

# The Relationship between Suicide Risk and Sexual Orientation: Results of a Population-Based Study

## ABSTRACT

**Objectives.** This study examined the relationship between sexual orientation and suicide risk in a population-based sample of adolescents.

**Methods.** Participants were selected from a cross-sectional, statewide survey of junior and senior public high school students. All males ( $n = 212$ ) and females ( $n = 182$ ) who described themselves as bisexual/homosexual were compared with 336 gender-matched heterosexual respondents on three outcome measures: suicidal ideation, intent, and self-reported attempts. Logistic regression analyses were used to examine the association between sexual orientation and outcome measures with adjustment for demographic characteristics.

**Results.** Suicide attempts were reported by 28.1% of bisexual/homosexual males, 20.5% of bisexual/homosexual females, 14.5% of heterosexual females, and 4.2% of heterosexual males. For males, but not females, bisexual/homosexual orientation was associated with suicidal intent (odds ratio [OR] = 3.61; 95% confidence interval [CI] = 1.40, 9.36) and attempts (OR = 7.10; 95% CI = 3.05, 16.53).

**Conclusions.** There is evidence of a strong association between suicide risk and bisexuality or homosexuality in males. (*Am J Public Health.* 1998;88:57-60)

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## Introduction

For decades, investigators have sought to explain the increasing rates of suicide among adolescents and to identify remediable predisposing factors. Despite substantial progress, the possibility has been raised that existing research has overlooked important clues to the problem. Specifically, the contribution of bisexual and homosexual youth to suicide deaths has been a matter of recent interest and controversy.<sup>1(pp7-14)</sup>

Eight peer-reviewed studies<sup>2-9</sup> have found consistently high rates of attempted suicide, in the range of 20% to 42%, in volunteer samples of gay youths. Three of these works<sup>6,8,9</sup> included females, who were found to have similar or somewhat higher rates than males. Some authors have speculated that gay youth are two or three times more likely to attempt suicide than other young people, composing up to 30% of youth suicide annually.<sup>10</sup> Others have found the rate to be as low as 2.5% among completed youth suicides.<sup>11</sup>

To date, however, no studies have compared suicide risk in representative samples of heterosexual and homosexual youths. As a consequence, there is no population-based evidence that sexual orientation and suicide risk are linked in any direct or indirect manner.<sup>12</sup> Nonetheless, some jurisdictions have found the existing evidence sufficiently compelling to enact statewide measures to protect gay students in secondary schools.<sup>13</sup>

Understanding the relationship between sexual orientation and suicide risk might illuminate the epidemiological trends in self-inflicted injury and death, contribute to a recognition of vulnerable youth, and lead to preventive interventions. Therefore, this study was undertaken to examine the association between sexual orientation and suicide risk in a population-based sample of adoles-

cents. On the basis of prior research,<sup>2-9</sup> we expected to find an association between bisexuality/homosexuality and suicide risk for males and similarly high rates of suicide risk among bisexual/homosexual males and bisexual/homosexual females.

## Methods

### Sample

Subjects were selected from the 1987 Adolescent Health Survey database. The survey was administered to grades 7 through 12 of Minnesota public schools, which were selected by modified stratified cluster sampling. The sampling design, data management, psychometrics, and response rate have been described in detail elsewhere.<sup>14-18</sup> The overall participation rate among school districts exceeded 95%, with nonparticipating districts replaced by randomly sampled schools within the same geographic and population-size stratum. Fewer than 5% of students refused to participate. The final sample of 36 254 students composed approximately 10% of public junior and senior high school enrollees and closely resembled the demographic composition of the Minnesota student body. Ninety-six percent of the participants completed the item on self-identification of sexual orientation. The survey of students was approved by the

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The index subjects in the present study were those students who described themselves as "bisexual" (131 males and 144 females) or "mostly/100% homosexual" (81 males and 38 females). For each bisexual/homosexual respondent, the preceding respondent of the same gender was selected for comparison. Those who were "unsure" of their sexual orientation were excluded, yielding a final comparison group of 184 males and 152 females who identified themselves as "mostly/100% heterosexual."

Since subjects in the datafile were ordered by school, grade, and classroom, the selection of the bisexual/homosexual and heterosexual comparison groups in proximity to each other was considered the best way to match their sociodemographic characteristics. This method has been described as a "specialized cohorts design,"<sup>19,20</sup> whereby comparison groups are drawn from a similar social context. The design assumes that the comparison groups resemble each other, except for the index characteristic (in this instance, sexual orientation). A priori selection of matching variables, as in classic case-control designs, is not required. Also, the method yields more comparable comparison groups than is typically obtained by random selection.<sup>18</sup>

### Instrument

The Adolescent Health Survey contained 148 questions pertaining to demographic characteristics, family, school and peer relationships, health care utilization, sexuality, antisocial behaviors, emotional stress, substance use, and nutrition. The complete instrument and a description of the psychometric properties of its scales are available upon request.

