



LGBQ Youth's Experiences of General and Bias-Based Bullying Victimization: the Buffering Role of Supportive School and Community Environments

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Abstract

Lesbian, gay, bisexual, queer, and questioning (LGBQ) adolescents experience large disparities in an array of health problems and bullying experiences. Supportive LGBTQ community and school climates may protect LGBQ youth from general and bias-based bullying victimization. We combined data from LGBQ respondents on the 2013 Minnesota Student Survey ($N = 2404$) with information on the presence of a GSA ($N = 79$ schools; 2014 School Health Profiles), and new data collection on a range of LGBTQ-supportive community indicators within a 15-min drive time around the school. Hierarchical logistic regressions assessed the role of community supportiveness, GSA presence, and prevalence of LGBQ peers on general and bias-based bullying victimization, adjusted for sociodemographic covariates. Results indicated that for birth-assigned females, attending a school with a GSA was related to lower odds of sexual orientation-based bullying and attending school in an area with more LGBTQ-supportive community resources predicted lower odds of sexual orientation- and weight/appearance-based bullying. Having more LGBQ peers was related to lower levels of race- and weight/appearance-based bullying for all LGBQ youth. These findings provide support for the assumption that more LGBTQ-supportive communities and schools protect against bias-based bullying, particularly for girls, but they are not related to general bullying. Expanding and strengthening supportive resources for LGBTQ youth in schools and communities and identifying protective factors for GBQ boys are recommended.

Keywords Bullying · Bias-based bullying · Community climate · GSA · Sexual orientation · Adolescence

Research has consistently documented that stigma, discrimination, and bias-based victimization underlie the persistent

health disparities experienced by lesbian, gay, bisexual, transgender, queer, and questioning (LGBTQ)¹ people compared to straight cisgender people (Birkett et al. 2015; Hendricks and Testa 2012; Meyer 2003). The nature and climate of the social environments in which LGBTQ people live are increasingly understood to be important indicators of these experiences of stigma and bias (Duncan et al. 2014; Hatzenbuehler et al. 2015; Hatzenbuehler et al. 2017; Oswald et al. 2010; Veale et al. 2017a, 2017b). Disparities in mental health, physical health, and health-compromising behaviors are seen among LGBTQ youth compared to straight cisgender youth (Eisenberg et al., 2017; Hatzenbuehler and Pachankis 2016; Institute of Medicine 2011; Marshal et al. 2011; Russell and Fish 2016; Veale et al. 2017a, 2017b). In fact, scholars have used representative datasets to document that many of these gaps in health between LGBQ and heterosexual youth have

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¹ Variation in the LGBTQ/LGBQ acronym reflects differences in the study sample being referenced.

widened in recent years (Fish et al. 2018; Watson et al. 2017; Watson et al. 2018).

Youth spend time in a range of social environments, most notably schools and neighborhoods, which can be sources of risk or resilience, depending on the climate. While a growing body of work has documented several best practices for schools in increasing the LGBTQ supportiveness of the climate and reducing bias-based bullying (e.g., bullying related to personal characteristics, such as sexual orientation, gender identity, weight and appearance, and race/ethnicity; Earnshaw et al. 2014; Flannery et al. 2016), less is known about the role of the broader community climate. Further, when considering bullying, very few studies have examined the roles of both school and community simultaneously. The current study aims to bridge this gap by examining how LGBQ students' experiences of general and bias-based bullying victimization are related to three potential sources of support: (1) LGBTQ-supportive environments (including LGBTQ-supportive community resources, political climate, and percent of same-sex couples around a school), (2) the presence of a GSA at the school, and (3) the prevalence of LGBQ peers.

LGBQ Youth, Minority Stress, and the Broader Social Environment

Two theoretical frameworks guide the current investigation: the minority stress model and the social ecological model. First, we use the minority stress model to contextualize bias-based bullying as a minority stressor experienced by LGBQ youth due to stigmatizing reactions from others to their sexual orientation (Meyer 2003). LGBQ youth navigate the typical stressors of adolescence in addition to minority stressors linked to their LGBQ identity. LGBQ youth are more likely than their straight peers to be the targets of general bullying, bullying based on their sexual orientation, and bullying based on a number of other characteristics (e.g., race, ethnicity, gender, weight/appearance; Bucchianeri, Gower, McMorris, & Eisenberg, 2016). Combined, these experiences can lead to emotional distress and other health consequences (Meyer 2003). Longitudinal scholarship supports the minority stress model, indicating that sexual orientation-based victimization mediates associations between LGBQ identity, emotional distress, and suicidality (Birkett et al. 2009; Birkett et al. 2015; Burton et al. 2013).

