

## Very Young Gay and Bisexual Men Are at Risk for HIV Infection: The San Francisco Bay Area Young Men's Survey II

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**Objectives:** To compare HIV seroprevalence and sexual risk behavior among very young gay and bisexual men (aged 15–17 years) and their older counterparts (aged 18–22 years). To examine drug-use patterns and correlates of sexual risk behavior in both of these age groups.

**Design and Methods:** An interviewer-administered cross-sectional survey of 719 gay and bisexual males between 15 and 22 years old was conducted through a venue-based sampling design. Blood specimens were collected and tested for HIV antibodies, hepatitis B, and syphilis. Interviews assessed sexual and drug-use behavior as well as psychosocial variables believed to be related to sexual risk-taking, including self-acceptance of gay or bisexual identity, perceptions of peer norms concerning safer sex, and perceptions of the ability to practice safer sex (safer sex self-efficacy).

**Results:** Of the 719 participants, 100 (16.2%) were aged between 15 and 17 years. HIV seroprevalence was somewhat lower among those aged 15 to 17 years (2.0%) compared with those aged 18 to 22 years (6.8%). Overall, the prevalence of hepatitis-B core antibody was significantly lower in the younger age group (5.0%) than in the older group (14.1%). The men aged 15 to 17 years used alcohol, ecstasy, and heroin less frequently than those aged 18 to 22 years. The age groups did not differ in the proportion of men who reported any unprotected anal intercourse in the previous 6 months (31.2%). In both age groups, use of amphetamines, ecstasy, and amyl nitrate was associated with unprotected anal intercourse. Self-acceptance of gay or bisexual identity was related to less sexual risk for those aged 15 to 17 years. In both age groups, greater safer sex self-efficacy was linked to less HIV sexual risk-taking. In the younger group, perceptions of peer norms that support safer sex were related to less risk behavior.

**Conclusions:** Very young gay and bisexual men engage in unprotected anal sex at rates comparable with those for their somewhat older counterparts, raising serious concern over their risk of acquiring HIV infection. To prevent seroconversions, interventions must target those <18 years of age, and prevention programs should address the use of certain drugs in relation to sex and sexual risk-taking. To be most effective, programs should develop innovative communication strategies to take into account lack of self-acceptance of gay or bisexual identity and low self-efficacy for practicing safer sex.

**Key Words:** Young gay men—Sexual behavior—STDs—HIV—Psychosocial—Drug use—Risk factors.

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Manuscript received October 4, 1999; accepted March 9, 2000.

The HIV/AIDS epidemic continues among young gay and bisexual men in the United States. The first San Francisco/Berkeley Young Men's Survey conducted during 1992 to 1993 found an HIV seroprevalence rate of

9.4% in its sample of 425 gay and bisexual men aged 17 to 22 years (1), and current data indicate that the level of HIV seroprevalence continues to be high (2). Other data from San Francisco documented a 17.9% seroprevalence rate of HIV for 380 gay and bisexual men in a multistage household probability sample of men aged 18 to 29 years (3). The same study also found that 63% of these men had engaged in unprotected anal intercourse in the 12 months before the survey. In other community-based samples, Kegeles et al. (4) found that 41% of gay and bisexual men aged between 18 and 27 years reported unprotected anal intercourse in the 2 months before the survey. Similar rates have been found in other studies (1,5-8).

Gay and bisexual youth <18 years of age have been studied infrequently (9). Institutional review boards generally require that youths under 18 receive parental consent before participating in studies and often are reluctant to approve studies that include assessments of the sexual behavior of adolescents. Gay and bisexual youths, however, may not be "out" (that is, known to self-identify as homosexual or bisexual) to their parents, thus making parental consent to participate in a study of gay and bisexual youths nearly impossible. An important transition occurs in the lives of many young gay and bisexual men at age 18 years—legally they become adults and often leave home for places where they can more freely explore their sexuality. Thus, gay and bisexual youths <18 years of age are an important group for study because their experiences may be quite different from those of their older counterparts. Most studies on those under 18 (10) have sampled predominantly street youths or those seeking services at agencies for runaway, homeless, or troubled youths, partly because of the waiver of parental consent among emancipated minors. Thus, research on young gay and bisexual men has typically excluded those <18 years of age or has studied young men under 18 who may not be representative of this population.

