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Examining the Relationship Between LGBTQ-Supportive School Health Policies and Practices and Psychosocial Health Outcomes of Lesbian, Gay, Bisexual, and Heterosexual Students

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Abstract

Purpose: We examined the association of lesbian, gay, bisexual, transgender, and questioning (LGBTQ)-supportive school policies and practices with psychosocial health outcomes among lesbian, gay, bisexual (LGB), and heterosexual students.

Methods: The 2014 and 2016 School Health Profiles data from principals and health educators from 117 schools assessed LGBTQ-supportive school policies and practices. We computed the sum of school policies and practices, indicating the number available for each student. The 2015 and 2017 Youth Risk Behavior Survey data from 75,638 students from the same schools measured psychosocial health outcomes. We conducted multilevel cross-sectional logistic regressions of the associations of school-level policies and practices with student-level health outcomes by sexual identity while controlling for sex, grade, race/ethnicity, and school priority.

Results: Several LGBTQ-supportive school policies and practices were significantly associated with lower odds of feeling threatened at school, suicide-related behaviors, and illicit drug use among LGB students. For heterosexual students, having a gay-straight alliance or similar club was linked to multiple health outcomes, whereas other policies and practices were significantly associated with lower odds of safety concerns at school, forced sexual intercourse, feeling sad or hopeless, and illicit drug use. Increasing the sum of policies and practices was linked to lower odds of suicide-related behaviors among LGB students and safety concerns and illicit drug use among heterosexual students.

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Authors' Contributions

W.K. contributed to data management, analysis, and interpretation and took the lead on writing the article. J.L. contributed to data management, analysis, and interpretation and participated in the literature review and writing of the article. A.C.C. contributed to data management, analysis, and interpretation and participated in the literature review and writing of the article. L.R. contributed to data management, analysis, and interpretation and revised and edited the article. All coauthors reviewed and approved the article before submission.

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Conclusion: These findings suggest that LGBTQ-supportive school policies and practices are significantly associated with improved psychosocial health outcomes among both LGB and heterosexual students, although more research is needed to better understand these relationships.

Keywords

high-risk substance use; LGB youth; LGBTQ-supportive school policies; mental health and suicide; student health disparities; violence victimization

Introduction

YOUTHS IDENTIFYING AS LESBIAN, GAY, OR BISEXUAL (LGB) are at higher risk for negative psychosocial health outcomes, such as violence victimization, high-risk substance use, adverse mental health, and suicide-related behaviors, than their heterosexual peers.[1-3] Such health disparities are owing to numerous factors, some related to the youths' sexual minority status.

According to the minority stress model, the prejudice and discrimination that LGB youth often experience results in stress that contributes to the heightened risk for adverse psychosocial health outcomes.[4,5] School environment may contribute to this process, as LGB students report more safety concerns, peer victimization and harassment at school than their heterosexual peers.[2,6] Consequently, schools should cultivate protective factors that reduce sexual minority identity-related stressors and bolster the psychosocial health of LGB students.

Implementing school policies and practices supportive of lesbian, gay, bisexual, transgender, and questioning (LGBTQ) students may substantially protect the psychosocial health of sexual and gender minority, including LGB, students by connecting them to supportive networks, providing coping skills, and promoting safe and supportive school environments.[7-9] For example, student-led organizations known as gay-straight alliances (GSAs; also referred to as gender-sexuality or queer-straight alliances) are associated with lower rates of peer victimization, substance use, and suicide-related behaviors for sexual and gender minority groups, including LGB students.[10-12]

In addition, LGB and transgender youth in schools with safe spaces have better health outcomes,[13] whereas those in schools prohibiting sexual and gender identity-based harassment report improved feelings of safety and reduced peer victimization, compared with LGB and transgender students in schools without such policies.[14] LGB students in schools offering staff professional development on LGBTQ-related issues also report lower rates of substance use and sexual and safety risk behaviors than LGB students in other schools.[15]

Facilitating access to LGBTQ-competent out-of-school social, psychological, and health services, and offering LGBTQ-inclusive health curricula are also associated with improved health and well-being outcomes among sexual and gender minority, including LGB, youth.[15,16] Finally, LGB and other sexual and gender minority students in schools with more supportive environments have better mental health and suicide-related outcomes than those

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in less supportive schools, indicating possible incremental effects of the above-mentioned strategies.[8]

The health benefits of LGBTQ-supportive school policies and practices are not limited to sexual and gender minority students. For instance, heterosexual students with greater engagement in GSAs also report increased self-efficacy and perceived peer validation, which reduces their risk for adverse psychosocial health outcomes.[7,17] However, research on the psychosocial health benefits of LGBTQ-supportive school policies and practices for heterosexual students remains scarce.

In addition, the existing literature mostly focuses on analyzing such policies and practices individually. Therefore, the potential psychosocial health benefits of their combined implementation for both LGB and heterosexual students remain inadequately understood. Finally, current literature on this topic derives mostly from outside the United States,[9,18-20] and the generalizability of its findings to students in the United States should be explored.

