

## ORIGINAL ARTICLE

# Effects of At-School Victimization and Sexual Orientation on Lesbian, Gay, or Bisexual Youths' Health Risk Behavior

DANIEL E. BONTEMPO, M.A. AND ANTHONY R. D'AUGELLI, Ph.D.

**Purpose:** To examine the link between victimization at school and health risk behaviors using representative data comparing lesbian, gay, and bisexual (LGB) youths and heterosexual youths.

**Methods:** Data from the 1995 Youth Risk Behavior Survey taken in Massachusetts and Vermont were examined. This sample included 9188 9th through 12th grade students; 315 of these students were identified as LGB. Analyses of variance were used to examine health risk behaviors by sexual orientation by gender by victimization level.

**Results:** The combined effect of LGB status and high levels of at-school victimization was associated with the highest levels of health risk behaviors. LGB youths reporting high levels of at-school victimization reported higher levels of substance use, suicidality, and sexual risk behaviors than heterosexual peers reporting high levels of at-school victimization. Also, LGB youths reporting low levels of at-school victimization reported levels of substance use, suicidality, and sexual-risk behaviors that were similar to heterosexual peers who reported low at-school victimization.

**Conclusions:** The findings provide evidence that differences in health risks among LGB youth are mediated by victimization at school. Such victimization of LGB youth is associated with health risk behaviors. © *Society for Adolescent Medicine*, 2002

## KEY WORDS:

Adolescents  
Gay  
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Health risk factors  
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Studies of lesbian, gay, and bisexual (LGB) youth have found high levels of health risk factors (e.g., victimization, mental health problems) and health risk behaviors (e.g., substance abuse, risky sexual behaviors, suicidality) [1–9]. Recent studies using state-level representative samples have found victimization, substance use, and sexual risk behaviors among LGB youths to be significantly higher than among their heterosexual peers [5–7,10,11].

The mechanisms underlying associations of sexual orientation with health risk factors and behaviors have been explored with mediation models that use stressors specific to LGB youth, including victimization, developmental readiness, and community support as mediators [4,12–16]. Based on research on external and internal stressors in other minority populations, researchers conceptualized internalized homophobia, stigma, and experiences of discrimination and violence as stressors for lesbians, gay males, and bisexuals [17,18]. Researchers studying LGB youth use “gay-related stress” to refer to stresses associated with coming out as LGB [19], being discovered as LGB, or being ridiculed because of being LGB [14,15]. In addition, external stressors related to

From the Department of Human Development and Family Studies, The Pennsylvania State University, University Park, Pennsylvania.

Address correspondence to: Daniel E. Bontempo, Department of Human Development and Family Studies, The Pennsylvania State University, S113 Henderson South, University Park, Pennsylvania 16802. E-mail: deb193@psu.edu.

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sexual orientation such as verbal and physical abuse are prevalent in studies of LGB youth [3,4].

Victimization has been found to mediate the association of sexual orientation and suicidality [10,20,21]. In a representative study, higher levels of an index of violence and victimization were predictive of suicide attempts [10]. Among LGB youth, suicide attempters have also been found to be more likely than nonattempters to report prior verbal insults, property damage, and physical assaults [20].

Associations of sexual orientation with victimization, mental health problems, and health risk behaviors have also been observed in several studies [2,4,13,16], but the extent to which victimization mediates these associations has received little attention. Among LGB youth, victimization was found to interact with family support to influence mental health [4]. These studies suggest that sexual orientation victimization (SOV) is predictive of mental health problems, substance abuse, and risky sexual behavior in addition to suicidality. However, it is desirable to test these models using representative data and heterosexual comparison groups.

Research on LGB adults suggests that LGB youth experiencing SOV may show greater distress than their heterosexual peers who experience similar levels of victimization. Among adults, studies have found that SOV was more predictive of distress than victimization unrelated to sexual orientation [22]. Some LGB adults experienced increased internalized homophobia, guilt, and self-blame after being victimized. Many LGB adult victims of gay-related harassment were found to be more psychologically distressed than victims of other types of harassment or crimes. [23]

In contrast to adults, LGB youth are more likely to be victimized, and the psychological consequences of their victimization may be more severe [16]. For adolescents, the negative effects of SOV may be compounded by developmental and contextual issues. These youths may already be experiencing confusion related to LGB identity, have little accurate information about LGB people, and lack resources to cope with SOV. In addition, youth who are unsure of, or have not disclosed, their sexual orientation may be less likely to seek help owing to fear of discovery of their sexual orientation [3].

The purpose of this study was to use representative data to test several hypotheses related to the combined effect of LGB status and at-school victimization. First, it was hypothesized that a greater proportion of LGB youths would experience disproportionately high levels of victimization at school,

compared with their heterosexual peers. Second, it was hypothesized that LGB youths experiencing low levels of victimization would evidence levels of health risk behaviors comparable with their heterosexual peers. Third, it was hypothesized that LGB youths with high levels of victimization at school would evidence higher levels of health risk behaviors, compared with heterosexual peers who also experience high levels of victimization.