Researchers studying HIV in young gay and bisexual men often do not address associations between mental health or psychosocial issues and sexual risk behavior. One study suggested that the most sexually risky young gay and bisexual men are those who are less accepting of their homosexuality and who use drugs more often (8). Perceptions of peer norms regarding "safer sex" and safer sex self-efficacy have also been associated with HIV sexual risk behavior in samples of gay and bisexual men of differing ages. (7,11-14). Perceptions of peer norms have been successfully manipulated for the purpose of HIV prevention among older gay men; at follow-up, members of communities randomly selected for the

promotion of safer sex peer norms were less likely to engage in unprotected anal intercourse than those in comparison communities (15). These findings, however, were often not specifically documented for younger men, although there is reason to believe that the influence of peers may be especially profound for youths, particularly adolescents (16,17).

The causal directions of the associations between acceptance of gay or bisexual identity, drug use, peer norms regarding safer sex, safer sex self-efficacy, and HIV sexual risk behavior are not well-documented, and these associations have not been explored extensively in samples of young men. These variables are important because understanding their relation to sexual risk behavior may assist interventionists in preventing HIV transmission among young gay and bisexual men.

We compared HIV seroprevalence and sexual risk behavior among very young gay and bisexual men (aged 15-17 years) and their older counterparts (aged 18-22 years). In addition, we examined the relations between sexual risk-taking and drug use, self-acceptance of gay or bisexual identity, perceptions of peer norms concerning safer sex, and perceived safer sex self-efficacy in both age groups.

## MATERIALS AND METHODS

### Participants and Procedures

The Young Men's Survey was conducted in three counties in the San Francisco Bay Area (San Francisco, Alameda, and Santa Clara, California, U.S.A.) from May 1994 through September 1995 using methods described in detail elsewhere (1,2,18). Briefly, the study was cross-sectional and based on the Young Men's Survey conducted in San Francisco and Berkeley during 1992 to 1993. The methods involved enumerating young men at venues frequented by young gay and bisexual men. Moderately and well attended venues were then entered in a sampling frame from which venues and associated day and time periods were randomly sampled. Young men were then systematically sampled at these venues and associated day and time periods. Survey staff approached men with eligibility screening questions and asked them to enroll if they were aged 15 to 22 years, residents of the nine-county San Francisco Bay Area, and if they had not previously participated. Sexual orientation was not assessed during screening or enrollment. After informed consent, participants were interviewed and received anonymous, client-centered HIV testing and counseling in a specially equipped van parked near the venue. At the end of each interview, participants were given \$40 U.S. and appointment cards to obtain their test results from trained HIV counselors at a community-based location of their choice. Participants who returned for disclosure counseling received an additional \$10 U.S. The protocol, which included informed consent from minors (i.e., no parental consent) was reviewed, approved, and monitored by the Committee for the Protection of Human Subjects of the California Department of Health Services.

Blood specimens were tested for HIV-1 antibodies by enzyme immunoassay (Organon Teknika, Durham, NC, U.S.A.). Repeatedly re-

active specimens were confirmed by direct immunofluorescence (California Department of Public Health, Berkeley, CA, U.S.A.). Specimens were also tested for hepatitis B core antibody (Abbott, North Chicago, IL, U.S.A.) and syphilis by Venereal Disease Research Laboratories (VDRL) microhemagglutination-*Treponema pallidum* (MHA-TP) tests. Blood specimens of participants with similar demographic characteristics were tested by Miragen (19) to identify duplicates. When duplicates were found, records corresponding to the later date were removed from analysis. Participants' names were never connected to their blood test results.

### Interview Measures

The questionnaire was administered face to face. Demographic characteristics, including race/ethnicity, age, current living situation, school and employment situations, and self-reported sexual orientation were assessed. Self-identification of sexual orientation was assessed near the end of the interview. HIV-related risk behavior, drug use, and psychosocial variables (self-acceptance of gay or bisexual identity, perceptions of peer norms concerning safer sex, and safer sex self-efficacy) were also measured through this interview.

