

AIDS-Related Risk Among Adolescent Males Who Have Sex With Males, Females, or Both: Evidence From a Statewide Survey

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Understanding and preventing HIV/AIDS among young men who have sex with men (YMSM) represents a critical aspect of stemming the AIDS epidemic in the United States. Two decades into the epidemic, however, there are still virtually no population-based prevalence data about the behavioral risks of homosexually active or bisexually active adolescent males and very little information about factors influencing those risks.

Since the early 1980s, the AIDS epidemic in this country has had its heaviest impact on men who have sex with men (MSM). More than half (53%) of the nearly three quarters of a million US AIDS cases diagnosed by the end of 1999 involved MSM.¹ Of AIDS cases among young men aged 13 to 24 years, fully 69% involved homosexual activity as a risk factor.¹ An estimated 112 000 to 250 000 American adolescents are currently HIV positive; nearly half of these youths are YMSM.² Given the long latency of HIV infection, it is probable that many men diagnosed with AIDS in their 20s and 30s actually became infected during adolescence.³

The behaviors that may lead to HIV infection are usually initiated in adolescence. Most American adolescents are sexually active before they graduate from high school.⁴ Although sexual risk taking in the general adolescent population has declined since the early 1990s,⁵ existing evidence does not suggest a similar decline among YMSM. Continued high rates of sexual and drug-related risk behavior are reported among young gay and bisexual men.^{6–8} Perhaps prevention messages that have influenced an older cohort of MSM are failing to persuade a younger generation, or perhaps YMSM perceive that antiviral treatments have rendered HIV infection less serious.⁹ Whatever the causes, prevention efforts for YMSM must be based

Objectives. This study examined the prevalence of AIDS-related risk behaviors among adolescent males with female, male, and both-sex sexual partners and explored factors related to these behaviors.

Methods. Three waves of a population-based survey provided data on male high school students: 3065 with only female sexual partners, 94 with only male partners, and 108 with both. Logistic regression analyses were used to examine AIDS-related outcomes.

Results. Youths with any same-sex experience reported less school AIDS education. Bisexual experience predicted multiple sexual partners, unprotected intercourse, sexually transmitted disease, and injection drug use. School AIDS education and condom instruction predicted less AIDS-related risk.

Conclusions. Bisexually active adolescent males report especially high levels of AIDS risk behavior. School-based AIDS prevention should address the needs of all sexually active youths. (*Am J Public Health.* 2002;92:203–210)

on accurate information about the prevalence of AIDS-related risks and on an understanding of factors that may contribute to these risks.

Current data on risk behaviors among YMSM are limited in several ways. Virtually all studies of YMSM have involved highly urban samples, usually drawn from cities with identifiable gay communities, gathering in places, events, or youth support groups.^{7,8,10–15} Even among studies involving probability sampling within selected neighborhoods or venues, participants are undoubtedly different in significant ways from the larger, less visible, more geographically diffused population of homosexually active young men. Smaller studies focusing on youths drawn from HIV/sexually transmitted disease (STD) testing sites¹⁶ or from support groups¹² are even less likely to be representative.

Also, most of the participants in the large-scale YMSM studies just mentioned were young adults rather than adolescents; on average, participants were in their early to mid-20s. Because most American youths become sexually active before the age of 18 years,⁴ it is important to investigate patterns of sexual behavior during adolescence, when these patterns are first being established. Moreover, fo-

cus on adolescents can inform prevention efforts that target young people who are still in school.

In the present study, we used population-based data from a statewide survey of public high school students to examine AIDS-related risk behaviors among sexually experienced adolescent males. Although in most cases all YMSM are grouped together,¹⁷ some research suggests that bisexually active males may have behavioral risk profiles different from those of young men who have sexual contact only with other males.^{10,17–19} Accordingly, our analyses distinguished between youths with only male partners and those who were bisexually active.