### *Methods*

Data used in the present study combined information from the 1995 Massachusetts Youth Risk Behavior Survey (MYRBS) and the 1995 Vermont Youth Risk Behavior Survey (VYRBS). This combined sample included 9188 9th- through 12th-grade students; 315 of these students either self-identified as lesbian, gay, bisexual, or questioning (LGBQ) or were categorized as LGB on the basis of their reported sexual behaviors. This relatively large sample allowed for analysis by sexual orientation, gender, and amount of victimization.

Morbidity and mortality items on the MYRBS and VYRBS were from the Centers for Disease Control and Prevention's Youth Risk Behavior Surveillance System (YRBSS), an instrument that has been tested extensively [24]. Additional items were included in the version of the Youth Risk Behavior Survey (YRBS) survey used in Massachusetts and Vermont. Both Massachusetts and Vermont sought information about sexual behavior. In addition, the MYRBS included a sexual identity item and several items assessing demographic characteristics. The MYRBS data also included information on type of community (i.e., urban, suburban, or rural) based on school location.

### **Sexual Orientation Assessment**

In Massachusetts, self-identified sexual orientation and same-sex sexual behavior were each assessed with one item. Behavior was assessed by the following question: "The person(s) with whom you have had sexual contact is (are): (a) no sexual contact, (b) female(s), (c) male(s), or (d) female(s) and male(s)." Self-identification was assessed by the following question: "Which of the following best describes you? (a) heterosexual (straight), (b) bisexual, (c) gay or lesbian, (d) not sure, or (e) none of the above." We used both questions to determine the composition of the LGBQ group for the Massachusetts respondents.

**Table 1.** Comparison of Massachusetts and Vermont YRBS Samples

Characteristic	Massachusetts	Vermont	Both	Test	Cohens' D
Sample size <sup>a</sup>	3324	5864	9188		
Percent males	51.1	49.7	50.2	$\chi^2 = 1.53$	
Number LGBQ	114	201	315		
Percent LGBQ youths	3.4	3.4	3.4	$\chi^2 = 0.00$	
Percent LGBQ male	64.0	61.2	62.2	$\chi^2 = 0.25$	
Age (yr)	16.2	15.9	16.0	$t^1 = 10.17^{***}$	-0.22
Heterosexual	16.2	15.9	16.0	$t^1 = 10.13^{***}$	-0.22
LGBQ	16.3	16.1	16.2	$t^1 = 1.24$	-0.15
Percent youths reporting intercourse	44.9	44.5	44.7	$\chi^2 = 0.18$	
Percent youths designated sexually active <sup>b</sup>	53.3	47.0	49.3	$\chi^2 = 36.19^{***}$	
Heterosexual	52.5	45.1	47.8	$\chi^2 = 44.71^{***}$	
LGBQ <sup>c</sup>	78.1	100.0			
Demographics (%) <sup>d</sup>					
Ethnic heterosexual youths	24.5				
Ethnic LGBQ youths	30.7			$\chi^2 = 2.78$	
Heterosexual recent immigrants	18.1				
LGBQ recent immigrants	25.4			$\chi^2 = 4.17^{**}$	
Heterosexual youths in rural communities	13.2				
LGBQ youths in rural communities	9.7			$\chi^2 = 1.28$	
Mean risk index levels					
Times victimized past year	0.9	1.1	1.0	$t^a = 2.71^{**}$	0.06
Cigarettes/day past month	1.3	1.6	1.5	$t^a = 3.18^{**}$	0.07
Drinks/month past month	1.8	1.8	1.8	$t^a = 0.14$	0.00
Marijuana/cocaine use past month	0.9	0.9	0.9	$t^a = 0.00$	0.00
Sexual-risk behaviors <sup>e</sup>	0.6	0.7	0.7	$t^a = 6.33^{***}$	0.19
Attempted suicides past year	0.2	0.2	0.2	$t^a = 1.76$	0.04

\*\*  $p \leq .01$ ; \*\*\*  $p \leq .001$ .

<sup>a</sup> Degrees of freedom vary with missing data, but  $\leq 9187$  for all youths and  $\leq 314$  for LGBQ youths.

<sup>b</sup> Wording of Massachusetts question detects 156 sexually active youths who do not report having sexual intercourse. In Vermont 140 youths who indicated sexual contact on questions about males and females did not answer a separate question about intercourse.

<sup>c</sup> By definition all Vermont youths coded LGBQ are active because the coding is based on sexual behavior.

<sup>d</sup> Ethnicity, kind of community (urban, suburban, rural), length of residence in the United States and gang involvement were assessed only in Massachusetts.

<sup>e</sup> Based on 4527 sexually active youths.

LGBQ = Lesbian, gay, bisexual, or questioning; YRBS = Youth Risk Behavior Survey.

Self-identification was the primary determinant. Thus, the LGBQ group included self-identified LGB youths with no sexual experience ( $n = 12$ ) or unknown sexual experience ( $n = 22$ ). For youths answering "not sure" or "none of the above," sexual behavior was also used. Youths who reported their sexual orientation as "not sure" ( $n = 8$ ) or "none of the above" ( $n = 6$ ) were included in the LGBQ group if they reported same-sex sexual experience. Likewise, youths who reported a heterosexual identity but no sexual experience, or only heterosexual sexual experience, were included in the heterosexual group. However, self-identified heterosexual youths reporting same-sex sexual experience ( $n = 37$ ) or whose sexual experience was unknown ( $n = 206$ ) were excluded from the heterosexual group. The cross-tabulation of self-labeling and sexual behavior is shown in Table 1. After applying inclusion and exclusion criteria, the final MYRBS sample contained

3324 youths (1586 heterosexual female, 1624 heterosexual males, 41 LBQ females, and 73 GBQ males).