### Drug Use and Sexual Behavior

Frequency of drug use (alcohol, marijuana, crack, cocaine, speed [amphetamines], downers [barbiturates], ecstasy, lysergic acid diethylamide [LSD], amyl nitrate, and heroin) was rated for each drug on a scale ranging from 1 = *never* to 7 = *every day or almost every day*. Sexual behavior (anal, oral, and vaginal) was assessed for steady, casual, and exchange (i.e., sex for food, shelter, transportation, drugs, or money) partners for the 6 months preceding the interview. The men were also asked about the use of condoms with each type of partner.

### Psychosocial Scales

Three scales (i.e., sums of individual items) were constructed to assess the psychosocial variables of interest based on results of principal component analyses with varimax rotation used to determine the best linear combination of items. The items with the most common variance and similar theoretical underpinnings were combined. Items were taken from statements reflecting different attitudes and beliefs that participants were read during the interview and asked to rate on a 5-point scale ranging from 1 = *do not agree* to 5 = *strongly agree*. The first scale measured participants' level of self-acceptance of their gay or bisexual identity (Gay or Bisexual Self-Acceptance) and was constructed by scaling responses to seven items (Cronbach's  $\alpha = 0.72$ ). Some items were derived from the paper by Bell and Weinberg (20). Scale scores were coded so that higher scores indicated greater comfort with being gay or bisexual: sample items included "Sometimes I dislike myself for being gay/bisexual/transgender" (scores recoded so that 1 = 5, 2 = 4, 4 = 2, 5 = 1) and "Being gay/bisexual/transgender makes me feel part of a community." The second scale measured respondents' perceptions of their ability to practice safer sex (Safer Sex Self-Efficacy, six items,  $\alpha = 0.70$ ). Sample items included "I find it difficult to limit myself to safer sex all of the time" (recoded) and "It's easy for me to tell a sex partner what I like or don't like to do during sex." The third scale measured participants' perceptions of the safer sex practices of their peers (Safer Sex Peer Norms). The scale contained only three items ( $\alpha = 0.56$ ), with examples being "Most of my friends think you should always use a condom when having anal sex" and "Most of my friends think that condoms are too much of a hassle to

use" (recoded). A higher score indicates higher perceptions that friends support safer sex practices.

### Statistical Analysis

All analyses, including factor analysis, reliability estimates, and between-group comparisons, were conducted using SPSS version 6.1 for Windows (SPSS Inc., Chicago, Illinois, U.S.A.).  $\chi^2$  Tests were used to compare proportions between the two age groups for demographic variables, recruitment venue, serology results, and sexual behavior. Multivariate analysis of variance (MANOVA) followed by univariate tests with Bonferroni corrections were used to compare all scale mean scores, frequency of drug use, and the relations between psychosocial variables and sexual risk-taking. In addition, statistically significant mean differences for univariate comparisons are reported with Cohen's effect sizes (21) (which express mean differences in standard deviation units) to provide a standardized measure for evaluating the magnitude of the univariate mean differences for each scale.

### RESULTS

From May 1994 through September 1995, 3639 men were approached and 3390 (93%) agreed to be screened. Of 1242 who met the eligibility criteria, 853 (69%) agreed to participate. After the removal of duplicated subjects ( $n = 38$ ), the men who neither self-identified as gay or bisexual nor reported any history of sex with other males ( $n = 81$ ), and the study subjects for whom blood specimens were insufficient ( $n = 15$ ), the final sample comprised 719 men. The participation rates for Latinos (59.1%) and Asian-American/Pacific Islanders (57.1%) were lower than that for the overall sample. Of the total, 100 study subjects (13.9%) were aged between 15 and 17 years.

Demographic characteristics for the sample are presented in Table 1 for those aged between 15 and 17 years and those between 18 and 22 years separately with tests for group differences. The distribution of racial/ethnic groups was not equivalent between the two age groups: the 15- to 17-year age group was composed of a lower proportion of Asian-American/Pacific Islanders. More of those aged between 15 and 17 years had been born and raised in the San Francisco Bay Area.