The experience of minority stress varies in part due to the supportiveness of the broader social environment in which youth live. The second framework guiding this study, the social ecological model (Bronfenbrenner 1979; Bruner et al. 2019; McLeroy et al. 1988), proposes multiple, overlapping layers of social influence that span interpersonal relationships outward, through organizations (e.g., schools, community groups, places of worship), broader

communities, public health, and policy. With respect to bias-based bullying, both the minority stress model and the social ecological model are relevant, as the extent to which LGBQ youth experience minority stress is hypothesized to relate, at least in part, to the LGBQ-supportiveness of their social environments. In particular, the minority stress model highlights how stress and stigma from overlapping layers of the social ecological model together influence health. In communities or schools that are more inclusive of LGBQ rights and people, one might expect exposure to stigma-based victimization to be lower and community/social support to be stronger when victimization does happen, promoting resilience. Below, we summarize recent research on the role of community supportiveness and GSAs in bullying involvement for LGBQ youth.

Supportive Community Climate and LGBQ Youth Bullying Victimization

Community climate refers to the sum of the messages and supports LGBQ people receive from various community sources (Oswald et al. 2010). These messages and supports may be formal (e.g., anti-discrimination policies, LGBTQ-inclusive organizations) or more informal (e.g., emanating from interpersonal interactions, visual cues including rainbows, LGBTQ-inclusive coffee shops; Eisenberg et al. 2018; Oswald et al. 2010; Wolowic et al. 2017). Communities vary widely on the amount of formal and informal LGBTQ-supportive resources they provide (Eisenberg et al. 2018).

Although some research has examined how the community climate for LGBQ adults and youth is related to emotional distress, suicidality, and substance use (Duncan et al. 2014; Eisenberg et al. 2019; Woodford et al. 2015), there is little work examining community climate as it relates to experiences of bullying in general, and bias-based bullying in particular. Using official records of hate crimes, Hatzenbuehler et al. (2015) found that LGBQ youth reported more relational and cyberbullying victimization when they lived in neighborhoods with more LGBTQ-related hate crimes. Beyond aspects of community climate specific to LGBTQ people, general community characteristics have also been associated with bullying victimization in this population. For example, LGBQ youth reported less sexual orientation-based bullying when they lived in areas with greater numbers of college-educated adults (Kosciw, Greytak, & Diaz, 2009). The socioeconomic status of an area was negatively related to sexual orientation- and gender expression-based bullying (Kosciw et al. 2009). Finally, the political climate of an area can be related to bullying experiences for young people, regardless of sexual orientation or gender identity. One study of Virginia school districts found increases in both general bullying and perceptions that sexual orientation-based bullying was a problem in

school districts where the Republican candidate for US president won in 2016 (Huang & Cornell, 2019). Together, these findings suggest that the role of community climate in the bullying experiences of LGBQ youth deserves further investigation.

Protective Effects of Gay-Straight/Gender and Sexuality Alliances

Gay-Straight Alliances (GSAs), also known as Gender-Sexuality Alliances or Acceptance Coalitions, are school-based groups designed to support LGBQ students. GSAs are typically led by youth, in conjunction with adults to varying degrees. Schools with GSAs tend to be larger, have staff with a longer teaching history, and a lower student to teacher ratio (Baams et al. 2018). A recent meta-analysis examining associations between GSAs and student victimization and safety found that LGBQ students in schools with GSAs had lower odds of sexual orientation-based victimization, fearing for their safety, and overhearing homophobic remarks than students in schools without GSAs (Day et al. 2019; Marx and Kettrey 2016).

The protective effects of GSAs are thought to arise from several functions of these groups. First, GSAs provide direct support and links to more formal resources for LGBQ students, helping them cope with both minority stressors, such as stigma and discrimination, as well as common challenges of adolescence, including navigating family, peer, and romantic relationship dynamics (Porta et al. 2017; Poteat et al. 2019). Second, GSAs can directly influence school climate by hosting awareness-raising events (e.g., Day of Silence) and advocating for administrative and policy changes (Poteat et al. 2015). Finally, the presence of a GSA may both reflect a more supportive school climate and indirectly influence LGBQ-supportive social norms for adults and students (Day et al., in press; Kosciw et al. 2009).

In addition to the presence of a GSA, the presence of LGBQ peers in school offers potential peer support in that setting. Our previous research has suggested that the percentage of the student body identifying as LGBQ was protective against emotional distress for girls (Eisenberg et al. 2016). Because GSAs are more common in schools with a larger group of LGBQ students, examining these separate constructs together will help disentangle their respective protective effects.

The Current Study

The current study aims to address several gaps in the literature reviewed above and extend that work. We combine data regarding community supportiveness, GSA presence, and

prevalence of LGBQ peers in the same study to examine their unique contributions to bullying victimization. In addition, our community measures include collecting new, youth-informed data on the LGBQ supportiveness of the communities in which youth live. We combine these measures with youth reports of seven different forms of bullying victimization, including both general and bias-based bullying. It is not clear in the extant literature whether higher levels of LGBQ supportiveness in schools and communities is linked to lower prevalence of general bullying (i.e., not based on bias) among LGBQ youth (Hong and Garbarino 2012), but this deserves exploration. We examined associations between three aspects of the social environment (LGBQ-supportive communities, the presence of a GSA, and the prevalence of LGBQ peers in school) and bullying victimization among LGBQ youth. We included three types of general bullying victimization (relational, physical, and cyber) and four types of bias-based bullying victimization (race/ethnicity-, gender-, sexual orientation-, and weight/appearance-based), which will allow for a better understanding of the specificity of associations between supportive environments and bullying for LGBQ youth. Given past work indicating that supportive environments may be more protective for LGBQ girls (Eisenberg et al. 2019; Konishi et al. 2013), we examined whether sex moderated associations between the supportiveness of the broader school and community environment and student reports of bullying for LGBQ youth.