In Vermont, only same-sex sexual behavior was assessed. Two questions asked about sexual behavior: "During your life, with how many males have you had sexual intercourse?" and "During your life, with how many females have you had sexual intercourse?" We used responses to these sexual behavior questions to determine the composition of the LGBQ group, as shown in Figure 1. Of the 7156 youths in the VYRBS sample, 1158 were excluded because they were eighth graders (eighth graders were not surveyed in Massachusetts), and surveys from an additional 123 youths were unusable because their sexual behavior was missing, their gender was missing, or their answers to sexual experience questions were inconsistent (e.g., reports no male or female sexual partners yet reports sexual intercourse). The final Vermont sample contained 5864 youths (2871 hetero-

		Massachusetts (Self-Identification)							Vermont (Group Assignment)			
		Heterosexual	Bisexual	Gay/Lesbian	Not sure	No Label	Missing	Partners	Heterosexual	LGBQ		
<b>Sexual Behavior</b>	None	F	797	7	0	20	54	8	None	F	1601	
		M	729	4	1	10	26	6		M	1509	
	Opposite-Sex Only	F	789	9	0	13	22	4	Opposite Sex Only	F	1270	
		M	895	17	2	2	30	9		M	1283	
	Same-Sex Only	F	19	0	1	1	1	0	Same Sex Only	F		30
		M	6	4	5	1	2	0		M		60
	Both Sexes	F	7	11	2	3	0	0	Both Sexes	F		48
		M	5	11	4	3	3	0		M		63
	Missing	F	114	6	0	4	7	157	Missing, or Inconsistent	F		123
		M	92	8	8	6	9	200		M		

Figure 1 Operationalization of Lesbian, Gay, Bisexual, or Questioning and Heterosexual Groups by State and Gender.

sexual females, 2792 heterosexual males, 78 LGBQ females, and 123 LGBQ males). As a result of the criteria used, there were no sexually inexperienced LGBQ youths in the Vermont sample, and some sexually inexperienced LGBQ youths in Vermont may not have been included in the heterosexual group.

**Risk Indices**

Five indices covering victimization at school, smoking, alcohol use, marijuana or cocaine use, and sexual risk were created by combining responses to relevant YRBSS questions. Three additional indicators of risk were derived from single YRBSS items. These items pertained to fear of safety at school, lifetime illegal drug use, and number of suicide attempts. Information on suicide attempts was included for comparison with previous analyses of the MYRBS and VYRBS data. Prior to summing items, victimization and risk behavior response categories that indicated escalating frequencies (e.g., 0 = "none," 1 = "two to four times," 2 = "five or more times") were recoded to the lower bound of the response category (e.g., 0, 2, and 5, respectively).

An index of victimization at school was computed

by summing the number of times during the past year that youths reported being threatened or injured with a weapon at school and the number of times during the past year that youths reported having their property deliberately damaged or stolen at school. The question concerning threats or injuries was, "During the past 12 months, how many times has someone threatened or injured you with a weapon such as a gun, knife, or club on school property?" The question concerning property was, "During the past 12 months, how many times has someone stolen or deliberately damaged your property such as your car, clothing, or books on school property?" For both items, response options ranged from 0 to 12 or more times. Fear for personal safety at school was used as an independent risk index. The question was, "During the past 30 days, how many days did you not go to school because you felt you would be unsafe at school or on your way to or from school?" Response options ranged from 0 to 6 or more days.

Substance use indices were computed using questions about usage in the past month. An index of cigarette use was computed by multiplying the number of days during the past month that youths reported smoking at least one cigarette by the aver-

age number of cigarettes per day reported. An index of alcohol consumption was computed by summing the number of days during the past month that youths reported having at least one drink and four times the number of days during the past month that youths reported having five or more drinks. An index of marijuana and cocaine use was computed by summing the number of times during the past month that youths reported using marijuana and the number of times during the past month that youths reported using any form of cocaine. An additional question assessed lifetime use of other street drugs.

An index of sexual risk was constructed as follows. Youths received a "2" if they reported using alcohol or drugs at last sexual intercourse and if they reported not using condoms at last intercourse; they received a "1" if they reported either behavior; and they received a "0" if they reported neither behavior. Both questions were answered "yes" or "no." The question assessing alcohol or drug use at last sexual intercourse was, "Did you drink alcohol or use drugs before you had sexual intercourse the last time?" The question assessing condom usage was, "The last time you had sexual intercourse, did you or your partner use a condom?"

In addition to the risk indices described above, an individual question assessing the number of suicide attempts in the past year was also analyzed. The question was, "During the past year, how many times have you actually attempted suicide?" Response options were: "(a) 0 times, (b) 1 time, (c) 2 or 3 times, (d) 4 or 5 times, (e) 6 or more times."