### Sexual Orientation Identity

Most participants self-identified as gay or homosexual (63.3% overall; 57.0% of the younger group and 64.3% of the older group). Another 27.3% identified as bisexual (36.0% of the younger group and 25.8% of the older group). None of the younger Men self-identified as "straight (heterosexual)," but 3.9% of the older group self-identified as such (although they had a history of male-male sex). There was some indication that the

TABLE 1. Demographic characteristics by age group

|                                       | 15-17 Years of age<br>(n = 100)<br>n (%) | 18-22 Years of age<br>(n = 619)<br>n (%) | p Value |
|---------------------------------------|------------------------------------------|------------------------------------------|---------|
| Race/ethnicity                        |                                          |                                          | .01     |
| African American                      | 23 (23.0)                                | 113 (18.3)                               | —       |
| Asian-American/Pacific Islander       | 7 (7.0)                                  | 110 (17.8)                               | —       |
| Latino                                | 31 (31.0)                                | 181 (29.2)                               | —       |
| White/European American               | 32 (32.0)                                | 189 (30.5)                               | —       |
| Other ethnic group                    | 7 (7.0)                                  | 26 (4.2)                                 | —       |
| Born and raised in San Francisco Area | 66 (66.0)                                | 217 (35.1)                               | <.001   |
| Currently in school                   | 90 (90.0)                                | 298 (48.1)                               | <.001   |

younger group was more likely to identify as bisexual and less likely to identify as gay ( $p = .06$ ).

### Recruitment Venue

The percentage of younger versus older participants by venue type did not differ substantially for businesses (0% versus 1%), sex establishments (1% versus 0.6%), street locations (21% versus 26.3%), or parks (5% versus 4.2%). The men aged 15 to 17 years were, however, less likely to be recruited outside bars (14% versus 29.4%) and dance clubs (12% versus 29.4%) and more likely to be recruited from social organizations such as youth groups (47% versus 11.5%;  $p < .001$ ).

### Serology and Sexual Behavior

HIV seroprevalence was lower among the younger group (2.0%) than among the older group (6.5%) (Table 2). The difference did not reach statistical significance ( $p = .08$ ), likely as a result of the small sample size of the

younger group and a floor effect because only 2 men in the younger group were HIV positive. Fewer of the younger men had hepatitis-B markers (5.0% versus 14.1%,  $p = .01$ ). Syphilis prevalence was similarly low in the two groups.

Men in the 15- to 17-year age group, compared with men in the 18- to 22-year age group, had a lower number of lifetime male sex partners, were less likely to report ever having had an STD, and fewer had sex with a partner known to be HIV positive. Men in the younger group had also had significantly fewer sex partners in the past 6 months.

Reported sexual risk behavior in the past 6 months, however, did not differ between the two age groups (Table 2). The age groups did not differ in reports of unprotected anal intercourse across all types of partners (i.e., steady, casual, or exchange). Overall, 26.0% of the younger men and 32.7% of the older men had engaged in any unprotected anal sex in the past 6 months. These proportions were not significantly different nor were the comparisons for unprotected receptive or insertive anal

TABLE 2. Serology and sexual behavior by age group

|                                                                     | 15-17 Years of age<br>(n = 100) | 18-22 Years of age<br>(n = 619) | p Value |
|---------------------------------------------------------------------|---------------------------------|---------------------------------|---------|
| HIV-positive (%)                                                    | 2.0                             | 6.5                             | .08     |
| Hepatitis B markers present (%)                                     | 5.0                             | 14.1                            | .01     |
| Syphilis (VDRL-reactive) (%)                                        | 0                               | 0.8                             | .29     |
| History of sexually transmitted disease (%)                         | 5.0                             | 14.5                            | .01     |
| Known HIV-positive sex partner past 6 months (%)                    | 2.0                             | 9.8                             | .01     |
| Number of lifetime sex partners                                     |                                 |                                 | <.001   |
| Mean                                                                | 8.62                            | 23.59                           |         |
| SD                                                                  | 14.87                           | 57.65                           |         |
| Number of male sex partners in past 6 months                        |                                 |                                 | <.001   |
| Mean                                                                | 2.40                            | 5.64                            |         |
| SD                                                                  | 4.20                            | 15.72                           |         |
| Had any unprotected receptive anal intercourse in the past 6 mo (%) | 22.0%                           | 24.6%                           | .58     |
| Had any unprotected insertive anal intercourse in the past 6 mo (%) | 20.0%                           | 22.9%                           | .51     |
| Had any unprotected anal intercourse in the past 6 mo (%)           | 26.0%                           | 32.7%                           | .18     |