This study examines the associations between LGBTQ-supportive school policies and practices and psychosocial health outcomes, including violence victimization, mental health, suicide-related behaviors, and high-risk substance use, among LGB and heterosexual students attending secondary schools from 16 local education agencies (LEAs) across the United States. Using multilevel modeling techniques, we explored (1) the degree of association between individual LGBTQ-supportive school policies and practices and psychosocial health outcomes; (2) the association between the sum of multiple LGBTQ-supportive school policies and practices and psychosocial health outcomes; and (3) how these associations differ for LGB and heterosexual students.

Methods

This study integrates two data sources: School Health Profiles (Profiles) and the Youth Risk Behavior Survey (YRBS). As part of the Centers for Disease Control and Prevention (CDC)'s Division of Adolescent and School Health (DASH) nationwide school health program implemented from 2013 to 2018, funded LEAs collected Profiles and YRBS data biennially: Profiles in 2014 and 2016 and the YRBS in 2015 and 2017.[21]

For Profiles, principals and lead health education teachers from schools representative of their jurisdictions completed self-administered questionnaires to assess nationwide secondary school health policies and practices.[22,23] The YRBS was administered to a representative sample of secondary school students to monitor the prevalence of health risk behaviors among students and evaluate the impact of health-related policies.[24,25] Additional information about participant recruitment, data collection, and response rates are available in the YRBS[26] and Profiles[22,23] overview and methods reports.

For this study, we merged the Profiles data on school-level LGBTQ-supportive policies and practices with the YRBS data on student-level psychosocial health outcomes, matching the data by school and district and using school ID as a mutual identifier. When using single-cycle data, several outcomes indicated nonconvergence, likely owing to the insufficient number of LGB respondents. Therefore, we combined data from multiple collection cycles,

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linking the 2014 Profiles data with the 2015 YRBS and the 2016 Profiles with the 2017 YRBS to achieve the statistical power needed to detect significant associations between the variables.[27]

Measures

We followed the YRBS and Profiles terminology for all variables to keep findings aligned with the methodology of data sources.[22-25] The following YRBS question measured sexual identity: "Which of the following best describes you?" Response options included "heterosexual (straight)," "gay or lesbian," "bisexual," and "not sure." "Gay or lesbian" and "bisexual" responses were combined into a single category, "LGB students." This merging allowed for a large enough sample to examine statistically significant differences between heterosexual and LGB students.

We excluded participants who responded "not sure" to this question, given the possibility that this response option was selected by students who did not know what the question or other response options meant.[28] The surveys used in this study did not include questions on gender identity and, therefore, we were unable to identify transgender students in our sample.

Seven items from the Profiles questionnaire assessed LGBTQ-supportive school policies and practices: (1) having a GSA or similar club; (2) identifying safe spaces; (3) prohibiting harassment based on sexual orientation or gender identity; (4) encouraging staff to attend professional development; (5) facilitating access to out-of-school health service providers; (6) facilitating access to out-of-school social and psychological service providers; and (7) providing LGBTQ-relevant curricula or supplementary materials. Principals responded to the first six items, whereas health education teachers answered the last item. Table 1 includes all items, their corresponding Profiles questions, and analytic coding.[22,23]

We also computed a "Sum of school policies and practices," indicating the number of LGBTQ-supportive policies and practices available at school for each student. Research has not yet examined the relative efficacy of these policies and practices, and CDC program guidance has not assigned them relative weights. Therefore, we examined them as equally weighted, in line with the program guidance.[21] Scores ranged from 0 to 7, with higher scores indicating the availability of more LGBTQ-supportive school policies and practices for each student.

In total, 15 YRBS items measured student psychosocial health outcomes, including violence victimization (seven items), mental health (one item), suicide-related behaviors (four items), and high-risk substance use (three items). The YRBS defines violence victimization as any aggression perpetrated by another person, including dating violence, sexual violence, and bullying, whereas high-risk substance use refers to any use of select illicit drugs, prescription opioid misuse, or illegal injected drugs.[24-26] We calculated illicit drug use as responding "1 or more times" to at least one of the questions on the use of cocaine, inhalants, heroin, methamphetamines, and ecstasy, as defined and measured in the YRBS.

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A question on persistent feelings of sadness or hopelessness assessed mental health. Four items asked about suicide-related behaviors, such as seriously considering or attempting suicide.

The questions asked about behaviors in the past 12 months, except for forced sexual intercourse and high-risk substance use, which assessed lifetime prevalence. We chose to include these items in our analysis because of the low prevalence rates of the examined behaviors, lack of other YRBS items assessing such behaviors while in school, and the fact that our study focused on variable associations rather than causal effects. Table 2 provides more details about the items, corresponding YRBS questions, and their analytic coding.[24,25]

YRBS provided data for the following covariates: (1) sex, dichotomized as “female” or “male” (reference group); (2) grade, including 9th (reference group), 10th, 11th, and 12th; (3) race/ethnicity, including non-Hispanic White (reference group), non-Hispanic Black or African American, Hispanic or Latino of any race, and non-Hispanic other; and (4) school priority, dichotomized as students in “non-priority” schools (reference group) and students in “priority” schools.

