientation other than heterosexual was significantly predictive of having engaged in heterosexual anal intercourse (AOR = 5.68; 95% CI = 1.74, 18.6; model  $\chi^2_{(8)} = 29.87$ ). Between-group differences in having sex with a partner who had multiple partners (AOR = 1.56; 95% CI = 0.95, 2.56) or with a sex trader (AOR = 2.52; 95% CI = 0.87, 7.33) were nonsignificant.

## DISCUSSION

Our data yielded a prevalence estimate of 16% for heterosexual anal intercourse among a sample of adolescents and young adults who had engaged in unprotected sex

in the past 90 days. Little is known about heterosexual anal intercourse among young people, although there are more data about men who have sex with men.<sup>18–20</sup> Condoms were seldom used during anal intercourse acts, greatly increasing the risk of HIV transmission.<sup>1</sup>

After accounting for other relevant variables, we found that reporting having been forced to have sex, living with a partner, and having 2 or more partners were significantly related to engaging in anal intercourse for females. Although the odds ratio was not significant in the logistic regression model, it is notable that females who engaged in anal intercourse used condoms during vaginal intercourse only half as often (22%) as did those who did not engage in anal intercourse (39%), consistent with previous findings among adolescents<sup>5</sup> and adults.<sup>13,21</sup>

Female respondents with a history of trauma related to sexual experiences (i.e., they felt forced to have sex) were at greater risk than were their peers of engaging in anal

**TABLE 3—Results of Logistic Regression Predicting Occurrence of Anal Intercourse Among Adolescent Girls and Young Women in 3 US Cities: Project SHIELD, 2000–2001**

	AOR (95% CI)
Forced sex	
No (Ref)	1.00
Yes	2.72 (1.32, 5.60)
Living with sexual partner	
No (Ref)	1.00
Yes	1.81 (1.09, 3.01)
No. of sexual partners	
1 (Ref)	1.00
≥2	1.71 (1.04, 2.80)
Hedonism scale for condom use	
Low (Ref)	1.00
High	1.48 (0.95, 2.31)
Unprotected vaginal sexual acts, %	
High (Ref)	1.00
Low	1.45 (0.91, 2.32)
Sexual partner who had multiple partners	
No (Ref)	1.00
Yes	1.37 (0.85, 2.21)
Attempted suicide	
No (Ref)	1.00
Yes	1.27 (0.76, 2.11)
Race	
Other (Ref)	1.00
White	1.22 (0.73, 2.04)
Sexual orientation	
Heterosexual (Ref)	1.00
Other	1.27 (0.67, 2.41)
Drug influence	
Low (Ref)	1.00
High	1.03 (0.64, 1.65)

Note. AOR = adjusted odds ratio; CI = confidence interval. Model  $\chi^2_{(10)} = 40.256$ ; *P* < .001; 85% correctly classified.

intercourse. This is consistent with data linking intimate partner violence and anal intercourse among adults<sup>14,22,23</sup> and suggests the difficulty of negotiating safer-sex behaviors when a woman fears her sexual partner. In addition, qualitative research by El Bassel et al. found that some women consider anal intercourse as a type of sexual abuse.<sup>22</sup> We found that anal intercourse was related to multiple sexual partners,



**TABLE 4—Results of Logistic Regression Predicting Occurrence of Anal Intercourse Among Adolescent Boys and Young Men in 3 US Cities: Project SHIELD, 2000–2001**

	AOR (95% CI)
Sexual orientation	
Heterosexual (Ref)	1.00
Other	5.68 (1.74, 18.6)
Sexual partner who had multiple partners	
No (Ref)	1.00
Yes	1.56 (0.95, 2.56)
Sexual intercourse with sex trader	
No (Ref)	1.00
Yes	2.52 (0.87, 7.33)
Income, \$	
≥30 000 (Ref)	1.00
<30 000	1.50 (0.90, 2.49)
Used drugs/alcohol at time of last sexual act	
No (Ref)	1.00
Yes	1.48 (0.90, 2.44)
Hedonism scale for condom use	
Low (Ref)	1.00
High	1.50 (0.87, 2.59)
Perceived invulnerability	
Low (Ref)	1.00
High	1.32 (0.82, 2.12)
Attempted suicide	
No (Ref)	1.00
Yes	1.20 (0.51, 2.81)

Note. AOR = adjusted odds ratio; CI = confidence interval. Model  $\chi^2_{(8)} = 29.872$ ;  $P < .001$ ; 82% correctly classified.

consistent with a study of adults by Erikson et al.<sup>8</sup> and perhaps reflecting a tendency for some individuals to be involved in multiple high-risk behaviors simultaneously.