VDRL, Venereal Disease Research Laboratory; SD, standard deviation.

sex when analyzed separately. With respect to types of partners, 2.0% of the younger men and 3.6% of the older men had engaged in unprotected anal sex with exchange partners ( $p = .42$ ); 16% of the younger men had engaged in unprotected anal sex with casual partners, compared with 22.3% of the older men ( $p = .15$ ); and 12.0% of younger group versus 13.1% of the older group had engaged in unprotected anal sex with steady partners ( $p = .75$ ).

### Drug Use

In both age groups, alcohol and marijuana were the drugs used most frequently in the past 6 months (88.2% and 68.0%, respectively), but 27.3% of the sample reported having used uppers, 8.3% had used downers, 15.7% had used ecstasy, 19.9% had used LSD, 10.8% had used poppers, 13.5% had used cocaine, 6.7% had used crack, and 4.5% had used heroin in the past 6 months. Frequency of use in the past 6 months differed between the two age groups. MANOVA indicated that there was a significant effect of age grouping across all 10 drugs ( $p = .001$ ; Wilks'  $\lambda = 0.96$ ). Subsequent univariate tests with Bonferroni corrections revealed that the significant multivariate effect was driven by the younger men's having consumed alcohol, ecstasy, and heroin less frequently than the older men (Table 3).

### Relation Between Drug Use and HIV Sexual Risk Taking

For the total sample ( $N = 719$ ), MANOVA suggested that frequency of drug use in the past 6 months was

TABLE 3. Drug use by age group

|                            | Drug use in past 6 months <sup>a</sup>         |                                                | <i>p</i> Value     |
|----------------------------|------------------------------------------------|------------------------------------------------|--------------------|
|                            | 15-17                                          | 18-22                                          |                    |
|                            | Years of age<br>( <i>n</i> = 100)<br>Mean (SD) | Years of age<br>( <i>n</i> = 619)<br>Mean (SD) |                    |
| Alcohol                    | 2.88 (1.68)                                    | 3.74 (1.73)                                    | <.001 <sup>b</sup> |
| Marijuana                  | 2.65 (1.83)                                    | 2.85 (2.09)                                    | .23                |
| Uppers                     | 1.69 (1.57)                                    | 1.76 (1.53)                                    | .69                |
| Lysergic acid diethylamide | 1.28 (0.59)                                    | 1.35 (0.90)                                    | .45                |
| Cocaine                    | 1.16 (0.55)                                    | 1.22 (0.69)                                    | .41                |
| Poppers                    | 1.13 (0.49)                                    | 1.18 (0.66)                                    | .48                |
| Downers                    | 1.12 (0.56)                                    | 1.21 (0.82)                                    | .19                |
| Ecstasy                    | 1.11 (0.42)                                    | 1.28 (0.76)                                    | .001 <sup>b</sup>  |
| Crack cocaine              | 1.08 (0.37)                                    | 1.11 (0.51)                                    | .56                |
| Heroin                     | 1.03 (0.17)                                    | 1.17 (0.87)                                    | .001 <sup>b</sup>  |

<sup>a</sup> Participants reported frequency of use on the following scale: 1 = never, 2 = less than once a month, 3 = about once a month, 4 = 2-3 times a month, 5 = about once a week, 6 = 2-3 times a week, and 7 = every day or almost every day.

<sup>b</sup> Statistically significant after a Bonferroni correction for multiple comparisons ( $p = .05/10 = .005$ ).

SD, standard deviation.

associated with reporting unprotected anal intercourse when those who had engaged in any unprotected anal intercourse were compared with those who had not ( $p = 0.001$ ; Wilks'  $\lambda = 0.96$ ). Subsequent univariate tests with Bonferroni corrections indicated that this effect was found for only 2 of the 10 drugs: those who had engaged in unprotected anal sex in the past 6 months had more frequently used uppers (mean, 2.01 versus 1.63,  $p = .002$ ) and poppers (mean, 1.28 versus 1.13, respectively,  $p = .003$ ).