Both risk and protective factors influence the behavior of sexually active young men. Prime among the risk factors is sexual coercion or abuse, which may be especially high among gay and bisexual males.^{20,21} Not only can forced sex lead to HIV infection directly, but a history of sexual abuse is related to riskier sexual and drug use behavior in many populations,^{22,23} including homosexually active males.^{10,13,24,25}

We also examined protective factors, such as AIDS prevention education, that should lead to lower levels of risk. Some school-

based programs have been shown to be related to decreased sexual risk behaviors among adolescents in general²⁶ and adolescent males in particular.²⁷ Furthermore, small intervention studies have demonstrated that high rates of sexual risk behavior can be reduced among YMSM.^{12,28,29} Educational interventions focusing specifically on condom skills may also reduce risk by increasing the probability of condom use.

METHODS

Respondents and Procedures

Study participants were sexually experienced males from the sample of high school students who completed the 1995, 1997, or 1999 Massachusetts Youth Risk Behavior Survey (MYRBS). This survey measures the prevalence of risk behaviors among adolescents in the state. In each of the survey years examined here, a 2-stage cluster sample design produced a representative sample of 9th to 12th-grade Massachusetts public high school students. Sample sizes for the 3 cross-sectional surveys examined were as follows: 1995, 4159 students in 59 schools; 1997, 3982 students in 57 schools; and 1999, 4415 students in 64 schools. Student and school response rates were, respectively, 77% and 94% (1995), 79% and 88% (1997), and 79% and 95% (1999).

Student absences on survey dates accounted for most loss of student response; fewer than 2% of adolescents declined the survey or had parents who refused permission. Trained Massachusetts Department of Education staff administered the voluntary, anonymous, paper-and-pencil survey in selected classrooms.

The present study included only male youths who indicated that they had had some "sexual contact" with another person. Data from 1995, 1997, and 1999 were combined to ensure adequate statistical power; the resulting study sample included 3267 male high school students ranging from younger than 12 years to older than 18 years (mean = 16.4 years). Proportionate random samples for the 3 years were drawn independently; thus, an adolescent surveyed in a given year might by chance be sampled again 2 years later.

Because of the anonymous nature of the MYRBS, it is impossible to determine exactly how many students, or which students, might have completed the survey twice. However, weights supplied by the Centers for Disease Control and Prevention (CDC) enabled us to estimate that approximately 7 of the 444 freshman/sophomore males who completed the 1995 MYRBS completed the survey in 1997 as juniors or seniors. Similarly, we estimated that about 8 of 467 freshman/sophomore males who completed the MYRBS in 1997 were resurveyed in 1999. These approximately 15 probable repeat participants constituted less than half of 1% of the study sample and thus did not represent a threat to the validity of our findings.

Measures

Most of the MYRBS questions were developed by the CDC as part of its Youth Risk Behavior Surveillance System. Included were questions asking whether the adolescent had ever received AIDS education in school, how many times he had injected illegal drugs, whether he had "ever had sexual intercourse," and if so, age at first intercourse, number of lifetime sexual intercourse partners, number of partners in the previous 3 months, whether a condom had been used at most recent intercourse, and whether alcohol or drugs had been used at most recent intercourse. "Intercourse" was not specifically defined in these questions. The Massachusetts Department of Education added to this core set of items a question asking youths with whom they had had sexual contact. Response options included "I have not had sexual contact with anyone," "female(s)," "male(s)," and "both female(s) and male(s)." "Sexual contact" was also left undefined.

Another added question concerned sexual identity ("How would you describe yourself?"). Response options were "heterosexual/straight," "gay or lesbian," "bisexual," and "not sure." (In 1995 only, "none of the above" was also a response option.) Youths also indicated whether anyone had "ever had sexual contact with [them] against [their] will" and whether they had "ever been taught in school how to use a condom." In 1999 only, the MYRBS asked whether the adolescent

had ever been diagnosed with an STD (such as HIV, chlamydia, syphilis, or genital herpes). Ethnicity and age were determined by self-report. School classifications (urban, suburban, or rural) were taken from category labels used by the Massachusetts Department of Education.

Analytic Approach

Data were weighted to adjust for school and student nonresponse. Statistical analyses were conducted with SUDAAN 7.5.4,³⁰ a set of statistical software programs designed for use with multistage sample designs; survey year was included as a nesting variable. Contingency table analyses were conducted to assess the prevalence of AIDS-related risk behaviors among sexually experienced adolescent males grouped according to sexual partners (female only, male only, or both).