Methods

Overview

Data come from Project RESPEQT (Research and Education on Supportive and Protective Environments for Queer Teens). This multilevel study merged data from three primary sources: (1) student-level data from the 2013 Minnesota Student Survey (MSS); (2) 2014 CDC School Health Profiles (Profiles); and (3) community data from the LGBQ-Supportive Environments Inventory (LGBQ SEI; Gower et al. 2019). Schools were included in the project by meeting three criteria: (1) participation in the 2013 MSS; (2) part of the random sample of secondary schools that completed the 2014 Profiles and answered the GSA question; (3) had at least ten students who completed the 2013 MSS and indicated that they were lesbian, gay, bisexual, or were questioning their sexual orientation. Out of 331 schools that participated in the MSS with 9th and/or 11th graders, 79 (23.9%) schools met the three criteria above and are included in the present sample. The Institutional Review Board at the University of Minnesota determined that this analysis of anonymous data was exempt from IRB review.

Student-Level Data

The Minnesota Student Survey is a triennial surveillance survey designed to assess a broad range of health, risk, and protective factors among students in Minnesota. The survey was offered to all districts in the state, and in 2013, 84% of school districts participated. Although 5th, 8th, 9th, and 11th graders complete the survey, analyses for this paper were restricted to 9th and 11th graders because relevant questions were not included in the 5th and 8th grade versions of the survey. In total, 4960 students identified as LGBQ in the full MSS; 2404 (48.5% of LGBQ MSS respondents) were included in analyses for this paper, based on the above inclusion criteria. Passive parental consent procedures were used, in keeping with state law. The MSS team deletes approximately 2% of surveys that are missing data on key variables (e.g., grade) or that indicate a pattern of exaggerated (e.g., used five kinds of tobacco products on all 30 days of the past month), implausible (e.g., attended seven different after-school activities every day), or inconsistent (e.g., three or more instances of marking both yes and no to the same behavior, such as no alcohol use in the past 30 days but binge drinking in the past 30 days) responses.

Sexual orientation was assessed via identity (“How do you describe yourself?”) and behavior items (number of partners of each sex with whom participants report having “sexual intercourse”). Students were included in our LGBQ sample if they indicated their sexual orientation as “gay or lesbian,” “bisexual,” or “not sure (questioning)” or if they indicated their sexual orientation as “heterosexual (straight)” and also reported sexual intercourse with at least one same-sex partner in the past year. Students reported their grade (9th/11th), assigned sex (“What is your biological sex?” male/female), and whether they received free/reduced price lunch (yes/no). Two questions assessing race and ethnicity were combined to yield six mutually exclusive categories: non-Hispanic (NH) American Indian; NH Asian, Hawaiian, or Pacific Islander; NH Black; NH White; NH Multiracial; Latinx.

Students reported on a number of types of bullying victimization by other students in the past 30 days; many items were based on the California Health Kids Survey (California Department of Education (Safe and Healthy Kids Program Office) and West Ed (Health and Human Development Department), 2015). All questions used a five-category frequency response scale (never; once or twice; about once a week; several times a week; every day), and responses were dichotomized at about once a week or more vs. never/once or twice. Relational bullying victimization included two items assessing whether other students had “spread mean rumors or lies about you” and “excluded you from friends, other students or activities.” Physical bullying victimization items assessed two types of behavior: “pushed, shoved, slapped, hit, or kicked you when they weren’t kidding around” and “threatened to beat you up.” One question assessed

cyberbullying victimization: “how often have you been bullied through e-mail, chatrooms, instant messaging, websites, or texting?” Finally, four questions assessed bias-based bullying relevant to this study. Students were asked to report how often in the last 30 days “students harassed or bullied you for any of the following reasons.” Specific characteristics included “race, ethnicity, or national origin;” “gender (being male or female);” “because you were gay or lesbian or because someone thought you were;” and “weight or physical appearance.”

School and Community Data

In 2014, 250 schools serving at least one grade between 6th and 12th grade completed the School Health Profiles Survey (70% of invited schools). Principals reported on the presence or absence of a GSA or similar club, which was defined as “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.” Of the 79 schools in our sample that answered this question, 25 (32%) had a GSA. Additionally, student survey responses were aggregated to the school level to describe the percent of students taking the MSS who were LGBQ ($M = 8.7\%$; $SD = 3.1$; range 3.1–16.1). This provided an estimate of the availability of LGBQ peers. Finally, school location was categorized as rural ($n = 6$; 7.6%), small town ($n = 24$; 30.4%), suburban ($n = 22$; 27.8%), or urban ($n = 27$; 34.2%), in keeping with location codes from the National Center for Education Statistics.