The age groups were examined separately for associations between drug use and a greater likelihood of having unprotected anal intercourse in the past 6 months. For the 15- to 17-year age group, increased use of poppers and LSD was related to HIV sexual risk taking ( $p = .03$  for each), but the level of statistical significance did not meet the Bonferroni correction level ( $p = .005$ ). The findings for the 18- to 22-year age group were similar, with more use of uppers ( $p = .007$ ), ecstasy ( $p = .05$ ), and poppers ( $p = .04$ ) being related to having unprotected anal intercourse, but not reaching the strict probability criterion.

### Psychosocial Predictors of Unprotected Anal Intercourse

For each of the three scales, mean scores were compared within age groups for men who had versus those who had not engaged in any unprotected anal intercourse in the past 6 months (insertive or receptive for all types of partners) (Table 4). MANOVA indicated mean differences between those who had versus those who had not engaged in unprotected anal sex for both the younger men ( $p = .01$ ; Wilks'  $\lambda = 0.86$ ) and the older men ( $p < 0.001$ ; Wilks'  $\lambda = 0.94$ ).

As the effect sizes in Table 4 demonstrate, in both age groups, there was a large effect suggesting that those who had engaged in unprotected anal intercourse were less likely than those who had not to report safer sex self-efficacy. There was a moderate effect indicating that those in the 15- to 17-year age group who reported unprotected anal sex were less accepting of their gay or bisexual identity than those who reported no unprotected anal sex, and a small effect for this same comparison in the 18- to 22-year age group. Peer norms did not seem to be related to the sexual risk behavior of the older men, but a moderate effect among the younger men suggests that peer norms that support safer sex may be related to less risk behavior for this group.

### DISCUSSION

Although HIV seroprevalence was lower for the 15- to 17-year-old group than the 18- to 22-year-old group, sev-

TABLE 4. Relation between score of psychosocial variables and unprotected anal intercourse by age group

|                                 | 15-17 Years of age (n = 100)            |                                         |                      |                     | 18-22 Years of age (n = 619)             |                                          |                      |                     |
|---------------------------------|-----------------------------------------|-----------------------------------------|----------------------|---------------------|------------------------------------------|------------------------------------------|----------------------|---------------------|
|                                 | UAI in past 6 months (n = 26) mean (SD) | No UAI past 6 months (n = 74) mean (SD) | p Value (one-tailed) | Cohen's effect size | UAI in past 6 months (n = 202) mean (SD) | No UAI past 6 months (n = 417) mean (SD) | p Value (one-tailed) | Cohen's effect size |
| Gay or bisexual self-acceptance | 3.57 (0.80)                             | 3.94 (0.93)                             | .025                 | .43                 | 3.77 (0.84)                              | 3.87 (0.82)                              | .064                 | .12                 |
| Safer sex self-efficacy         | 3.58 (0.73)                             | 4.11 (0.72)                             | .002                 | .73                 | 3.67 (0.74)                              | 4.09 (0.74)                              | <.001                | .57                 |
| Safer sex peer norms            | 3.74 (0.95)                             | 4.09 (0.92)                             | .050                 | .37                 | 4.00 (0.95)                              | 4.07 (0.92)                              | .190                 | —                   |

UAI, unprotected anal intercourse (all types of partners, insertive or receptive); SD, standard deviation.

eral indicators portend high rates of seroconversion in this population. In particular, men aged 15 to 17 years were as likely as those aged 18 to 22 years to have engaged in unprotected insertive and receptive anal intercourse in the past 6 months even though the younger men had fewer overall sex partners than had the older men during that time. In the absence of an intervention, it is likely that HIV prevalence among these younger men will be similar to that among their older counterparts when they reach 18 to 22 years of age. These data reflect a frozen cross-section of time that forecasts the epidemiologic future of these young men.

Our data, however, suggest possible intervening variables that may prevent HIV sexual risk behavior and subsequent seroconversions. The use of poppers and uppers was related to sexual risk when we examined the age groups together. In initial univariate comparisons without Bonferroni corrections, more frequent use of LSD by the younger men and more frequent use of ecstasy by the older group was associated with sexual risk taking.