We also report results of logistic regression analyses that identified statistically significant correlates of receipt of AIDS education and presence of 4 AIDS-related risk indicators: 4 or more lifetime sexual intercourse partners, use of a condom at most recent intercourse, any lifetime STD diagnosis, and any injection drug use. Age, ethnicity, and type of community (urban, suburban, rural) were included as demographic controls. Small cell sizes for self-identified "gay" and "bisexual" youths precluded the addition of sexual identity as a predictor. All variables were entered simultaneously.

RESULTS

Demographic characteristics of young men with different sexual experience are shown in Table 1. Heterosexually exclusive males tended to be older than either group of YMSM. Bisexually active males were more likely than others to be members of ethnic minorities but were less likely to attend urban schools. Because ethnicity, age, and school community were associated with risk behavior outcomes, they were included as control variables in subsequent analyses.

Although the great majority of young men with only female partners identified themselves as heterosexual, more than two thirds of males with only same-sex experience and more than one quarter of bisexu-

TABLE 1—Demographics and Risk Factors Among Study Participants: Massachusetts, 1995–1999 (n = 3267)

	Partners of Opposite Sex Only, %	Partners of Same Sex Only, %	Partners of Both Sexes, %	P
Age, y				<.001
≤14 (n = 172)	5.3	7.4	8.4	
15 (n = 587)	17.5	29.5	25.2	
16 (n = 889)	27.3	20.0	29.0	
17 (n = 904)	27.8	16.8	22.4	
≥18 (n = 711)	22.2	26.3	15.0	
Ethnicity				<.001
White (n = 2227)	69.0	68.1	60.7	
Black (n = 310)	9.5	13.8	7.5	
Hispanic (n = 396)	12.4	6.4	7.3	
Asian (n = 125)	3.6	3.2	12.1	
Other/mixed ethnicity (n = 198)	5.9	8.5	10.3	
School type				<.001
Urban (n = 1564)	48.6	45.7	29.6	
Suburban (n = 1213)	36.8	33.0	50.0	
Rural (n = 490)	14.6	21.3	20.4	
Sexual identity				<.001
Heterosexual (n = 3028)	96.3	69.1	30.6	
Gay (n = 32)	0.3	11.7	11.1	
Bisexual (n = 83)	1.2	9.6	35.2	
Not sure/none of the above (n = 103)	2.3	9.5	23.2	
Ever had “sexual intercourse” (n = 2935)	85.8	92.9	87.8	NS
Sexual intercourse before the age of 13 years (n = 2935)	17.2	15.3	54.4	<.001
Four or more lifetime sexual intercourse partners ^a (n = 2490)	27.6	18.7	63.2	<.001
Four or more sexual intercourse partners in previous 3 months ^a (n = 2498)	6.9	5.8	43.1	<.001
Alcohol/drugs used at most recent intercourse ^a (n = 2494)	26.8	26.2	59.7	<.001
Condom used at most recent intercourse ^a (n = 2459)	65.6	61.1	32.5	<.001
Ever been diagnosed with any sexually transmitted disease (1999 only) (n = 1266)	3.2	4.1	34.5	<.001
Ever injected illegal drugs (n = 3241)	4.2	5.6	39.2	<.001
Ever had sexual contact against will (n = 3195)	7.6	21.4	59.2	<.001
Ever received AIDS education in school (n = 3252)	92.5	82.6	66.7	<.001
Ever taught in school how to use a condom (n = 3248)	53.8	49.5	48.1	NS
Skipped school because felt unsafe in past month (n = 3250)	6.9	10.1	35.6	<.001

Note. P values are based on χ^2 tests of significance.

^aAmong those reporting any “sexual intercourse.”

ally experienced males labeled themselves as heterosexual as well. (Nine males who identified themselves as gay, 14 who identified themselves as bisexual, and 96 who reported that they were “not sure” or indicated “none of the above” were excluded from the sample because they reported no sexual experience.)

Percentages of youths reporting different risk behaviors are also indicated in Table 1.

The 3 groups of young men were similar in the case of only 2 items: having ever had sexual “intercourse” (as opposed to sexual “contact”) and having ever been taught in school how to use a condom. In the case of all other items, differences were significant, with bisexually experienced males reporting substantially higher levels of risk than males with either opposite-sex-only or same-sex-only experience.