### Statistical Variance Estimation

It is necessary to address statistical concerns pertaining to the multistage sampling used in YRBS samples. Statistical packages for complex-sample data (e.g., SUDAAN, STATA) can be used to provide robust variance estimates based on the number of strata (the highest level grouping of primary sampling units) and primary sampling units (in this case, schools) and not the number of individual respondents [25]. This avoids a bias toward Type I error. Alternatively, other researchers use general statistical packages (e.g., SAS, SPSS) and compensate for the bias toward Type I error by adopting a more stringent significance level. We were unable to use specialized complex-sample procedures on the combined data set because the ways analytic strata had been constituted in the MYRBS and VYRBS data sets were not compatible. Instead, analyses of variance and Chi-square analyses were conducted with gen-

eral software that assumes a simple random sample. To compensate for potentially underestimated standard errors, we adopted a significance level of  $p \leq .01$ . This does not imply that the two states were incompatible in levels of health risk behaviors or other relevant dimensions (e.g., proportion of LGBQ youth) but only that the way in which the primary sampling units (i.e., schools) were aggregated into analytical strata prevented analyses of the combined data set with software designed to handle complex samples.

### Results

To ascertain that it was reasonable to combine the Massachusetts and Vermont data, two strategies were employed. First, relevant sociodemographic characteristics and the health risk indices used in subsequent analyses were compared by state (Table 1). Second, key analyses were initially conducted separately for each state and compared for similar patterns of results. Within-state results were similar to results derived from the combined data.

Tabulation of relevant variables by state showed few differences, and the differences present were small in effect size, as shown by Cohens'  $D$  [26]. LGBQ youths comprised 3.4% of the total sample in each state, and about 60% of LGBQ youths in each state were males. Finally, the percentage of youths who reported ever having sexual intercourse was approximately 45% in each state. The MYRBS and VYRBS data were also judged comparable on overall levels of victimization experiences and health risk behaviors. There were statistically significant differences for victimization, smoking, and sexual risk, but the associated effect sizes were small ( $D = .19$  to  $.06$ ). There were no significant differences between the two states for drinking, marijuana/cocaine use, or reported suicide attempts. Table 1 also summarizes the sociodemographic diversity within the MYRBS. Comparable data were not collected in the VYRBS.

### Demographic Similarity of Heterosexual and LGBQ Youths

Lesbian, gay, bisexual, or questioning youths differ from their heterosexual peers on demographic variables assessed in Massachusetts. Mean age differences between the two groups were very small. Demographic data collected in the MYRBS included ethnicity, length of residence in the United States, and type of community (urban, suburban, or rural).

**Table 2.** Comparisons of Youths by Sexual Orientation and Gender

Risk Index	Female			Male			Gender × Orientation D <sup>a</sup>	
	Nongay	L/B	D <sup>a</sup>	Nongay	G/B	D <sup>a</sup>		
At-school victimization	0.66	2.88	0.8***	1.13	5.46	1.6***	0.8***	c,d
Ten or more times/yr (%)	1.1	10.1		2.7	24.0			
Skipped school owing to safety concerns	0.07	0.47	0.6***	0.11	0.76	1.0***	0.4***	c,d
Six or more times past mo (%)	0.4	4.2		1.0	7.7			
Cigarettes/d past mo	1.22	4.39	0.8***	1.59	4.75	0.8***	0.0	d
More than half pack/day (%)	5.8	25.5		8.2	22.5			
Drinks/mo past month	1.20	4.20	0.8***	2.11	6.40	1.1***	0.3**	c,d
One or more times/day (%)	4.8	18.6		11.3	29.4			
Marijuana/cocaine use past month	0.53	2.87	0.9***	1.13	4.34	1.2***	0.3	c,d
One or more times/d (%)	2.4	18.3		6.7	26.3			
Other street drugs	1.15	8.54	1.0***	2.22	10.06	1.1***	0.1	c,d
Forty + lifetime usage (%)	1.1	15.3		3.2	20.3			
Sexual risk <sup>b</sup>	0.68	0.87	0.3**	0.61	0.92	0.4***	0.2	c,d
Both risk factors (%)	5.8	21.6		5.7	29.6			
Suicide attempts	0.21	0.77	0.7***	0.13	1.37	1.5***	0.9***	c,d
Four or more times past year (%)	1.4	10.8		1.2	20.4			

\*\*  $p \leq .01$ ; \*\*\*  $p \leq .001$ .

<sup>a</sup> Cohens' D indicator of effect magnitude. Significance levels shown are from the associated *t*-test statistic, which is not tabulated.

<sup>b</sup> Based only on youths who were sexually active ( $n = 4572$ ).

<sup>c</sup> A significant main effect for gender was found but not tabulated.

<sup>d</sup> A significant main effect for sexual orientation was found but not tabulated.

L/B = Lesbian/Bisexual; G/B = Gay/Bisexual; D = Cohens' D.

The percentage of ethnic youths and recent immigrants is slightly higher among LGBQ youths, and the percentage of LGBQ youths in rural communities is slightly lower. None of these differences was statistically significant.