The last covariate referred to the potential confounding effect of the DASH school health program, which offered the option to implement LGBTQ-supportive school policies and practices. The program focused on “priority” schools, or schools with higher rates of adverse health-related outcomes among students. “Non-priority” schools referred to schools in the same districts that were not the focus of program efforts but also collected Profiles and YRBS data and had the option to implement the same or similar policies and practices. The study compared students in schools implementing LGBTQ-supportive policies and practices with those in schools that have not done so, regardless of whether the DASH program prioritized these schools or not.

Data analysis

Using SAS version 9.4 (SAS Institute Inc., Cary, NC), we conducted bivariate analyses with chi-square tests to analyze the differences in psychosocial health outcomes between LGB and heterosexual students. We conducted multilevel cross-sectional logistic regression analyses to examine the associations between LGBTQ-supportive school-level policies and practices and student-level psychosocial health outcomes while accounting for the nesting of students within schools and controlling for sex, grade, race/ethnicity, and school priority.[29,30]

We conducted the analyses independently for LGB and heterosexual students, calculating the adjusted odds ratios (aORs) and confidence intervals (CIs) of psychosocial health outcomes separately for each group. We applied the Holm–Bonferroni correction with an initial significance threshold of $\alpha < 0.05$ to correct for multiple comparisons.[31] We excluded analyses that did not meet the recommended sample size requirements for logistic regressions, or a minimum of 10 cases per outcome for each independent variable in the model.[32]

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Results

The sample included 75,638 students from 117 schools in 16 LEAs. Overall, 8347 (11.0%) students identified as LGB, and 67,291 (89.0%) as heterosexual. Participant demographics, including their sex, race/ethnicity, and class grade, are listed in Table 3. LGB students reported significantly higher rates of all psychosocial health outcomes than their heterosexual peers (Table 4).

For LGB students (Table 5), having a GSA or similar club (aOR: 0.71, 95% CI: 0.59–0.86) and facilitating access to out-of-school social and psychological service providers (aOR: 0.75, 95% CI: 0.62–0.91) were significantly associated with lower odds of being threatened or injured with a weapon at school. We found no other significant associations between LGBTQ-supportive school policies and practices and violence victimization or mental health outcomes.

For suicide-related behaviors, encouraging staff to attend professional development was significantly associated with lower odds for attempting suicide (aOR: 0.73, 95% CI: 0.61–0.87), whereas increasing the sum of LGBTQ-supportive school policies and practices was significantly associated with lower odds for attempting suicide (aOR: 0.95, 95% CI: 0.92–0.98) and being injured in a suicide attempt (aOR: 0.91, 95% CI: 0.86–0.96). For high-risk substance use, having a GSA or similar club was significantly associated with lower odds of ever using illicit drugs (aOR: 0.82, 95% CI: 0.68–0.99).

For heterosexual students (Table 6), having a GSA or similar club was significantly associated with lower odds of multiple violence victimization outcomes, such as missing school because of safety concerns (aOR: 0.77, 95% CI: 0.71–0.84). Identifying safe spaces was significantly associated with lower odds of forced sexual intercourse (aOR: 0.80, 95% CI: 0.70–0.92), whereas prohibiting harassment (aOR: 0.66, 95% CI: 0.52–0.85), encouraging staff to attend professional development (aOR: 0.79, 95% CI: 0.72–0.86), facilitating access to out-of-school social and psychological service providers (aOR: 0.88, 95% CI: 0.81–0.95), and increasing the sum of LGBTQ-supportive school policies and practices (aOR: 0.96, 95% CI: 0.94–0.97) were all significantly associated with lower odds of missing school because of safety concerns.

Regarding mental health outcomes among heterosexual students, encouraging staff to attend professional development was significantly associated with lower odds of experiencing persistent feelings of sadness or hopelessness (aOR: 0.91, 95% CI: 0.86–0.96). For suicide-related behaviors, having a GSA or similar club was significantly associated with lower odds for multiple outcomes, such as attempting suicide (aOR: 0.78, 95% CI: 0.72–0.84) or injurious suicide attempt (aOR: 0.74, 95% CI: 0.63–0.86). For high-risk substance use, having a GSA or similar club (aOR: 0.86, 95% CI: 0.78–0.96) and increasing the sum of LGBTQ-supportive school policies and practices (aOR: 0.97, 95% CI: 0.95–0.99) were significantly associated with lower odds for ever using illicit drugs.