School AIDS Education

Although AIDS education is a potentially protective factor, the 3 groups of young men differed significantly in terms of reporting having ever received such instruction. Because one cause of this discrepancy might be lower school attendance rates among YMSM, we conducted a logistic regression analysis on receipt of school AIDS education, and we included as predictors demographic factors,

TABLE 2—Logistic Regression Analyses of Whether Respondents Received Any School AIDS Education: Massachusetts, 1995–1999 (n = 3223)

	Unadjusted Odds Ratio (95% CI)	Adjusted Odds Ratio (95% CI)
Ethnicity (vs White)		
Black	0.56 (0.39, 0.82)*	0.72 (0.46, 1.12)
Hispanic	0.65 (0.45, 0.92)*	0.80 (0.53, 1.22)
Asian	0.34 (0.22, 0.53)*	0.49 (0.30, 0.82)*
Other/Mixed	0.43 (0.25, 0.72)*	0.53 (0.33, 0.86)*
Community (vs urban)		
Suburban	1.38 (1.01, 1.89)*	1.33 (0.96, 1.84)
Rural	1.49 (0.86, 2.56)	1.39 (0.76, 2.54)
Age (increase per year)	1.13 (0.98, 1.30)	1.07 (0.94, 1.22)
Days skipped school because felt unsafe	0.58 (0.52, 0.66)*	0.65 (0.57, 0.74)*
Sexual partner(s) (vs opposite sex only)		
Same-sex only	0.35 (0.18, 0.67)*	0.35 (0.19, 0.66)*
Both sexes	0.15 (0.09, 0.26)*	0.23 (0.13, 0.42)*

Note. CI = confidence interval.
*P < .05.

(Table 2). Youths who reported that at some point in the previous month they had felt too unsafe to attend school were significantly less likely to have received AIDS instruction, as were both groups of YMSM.

Multiple Sexual Partners

Logistic regression procedures predicting 4 or more lifetime sexual (intercourse) partners (Table 3) indicated significant effects for age, ethnicity, and school community. Adolescents who had received school AIDS education were half as likely as those who had not to have had 4 or more partners. Youths who had experienced forced or coerced sex were more than twice as likely to report multiple partners. Males with only male sexual partners did not differ significantly from those with only female partners. In contrast, bisexually active males were nearly 3 times as likely as heterosexual-only youths to have had sexual intercourse with 4 or more partners.

Condom Use

In logistic regression analyses of reported condom use at most recent intercourse

sex of partner(s), and “number of days in the past month that you did not attend school because you felt unsafe at school or on the

way to or from school” (a standard item on the core MYRBS). Ethnicity, but not age or type of community, had a significant impact

TABLE 3—Logistic Regression Adjusted Odds Ratios for AIDS Risks Among Study Participants: Massachusetts, 1995–1999

	4 or More Sexual Partners (n = 2877), OR (95% CI)	Condom Use at Most Recent Intercourse ^a (n = 2426), OR (95% CI)	Ever Diagnosed With STD ^b (n = 1218), OR (95% CI)	Any Lifetime Injection Drug Use (n = 3154), OR (95% CI)
Ethnicity (vs White)				
Black	4.35* (3.03, 6.26)	1.63* (1.12, 2.36)	2.12 (0.54, 8.28)	0.67 (0.28, 1.62)
Hispanic	2.07* (1.51, 2.84)	1.17 (0.84, 1.62)	2.00 (0.88, 4.54)	0.65 (0.32, 1.31)
Asian	1.07 (0.67, 1.69)	0.84 (0.54, 1.32)	1.32 (0.44, 3.93)	1.05 (0.56, 1.95)
Other/mixed ethnicity	1.66* (1.16, 2.37)	1.17 (0.79, 1.72)	2.38 (0.55, 10.37)	1.12 (0.49, 2.55)
School community (vs urban)				
Suburban	0.67* (0.47, 0.87)	1.09 (0.88, 1.33)	0.81 (0.37, 1.78)	1.33 (0.87, 2.07)
Rural	0.64* (0.52, 0.85)	0.80 (0.60, 1.07)	0.55 (0.19, 1.54)	1.25 (0.72, 2.17)
Age (increase/decrease per year)	1.13* (1.04, 1.22)	0.87* (0.81, 0.95)	0.94 (0.73, 1.21)	0.70* (0.62, 0.81)
Any school AIDS education	0.48* (0.36, 0.66)	1.53* (1.11, 2.09)	0.52 (0.19, 1.41)	0.18* (0.12, 0.28)
Any school condom instruction	...	1.34* (1.09, 1.65)	0.93 (0.39, 2.24)	...
Any sexual contact against will	2.44* (1.71, 3.48)	0.62* (0.44, 0.87)	7.04* (3.01, 16.48)	5.86* (3.92, 8.76)
Sexual partner(s) (vs female only)				
Male only	0.51 (0.24, 1.09)	0.91 (0.56, 1.48)	1.07 (0.22, 5.11)	0.57 (0.24, 1.35)
Both male and female	2.92* (1.58, 5.39)	0.36* (0.18, 0.72)	5.40* (1.80, 16.16)	3.12* (1.66, 5.88)