**Comparison of Victimization Experiences and Risk Behaviors by Gender and Sexual Orientation**

To determine whether there were differences among the groups formed by crossing gender and sexual orientation, we performed a separate analysis of variance for the five risk indices and three related health risk items. In addition to tests for the main effects and interaction effects, *post hoc* tests were used to compare the mean risk scores of LGBQ and heterosexual youths within gender. Initially, separate analyses were performed for each state, but no important differences emerged. Thus, all subsequent analyses were performed using the combined data.

Table 2 presents the results of the eight individual analyses of variance (ANOVAs). The mean levels of victimization and substance use of the LGBQ youths were significantly higher than the mean levels reported by their heterosexual peers. With the exception of cigarette smoking, males reported significantly greater risk levels than females. For each of the eight analyses, *post hoc* tests indicated that lesbian/bisexual females reported significantly greater risk

than did heterosexual females and that gay/bisexual males reported significantly greater risk than heterosexual males. Moreover, in five of the eight analyses (victimization, truancy owing to fear, suicidality, drinking, and marijuana/cocaine use), gender by orientation interactions were significant. Cohens' D is used to quantify effect sizes for each ANOVA by standardizing to the standard deviation of each dependent measure. The significance levels presented next to each effect size are from the Student's *t*-test of the mean difference underlying each effect, but the test statistic is not tabulated.

To provide further insight as to why the mean differences were observed, the percentage of youths reporting the highest level of risk is shown below the means for each risk factor in Table 2. For example, on the victimization index, 10.1% of the LGBQ females were victimized 10 or more times in the past year, compared with 1.1% of the heterosexual females. For every risk indicator, the LGBQ youths were overrepresented in the highest risk categories.

**Comparison of Risk by Victimization Level**

To explore the effect of victimization on the other seven risk indicators, youths were classified by sexual orientation and victimization (low or high victimization); separate analyses were conducted for males and females. Approximately 8% ( $n = 710$ ) of

**Table 3.** Comparisons of Youths by Gender, Sexual Orientation, and Victimization Level

Risk Index	Nongay			LGBQ			Victimization × Orientation D <sup>a</sup>	Victimization × Gender (LGBQ Only) D <sup>a</sup>
	Low	High	D <sup>a</sup>	Low	High	D <sup>a</sup>		
Skipped school owing to safety concerns								
Females	0.05	0.56	0.8***	0.14	1.83	2.6***	1.8***	c,d
Males	0.05	0.69	1.0***	0.22	1.88	2.5***	1.6***	c,d
Gender difference at high victimization			0.2			0.1		0.0
Cigarettes/d past month								
Females	1.14	2.86	0.4***	3.54	8.04	1.2***	0.7**	c,d
Males	1.46	2.91	0.4***	2.40	9.87	1.9***	1.5***	c,d
Gender difference at high victimization			0.0			0.5		0.8*
Drinks/mo past month								
Females	1.10	3.28	0.6***	2.02	14.34	3.3***	2.7***	c,d
Males	1.92	3.96	0.5***	2.65	14.27	3.1***	2.6***	c,d
Gender difference at high victimization			0.2			0.0		-0.2
Marijuana/cocaine use past month								
Females	0.48	1.62	0.4***	1.74	7.91	2.4***	1.9***	c,d,e
Males	1.01	2.25	0.5***	1.68	10.11	3.3***	2.8***	c,d,e
Gender difference at high victimization			0.2**			0.8***		0.9*
Other street drugs								
Females	0.48	1.62	0.2**	1.74	7.91	0.9***	0.7***	c,d
Males	1.89	5.51	0.5***	4.32	21.83	2.5***	2.0***	c,d
Gender difference at high victimization			0.6			2.0		1.6*
Sexual risk <sup>b</sup>								
Females	0.66	0.92	0.4***	0.76	1.26	0.7**	0.3	c,d
Males	0.60	0.71	0.2**	0.71	1.34	0.9***	0.8***	c,d
Gender difference at high victimization			-0.3**			0.1		0.2
Suicide attempts								
Females	0.19	0.78	0.7***	0.46	2.11	2.1***	1.3***	c,d,e
Males	0.08	0.53	0.6***	0.50	3.17	3.3***	2.8***	c,d,e
Gender difference at high victimization			-0.3***			1.3***		1.3***

\*\*  $p \leq .01$ ; \*\*\*  $p \leq .001$ .

<sup>a</sup> Cohens' D indicator of effect magnitude. Significance levels shown are from the associated *t*-test statistic, which is not tabulated.

<sup>b</sup> Based only on youths who are sexually active ( $n = 4572$ ).

<sup>c</sup> A significant main effect for victimization was found but not tabulated.

<sup>d</sup> A significant main effect for sexual orientation was found but not tabulated.

<sup>e</sup> A significant main effect for gender was found but not tabulated.

LGBQ = Lesbian, gay, bisexual or questioning; D = Cohen's D.

the youths experienced high victimization (three or more instances). Of the youths classified in the high-victimization group, 33% were female ( $n = 233$ ) and 67% were male ( $n = 477$ ). Of heterosexual youths only 7% ( $n = 612$ ) were classified into the high-victimization group, and 28% ( $n = 89$ ) of the LGBQ youths were so classified. A gender by sexual orientation by victimization ANOVA was conducted on each of the risk indicators. Table 3 presents the cell means, selected interaction effects, and selected

contrasts. The use of Cohens' D and significance levels is the same as in Table 2.