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Discussion

These study findings align with research indicating that LGBTQ-supportive school health policies and practices are associated with lower odds for violence victimization, adverse mental health outcomes, suicide-related behaviors, and high-risk substance use among both heterosexual and sexual and gender minority (including LGB) students, although the strength of these associations may vary considerably.[10,11,13-16]

Our study was one of the first to compare the associations of LGBTQ-supportive school policies and practices with psychosocial mental health outcomes among LGB and heterosexual students, rather than focus on a single group. Of note, we found a greater number of significant associations for heterosexual students than for their LGB peers. Several outcomes, such as forced sexual intercourse, were significantly associated with LGBTQ-supportive school policies and practices for heterosexual, but not LGB, students.

Such findings may seem surprising, as such policies and practices are intended primarily for LGBTQ students. However, they also promote safer and more supportive school environments, fostering better psychosocial health among all students.[7] For example, having a GSA or similar club offers opportunities for prosocial engagement and forming positive peer relationships for both heterosexual and sexual and gender minority (including LGB) students.[11,33] Meanwhile, LGB youth face additional stressors outside of school, such as sexual minority identity-related prejudice and discrimination in their families or communities.[4,5] Consequently, the positive effects of LGBTQ-supportive school policies and practices may be more pronounced for their heterosexual peers.

Overall, further research is needed to better understand this process and its potential mediators. Meanwhile, the implementation of LGBTQ-supportive policies and practices should be coordinated with similar out-of-school activities to properly address all risk and protective factors impacting LGB students and their psychosocial health.

With a few exceptions,[8] past research has mostly focused on analyzing LGBTQ-supportive school policies and practices individually. In contrast, this study examined the association between the sum of these policies and practices and student psychosocial health outcomes. As most schools implement LGBTQ-supportive policies and practices simultaneously,[21] this approach is of particular significance for their evaluation and improvement.

Overall, increasing the sum of LGBTQ-supportive school policies and practices was significantly associated with lower odds for attempting suicide and injurious suicide attempts for LGB students and for missing school because of safety concerns and ever using illicit drugs for heterosexual students. These differences between LGB and heterosexual students may be owing to the previously mentioned additional stressors that LGB students face outside of school, which can drive them to illicit drug use as a coping mechanism.[6,12]

Future studies should explore the possible factors contributing to these differences. Furthermore, researchers should examine the relative efficacy of various LGBTQ-supportive school policies and practices. Our study shows that some, such as having a GSA or similar

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club, are associated with a greater number of psychosocial health outcomes. Thus, the method for computing their combined implementation should be revised accordingly.

Limitations

Our findings are subject to several limitations. First, we only examined cross-sectional data, and some of the YRBS items asked about lifetime, not current, prevalence. Thus, we can only draw inferences about the variable associations rather than the causality of the observed findings. YRBS and Profiles data were also self-reported and might be subject to response bias. Furthermore, we had larger sample sizes and greater statistical power for analyses involving heterosexual students, which may explain the greater number of significant findings observed for this group than for their LGB peers.

As the YRBS does not assess the students' use or knowledge of LGBTQ-supportive school policies and practices, we cannot establish whether students were aware of and utilized any of the examined school policies and practices. Subsequent studies should explore how these and other factors, such as family and parent engagement, may affect the observed associations of LGBTQ-supportive school policies and practices with psychosocial health outcomes.

Finally, we used a sexual identity question to categorize students as LGB or heterosexual because school policies and practices are primarily intended for students who identify as part of the LGBTQ community, rather than those who engage in nonheterosexual sexual behaviors but do not identify on the LGBTQ spectrum. Sexual identity, however, does not necessarily align with sexual behavior or actual sexual orientation.[34] Thus, we may have unintentionally excluded students who have engaged in nonheterosexual sexual activities or experienced nonheterosexual attraction but chose to identify as heterosexual.

We also could not examine other sexual and gender minority groups, such as transgender and questioning students, as the surveys used in this study did not include such questions. Furthermore, using a grouped LGB variable is likely to mask a differential association with the strategies for various sexual identity subgroups. For instance, bisexual women report higher rates of dating violence victimization than men or heterosexual and lesbian women.[35] Therefore, subsequent studies need to include larger and more inclusive samples to disaggregate the observed associations.

Conclusion

The study highlights how LGBTQ-supportive school policies and practices are associated with better psychosocial health outcomes among both LGB and heterosexual students. Of note, our findings generally align with research conducted outside the United States, indicating the potential benefits of such policies and practices for the students' psychosocial health.[9,18-20] Thus, the study suggests that international research on the importance of protective policies and practices for sexual minority students may be generalizable to the U.S. context. Still, further research is needed to better understand the relationship of school-level policies and practices with health outcomes of students in the United States.

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Table 1.

