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Article *in* American Journal of Public Health · March 1998

DOI: 10.2105/AJPH.88.2.262 · Source: PubMed

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Correlates of Same-Sex Sexual Behavior in a Random Sample of Massachusetts High School Students

Anne H. Faulkner, MA, MPH, and Kevin Cranston, MDiv

ABSTRACT

Objectives. This study documented risk behaviors among homosexually and bisexually experienced adolescents.

Methods. Data were obtained from a random sample of high school students in Massachusetts. Violence, substance use, and suicide behaviors were compared between students with same-sex experience and those reporting only heterosexual contact. Differences in prevalence and standard errors of the differences were calculated.

Results. Students reporting same-sex contact were more likely to report fighting and victimization, frequent use of alcohol, other drug use, and recent suicidal behaviors.

Conclusions. Students with same-sex experience may be at elevated risk of injury, disease, and death resulting from violence, substance abuse, and suicidal behaviors. (*Am J Public Health.* 1998;88: 262–266)

Introduction

In the 1989 *Report of the Secretary's Task Force on Youth Suicide*,[1] Paul Gibson argued that a disproportionately large percentage of completed teen suicides occur in gay and lesbian adolescents. Since then, several studies have documented elevated levels of risk for suicide,[2,3] infection with HIV and other sexually transmitted diseases,[4,5] victimization in violent acts,[2,6] and alcohol and other substance abuse[3] among gay, lesbian, and bisexual young people.

Many studies being relied upon for analysis of risk factors and for design of interventions suffer from the limitations of small convenience samples of self-selected gay, lesbian, and bisexual youth. The absence of comparison groups in the majority of studies makes it difficult to determine the relative prevalence of risk behaviors among adolescents with same-sex experience. The findings of studies using large population samples[7,8] are more generalizable and better support policy and programmatic decisions. A recent population-based study[8] examined dimensions of sexual orientation in a random sample of adolescents but did not address nonsexual health risk behaviors. The present study examined selected risk behaviors of sexually experienced adolescents drawn from a random sample of Massachusetts high school students.

Methods

Data were obtained from the 1993 Massachusetts Youth Risk Behavior Survey.[9] This survey is designed to estimate the prevalence of important health behaviors among public high school students in Massachusetts. The 1993 version involved a proportional random sample of Massachusetts public high schools. A total of 3054 students in grades 9 through 12 in 45 schools completed the self-administered, voluntary, anonymous questionnaire. A more complete discussion of the survey methodology has been presented elsewhere.[9]

The questionnaire included items dealing with substance use, physical violence, suicidal behaviors, sexual behaviors, and demographics. The standardized items have been evaluated for reliability, and 71.7% of the items have been shown to have "substantial" or higher reliability.[10] The sexual behavior questions included one about the sex of students' sexual partners: "The person(s) with whom you have had sexual contact is (are): (1) female(s), (2) male(s), (3) female(s) and male(s), (4) I have not had sexual contact with anyone."

Respondents were classified as having had exclusively same-sex contact, exclusively other-sex contact, sexual contact with both sexes, or no sexual experience at the time of the survey. This classification, based on reported *behavior*, may or may not reflect the sexual *identity* or *orientation* of the respondents. Students were classified as sexually experienced if they reported having had sexual *contact*, regardless of whether they reported having had sexual *intercourse*. Students who reported not being sexually experienced at the time of the survey were excluded from the analysis.

The data were weighted to reflect the complexities of the sample design and to reduce bias by compensating for differing patterns of nonresponse at the school and student levels. SUDAAN was used to compute all standard errors for the estimates (95% confidence intervals) and for differences between the estimates.[11] The results are representative of all Massachusetts regular public school students in grades 9 through 12 in 1993.

Results

Of the sexually experienced students, 6.4% reported same-sex contact (Table 1).

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This paper was accepted May 2, 1997.

Note. A more complete version of this paper is available from the authors on request.