Fifteen-minute drive time buffers were drawn around each school using the “Create Drive Time Areas” tool in ArcGIS Online (Esri 2018). The tool uses a proprietary model to estimate how far an average vehicle can travel while obeying applicable traffic laws. Within each buffer, five aspects of the community were quantified. The first three were collected using the LGBTQ SEI, a manual-based internet searching protocol to quantify the supportiveness of the broader community for LGBTQ youth including (1) the number of LGBTQ-inclusive community resources (e.g., coffee shops, advocacy organizations, mental health providers, and houses of worship); (2) the number and quality of organizations that provide at least one service exclusively to LGBTQ youth (e.g., LGBTQ youth drop-in hour, exclusively-focused LGBTQ youth organization); (3) the availability of LGBTQ-focused events (i.e., Pride, PFLAG, Transgender Day of Remembrance, and an anti-LGBTQ bullying event); (4) American Community Survey 5-year estimates of the percent of same-sex headed households for 2010–2014 within the 15-min community buffer (Manson et al. 2017; range 0.03–0.91%); (5) the percent of voters within a 15-min buffer who voted in the 2012 election against a Minnesota constitutional amendment to limit marriage to a man and a woman was calculated (Office of the Minnesota Secretary of State Steve Simon 2012; range 26.1–70.4%). These five scores were

submitted to a principal components analysis (PCA) in our previous work and demonstrated acceptable factor structure. As a result, a standardized factor score was extracted from these variables for use in analyses ($M = 0$; $SD = 1$, range -1.2 – 3.1). Additional community-level data details are provided elsewhere (Gower et al. 2019).

Analysis Plan

Descriptive statistics for key study variables at the individual, school, and community levels were examined. Because students were nested in schools/communities, hierarchical (two level) logistic regressions with a random intercept for school were conducted to examine associations of interest while accounting for this nesting. Since community buffers were drawn around each school, both school GSA and community supportiveness were both entered at level two in hierarchical regressions. We examined bivariate associations between each bullying measure and the three primary level two independent variables: the community support factor score, presence of a GSA, and the percent of LGBQ students in the school. Additional models tested these three independent variables simultaneously. We then estimated models entering each of these three predictors and their two-way interactions with assigned sex, controlling for sociodemographic variables (grade, race/ethnicity, free/reduced price lunch participation, and school location type). Because no interaction between percent of LGBQ students and assigned sex were significant, this interaction term was removed from the final analyses. When interaction terms were significant or marginally significant ($p < .10$), analyses were stratified by assigned sex and re-estimated to probe significant effects. Because missing data for fully controlled analyses were well below 10%, ranging from 3.99 to 5.53%, we used complete case analysis. All analyses were conducted using Stata v15 (Stata Corp, 2017) and an alpha level of .05.

Results

Descriptive statistics are provided in Table 1. The LGBQ sample was somewhat more likely to be assigned female (54.0%) than male at birth and be in 9th (55.4%) compared to 11th grade. Nearly 64% of students identified as non-Hispanic white, and just over a third received free/reduced price lunch (36.4%). Relational bullying victimization was the most prevalent form (29.5%), with physical, weight/appearance-based, and sexual orientation-based bullying each reported by approximately 15% of youth. Race- and gender-based bullying victimization were the least prevalent (7.0% and 5.6%, respectively).

Bivariate analyses revealed very few significant associations between school and community support and student

experiences of bullying victimization (Table 2). Only the association between the community factor score and relational bullying victimization was statistically significant ($OR = .89$; 95% CI [.80, .99]), with a non-significant trend also noted for sexual orientation- ($OR = .90$; 95% CI [.79, 1.02]) and weight/appearance-based bullying ($OR = .89$; 95% CI [.78, 1.01]). In each case, students attending schools in communities with greater LGBTQ supportiveness as measured by the community factor score had lower odds of bullying victimization compared to those living in less supportive communities.

In adjusted models, patterns emerged demonstrating significant moderation of the protective effect of both community support and GSA presence by assigned sex (Table 3). Specifically, in models where community support and GSA presence were significantly associated with lower odds of bullying victimization, they were protective only for girls. For example, LBQ girls attending schools with GSAs had lower odds of sexual orientation-based bullying than girls attending schools without GSAs (adjusted $OR(aOR) = .63$; 95% CI [.42, .94]), in contrast to GBQ boys, for whom no significant association was found ($aOR = 1.14$; 95% CI [.80, 1.64]). Similarly, greater community support was protective against sexual orientation- and weight/appearance-based bullying for girls ($aOR = .67$, 95% CI [.42, .93]; $aOR = .64$; 95% CI [.48, .84], respectively) but not for boys ($aOR = 1.09$; 95% CI [.83, 1.42]; $aOR = 1.21$; 95% CI [.91, 1.59], respectively). For both relational and cyberbullying victimization, the interaction between community support and assigned sex was significant or near-significant. However, when stratified by assigned sex, odds ratios for the association between community support and these forms of victimization were not significant for either girls or boys. For the presence of LGBQ peers in school, each additional percent was significantly associated with lower odds of race- and weight/appearance-based bullying in the full sample ($aOR = .94$, 95% CI [.88, .99]; $aOR = .96$, 95% CI [.92, .99], respectively).