Lesbian, Gay, Bisexual, Transgender, and Questioning-Supportive School Policies and Practices

Policy	Profiles question	Analytic coding	Respondents
Gay/Straight Alliance	Does your school have a student-led club that aims to create a safe, welcoming, and accepting school environment for all youth, regardless of sexual orientation or gender identity? These clubs sometimes are called gay/straight alliances	0 = No; 1 = Yes	Principals
Safe Spaces	Does your school identify “safe spaces” (e.g., a counselor’s office, designated classroom, or student organization) where LGBTQ youth can receive support from administrators, teachers, or other school staff?	0 = No; 1 = Yes	Principals
Prohibit Harassment	Does your school prohibit harassment based on a student’s perceived or actual sexual orientation or gender identity?	0 = No; 1 = Yes	Principals
Professional Development	Does your school encourage staff to attend professional development on safe and supportive school environments for all students, regardless of sexual orientation or gender identity?	0 = No; 1 = Yes	Principals
Health Services	Does your school facilitate access to providers not on school property who have experience in providing health services, including human immunodeficiency HIV/STD testing and counseling, to LGBTQ youth?	0 = No; 1 = Yes	Principals
Social/Psych Services	Does your school facilitate access to providers not on school property who have experience in providing social and psychological services to LGBTQ youth?	0 = No; 1 = Yes	Principals
LGBTQ-Inclusive Curricula	Does your school provide curricula or supplementary materials that include HIV, STD, or pregnancy prevention information that is relevant to LGBTQ youth (e.g., curricula or materials that use inclusive language or terminology)?	0 = No; 1 = Yes	Lead health educators
Sum of School Policies and Practices	Combined number of “yes” responses to LGBTQ-supportive school health policies and practices items	Range = 0–7	n/a

Source: 2014 and 2016 School Health Profiles survey.[22,23]

LGBTQ, Lesbian, gay, bisexual, transgender, and questioning; n/a, not applicable; Psych, psychological; STD, sexually transmitted diseases.

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Table 2.

Student Health Outcomes—2015 and 2017 Youth Risk Behavior Survey

Study variable	Youth risk behavior survey question	Analytic coding
Violence victimization		
Felt unsafe at, to, or from school	During the past 12 months, on 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?	0 = 0 days; 1 = 1 or more days
Threatened or injured with a weapon at school	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?	0 = 0 times; 1 = 1 or more times
Forced sex	Have you ever been physically forced to have sexual intercourse when you did not want to?	0 = No; 1 = Yes
Sexual dating violence	During the past 12 months, how many times did someone you were dating or going out with force you to do sexual things that you did not want to do? (Count such things as kissing, touching, or being physically forced to have sexual intercourse)	0 = 0 or I did not date or go out with anyone during the past 12 months; 1 = 1 or more times
Physical dating violence	During the past 12 months, how many times did someone you were dating or going out with physically hurt you on purpose? (Count such things as being hit, slammed into something, or injured with an object or weapon)	0 = 0 or I did not date or go out with anyone during the past 12 months; 1 = 1 or more times
Bullying at school	During the past 12 months, have you ever been bullied on school property?	0 = No; 1 = Yes
Electronic bullying	During the past 12 months, have you ever been electronically bullied? (Count being bullied through texting, Instagram, Facebook, or other social media)	0 = No; 1 = Yes
Mental health		
Persistent feelings of sadness or hopelessness	During the past 12 months, did you ever feel so sad or hopeless almost every day for 2 weeks or more in a row that you stopped doing some usual activities?	0 = No; 1 = Yes
Suicide-related behaviors		
Seriously considered suicide	During the past 12 months, did you ever seriously consider attempting suicide?	0 = No; 1 = Yes
Made a suicide plan	During the past 12 months, did you make a plan about how you would attempt suicide?	0 = No; 1 = Yes
Attempted suicide	During the past 12 months, how many times did you actually attempt suicide?	0 = 0 times; 1 = 1 or more times
Suicide attempt requiring medical treatment	If you attempted suicide during the past 12 months, did any attempt result in an injury, poisoning, or overdose that had to be treated by a doctor or nurse?	0 = No or I did not attempt suicide during the past 12 months; 1 = Yes
High-risk substance use		
Lifetime illicit drug use	During your life, how many times have you used any of the following: • Any form of cocaine, including powder, crack, or freebase; • Sniffed glue, breathed the contents of aerosol spray cans, or inhaled any paints or sprays to get high; • Heroin (also called smack, junk, or China White); • Methamphetamines (also called speed, crystal, crank, or ice); ecstasy?	0 = 0 times to all of the following; 1 = 1 or more time to any of the following
Lifetime prescription pain medicine misuse	During your life, how many times have you taken prescription pain medicine without a doctor's prescription or differently than how a doctor told you to use it? (Count drugs such as codeine, Vicodin, OxyContin, Hydrocodone, and Percocet)	0 = 0 times; 1 = 1 or more times

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Study variable	Youth risk behavior survey question	Analytic coding
Lifetime injection drug use	During your life, how many times have you used a needle to inject any illegal drug into your body?	0 = 0 times; 1 = 1 or more times

Source: 2015 and 2017 Youth Risk Behavior Survey.[24,25]

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Table 3.