With one exception, all effects for sexual orientation, victimization, and victimization by orientation interaction were significant. On sexual risk, the victimization by orientation interaction ( $p = .018$ ) was not significant for females. *Post hoc* comparisons were conducted between the low- and high-victimization groups for the heterosexual and for the LGBQ youths. For each of the seven analyses, males and

females in the high-victimization groups reported significantly more risk than did their peers in the low-victimization groups. This finding held for both male and female heterosexual and LGBQ youths. However, the combined effect of LGBQ sexual orientation and high victimization was consistently associated with higher levels of each risk factor, with male and female LGBQ youths in the high-victimization groups reporting higher mean levels of each risk index than their heterosexual peers in the high-victimization groups. The main effect for gender was significant only for indices of marijuana/cocaine use and suicidality, with males reporting higher mean levels than females. Figure 2 illustrates the results for males and females by sexual orientation and victimization level for all seven risk indices.

There were gender differences on several risk indices among LGBQ youths. GBQ males reported significantly higher mean levels of marijuana/cocaine use and suicidality than LBQ females in the high-victimization group. This effect is shown in Table 3 in the rows below the means for each gender. Also within LGBQ youths, the interaction of victimization and gender was significant on indices of smoking, marijuana/cocaine use, use of other street drugs, and suicidality. The GBQ males in the high victimization group showed greater mean differences relative to their GBQ peers in the low victimization, compared with the mean differences between LBQ females in the high-victimization group and LBQ females in the low-victimization group (Table 3)

### *Discussion*

All three hypotheses were supported. Consistent with previous studies [5,6], victimization at school was disproportionately associated with LGBQ status. Second, LGBQ youths experiencing low levels of victimization at school were found to be similar to their heterosexual peers. Third, LGBQ youths in the high-victimization group evidenced substantially more health risk behavior, compared with heterosexual youths in the high-victimization group. Moreover, these associations are likely to be conservative because youths experiencing high victimization at school were more likely to skip school more often owing to safety concerns, and it is plausible that some of the most seriously victimized youths were not in school to be included in the survey. Further research will be needed to understand the processes by which victimization produces these effects as well

as why some LGBQ youths are victimized at school much more frequently than others.

An exploratory goal of this study was to examine gender differences in health risk factors among LGBQ youth. In one recent study of LGB youths drawn from representative data, gender was found to be a substantive source of variation in health risk behaviors among LGB adolescents [27], although lack of a heterosexual comparison group precluded distinction between gender main effects and gender by LGB status interaction effects. In the present study, the effect of LGBQ sexual orientation was similar for males and females for smoking, use of other street drugs, and sexual risk. However, the effects of LGBQ sexual orientation were significantly greater for males for drinking, marijuana/cocaine use, victimization, truancy because of fear, and suicide attempts. These findings are inconsistent with previous work using the 1995 MYRBS data in which gender was not a significant predictor of health risk behaviors associated with LGB status [5]. The greater statistical power obtained by combining the MYRBS and VYRBS data in this report may help explain this inconsistency. For smoking, marijuana/cocaine use, use of other street drugs, and suicidality, GBQ males experiencing high levels of victimization reported higher levels of risk than LBQ females who experienced high levels of victimization. These findings related to gender also raise questions about previous findings of greater substance use among lesbian and bisexual females [2]. Age may be a factor in understanding this inconsistency. In a study of LGB youth drawn from a large representative data set, more alcohol and substance use by lesbian/bisexual females was found only for youths aged 14 years and younger. Among LGB youths aged 15 years and older, more gay/bisexual males than lesbian/bisexual females reported heavy drinking, alcohol use before school, and legal problems with substance use [27]. The greater associations for GBQ males between high victimization and drinking, marijuana/cocaine use, use of other street drugs, and suicide attempts, compared with the associations found among LBQ females, suggests that GBQ males are more severely victimized or that GBQ males are more distressed by victimization.

Assessing youth gender atypicality in future research is desirable because gender atypicality might partly explain gender differences observed here. Pilkington and D'Augelli [3] found that atypicality was related to victimization, with females more likely to be more atypical than males. This appears inconsistent because males in the present study