Discussion

This study examined the role of LGBTQ-supportive community and school climate, operationalized in this study as LGBTQ-supportive resources within 15 min of the school, the presence of a GSA, and the presence of LGBQ peers in school, on experiences of general and bias-based bullying among LGBQ youth. Findings indicated that LBQ girls attending schools with a GSA reported less sexual orientation-based bullying than LBQ girls attending schools without GSAs. Similarly, LBQ girls attending schools with more supportive community climates had lower odds of sexual orientation- and weight/appearance-based bullying than those in communities with less supportive climates. These resources were not protective for

Table 1 Analytic sample description

	All N (%)	Males (<i>n</i> = 1061) <i>n</i> (%)	Females (<i>n</i> = 1259) <i>n</i> (%)
Grade (<i>N</i> = 2320)			
9th	1286 (55.4)	555 (52.3)	731 (58.1)
11th	1034 (44.6)	506 (47.4)	528 (41.9)
Race/ethnicity (<i>N</i> = 2320)			
American Indian/Alaskan Native, NH	41 (1.8)	22 (2.1)	19 (1.5)
Asian/Pacific Islander, NH	168 (7.2)	68 (6.4)	100 (7.9)
Black, African, or African American, NH	161 (6.9)	86 (8.1)	75 (6.0)
White, NH	1480 (63.8)	686 (64.7)	794 (63.1)
Multiracial, NH	257 (11.1)	105 (9.9)	152 (12.1)
Hispanic or Latinx	213 (9.2)	94 (8.9)	119 (9.5)
Free/reduced price lunch (<i>N</i> = 2320)			
Yes	844 (36.4)	341 (32.1)	503 (40.0)
No	1476 (63.6)	720 (67.9)	756 (60.0)
Type of victimization, past 30 days			
Relational bullying victimization (<i>n</i> = 2297)	677 (29.5)	244 (23.3)	433 (34.6)
Physical bullying victimization (<i>n</i> = 2297)	351 (15.3)	190 (18.2)	161 (12.9)
Cyberbullying victimization (<i>n</i> = 2308)	215 (9.3)	99 (9.4)	116 (9.2)
Race-based bullying victimization (<i>n</i> = 2302)	160 (7.0)	94 (9.0)	66 (5.3)
Gender-based bullying victimization (<i>n</i> = 2271)	128 (5.6)	62 (6.0)	66 (5.3)
Sexual orientation-based victimization (<i>n</i> = 2284)	323 (14.1)	174 (16.8)	149 (12.0)
Weight/appearance-based victimization (<i>n</i> = 2289)	360 (15.7)	133 (12.8)	272 (18.2)

GBQ boys. A greater presence of LGBTQ peers was related to lower levels of race/ethnicity- and weight/appearance-based bullying for all LGBTQ youth. Together, these findings suggest that LGBTQ-supportive community and school climates can protect LGBTQ youth, particularly girls, from bias-based bullying but not general bullying.

LGBTQ girls, in particular, had lower odds of bias-based bullying victimization when they lived in communities with more supportive LGBTQ climates. We extend previous research demonstrating that LGBTQ students report less emotional distress and substance use when they live in communities that are more supportive of LGBTQ people (Eisenberg et al.

Table 2 Odds ratios [95% confidence intervals] from hierarchical logistic regressions examining associations between school and community support and each form of bullying victimization

	Relational bullying victimization	Physical bullying victimization	Cyberbullying victimization	Race-based bullying	Gender-based bullying	Sexual orientation-based bullying	Weight/ appearance-based bullying
Predictors entered in separate regressions							
GSA	.88 (.71, 1.09)	.81 (.61, 1.08)	.90 (.67, 1.22)	1.16 (.82, 1.64)	1.18 (.83, 1.69)	.89 (.69, 1.14)	.89 (.69, 1.14)
Community factor	.89 (.80, .99)	1.07 (.94, 1.23)	1.00 (.86, 1.17)	1.08 (.91, 1.28)	1.12 (.94, 1.34)	.90 [†] (.79, 1.02)	.89 [†] (.78, 1.01)
Percent LGBTQ	.99 (.96, 1.03)	1.01 (.97, 1.06)	1.00 (.95, 1.06)	.96 (.90, 1.02)	.99 (.93, 1.05)	1.00 (.96, 1.04)	.98 (.94, 1.02)
Predictors entered simultaneously							
GSA	.87 (.71, 1.08)	.81 (.61, 1.08)	.90 (.67, 1.22)	1.15 (.83, 1.61)	1.19 (.83, 1.70)	.88 (.69, 1.13)	.88 (.69, 1.13)
Community factor	.90 (.81, .99)	1.08 (.94, 1.23)	1.02 (.88, 1.17)	1.09 (.92, 1.29)	1.14 (.96, 1.36)	.90 (.80, 1.02)	.90 [†] (.80, 1.02)
Percent LGBTQ	.99 (.96, 1.03)	1.01 (.96, 1.05)	1.00 (.95, 1.05)	.96 (.90, 1.02)	.99 (.93, 1.05)	1.00 (.96, 1.04)	.98 (.94, 1.02)