Demographics of Student Participants—2015 and 2017 Youth Risk Behavior Survey

	***Total* (N = 75,638)**		***LGB* (N = 8347)**		***Heterosexual* (N = 67,291)**	
	N	**%**	**N**	**%**	**N**	**%**
Sex						
Female	37,921	50.4	6113	74.0	31,808	47.5
Male	37,353	49.6	2145	26.0	35,208	52.5
Race/ethnicity						
Non-Hispanic White	10,441	13.8	1220	14.6	9221	13.7
Black or African American	24,246	32.1	2961	35.5	21,285	31.6
Hispanic or Latino of any race	29,384	38.9	3017	36.1	26,367	39.2
Other	11,567	15.3	1149	13.8	10,418	15.5
Grade						
9th	19,907	26.5	2134	25.8	17,773	26.6
10th	19,905	26.5	2193	26.5	17,712	26.5
11th	17,965	23.9	2066	25.0	15,899	23.8
12th	17,287	23.0	1873	22.7	15,414	23.1
School						
Priority	37,928	50.1	4307	51.6	33,621	50.0
Nonpriority	37,710	49.9	4040	48.4	33,670	50.0
Year						
2015	38,109	50.4	3950	47.3	34,159	50.8
2017	37,529	49.6	4397	52.7	33,132	49.2

Totals for demographic items may not add up to overall total numbers owing to some participants choosing to not respond and omit demographic questions.

LGB, lesbian, gay, and bisexual.

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Table 4.

Descriptive and Bivariate Results for Student Health Outcomes

	Total		*LGB*		*Heterosexual*			
	N	**%**	**N**	**%**	**N**	**%**	χ^2	**p**
Violence victimization								
Felt unsafe at, to, or from school								
Yes	5781	8.4	1175	14.9	4606	7.6	**480.50**	**<0.0001**
No	62,861	91.6	6731	85.1	56,130	92.4		
Threatened or injured with a weapon at school								
Yes	4677	6.5	936	11.6	3741	5.9	**384.68**	**<0.0001**
No	66,960	93.5	7124	88.4	59,836	94.1		
Forced sex								
Yes	5554	8.6	1311	18.3	4243	7.4	**961.17**	**<0.0001**
No	58,828	91.4	5841	81.7	52,987	92.6		
Sexual dating violence								
Yes	3385	8.3	835	17.2	2550	7.1	**567.10**	**<0.0001**
No	37,194	91.7	4016	82.8	33,178	92.9		
Physical dating violence								
Yes	4052	9.2	1003	18.4	3049	7.9	**628.66**	**<0.0001**
No	40,049	90.8	4460	81.6	35,589	92.1		
Bullying at school								
Yes	9829	13.6	1859	23.2	7970	12.4	**703.84**	**<0.0001**
No	62,438	86.4	6165	76.8	56,273	87.6		
Electronic bullying								
Yes	7894	10.9	1662	20.6	6232	9.7	**882.71**	**<0.0001**
No	64,585	89.1	6403	79.4	58,182	90.3		
Mental health								
Persistent feelings of sadness/hopelessness								
Yes	21,265	29.6	4213	52.9	17,052	26.7	**2330.45**	**<0.0001**
No	50,513	70.4	3748	47.1	46,765	73.3		
Suicide-related behaviors								

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	Total		*LGB*		*Heterosexual*			
	N	**%**	**N**	**%**	**N**	**%**	χ^2	**p**
Seriously considered suicide								
yes	10,450	14.5	2848	35.6	7602	11.9	**3216.62**	**<0.0001**
No	61,565	85.5	5,163	64.4	56,402	88.1		
Made a suicide plan								
Yes	7694	13.2	2002	30.8	5692	11.0	**1981.21**	**<0.0001**
No	50,552	86.8	4489	69.2	46,063	89.0		
Attempted suicide								
Yes	6637	10.7	1774	25.1	4863	8.8	**1724.67**	**<0.0001**
No	55,393	89.3	5305	74.9	50,088	91.2		
Suicide attempt requiring medical treatment								
Yes	1779	3.4	478	8.4	1301	2.8	**481.64**	**<0.0001**
No	50,420	96.6	5222	91.6	45,198	97.2		
High-risk substance use								
Lifetime illicit drug use								
Yes	4302	7.6	1059	16.4	3243	6.5	**796.00**	**<0.0001**
No	52,245	92.4	5416	83.6	46,829	93.5		
Lifetime prescription pain medicine misuse								
Yes	3970	12.4	865	22.2	3105	11.0	**390.59**	**<0.0001**
No	28,070	87.6	3039	77.8	25,031	89.0		
Lifetime injection drug use								
Yes	1074	2.5	347	7.9	727	1.9	**559.63**	**<0.0001**
No	41,048	97.5	4068	92.1	36,980	98.1		

Results in bold are significant at $p < 0.05$.

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Table 5.