The group with same-sex experience was demographically similar to the group with only other-sex experience. Because of small subgroup sizes, the homosexually and bisexually experienced students were grouped together for all subsequent analyses. These students are referred to here as same-sex students, while students with exclusively heterosexual experiences are referred to as other-sex students. Behaviors for which there were fewer than 10 respondents were excluded from the analysis.

Violence and Victimization

Same-sex students reported significantly greater exposure to violence than did other-sex students (Table 2). Also, same-sex students were more than three times as likely to report not going to school because they felt unsafe and more than twice as likely to report having been threatened or injured with a weapon at school. Furthermore, these students were significantly more likely than other-sex students to report that their property was deliberately damaged or stolen at school. Finally, same-sex students were several times more likely to have been in 10 or more physical fights in the previous year. (Note that the data did not clearly identify the perpetrators of these incidents of violence; rather, only those who participated in, felt threatened by, or were injured in such incidents were identified).

TABLE 1—Characteristics of the 1993 Massachusetts Youth Risk Behavior Survey Student Sample

Characteristic	All Students (n=3054)	Sexually Experienced Students[a] (n=1668)	Other-Sex Students[b] (n=1563)	Same-Sex Students[c] (n=105)
Average age, y	16.0	16.3	16.3	16.3
Female, %	49.0	45.8	45.9	45.0
White, %	78.0	76.8	77.8	62.2
Black, %	6.7	8.9	8.7	11.6
Hispanic, %	6.0	6.4	6.2	8.7
Asian/Pacific Islander, %	4.6	2.8	2.7	4.1
Native American and other, %	4.8	5.1	4.6	13.3
Ever had sexual contact, %	57.0	100	100	100
Ever had sexual intercourse,[d] %	48.7	87.3	87.5	84.7
Ever had sexual contact with a person of the same sex, %	3.7	6.4	0	100
Same-sex contact only, %	2.0	3.4	0	53.4
Contact with both sexes, %	1.7	3.0	0	46.6

[a]Students who reported ever having sexual contact, including some students who reported never having had sexual intercourse.
[b]Students who reported sexual contact only with persons of the other sex.
[c]Students who reported either exclusively homosexual contact or sexual contact with both sexes.
[d]11% of sexually experienced and 33% of same-sex students did not respond to this item.

Substance Use

Same-sex students were nine times more likely to report using alcohol on each of the 30 days preceding the survey (Table 3). Nearly four times as many same-sex students reported heavy drinking on 10 or more occasions and reported marijuana use 40 or more times in the 30 days preceding the survey. Same-sex students were 6 times more likely to report having recently used cocaine, and they were 19 times more likely

TABLE 2—Violence-Related Behaviors and Experiences of Sexually Experienced Massachusetts High School Students, by Sex of Sexual Partners: 1993

Behavior/Experience and Frequency	Other-Sex Students[a] (n=1563), % (SE)	Same-Sex Students[b] (n=105), % (SE)	Difference	SE of Difference
Did not go to school because of feeling unsafe at school or on way to or from school[c]				
At least once	5.8 (1.8)	19.9 (8.4)	−14.1	4.1*
4 or more times	1.4 (0.8)	11.6 (6.6)	−10.2	3.3*
Was threatened or injured with a weapon at school[d]				
At least once	11.2 (2.2)	22.7 (7.4)	−11.5	4.0*
4 or more times	2.5 (0.8)	13.8 (6.0)	−11.3	3.1*
Had property stolen or deliberately damaged at school[d]				
At least once	28.6 (2.6)	45.0 (11.1)	−16.4	5.8*
4 or more times	5.2 (1.3)	16.9 (7.4)	−11.7	3.8*
Was in a physical fight[d]				
At least once	50.7 (2.6)	41.7 (9.7)	9.0	5.2
10 or more times	5.4 (1.4)	15.9 (7.2)	−10.5	3.6*
Was in a physical fight at school at least once[d]	19.0 (2.1)	25.5 (9.8)	−6.5	5.1
Was injured in a physical fight and required medical treatment at least once[d]	5.7 (1.6)	10.0 (6.0)	−4.3	3.2

[a]Reported exclusive heterosexual contact.
[b]Reported either exclusively homosexual contact or sexual contact with both sexes.
[c]During the 30 days preceding the survey.
[d]During the 12 months preceding the survey.
*$P < .05$.