The survey included five items pertaining to different dimensions of sexual orientation, consisting of sexual fantasy, sexual behaviors with males and females, attractions and intended behaviors, and sexual orientation self-identification. The last dimension was chosen for this study because it categorized sexual orientation from the subjects' own perspective. In this question, students were asked to rate their sexual feelings on a 5-point Likert scale ranging from 100% homosexual to 100% heterosexual or as unsure. The demographic distribution of responses to all five questions and their psychometric properties was the topic of a prior publication.<sup>15</sup>

The instrument also included two questions pertaining to suicide risk. An original item inquired about any attempts to

kill oneself in the past year or previously, and responses were coded as "ever" or "never." A second item from the Beck Depression Inventory<sup>21</sup> queried about thoughts and wishes about suicide in the past month and intentions to carry them out. From this item, two different dichotomous (yes-no) variables regarding current suicide intent and ideation were derived.

### Statistical Analyses

Within-gender comparison of bisexual and homosexual subjects revealed no statistically significant ( $P < .05$ ) differences on the three suicide variables. Therefore, bisexual and homosexual subjects were combined in order to increase statistical power.

All analyses were conducted separately by gender. Chi-squared analyses were used to examine bivariate associations between orientation and each of the three suicide measures. Separate logistic regressions were conducted to examine the association between orientation and each of the suicide variables after adjustment for the potential confounders of race (White vs others) and socioeconomic status (higher vs lower). The designated level of statistical significance was  $P < .05$ .

## Results

### Respondent/Nonrespondent Analyses

Ninety-six percent of participants in the original student survey answered the question pertaining to sexual orientation.<sup>15</sup> In the present study, the overall response rate for each of the two items related to suicide attempts and suicide ideation/intent was 90% (657/730). Bisexual/homosexual males were significantly less likely than heterosexual males to answer the questions (84% vs 91% for both items,  $\chi^2 = 4.81$ ;  $df = 1$ ;  $P = .03$ ). The same trend was noted for bisexual/homosexual and heterosexual females (91% vs 95% for both items), but was not significant.

### Comparison of Demographic Characteristics

For both males and females, there were no significant differences between the comparison groups related to age (mean 15.1 years for males and 14.5 years for females) and residence in urban or rural areas. As compared with bisexual/homosexual males, a larger proportion of heterosexual males had a higher socioeco-

omic status (56% vs 69%;  $\chi^2 = 5.87$ ;  $df = 1$ ;  $P = .0154$ ). Heterosexual females were more likely than bisexual/homosexual females to be White (86% vs 73%;  $\chi^2 = 9.16$ ;  $df = 1$ ;  $P = .0025$ ). There was no significant difference in the ethnicity of heterosexual and bisexual/homosexual males, who were 87% and 80% White, respectively.

### Group Comparison of Suicide Risk

As indicated in Table 1, bisexual/homosexual males and females had similarly high rates of reported suicide attempts and intent, followed in order of magnitude by heterosexual females and heterosexual males. Bisexual/homosexual males and females were more likely than heterosexual respondents of the same gender to report each dimension of suicidality. However, based on bivariate analyses, the only statistically significant differences were between bisexual/homosexual and heterosexual males.

After adjustment for socioeconomic status, the regression analyses revealed that a bisexual/homosexual orientation in males was significantly associated with suicidal intent (odds ratio [OR] = 3.61; 95% confidence interval [CI] = 1.40, 9.36) and suicide attempts (OR = 7.10; 95% CI = 3.05, 16.53), but not with suicidal ideation. After adjustment for race, sexual orientation was not significantly associated with any dimension of suicide risk in females.

## Conclusions

The findings are consistent with prior studies that have found a high prevalence of suicide risk in volunteer samples of bisexual/homosexual males and females. The rate of self-reported suicide attempts among the bisexual/homosexual males (28.1%) closely resembled previously cited figures.<sup>2-9</sup> Furthermore, the finding that male bisexuality/homosexuality was associated with a greater than sevenfold increased odds of a suicide attempt exceeded the projections of Gibson in the 1989 US Department of Health and Human Services report.<sup>10</sup> Although bisexual/homosexual males and females reported similar absolute rates of suicide ideation, attempts, and intent, bisexuality/homosexuality was not significantly associated with suicide risk in young women. Sexual orientation also was not found to be associated with suicidal ideation in the regression analyses, possibly because thoughts of death are fairly common in all groups of adolescents.

**TABLE 1—The Prevalence and Odds of Suicide Risk in Adolescent Males and Females According to Sexual Orientation: Minnesota Public School Survey, Grades 7 through 12, 1987**

Suicide Variable	Bisexual/Homosexual		Heterosexual		OR <sup>b</sup>	95%CI
	No. <sup>a</sup>	%	No. <sup>a</sup>	%		
<b>Males</b>						
Ideation	173	31.2	164	20.1*	1.61	0.94, 2.76
Attempts	178	28.1	168	4.2***	7.10	3.05, 16.53
Intent	173	14.5	164	4.3**	3.61	1.40, 9.36
<b>Females</b>						
Ideation	165	36.4	143	34.3	1.09	0.67, 1.78
Attempts	166	20.5	145	14.5	1.50	0.81, 2.75
Intent	165	9.7	143	6.3	1.67	0.68, 4.07

Note. OR = odds ratio; CI = confidence interval.