Regression Modeling of Lesbian, Gay, Bisexual, Transgender, and Questioning-Supportive School Policies and Practices Among Lesbian, Gay, and Bisexual Students

	Policies and practices							
	Gay/straight alliances	Safe spaces	Prohibit harassment	Professional development	HIV/STD testing and counseling	Social/psych services	LGBTQ-inclusive curricula	Sum of all variables
Outcomes	**aOR (95% CI)**							
Violence victimization								
Felt unsafe at, to, or from school	0.79 (0.67–0.93)	0.84 (0.65–1.10)	*a*	0.86 (0.70–1.05)	0.99 (0.83–1.19)	0.92 (0.78–1.09)	1.04 (0.89–1.22)	0.97 (0.93–1.00)
Threatened or injured with a weapon at school	**0.71 (0.59–0.86)**	0.87 (0.64–1.18)	*a*	0.88 (0.69–1.11)	0.80 (0.65–0.97)	**0.75 (0.62–0.91)**	0.86 (0.73–1.03)	0.94 (0.90–0.98)
Forced sex	1.00 (0.85–1.18)	1.14 (0.86–1.50)	*a*	1.07 (0.87–1.31)	1.14 (0.95–1.36)	1.22 (1.03–1.45)	0.94 (0.81–1.09)	1.01 (0.97–1.04)
Sexual dating violence	0.99 (0.80–1.21)	1.12 (0.79–1.58)	*a*	1.07 (0.83–1.38)	1.01 (0.81–1.25)	1.13 (0.91–1.40)	0.96 (0.80–1.15)	0.99 (0.94–1.03)
Physical dating violence	0.79 (0.66–0.94)	1.06 (0.79–1.44)	*a*	1.04 (0.83–1.32)	0.94 (0.77–1.14)	0.90 (0.75–1.08)	0.98 (0.83–1.17)	0.97 (0.93–1.01)
Bullying at school	0.90 (0.77–1.04)	0.96 (0.76–1.23)	*a*	0.84 (0.70–1.00)	0.95 (0.81–1.10)	0.96 (0.83–1.11)	0.92 (0.81–1.06)	0.97 (0.94–1.00)
Electronic bullying	1.00 (0.86–1.17)	1.21 (0.93–1.57)	*a*	0.96 (0.80–1.16)	1.00 (0.85–1.18)	1.13 (0.96–1.32)	1.03 (0.89–1.18)	1.02 (0.98–1.05)
Mental health								
Persistent feelings of sadness/hopelessness	1.03 (0.91–1.17)	1.01 (0.83–1.24)	*a*	1.02 (0.88–1.19)	0.92 (0.80–1.05)	1.05 (0.92–1.19)	0.96 (0.86–1.07)	1.01 (0.98–1.04)
Suicide-related behaviors								
Seriously considered suicide	0.98 (0.86–1.11)	1.08 (0.88–1.33)	*a*	0.97 (0.83–1.14)	1.12 (0.98–1.29)	1.07 (0.94–1.22)	0.96 (0.85–1.08)	1.02 (0.99–1.05)
Made a suicide plan	1.09 (0.94–1.27)	1.36 (1.04–1.77)	*a*	1.09 (0.91–1.31)	1.09 (0.93–1.28)	1.02 (0.80–1.19)	0.99 (0.87–1.13)	1.02 (0.98–1.05)
Attempted suicide	0.89 (0.77–1.03)	0.89 (0.71–1.13)	*a*	**0.73 (0.61–0.87)**	0.98 (0.84–1.15)	0.91 (0.79–1.06)	0.92 (0.80–1.05)	**0.95 (0.92–0.98)**
Suicide attempt requiring medical treatment	0.72 (0.56–0.93)	*a*	*a*	0.64 (0.48–0.86)	0.75 (0.57–0.99)	0.82 (0.63–1.06)	0.85 (0.67–1.08)	**0.91 (0.86–0.96)**
High-risk substance use								
Lifetime illicit drug use	**0.82 (0.68–0.99)**	0.95 (0.70–1.29)	*a*	1.05 (0.83–1.33)	0.99 (0.82–1.21)	0.91 (0.76–1.09)	1.00 (0.85–1.18)	0.97 (0.93–1.01)
Lifetime prescription pain medicine misuse	1.13 (0.88–1.45)	*a*	*a*	1.40 (1.06–1.84)	1.06 (0.84–1.36)	1.36 (1.08–1.73)	0.95 (0.75–1.19)	1.07 (1.01–1.13)
Lifetime injection drug use	1.10 (0.73–1.40)	*a*	*a*	*a*	1.00 (0.73–1.39)	0.81 (0.60–1.09)	1.01 (0.76–1.33)	1.00 (0.94–1.07)

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Results in bold are significant at $p < 0.05$ with Holm-Bonferroni correction.

[a]Results were excluded due to case numbers below the required minimum of at least 10 for each independent variable in the model.[30]

aOR, adjusted odds ratio; CI, confidence interval.

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Table 6.