TABLE 3—Substance Use Behaviors of Sexually Experienced Massachusetts High School Students, by Sex of Sexual Partners: 1993

Behavior and Frequency	Other-Sex Students[a] (n = 1563), % (SE)	Same-Sex Students[b] (n = 105), % (SE)	Difference	SE of Difference
Tobacco use				
Regular smoker ever[c]	36.2 (3.9)	34.7 (10.4)	1.5	5.6
Current smoker[d]	41.5 (3.5)	38.2 (12.3)	3.3	6.6
Regular smoker currently[e]	17.6 (2.7)	22.9 (9.7)	−5.3	5.0
Current alcohol use[f]				
At least once	60.5 (2.8)	62.0 (11.0)	−1.5	5.8
Every day	1.2 (0.7)	10.9 (7.4)	−9.7	3.8*
Current episodic heavy drinking[g]				
At least once	39.8 (3.1)	41.4 (11.1)	−1.6	5.5
10 or more days	3.8 (0.8)	15.0 (8.4)	−11.2	4.2*
Current marijuana use[f]				
At least once	30.7 (2.4)	30.1 (10.4)	0.6	5.3
40 or more times	3.3 (1.2)	12.4 (7.4)	−9.1	3.7*
Current cocaine use[f]				
At least once	3.2 (0.7)	19.2 (8.4)	−16.0	4.3*
10 or more times	0.7 (0.4)	13.3 (7.4)	−12.6	3.7*
Other illegal drug use[h]				
At least once	18.4 (2.8)	29.2 (9.7)	−10.8	4.8*
20 or more times	3.5 (1.2)	17.8 (8.4)	−14.3	3.9*
Injection drug use at least once	3.1 (1.0)	20.8 (8.5)	−17.7	4.3*

[a]Reported exclusive heterosexual contact.
[b]Reported either exclusively homosexual contact or sexual contact with both sexes.
[c]Ever smoked at least 1 cigarette every day for 30 days.
[d]Smoked cigarettes on 1 or more days during the 30 days preceding the survey.
[e]Smoked cigarettes on all 30 days during the 30 days preceding the survey.
[f]During the 30 days preceding the survey.
[g]Drank 5 or more drinks of alcohol per occasion during the 30 days preceding the survey.
[h]Such as LSD, PCP, "ecstasy," mushrooms, "speed," "ice," heroin, or pills without a doctor's prescription.
*$P < .05$.

to report having used cocaine on 10 or more occasions in the past month. Same-sex students were 5 times more likely to report having used other illegal drugs 20 or more times in their lives and were almost 7 times more likely to report ever having injected an illegal drug.

Suicidal Behaviors

In comparison with other-sex students, same-sex students were nearly 50% more likely to report having seriously considered suicide in the previous 12 months (Table 4). Twice as many same-sex students reported having attempted suicide at least once in the past year, and eight times as many reported having attempted suicide four or more times. Same-sex students were also four times as likely to report having suffered an injury, poisoning, or overdose requiring medical attention as a result of a recent suicide attempt.

Discussion

These findings suggest that a substantial proportion (albeit a minority) of same-sex students may be at extreme risk for a number of potentially life-threatening health problems. Students with a history of same-sex sexual experience appear more likely to have felt threatened and to have experienced personal injury or damage to their property as a result of physical violence. There appears to be a significant subgroup of same-sex students (10% to 15%) who have faced even higher levels of threat to their persons and property. The proportion of other-sex students at this higher level of personal risk is smaller (only 2% to 6%).

Same-sex students appear to have nearly identical rates of overall tobacco, alcohol, and marijuana use as their other-sex peers. However, a significant subgroup of same-sex students (approximately 10% to 15%) appears to abuse alcohol and/or use marijuana regularly. The proportion of other-sex students using alcohol and marijuana at these levels is much smaller (approximately 1% to 4%). Our study revealed strikingly high reported rates of cocaine, injectable drug, and other illegal drug use among same-sex students. The finding that one in five same-sex students had a history of injection drug use is particularly disturbing.