Note. OR = odds ratio; CI = confidence interval; STD = sexually transmitted disease.

^aAmong those who had ever had “sexual intercourse.”

^b1999 only.

*P < .05.

(Table 3), condom instruction was added as a predictor because it was hypothesized to contribute to condom use. Black youths used condoms at higher rates than White youths, and condom use decreased significantly with age. Both school AIDS education and condom instruction were significantly associated with higher condom use rates. Youths with any history of forced or coerced sex reported less condom use. Bisexually active males, but not males with only male partners, were significantly less likely than heterosexually active males to report condom use.

Sexually Transmitted Diseases

Table 3 presents data on lifetime STD diagnoses (1999 only). Because condom use might be related to lower STD levels, condom instruction was included as a predictor. Adolescents who had been sexually abused were 7 times as likely as nonabused males to report a history of STDs, and bisexually active adolescents were more than 5 times as likely as exclusively heterosexual youths to do so. In contrast, after control for other variables, those with only male partners were not significantly different from those with only female partners in regard to lifetime STD rates.

Injection Drug Use

Reports of (lifetime) injection drug use increased with age, but neither ethnicity nor type of community was related to injection drug use once other factors were controlled (Table 3). Young men who had received school AIDS education were significantly less likely than others to have injected illegal drugs, and those with a history of forced or coerced sex were more likely to have done so. Bisexual activity (in comparison with heterosexual-only activity) was related to significantly increased odds of injection drug use; same-sex-only sexual experience was not associated with increased risk.

DISCUSSION

This study is unique in drawing on a population-based sample to investigate AIDS-related risk behavior among sexually experienced adolescent males, including those engaging in same-sex-only and bisexual behavior as well as the larger set of young men

with only female partners. Young men with any male partners were less likely than males with only female partners to report having ever received school AIDS education. In addition, the study revealed a consistent pattern of higher levels of AIDS risk behavior among bisexually active youths than among young males with partners of only one sex. Logistic regression analyses controlling for ethnicity, age, and school community showed significantly increased probabilities of 4 AIDS-related outcomes—multiple partners, unprotected intercourse, STD diagnosis, and injection drug use—among bisexually active adolescent males but not among youths with only male partners. A history of forced or coerced sex was associated with significantly increased levels of risk for all 4 outcomes.

In contrast, school AIDS education appeared to act as a protective factor, predicting decreased risks in regard to 3 of the 4 outcomes just mentioned. Similarly, school condom instruction was related to a significantly increased probability of condom use after general AIDS education and other variables had been controlled.

Male-to-Male Sexual Activity

The most important findings of this study concern the differential risk rates among adolescent males with opposite-sex, same-sex, and both-sex partners. We had anticipated elevated risks among YMSM, and our data suggest the possible presence of 2 distinct profiles of risk taking in this group.

Consistently, youths with only male partners reported behavioral risk levels no higher than those of youths with only female partners. Relatively low behavioral risk does not, of course, equal low risk of infection. Not only are young men who engage in same-sex activity more likely to be the receptive partner (and therefore at higher risk), but rates of HIV infection in the sexual “communities” in which they look for partners are high.³¹ In the case of adolescent males engaging in homosexual activity, any given sex act may be more dangerous than heterosexual sex.