Among the anal intercourse group, 15% of females reported a nonheterosexual orientation. Although we did not find any significant correlations for this variable in the logistic regression, it may reflect the uncertainty and fluidity of sexual object choice at this developmental stage that leads to experimentation. Also, orientation and object choice may not preclude young people from engaging in a wide range of behaviors, as has been found among

lesbian and bisexual adults.<sup>24,25</sup> However, other studies have found lower rates. For example, in a study of 168 adolescent girls, only 2 of the 56 who self-identified as other than heterosexual reported anal intercourse.<sup>5</sup>

Among males, sexual orientation was the strongest predictor of anal intercourse (AOR=5.68; 95% CI=1.74, 18.60); males who described themselves as having an orientation other than heterosexual were more likely to report engaging in anal intercourse. Interestingly, we excluded male respondents with only homosexual experiences from analyses but found a small subgroup of males who identified as gay, bisexual, or uncertain (n=8) and engaged in anal intercourse with females. This may reflect experimentation, fluidity of object choice, or inconsistencies between sexual orientation and sexual behavior.<sup>22</sup>

Among adults, a factor relevant to the spread of HIV is the bridging of gay and heterosexual networks by individuals participating in both<sup>26</sup>; this process may occur also among adolescents and young adults. Despite the strength of the association with nonheterosexual orientation, 90% of males who engaged in heterosexual anal intercourse identified themselves as heterosexual. Male respondents who had sex with a sex trader or with someone who had multiple partners were also somewhat more likely to engage in anal intercourse. Perhaps the anonymity associated with such partners makes anal intercourse more acceptable.

Several variables were consistently related to anal intercourse among both genders. In general, those who felt that using condoms decreased the pleasure of sex and who used drugs at the time of sex engaged in riskier behaviors, suggesting that interventions should emphasize that sex can be both pleasurable and safe. Across genders, the anal intercourse group had a higher proportion of respondents who had attempted suicide. Whether this reflects a general level of psychological distress among young persons engaging in anal intercourse should be examined in future studies. Participants who identified as nonheterosexual were more likely to engage in anal intercourse, and nonheterosexual adolescents have been reported to have increased rates of suicide attempts<sup>27</sup>; the association we observed may therefore be related to sexual orientation.

Across genders, we found no significant correlations with history of drug use. However, proximal HIV risk factors, such as using drugs during sexual intercourse and believing drugs improve sexual experiences, were related to anal intercourse. These data suggest that it is important to assess the immediate context of and attitudes toward drug use, because lowered inhibition attributable to drugs may play a role in the occurrence of anal intercourse; this relation has been found among adults.<sup>8,9</sup> Contrary to our hypotheses, age was not significantly related to engaging in anal intercourse in our sample. However, our study's ability to detect age effects may have been limited because our sample comprised only young persons aged 15 to 21 years.

### Limitations

Our study had other limitations. We studied a group of adolescents and young adults who had unprotected sex in the previous 90 days; the results may not be generalizable to all sexually active youths. Reliance on self-reports can be problematic, especially for a behavior that is considered taboo by many. This may mean that rates of anal intercourse, as well as of unprotected sex, are actually higher. In addition, the possible motivations for anal intercourse were not assessed. For both genders, these could include pregnancy prevention, pleasure seeking, and sexual experimentation. Furthermore, there were differences among sites in the racial composition of the samples. However, the association between race and anal intercourse appeared only among the White respondents, who composed only 20% of the sample. Further exploration of interactions between community, contextual variables, race, gender, and anal intercourse thus was not feasible in this study but should be examined in future research.

### Conclusions

Our results have implications for those who provide medical care to at-risk young people as well as for researchers. Open dialogue between providers and their young clients about anal intercourse is important. When asking young people about vaginal intercourse and protection behaviors, clinicians should also be aware of the prevalence of anal intercourse and screen for this behavior. In particular, clinicians

should not presume that types of sexual behaviors and partner gender are consistent with defined sexual orientation. Thus, a detailed history of sexual behavior and all partner types is required. In addition, power in relationships and trauma from unwanted sexual intercourse are major factors and should be addressed in HIV-prevention interventions. Teaching adolescent girls and young women how to be assertive in sexual relationships—refusing unwanted sexual acts and negotiating for safer sex, whether anal or vaginal—is of the utmost importance. Recognition of the prevalence of heterosexual anal intercourse and the factors associated with it has important implications for the sexual health of adolescents and young adults. ■

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### Contributors

C.M. Lescano led the writing and analysis. C.D. Houck assisted with the writing and analysis. L.K. Brown originated, designed, and supervised the study and assisted with the writing and analysis. G. Doherty assisted with the writing. R.J. DiClemente, M.I. Fernandez, D. Pugatch, W.E. Schlenger, and B.J. Silver originated, designed, and supervised the study. All authors helped to conceptualize ideas, interpret findings, and review drafts of the article.

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### Human Participant Protection

Institutional review boards at each site approved all study procedures, and written informed consent or assent was obtained from all participants or, in the case of minors, their guardians.

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