This study provides further evidence of the increased risk of suicidal behaviors among students with same-sex sexual experience. These results are equivalent in scale to Gibson's[1] report of a twofold to threefold increased risk of suicide attempts among gay, lesbian, and bisexual youth. Of note again are the 15% to 20% of same-sex students who reported behaviors at the extreme end of the suicide risk scale, as compared with only 2% to 6% of their other-sex peers.

In this sample, 6.4% of sexually experienced students reported same-sex sexual contact. If this figure represents an estimate of all students with homosexual/bisexual feelings, it translates into approximately 1 to 2 students in the average Massachusetts classroom of 25 to 30 students and 50 to 60

TABLE 4—Suicidal Ideation and Behaviors of Sexually Experienced Massachusetts High School Students, by Sex of Sexual Partners, 1993

Behavior	Other-Sex Students[a] (n=1563), % (SE)	Same-Sex Students[b] (n=105), % (SE)	Difference	SE of Difference
Seriously considered suicide[c]	28.6 (2.7)	41.7 (10.0)	−13.1	5.0*
Made a plan to commit suicide[c]	24.5 (1.7)	29.7 (8.4)	−5.2	4.0
Attempted suicide[c]				
At least once	13.4 (2.3)	27.5 (12.0)	−14.1	5.8*
4 or more times	2.0 (1.0)	16.1 (7.3)	−14.1	3.5*
Suicidal attempt required medical attention[c]	4.7 (1.3)	20.0 (7.7)	−15.3	3.8*

[a]Reported exclusive heterosexual contact.
[b]Reported either exclusive homosexual contact or sexual contact with both sexes.
[c]During the 12 months preceding the survey.
*$P < .05$.

students in an average Massachusetts high school of 880 students. This survey found equal numbers of male and female individuals with same-sex experience. This is contrary to surveys of adults suggesting a greater number of homosexual or bisexual men than women[12,13] but is consistent with a recent study of adolescent sexual orientation revealing little gender difference.[8] Our study found equal numbers of students reporting exclusively same-sex activity and bisexual experience. Such a finding challenges a dichotomous classification of students into strict homosexual and heterosexual categories.

This study has several important limitations. The sample was school based and therefore does not represent the experience of out-of-school youth, including students in residential care, incarcerated youth, youth who have dropped out of school, and chronic truants. The item asking about the sex of sexual partners was not field tested prior to administration, although a subsequent field test of this item revealed that students had no difficulties understanding or responding to the question. The survey did not include questions about nonvoluntary sexual experiences. It is possible that experiences of sexual assault and sexual abuse may have been reported along with consensual sexual behaviors. In addition, we did not ask about the sexual identity or orientation of students; as a result, we do not have information on the risk behaviors of students who may be attracted to members of the same sex but who have not had any sexual experience.

Small cell sizes prevented analysis of the health risks faced by subgroups within the same-sex student population. The analysis combined the responses of exclusively homosexually and bisexually experienced students, as well as male and female respondents. Crucial differences among same-sex students may have been obscured in the interest of making statistically strong statements about the entire group. Our sample size also prohibited any adjustment for or stratification by age, race or ethnicity, or sex. However, the very similar demographic profiles of same-sex and other-sex students suggest that our estimates of the differences between same-sex and other-sex students are unlikely to be significantly confounded.

The findings, taken as a whole, contribute to an important emerging base of knowledge regarding the health risks faced by homosexually and bisexually experienced adolescents. The random sampling of students from a large number of schools, combined with statistical testing of relevant comparisons, lends considerable strength to these findings, despite the small overall sample size. Nevertheless, there is a need to corroborate these findings with additional research involving larger state and/or national student samples. We strongly urge the use of population-based samples in future quantitative studies.

There is also a need for further research into adolescent sexual orientation and sexual behaviors, as well as investigation of the intercorrelations among high-risk behaviors in the adolescent population. Research is needed to explore possible causal or adaptational relationships among risk behaviors and to develop more comprehensive and appropriate prevention and intervention strategies. Research is also needed to investigate the language young people use and understand in describing their sexual behaviors. In addition to quantitative studies, there is a need for structured personal interview and focus group investigations, which may be better suited to examining the psychological and social dimensions of young people's lives.