In contrast to young men with only female or only male sexual partners, the bisexually active males who took part in this study present an extremely high-risk profile. This difference between homosexually exclusive and bi-

sexually active youths is consistent with the results of some earlier studies of AIDS risk in adult males.^{18,19,32,33} It also parallels the findings of some recent studies focusing on other adolescent behaviors,^{34–36} suggesting that there may be a constellation of especially high-risk behaviors and experiences among youths with bisexual experience. Taken together, these findings suggest that many results attributed to “homosexual,” “gay,” or “sexual minority” youths may actually be related more specifically to bisexual activity.

At this point, we can say little about why this pattern appears in our findings. Perhaps bisexually active adolescents, as members of neither the heterosexual majority nor any visible gay community, function outside the normative constraints of either group. Socially marginal, they may experience isolation, loneliness, and distress, leading to the increased levels of “acting out” and risk behavior observed here. Alternatively, initial differences in temperament, impulse control, or sensation seeking may contribute both to high-risk behavior and to sexual experimentation with partners of both sexes. Whatever the causes, bisexually active males constitute a group at high risk for AIDS and other STDs, and their male and female partners are at high risk as well.

Identity vs Behavior

The issue of sexual identity is also complicated. As has been the case with other research on adolescents, our study showed discordance between sexual behavior and self-defined sexual identity. Predictably, almost all males with only female partners (2930/3044) identified themselves as heterosexual/straight, but 45 young men reporting heterosexual-only activity indicated that they were gay or bisexual. Moreover, nearly half of the young men with male partners (98/202) self-identified as heterosexual. These findings are not unusual, given the stigma attached to nonheterosexual identities. However, the 2 groups of YMSM differed in sexual identity; most of the youths reporting same-sex-only partners labeled themselves heterosexual, whereas bisexually active youths varied widely in regard to self-definition. It may be that males with only male partners are more likely than bisexually

active youths to view their behavior as anomalous or as simply youthful experimentation.

Alternatively, the cognitive or emotional dissonance experienced by males with partners of both sexes might heighten the salience of identity issues and lead to a sense of identity “crisis.” Or, if identity precedes behavior, perhaps the psychological turbulence and distress aroused by believing one has a heavily stigmatized identity leads to high-risk behavior in the form of attempts to disidentify oneself through what has been termed “heterosexual immersion”³⁷—excessive and often high-risk sexual contact with opposite-sex partners. Unfortunately, because of the small cell sizes in the present study, we were not able to determine the effect of different identities within separate behavioral groups. The critical implication of the identity–behavior discordance observed here, however, is that few YMSM are likely to be reached by prevention messages based on self-labeled identity.

Risk and Protective Factors

Consistent with previous studies, our study found a strong association between sexual abuse or coercion and high levels of risk behavior. Also consistent with earlier research, a history of sexual abuse or coercion was more frequently reported by males with same-sex partners than by other young men. While some of this abuse may have occurred in childhood, some may be more current. YMSM have few safe venues for socializing and dating, and they may be at risk if their search for companionship leads them to adult-only settings (e.g., bars) or more dangerous public environments such as parks and other “cruising” areas.

School AIDS education and condom use instruction appear to exert strong protective effects on the risk behavior of sexually active adolescents. AIDS education was associated with lower rates of multiple partners, unprotected sex, and injection drug use. Quality of AIDS education doubtless differed from school to school; a survey of health teachers in the participating 1995 MYRBS schools showed that these teachers varied widely in their use of skills instruction to teach about HIV/AIDS and that they used primarily locally developed curricula.³⁸

It is also encouraging that sexually active males who had been taught how to use a condom properly were less likely to have unprotected sex, even after control for AIDS education in general. Unfortunately, condom instruction remains one of the more controversial and least taught topics within school-based AIDS education; in 1998, this topic was included by only 43% of high schools with a required health course.³⁹ Nationally, school condom use instruction has declined in recent years.⁴⁰

The discrepancy in AIDS education between heterosexually exclusive males and those with same-sex partners is disturbing. The YMSM in this study attended the same schools with the same educational requirements as other youths; thus, their educational experiences should have been similar. One significant contributor to youths’ lack of AIDS education was their having skipped school in the previous month as a result of feeling unsafe, an experience far more common among both groups of YMSM than among other males. Extensive research documents that victimization of sexual minority youths is common.^{36,41–45} To the extent that the homosexually or bisexually active adolescents in this study did not attend school owing to fear, they obviously could not benefit from school instruction.