<sup>a</sup>Number of respondents; numbers varied owing to missing data.

<sup>b</sup>Odds ratio associated with homosexuality, adjusted for race in females and socioeconomic status in males.

\* $P = .02$ ; \*\* $P = .0015$ ; \*\*\* $P < .00001$ .

It is important to note that suicide risk among homosexual students was not attributable to homosexuality per se, on the basis of the absence of such an association in the females. Moreover, the associational nature of the findings does not permit causal inferences regarding homosexuality and suicide risk in males. Prior studies of bisexual/homosexual male adolescents have found that increased rates of suicide attempts were not universal, but were associated with particular risk factors, such as self-identification as homosexual at younger ages, substance abuse, female gender role, family dysfunction, interpersonal conflict regarding sexual orientation, and nondisclosure of sexual orientation to others.<sup>1</sup> Perhaps the link between bisexuality/homosexuality and suicide is mediated by such characteristics as gender nonconformity, which may affect males more adversely than females. Since most of the known risk factors for suicide attempts in young bisexual/homosexual men were not ascertained in the Adolescent Health Survey, this study did not attempt to delineate correlates of suicide risk beyond sexual orientation.

In general, teenage and young adult (13 through 24 years of age) females attempt suicide two to nine times more frequently than males, but young males are approximately six times more likely than females to complete suicide.<sup>22</sup> Consistent with this observation, the female-to-male ratio of reported suicide attempts among the heterosexual subjects in the study was 3.5:1. However, the ratio was inverted in the bisexual/homosexual subjects by the high prevalence of suicide risk among the males.

Among bisexual/homosexual youth, the relative risk of completed suicide in

relation to the gender of attempters is unknown; nor is it known whether bisexual/homosexual attempters are more or less likely than heterosexual attempters to complete suicide. In the general adolescent population, suicide ideators have been found to be clinically indistinguishable from attempters,<sup>23</sup> and prior attempts have been found to be strongly predictive of eventual suicide.<sup>24</sup>

Other evidence suggests that the suicide attempts of bisexual/homosexual persons are no less severe than those of heterosexual attempters. Randomly sampled psychiatrists have reported that the attempts of gay and lesbian adolescents tend to be more severe and lethal than those of heterosexuals.<sup>25</sup> Another descriptive study that rated the severity of attempts made by bisexual/homosexual male adolescents found most attempts to be of moderate to high lethality and limited rescuability, often resulting in hospitalization.<sup>7</sup>

Information about the sexual orientation of actual adolescent and adult suicide victims is sparse. Death certificates generally do not reflect the sexual orientation of the deceased, and the sexual orientation of suicide victims is difficult to ascertain posthumously. A descriptive study in San Diego County examined the sexual orientation of 283 consecutive adult suicides in 1981 through 1983 and found that 10% of deaths had occurred in men who were known to be gay, and none had occurred among women who were recognized to be lesbian.<sup>26</sup> A second case-control study examined 120 of the 170 teen suicides in the New York area from 1984 through 1986, finding a slightly higher rate of homosexual experiences among those who

had committed suicide (3.2% of males, 2.5% of entire group) than among the control group (0%).<sup>11</sup>

As a secondary analysis, this study was limited by the lack of corroborating evidence of attempts, detailed descriptions of attempts, and standardized measures of suicidal ideation and intent. Also, the findings may not be generalizable to ethnic subpopulations, who constituted a relatively small percentage of public school students in the state. In lieu of a more objective measure of sexual orientation, such as plethysmography, the study relies on respondents' self-assessment. As a cross-sectional study, it does not provide information about changes in suicide risk over time. Despite its limitations, however, this is the first study to examine the relationship between sexual orientation and suicide risk in a population-based sample of male and female adolescents.

Other population-based surveys of adolescents have not ascertained the sexual orientation of respondents, but some have inquired about same-gendered sexual behavior in males. In the Minnesota survey, the percentage of 18-year-old male students reporting homosexual behavior (2.8%)<sup>15</sup> was similar to figures reported by Sonenstein et al.<sup>27</sup> and by investigators from the National Opinion Research Center (3%).<sup>28</sup> For additional information about the measurement of sexual orientation and estimates of the prevalence of homosexuality among adult males and females, readers are referred to a recent review of the topics.<sup>29</sup>

We recommend that future population-based surveys include questions pertaining to sexual orientation in order to try to replicate the findings and to understand the relationship between sexual orientation and other important issues confronting youth. Also, there is a need for prospective longitudinal studies to elucidate the evolving risk for both attempted and completed suicide across the lifespan of bisexual/homosexual persons.

This study also has important implications for clinicians, who potentially play a life-saving role by evaluating patients' suicide risks, recognizing warning signs, and offering options for support and treatment.<sup>30</sup> Our data show that bisexuality/homosexuality is a risk factor for attempted suicide in male adolescents, and therefore, the findings should be used to guide clinical teaching and practice. □

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