Italic ORs are significant at $p < .05$

[†] $p < .10$

Table 3 Adjusted odds ratios [95% CIs] from hierarchical logistic regressions entering school and community predictors simultaneously, controlling for covariates

	Relational bullying victimization	Physical bullying victimization	Cyberbullying victimization	Race-based bullying	Gender-based bullying	Sexual orientation-based bullying	Weight/appearance-based bullying
Female	<i>1.86 (1.47, 2.36)</i>	<i>.67 (.50, .90)</i>	<i>1.12 (.86, 1.47)</i>	<i>.49 (.32, .76)</i>	<i>1.01 (.63, 1.64)</i>	<i>.84 (.63, 1.14)</i>	<i>1.55 (1.16, 2.09)</i>
GSA	<i>.93 (.69, 1.26)</i>	<i>.90 (.63, 1.28)</i>	<i>.84 (.53, 1.31)</i>	<i>.99 (.63, 1.56)</i>	<i>1.15 (.67, 1.96)</i>	<i>1.12 (.80, 1.58)</i>	<i>.89 (.60, 1.32)</i>
GSA × sex	<i>ns</i>	<i>ns</i>	<i>ns</i>	<i>ns</i>	<i>ns</i>	<i>.57 (.34, .96)</i>	<i>ns</i>
Male						<i>1.14 (.80, 1.64)</i>	
Female						<i>.63 (.42, .94)</i>	
Community Factor	<i>1.08 (.89, 1.30)</i>	<i>1.17 (.94, 1.47)</i>	<i>1.12 (.86, 1.47)</i>	<i>.91 (.67, 1.23)</i>	<i>1.26 (.91, 1.75)</i>	<i>1.00 (.80, 1.26)</i>	<i>1.06 (.84, 1.33)</i>
Comm. factor × sex	<i>.78 (.64, .95)[†]</i>	<i>ns</i>	<i>.78 (.57, 1.05)[†]</i>	<i>ns</i>	<i>ns</i>	<i>.73 (.56, .95)</i>	<i>.66 (.52, .85)</i>
Male	<i>1.06 (.84, 1.34)</i>		<i>1.05 (.76, 1.46)</i>			<i>1.09 (.83, 1.42)</i>	<i>1.21 (.91, 1.59)</i>
Female	<i>.84 (.68, 1.05)</i>		<i>.94 (.67, 1.31)</i>			<i>.67 (.42, .93)</i>	<i>.64 (.48, .84)</i>
% LGBQ	<i>.99 (.96, 1.03)</i>	<i>.98 (.94, 1.03)</i>	<i>1.01 (.96, 1.07)</i>	<i>.94 (.88, .999)</i>	<i>.99 (.93, 1.06)</i>	<i>1.00 (.96, 1.05)</i>	<i>.96 (.92, .998)</i>
Grade	<i>.79 (.72, .87)</i>	<i>.70 (.62, .80)</i>	<i>.89 (.77, 1.03)</i>	<i>.83 (.70, .99)</i>	<i>.95 (.79, 1.14)</i>	<i>.84 (.74, .94)</i>	<i>.79 (.71, .90)</i>
Race/ethnicity							
American Indian, NH	<i>1.66 (.86, 3.20)</i>	<i>1.51 (.67, 3.43)</i>	<i>1.31 (.49, 3.48)</i>	<i>3.08 (1.14, 8.32)</i>	<i>1.96 (.67, 5.78)</i>	<i>1.07 (.44, 2.63)</i>	<i>2.10 (1.00, 4.38)</i>
Asian/Pacific Islander, NH	<i>.48 (.31, .75)</i>	<i>.84 (.50, 1.41)</i>	<i>1.12 (.62, 2.04)</i>	<i>2.43 (1.29, 4.55)</i>	<i>.93 (.45, 1.95)</i>	<i>.82 (.48, 1.41)</i>	<i>1.05 (.65, 1.69)</i>
Black, NH	<i>1.44 (.999, 2.09)[†]</i>	<i>2.56 (1.70, 3.85)</i>	<i>2.30 (1.41, 3.73)</i>	<i>5.28 (3.13, 8.88)</i>	<i>1.33 (.68, 2.59)</i>	<i>1.54 (.97, 2.45)[†]</i>	<i>1.62 (1.04, 2.53)</i>
White, NH	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Multiracial, NH	<i>.99 (.73, 1.34)</i>	<i>1.06 (.72, 1.57)</i>	<i>1.03 (.64, 1.68)</i>	<i>2.74 (1.67, 4.50)</i>	<i>.83 (.44, 1.57)</i>	<i>1.31 (.90, 1.90)</i>	<i>1.39 (.98, 1.98)[†]</i>
Latinx	<i>.96 (.69, 1.33)</i>	<i>1.68 (1.14, 2.47)</i>	<i>1.36 (.83, 2.22)</i>	<i>3.58 (2.15, 5.95)</i>	<i>.99 (.52, 1.89)</i>	<i>1.16 (.76, 1.78)</i>	<i>1.08 (.71, 1.65)</i>
Free/reduced price lunch	<i>1.15 (.94, 1.41)</i>	<i>1.19 (.92, 1.53)</i>	<i>.99 (.72, 1.35)</i>	<i>1.00 (.70, 1.43)</i>	<i>1.07 (.72, 1.58)</i>	<i>.91 (.69, 1.18)</i>	<i>1.32 (1.03, 1.69)</i>
Location							
Rural	<i>.72 (.46, 1.13)</i>	<i>.58 (.32, 1.07)</i>	<i>.45 (.22, .92)</i>	<i>.74 (.34, 1.63)</i>	<i>.98 (.41, 2.32)</i>	<i>.82 (.45, 1.50)</i>	<i>.96 (.56, 1.62)</i>
Town	<i>.96 (.70, 1.33)</i>	<i>.71 (.46, 1.09)</i>	<i>.75 (.47, 1.20)</i>	<i>.91 (.51, 1.61)</i>	<i>1.12 (.60, 2.12)</i>	<i>1.09 (.72, 1.65)</i>	<i>.79 (.53, 1.16)</i>
Suburban	<i>.94 (.71, 1.25)</i>	<i>.96 (.66, 1.39)</i>	<i>.45 (.29, .71)</i>	<i>.79 (.46, 1.35)</i>	<i>1.04 (.58, 1.87)</i>	<i>.88 (.62, 1.27)</i>	<i>.68 (.48, .95)</i>
Urban	Ref	Ref	Ref	Ref	Ref	Ref	Ref