Failure to attend school is not the whole picture, however; males with any male partners had lower rates of AIDS education, even after school absence due to fear had been controlled. One plausible explanation may be that standard classroom instruction does not address the concerns and questions of many YMSM and is therefore dismissed, discounted as irrelevant, or entirely forgotten. Although some community-based AIDS prevention interventions targeted toward sexual minority youths have demonstrated effectiveness,^{12,28,29} these approaches have not been used in school settings. One promising recent study indicates that mainstream school instruction that includes gay-appropriate curricula and materials may reduce sexual risk taking among gay, lesbian, and bisexual adolescents⁴⁶; at present, however, we know little about the details of such instruction. Strong, culturally competent AIDS prevention education relevant to adolescent males with

male sexual partners needs to be developed, although targeted prevention may be politically difficult in public school settings.

Limitations

Several limitations of this study must be acknowledged. The MYRBS accurately represents public high school students residing in Massachusetts during the survey years, but we cannot guarantee that it is also representative of smaller subpopulations such as YMSM. Also, because the sample included only public school students attending on the day of the survey, we most likely greatly underestimated the real prevalence of both adolescent MSM and adolescent males at highest risk for HIV/AIDS. Both adolescents in alternative school settings⁴⁷ and out-of-school youths have far higher rates of risk behavior than do high school youths in the general school population.⁴⁸ Also, gay and bisexual adolescents are overrepresented among street youths and runaways.⁴⁴ Fear of observation by peers may have led some of the youths taking part in this study to underreport same-sex behavior or overreport heterosexual activity, or both.

Another limitation concerns the wording of questions asking about sexual behavior. Neither “sexual contact” nor “sexual intercourse” was specifically defined. The great majority of adolescent males who reported sexual contact (a precondition for inclusion in this study) also reported sexual intercourse, but we have no way of knowing whether they included oral sex, anal intercourse, or even mutual masturbation in their definition of “sexual intercourse.” Because of this vagueness, results concerning multiple “sexual intercourse” partners or condom use at most recent “intercourse” are difficult to interpret with certainty, especially in a study involving YMSM.

Finally, the cross-sectional nature of the surveys examined here does not permit inference of clear causal directionality. For example, absence of AIDS education and high risk rates may not be causally related but may both be part of an overall pattern of problem behavior that includes general disengagement from school.

Conclusions

Despite the limitations just described, this study provides the best available population-

based behavioral risk data on adolescent (rather than young adult) MSM. Our findings have important implications for research and intervention. Clear differences between exclusively same-sex and bisexually active males indicate the importance of disaggregating these 2 groups of YMSM in future research and, possibly, in intervention efforts. High AIDS-related risk rates among bisexually active youths point to the urgent need for prevention programs addressing these youths' specific concerns.

Also, the discordance between sexual behavior and sexual identity in YMSM highlights the importance of finding ways to reach adolescents who engage in male-male sex but do not label themselves as gay, bisexual, or homosexual. Given the stigma attached to nonheterosexual identities, it would be unrealistic to assume that these young men (or even many who do privately identify themselves as gay or bisexual) will join gay support groups, apply for gay-related medical or social services, or participate openly in prevention activities aimed at gay-bisexual youths. It may be possible, however, to make mainstream classroom instruction more inclusive and more culturally appropriate for sexual minority adolescents.⁴⁶ Both school and community prevention programs have the potential for lowering risk behavior. It is critical that such programs be strengthened and that their messages be clearly relevant to the needs and choices faced by all sexually active youths. ■

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Contributors

C. Goodenow and J. Netherland conceptualized the study. C. Goodenow planned and conducted initial data analyses and wrote the first draft of the paper. L. Szalacha conducted final data analyses. All of the authors collaborated in interpreting results and planning revisions. C. Goodenow revised the paper.

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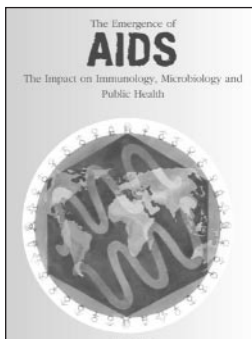
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