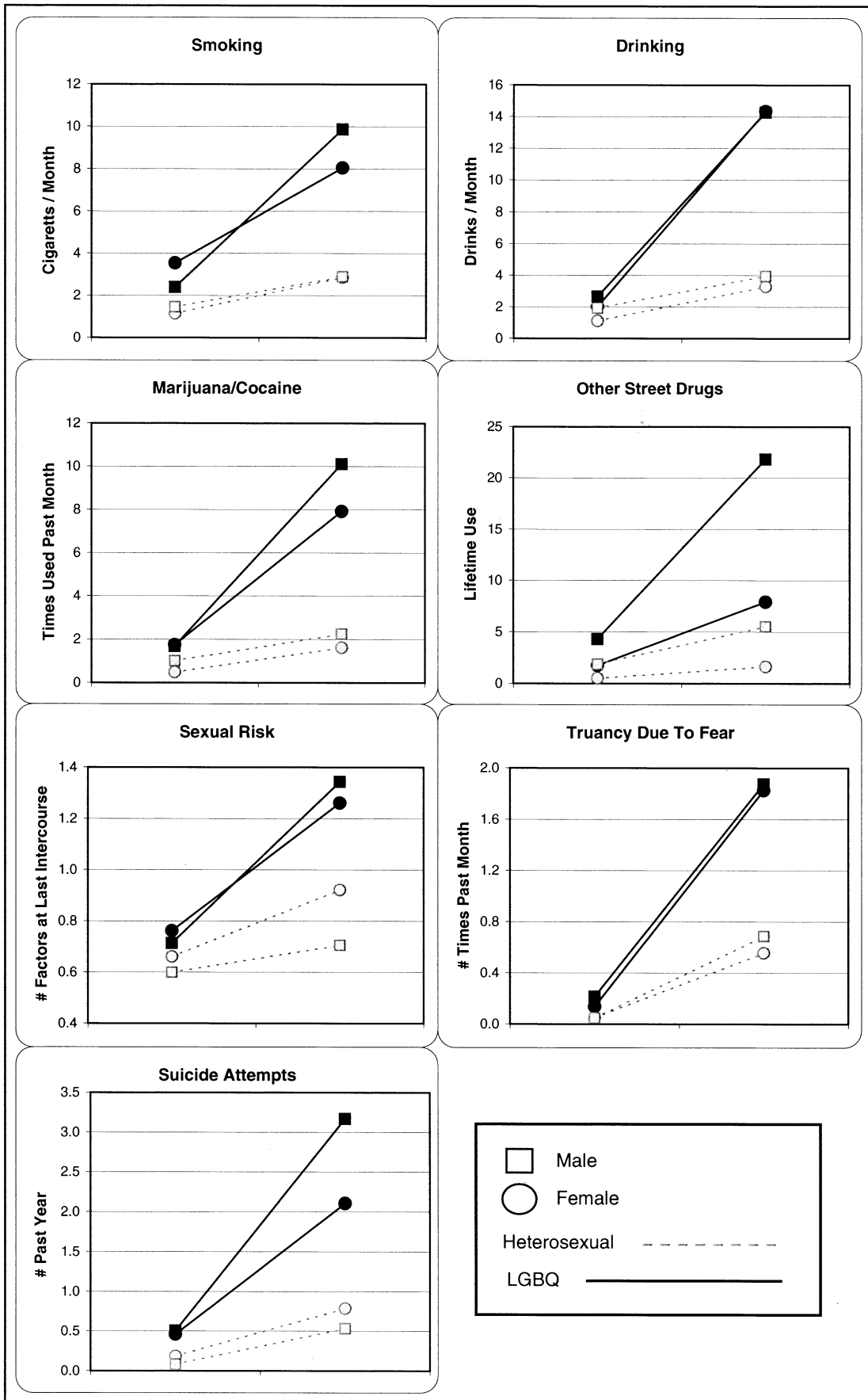


Figure 2 Health Risk Factor Means by Victimization, Gender, and Sexual Orientation.

showed larger victimization by orientation effects, but it is possible that in these data males were more likely to be atypical. Socialization permits more gender atypical behavior for tomboys than sissies, so their finding that females were more likely to be gender atypical may be partly the result of sampling procedures in that data were collected in community groups. The data reported here, in contrast, were drawn from representative school-based samples. Unfortunately, no gender typicality data were available, but the gender differences among these LGBQ youths may be partly owing to greater gender atypicality among the GBQ males. Further research that assesses both the individual characteristics of youths and the nature of their victimization experiences is needed to understand this relationship.

### Study Limitations

There are limitations pertaining to causality and our operationalization of victimization. Without experimental manipulation, temporal order is the best approach to determining causal direction. Because these data are cross-sectional, there is no temporal order. However, in this study, the measure of victimization covered the past year but substance use assessment was for the past month, so it is still plausible to view victimization as antecedent.

Use of at-school injuries and property damage to operationalize sexual orientation victimization raises an issue of construct validity. This is not specifically victimization owing to sexual orientation, and it does not include all the forms of victimization reported by LGB youths in other studies. However, LGBQ youths in this study were disproportionately victimized relative to their heterosexual peers. It is reasonable to attribute this difference to sexual orientation.

Further research should explore why some LGB youths are victimized but others are not. Personal characteristics such as gender typicality or age of "coming out" may be involved. Contextual factors such as family socioeconomic status, neighborhood characteristics, school climate, or family background may also be explanatory.

Both longitudinal studies and assessments that include factors known to be associated with distress (e.g., lack of social support, poor coping skills) are needed. Longitudinal data will allow stronger causal statements about victimization as well as permit the assessment of the consequences of victimization over time. More in-depth assessment efforts will allow the process between victimization and distress in LGB youth to be better articulated.