Controlling for grade, assigned sex, race/ethnicity, free/reduced price lunch qualification, and school location

ns non-significant

Italic results are significant at p < .05

[†] *p < .10*

2019; Hatzenbuehler et al. 2015; Hatzenbuehler and Pachankis 2016). More inclusive social climates may communicate fewer stigmatizing messages to young people and provide more supportive, tangible resources, ultimately protecting LGBQ youth from bias-based bullying victimization. Understanding bias-based bullying in the broader social and stigma-related contexts in which it occurs requires a shift in prevention and intervention strategies (Payne and Smith 2013). This is particularly true given that LGBQ youth did not report less general bullying when they were part of more supportive schools and communities in this study. Reducing these complex bullying disparities for LGBQ youth will require both stopping general bullying behavior and attending to the broader LGBTQ-related messages and supports within the social climate. These findings support efforts to improve both school and community climates, focusing on LGBTQ inclusion and supportiveness as one piece of a broad prevention solution.

That communities and GSAs were protective for girls and not boys may also extend previous research showing that a number of health disparities may be widening for lesbian and bisexual girls, but not gay and bisexual boys (Fish et al. 2018; Watson et al. 2017, 2018). That is, disparities are narrowing for GBQ boys in recent years, so it may be the case that the effects of supportive climates are especially strong for LGBQ girls but not boys. Further research incorporating socio-environmental factors with change in disparities over time for girls and boys is warranted. Additionally, formative and qualitative research is necessary to understand the ways in which the social environment, both at school and in the community, can support GBQ boys' healthy development.

LGBQ girls attending schools with GSAs reported lower odds of sexual orientation-based bullying victimization. This finding is consistent with research demonstrating that GSAs can be protective (Marx and Kettrey 2016; Saewyc, Konishi, Rose, & Homma, 2014). In our study, the reach of GSAs appears to be specific to sexual orientation-based bullying victimization and did not extend to other forms of general or bias-based bullying, even though prior evidence indicates that LGBQ youth are disproportionately harassed about a variety of personal characteristics (e.g., race; Bucchianeri et al., 2016). Given that many GSAs focus on advocacy activities related to sexual orientation and general LGBTQ education, this is perhaps not surprising. However, it is important to note that there is variation in both the activities of GSAs and the match between the activities offered and needs of individual LGBQ students (Calzo et al. 2019; Poteat et al. 2015) that often goes unmeasured, including in this study. This deserves future investigation.

Other aspects of schools, such as anti-bullying policies that specifically list sexual orientation and gender identity/expression (i.e., enumerated policies) have been associated with lower levels of bullying victimization for LGBTQ youth (Day et al., in press; Hall 2017). However, state law in Minnesota requires that all

anti-bullying policies contain these enumerated elements. Therefore, we focused on the presence of a GSA, as these groups provide support for LGBQ youth, increase feelings of safety, and contribute to the school climate (Li, Wu, Marshall, Watson, Adjei, Park, & Saewyc, 2019; Poteat et al. 2015). Future studies should examine the implementation of enumerated anti-bullying policies, particularly where variation in the actual policies is lacking due to state statutes. Implementation of these policies varies widely and may be more closely tied to student reports of bullying than the presence or absence of the policy.