Our findings suggest that recreational drug use has a mediational role in sexual risk-taking and that interventions designed to reduce the use of these drugs may indirectly reduce sexual risk taking. Conversely, however, decreasing drug use may not in itself reduce sexual risk-taking because other variables may cause both behaviors, and reducing drug use may not affect such variables. It may also be useful to direct HIV prevention to the venues in which these drugs are used rather than to direct the interventions at the drugs per se. It may not be the drugs that cause the risk taking; rather, the environments in which they are used may foster unprotected sex in conjunction with drug use. Indeed, the controversy surrounding the causal relation between drug use and sexual risk taking is complex and has been debated for some time (22,23). Our results further substantiate the association between drug use and sexual risk-taking, but the exact role of drug use and the intervention methods by which to address it are issues that HIV prevention scientists must continue to assess.

Important psychosocial variables were associated with

HIV sexual risk behavior. In both groups, self-acceptance of gay or bisexual identity was associated with fewer acts of unprotected anal intercourse. Perhaps the process of identity acceptance may lead to self-protective sexual behavior. Self-acceptance may produce feelings of positive self-regard and increased self-value that may breed resilience in young gay and bisexual men that in turn increases safer sex behavior. In contrast, less accepting young men may be more vulnerable to self-destructive behavior including putting themselves at risk for HIV infection.

The findings further indicate that acceptance of one's gay or bisexual identity may be especially influential in younger men because the effect size for this variable was larger for the younger group than for the older one. HIV preventive interventions that address self-acceptance may therefore be most effective at younger ages. Fostering gay-supportive communities and environments and working to reduce homophobia may yield greater self-acceptance and subsequent risk-reduction. These findings also suggest the importance of HIV prevention efforts at an individual level that reach more closeted young men—those who are less comfortable with their gay identities and reluctant to participate in highly visible gay-identified prevention programs. Interventionists must find ways to reach these young men who are struggling the most with their sexual orientation. The most successful programs will find ways to reach young men at all levels of self-acceptance.

Perceptions of peer norms exerted a mild influence on HIV sexual risk-taking among the younger group, but not in the older group. Although perceptions of peer norms have been found to be related to risk behavior in other samples of gay men (11-14), this is a new finding for men <18 years of age. It may, in fact, be true that the younger men in this sample were more easily influenced by their peers, a possibility that seems plausible in light of research indicating the considerable influence of peers at this age. If this is true, HIV prevention programs for very young men could benefit by enlisting peers as part of their intervention delivery, a strategy that seems par-

ticularly appropriate for community-level interventions. Such interventions have been successful with older men (4,15) but have not been done in very young populations. These results should be interpreted with caution, however, because this construct was measured with only three items, and the effect size for this finding was moderate.

Self-efficacy was strongly related to sexual risk behavior. Those participants in both age groups who felt most able to perform safer sex behaviors were those who had actually done so. In many ways, this finding should not be surprising; one who has actually done something is likely to feel able to do so. Nonetheless, this suggests that encouraging feelings of efficacy about safer sex behavior and teaching communication skills may be viable intervention strategies for young gay and bisexual men.

Some caution should be exercised in generalizing from our study participants aged 15 to 17 years to all gay and bisexual men in this age group because we sampled only those young men who attended public venues frequented by other gay and bisexual men. Many gay and bisexual youths at this age have not even self-identified as gay or bisexual, and thus are much less likely to be found in or near gay community venues. Furthermore, it is unclear the degree to which the experiences of these young men can be generalized to young men outside metropolitan HIV epicenters. The youth in our study, however, are certainly of interest for a variety of reasons, including their risk profile, potential for seroconversion, and underrepresentation in previous research.

Well into the second decade of the epidemic, HIV prevention information is omnipresent in the lives of young gay and bisexual men in the San Francisco Bay Area. Interventions designed to prevent HIV infection must therefore be more sophisticated and must deal with the more complex cultural and psychological variables that place these young men, even those in their adolescence, at considerable risk for seroconversion. Our data indicate the need to take into account the issues related to peer norms and self-efficacy for safer sex, as well as drug use and dealing with gay and bisexual identity at an early age, but these tasks will surely face considerable challenges.

**Acknowledgment:** C. R. Waldo is supported by a center grant MH42459 from the National Institute of Mental Health.

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