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### References

1. Rotheram-Borus MJ, Rosario M, Van Rossem R, et al. Prevalence, course, and predictors of multiple problem behaviors among gay and bisexual male adolescents. *Dev Psychol* 1995; 31:75-85.
2. Rosario M, Hunter J, Gwadz M. Exploration of substance use among lesbian, gay, and bisexual youth: Prevalence and correlates. *J Adolescent Res* 1997;12:454-76.
3. Pilkington NW, D'Augelli AR. Victimization of lesbian, gay, and bisexual youth in community settings. *J Community Psychol* 1995;23:34-56.
4. Hershberger SL, D'Augelli AR. The impact of victimization on the mental health and suicidality of lesbian, gay, and bisexual youths. *Dev Psychol* 1995;31:65-74.
5. Garofalo R, Wolf RC, Kessel S, et al. The association between health risk behaviors and sexual orientation among a school-based sample of adolescents. *Pediatrics* 1998;101:895-902.
6. DuRant RH, Krowchuk DP, Sinal SH. Victimization, use of violence, and drug use at school among male adolescents who engage in same-sex sexual behavior. *J Pediatr* 1998;133:113-8.
7. Faulkner AH, Cranston K. Correlates of same-sex sexual behavior in a random sample of Massachusetts high school students. *Am J Public Health* 1998;88:262-6.
8. D'Augelli AR, Hershberger SL. Lesbian, gay, and bisexual youth in community settings: Personal challenges and mental health problems. *Am J Commun Psychol* 1993;21:421-48.
9. Anhalt K, Morris TL. Developmental and adjustment issues of gay, lesbian, and bisexual adolescents: A review of the empirical literature. *Clin Child Fam Psychol Rev* 1999;1:215-30.
10. Garofalo R, Wolf RC, Wissow LS, et al. Sexual orientation and risk of suicide attempts among a representative sample of youth. *Arch Pediatr Adolesc Med* 1999;153:487-93.
11. Remafedi G, French S, Story M, et al. The relationship between suicide risk and sexual orientation: Results of a population-based study. *Am J Public Health* 1998;88:57-60.
12. Waldo CR, Hesson-McInnis MS, D'Augelli AR. Antecedents and consequences of victimization of lesbian, gay, and bisexual young people: A structural model comparing rural university and urban samples. *Am J Community Psychol* 1998; 26:307-34.
13. Savin-Williams RC, Cohen KM. Psychosocial outcomes of verbal and physical abuse among lesbian, gay, and bisexual youths. In: Savin-Williams RC, Cohen KM (eds). *The Lives of Lesbians, Gays, and Bisexuals: Children to Adults*. Ft. Worth, TX: Harcourt Brace College Publishers, 1996:181-200.
14. Rotheram-Borus MJ, Hunter J, Rosario M. Suicidal behavior and gay-related stress among gay and bisexual male adolescents. *J Adolescent Res* 1994;9:498-508.
15. Rosario M, Rotheram-Borus MJ, Reid H. Gay-related stress and its correlates among gay and bisexual male adolescents of predominantly Black and Hispanic background. *J Community Psychol* 1996;24:136-59.

16. D'Augelli AR. Developmental implications of victimization of lesbian, gay, and bisexual youths. In: Herek GM (ed). *Psychological Perspectives on Lesbian and Gay Issues*. Vol. 4. *Stigma and Sexual Orientation: Understanding Prejudice Against Lesbians, Gay Men, and Bisexuals*. Thousand Oaks, CA: Sage Publications, 1998:187-210.
17. Meyer IH. Minority stress and mental health in gay men. *J Health Soc Behav* 1995;36:38-56.
18. DiPlacido J. Minority stress among lesbians, gay men, and bisexuals: A consequence of heterosexism, homophobia, and stigmatization. In: Herek GM (ed). *Psychological Perspectives on Lesbian and Gay Issues*. Vol. 4. *Stigma and Sexual Orientation: Understanding Prejudice Against Lesbians, Gay Men, and Bisexuals*. Thousand Oaks, CA: Sage Publications, 1998: 138-59.
19. Rosario M, Hunter J, Maguen S, et al. The coming-out process and its adaptational and health-related associations among gay, lesbian, and bisexual youths: Stipulation and exploration of a model. *Am J Community Psychol* 2001;29:133-60.
20. Hershberger SL, Pilkington NW, D'Augelli AR. Predictors of suicide attempts among gay, lesbian, and bisexual youth. *J Adolesc Res* 1997;12:477-97.
21. Russell ST, Joyner K. Adolescent sexual orientation and suicide risk: Evidence from a national study. *Am J Public Health* 2001;91:1276-81.
22. Garnets L, Herek GM, Levy B. Violence and victimization of lesbians and gay men: Mental health consequences. *J Interpers Violence* 1990;5:366-83.
23. Herek GM, Gillis JR, Cogan JC, et al. Hate crime victimization among lesbian, gay, and bisexual adults. *J Interpers Violence* 1997;12:195-215.
24. Brener ND, Collins JL, Kann L, et al. Reliability of the Youth Risk Behavior Survey Questionnaire. *Am J Epidemiol* 1995; 141:575-80.
25. Korn EL, Graubard BI. *Analysis of Health Surveys*. New York, NY: Wiley, 1999.
26. Cohen J, Cohen P. *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences*. Hillsdale, NJ: Lawrence Erlbaum, 1975.
27. Saewyc EM, Bearinger LH, Heinz PA, et al. Gender differences in health and risk behaviors among bisexual and homosexual adolescents. *J Adolesc Health* 1998;23:181-8.