Regression Modeling of Lesbian, Gay, Bisexual, Transgender, and Questioning-Supportive School Policies and Practices Among Heterosexual Students

	Policies and practices							
	Gay/straight alliances	Safe spaces	Prohibit harassment	Professional development	HIV/STD testing and counseling	Social/psych services	LGBTQ-inclusive curricula	Sum of all variables
Outcomes	**aOR (95% CI)**							
Violence victimization								
Felt unsafe at, to, or from school	**0.77 (0.71–0.84)**	0.86 (0.76–0.98)	**0.66 (0.52–0.85)**	**0.79 (0.72–0.86)**	0.90 (0.83–0.98)	**0.88 (0.81–0.95)**	1.01 (0.93–1.08)	**0.96 (0.94–0.97)**
Threatened or injured with a weapon at school	**0.78 (0.71–0.86)**	1.01 (0.87–1.18)	0.85 (0.61–1.17)	0.88 (0.79–0.98)	0.96 (0.87–1.06)	1.00 (0.91–1.10)	0.92 (0.84–0.99)	0.98 (0.96–1.00)
Forced sex	**0.87 (0.80–0.96)**	**0.80 (0.70–0.92)**	0.76 (0.56–1.02)	0.92 (0.83–1.02)	0.95 (0.87–1.04)	0.95 (0.87–1.04)	0.98 (0.90–1.05)	0.98 (0.96–1.00)
Sexual dating violence	0.98 (0.87–1.10)	0.85 (0.71–1.01)	0.86 (0.60–1.23)	0.92 (0.81–1.05)	0.96 (0.86–1.08)	0.94 (0.84–1.05)	0.87 (0.79–0.95)	0.98 (0.96–1.00)
Physical dating violence	**0.86 (0.78–0.95)**	0.90 (0.77–1.05)	1.13 (0.79–1.62)	0.92 (0.82–1.03)	0.98 (0.88–1.09)	0.88 (0.80–0.97)	0.94 (0.86–1.02)	0.98 (0.95–1.00)
Bullying at school	0.96 (0.90–1.03)	1.02 (0.91–1.14)	1.08 (0.84–1.39)	0.95 (0.88–1.03)	1.03 (0.96–1.11)	1.07 (1.00–1.15)	1.02 (0.96–1.08)	1.00 (0.98–1.01)
Electronic bullying	0.94 (0.87–1.02)	0.98 (0.86–1.11)	0.84 (0.65–1.08)	0.95 (0.87–1.04)	1.01 (0.94–1.10)	1.03 (0.95–1.11)	0.99 (0.93–1.06)	1.00 (0.98–1.02)
Mental health								
Persistent feelings of sadness/ hopelessness	0.96 (0.91–1.01)	0.92 (0.85–1.00)	0.97 (0.81–1.16)	**0.91 (0.86–0.96)**	0.99 (0.93–1.04)	1.00 (0.95–1.05)	0.99 (0.95–1.04)	0.98 (0.97–1.00)
Suicide-related behaviors								
Seriously considered suicide	0.92 (0.86–0.99)	0.88 (0.79–0.98)	0.80 (0.64–1.01)	0.96 (0.89–1.04)	1.01 (0.94–1.09)	1.03 (0.96–1.10)	1.01 (0.95–1.07)	0.99 (0.98–1.01)
Made a suicide plan	**0.89 (0.82–0.96)**	0.98 (0.86–1.12)	0.95 (0.68–1.32)	0.93 (0.85–1.02)	0.96 (0.89–1.04)	0.97 (0.90–1.05)	1.01 (0.94–1.08)	1.00 (0.98–1.02)
Attempted suicide	**0.78 (0.72–0.84)**	0.90 (0.79–1.02)	0.97 (0.75–1.25)	0.94 (0.85–1.03)	1.05 (0.96–1.15)	0.95 (0.87–1.03)	0.92 (0.86–0.99)	0.98 (0.96–0.99)
Suicide attempt requiring medical treatment	**0.74 (0.63–0.86)**	0.75 (0.60–0.94)	0.74 (0.39–1.41)	0.95 (0.78–1.14)	1.01 (0.85–1.21)	0.84 (0.72–0.99)	0.93 (0.81–1.07)	0.98 (0.94–1.01)
High-risk substance use								
Lifetime illicit drug use	**0.86 (0.78–0.96)**	0.87 (0.74–1.03)	1.02 (0.64–1.64)	0.93 (0.83–1.05)	0.95 (0.85–1.06)	0.98 (0.89–1.08)	0.92 (0.84–1.01)	**0.97 (0.95–0.99)**
Lifetime prescription pain medicine misuse	0.97 (0.86–1.09)	1.08 (0.88–1.31)	0.88 (0.57–1.36)	0.96 (0.85–1.09)	0.94 (0.84–1.05)	1.03 (0.92–1.15)	0.90 (0.78–0.99)	0.98 (0.96–1.01)
Lifetime injection drug use	0.79 (0.65–0.98)	0.96 (0.71–1.31)	0.84 (0.41–1.73)	0.79 (0.64–0.97)	1.00 (0.81–1.24)	0.90 (0.74–1.10)	0.97 (0.81–1.16)	0.95 (0.91–0.99)

Results in bold are significant at $p < 0.05$ with Holm–Bonferroni correction.

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