School- and community-based programs designed to prevent and intervene with high-risk behaviors among students involved in same-sex sexual behavior are needed, and these programs should address multiple risk behaviors. Counseling, legal assistance, social support, health care, and other strategies could be used to provide more comprehensive intervention services to these young people. □

Acknowledgments

The data analyzed in this study were collected under a cooperative agreement with the US Centers for Disease Control and Prevention, Division of Adolescent and School Health (U87/CCU 109035-02).

We are grateful to Robert DuRant, Ralph Hingson, Herb Kayne, Charles Poole, George Seage, and Lee Strunin for their useful comments on earlier versions of this paper and helpful methodological suggestions.

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Young Maternal Age and Depressive Symptoms: Results from the 1988 National Maternal and Infant Health Survey

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ABSTRACT

Objectives. The goal of this study was to provide population-based estimates of the prevalence of depressive symptoms among primiparous US adolescent mothers.

Methods. Data from the live-birth component of the 1988 National Maternal and Infant Health Survey were analyzed.

Results. The prevalence of depressive symptoms varied by age and race, from 14% among White adult mothers to 48% among Black mothers 15 to 17 years old. After control for income and marital status, the increased prevalence of depressive symptoms associated with adolescent motherhood was greatly diminished (for 15- to 17-year-old Black women and 18- to 19-year-old White women) or eliminated (for 18- to 19-year-old Black women and 15- to 17-year-old White women).

Conclusions. Adolescent mothers experience high rates of depressive symptoms relative to adult mothers, and mental health and other interventions that alleviate the exacerbating influence of poverty and unmarried status are warranted. (*Am J Public Health.* 1998;88: 266–270).

Introduction

Depression may be more common among adolescent mothers than among older mothers. Child rearing during adolescence interrupts normal cognitive and developmental processes and is often accompanied by socioeconomic disadvantage, single motherhood, and lack of social support, factors related to depression among adult mothers.[1–8] The interrupted education and diminished career opportunities associated with adolescent childbearing may also lead to long-term financial instability and increased life stresses.[9,10]

Small surveys have found rates of depressive symptoms to range from 53% to 67% among adolescent mothers and to be associated with age, unmarried status, lower education, and diminished social support.[5,11] The aim of the present study was to provide population-based estimates of the prevalence of depressive symptoms among primiparous US adolescent mothers; associations between young maternal age, sociodemographic characteristics, and depression were explored in a large, nationally representative sample.

Methods

Data were obtained from the National Center for Health Statistics' 1988 National Maternal and Infant Health Survey. In the live-birth component of this nationally representative survey, stratified systematic samples of 1988 live births were drawn from vital statistics records via a multistage cluster design.[12–14] Mothers were surveyed at a mean of 17 (SD = 5.0) months postpartum. Details on the sampling scheme, contact protocols, and response rates have been documented elsewhere.[13]

This analysis included primiparous Black or White adolescent respondents and, as a comparison group, all primiparous women 25 to 34 years of age. We excluded mothers of other races (n = 63), infants who were not alive (n = 147) or not living with their mother (n = 197) at the time of the interview, and subjects who did not respond to at least 16 of 20 survey questions regarding depressive symptoms or who gave the same answer to all 20 questions (n = 50). The final sample included 447 women 15 to 17 years old, 479 women 18 to 19 years old, and 870 adult women 25 to 34 years old. Because of the complex sampling scheme used in the National Maternal and Infant Health Survey, all results relied on sample weights that adjusted for the probability of selection and made the data consistent with national counts of 1988 birth events. Thus, our sample of 1796 aimed to represent 760 314 first live births.

Because births to school-aged teens may have a different impact than those to older teens, maternal age was categorized as young teen (15 to 17 years), older teen (18 to 19 years), and adult (25 to 34 years).

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This paper was accepted March 14, 1997.