The only social factor we examined that was protective for LGBQ youth regardless of assigned sex was a greater prevalence of LGBQ peers on race- and weight/appearance-based bullying. Unfortunately, we were unable to determine the extent to which participants' social networks included other LGBQ peers or whether they found these peers supportive. Thus, the mechanism for this protective effect is unclear. It is possible that the availability or visibility of peer support was sufficient. On the other hand, these peers may be providing direct social support.

Of note, LGBQ youth in Minnesota are more racially, ethnically, and socioeconomically diverse than their straight, cisgender peers in the state. However, LGBTQ-supportive climates and GSAs did not protect against race-based bullying for LGBQ students. Numerous factors outside the scope of this paper may be related to the ways in which LGBQ youth of color experience bias-based bullying and receive (or do not receive) support from the school and community contexts, given their experiences with intersecting systems of oppression (e.g., heterosexism, racism, sexism; Crenshaw 1994; Haines-Saah et al. 2016). For example, LGBQ youth of color may vary in how they ascribe intention to bias-based bullying acts, with many factors influencing whether an ambiguous experience of bullying is considered related to race and ethnicity; sexual orientation; both; or some other characteristic (Daley et al. 2008). Furthermore, LGBQ youth of color, in particular, may not experience the same types of support from LGBTQ-supportive organizations and GSAs that white LGBQ youth do (Craig et al. 2018; Higa et al. 2014). Additional research exploring the ways intersecting systems of oppression influence the well-being and bullying experiences of LGBQ youth of color is critical for protecting the health of all LGBQ youth.

Strengths and Limitations

This study has a number of strengths. Chief among them are the large, school-based sample of LGBQ youth, numerous measures of general and bias-based bullying victimization, and the combination of data from different sources at multiple levels of analysis. These characteristics provide advantages compared to small, convenience samples because most youth attend schools, which are an important avenue for prevention and intervention delivery.

However, it is also important to note that these school-based surveys may have under-counted LGBQ youth, who are more likely to miss school or drop out than their straight peers (Birkett et al. 2014; Kosciw et al. 2015). As such, they may be an underestimate of the true effects. An additional strength is the combination of publicly available data to quantify the school and community environments with student reports of bullying experiences. This approach avoids shared method variance that exists when students also report on their perceptions of their environments. Finally, our community measures were derived in part from interviews with LGBQ youth, adding to the relevance of these measures.

Still, several limitations exist. Community support was assessed through publicly available data that appeared in internet searches. In communities where LGBQ-supportive resources were shared via word-of-mouth or non-public sources, we likely underestimated this support. Power in multilevel models is derived primarily from the number of level two units ($n = 79$ schools). As such, confidence intervals were wide, and analyses were underpowered to detect smaller effects. These data are correlational, and causation cannot be inferred. However, for several predictors, particularly at the community buffer level, it is more likely that the direction of effects is from the community to the student level, rather than the reverse. For example, it is less likely that student experiences of bullying drive area voting patterns; rather, it is more likely that voting patterns, and the climate they reflect, influence LGBQ students' experiences of bullying. However, additional quasi-experimental research is needed to verify these statements.

Future Research Directions

Bias-based bullying is rooted in stigma. Our findings indicate that LGBQ students, particularly girls, attending schools and living in communities that are more supportive of LGBQ people reported less bias-based bullying. However, these effects did not extend to general bullying. This paper supports the minority stress model, demonstrating the additional stressors LGBQ youth experience in environments where there is less support for their sexual orientation. The presence of a GSA in school and more accepting community resources and sociopolitical climates protect LGBQ girls, in particular, from bias-based bullying. However, more work is needed both to understand what protects against disparities in general bullying for LGBQ youth and to identify specific protective factors for LGBQ youth against bias-based bullying victimization, who also experience persistent health disparities stemming in part from experiences of bias-related victimization. In studies with a greater number of schools, examining community and school climate as predictors of the extent of disparities in bullying between LGBQ and straight youth will also inform our understanding of the way in which the social environment may be related to bullying experiences.

Implications for Practice

Reducing bullying victimization for LGBQ youth is critical to reducing health disparities in this population. Cultivating LGBQ-inclusive schools and communities is one way to reduce bias-based bullying victimization, particularly for girls. Schools can establish GSAs if not already present; these groups often conduct awareness and education events as well as advocate within the school for LGBQ issues. Further, programs that focus specifically on bias-based bullying may be needed, in addition to general bullying prevention programs, to address stigma present within schools and communities (Earnshaw et al. 2017, 2018). Of note, we did not find that LGBQ-supportive schools or communities protected LGBQ youth from general bullying victimization. Research has not yet examined whether general bullying prevention programs that do not address bias reduce bullying victimization among LGBQ youth (Earnshaw et al. 2017), but it is likely that changing interpersonal and structural stigma will be difficult (Hatzenbuehler and Pachankis 2016). Programs to cultivate LGBQ-supportive communities and provide supportive LGBQ school resources may create climates that reduce bias-based bullying and better support LGBQ youth, particularly girls.

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Compliance with Ethical Standards

Ethical Approval The Institutional Review Board at the University of Minnesota determined that this analysis of existing anonymous data was exempt from IRB review.

Conflict of Interest The authors declare that they have no conflicts of interest.

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