

# Gay–Straight Alliances: A Mechanism of Health Risk Reduction Among Lesbian, Gay, Bisexual, Transgender, and Questioning Adolescents

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**Introduction:** Adolescents who identify as a sexual or gender minority are vulnerable to multiple health disparities because of stigma-based peer harassment. Given that sexual and gender minority adolescents may be bullied for several stigmatized identities that may exacerbate health risk, it is important to examine factors that can simultaneously reduce multiple forms of targeted victimization among sexual and gender minority adolescents. This study examines whether variation in health risk across sexual and gender minority adolescents who attend schools with versus without a gay–straight alliance can be explained by lessened bias-based bullying across a broad scope of stigmatized identities and attributes.

**Methods:** Data on school-based gay–straight alliances, bias-based bullying, and health risk indicators were collected from the LGBTQ National Teen Survey ( $n=17,112$ ; mean age=15.57 [SD=1.27] years) and analyzed in 2019. Multiple mediation analysis was conducted using latent variable structural equation modeling.

**Results:** The majority (73%) of sexual and gender minority adolescents were bullied for stigmatized identities other than those related to their gender or sexual orientation. Compared to schools without a gay–straight alliance, student reports of multiple forms of bias-based bullying (based on body weight, gender, religion, disability, gender typicality, sexual orientation) were lower at schools with gay–straight alliances, which in turn attenuated adverse health outcomes (i.e., stress, sleep problems, depression, and unhealthy weight control behaviors).

**Conclusions:** Sexual and gender minority adolescents experience multiple forms of bias-based bullying, which independently heighten health risk, and this study extends previous work on gay–straight alliances to highlight a wider range of potential positive contributions to adolescent health.

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## INTRODUCTION

Health behaviors established during adolescence set the stage for long-term health outcomes and contribute to life-course health disparities.<sup>1</sup> This is particularly salient among youth who identify as a sexual or gender minority (SGM)—who are vulnerable to multiple health disparities.<sup>2,3</sup> As early as middle school, SGM adolescents are at a heightened risk for suicidality,<sup>3</sup> depression,<sup>3</sup> sleep troubles,<sup>4</sup> and eating disorders<sup>5</sup>—risks that have been accounted for in part by the social stigma of their sexual and gender

identities.<sup>6</sup> However, comparatively little is known about how mistreatment related to other stigmatized identities and attributes (e.g., based on body weight, race/ethnicity, religion, disability status) contributes to SGM adolescent

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health. Given the potential of schools to cultivate broad-reaching climates of acceptance that support healthy outcomes,<sup>7</sup> this study extends existing research to shed light on the breadth of stigma reduction associated in particular with school-based gay—straight/gender—sexuality alliances (GSAs). Specifically, this investigation examines whether GSA presence at school contributes to lower levels of bias-based bullying across a range of stigmatized identities and attributes and in turn attenuates adverse health outcomes (i.e., depression, sleep, stress, and unhealthy weight control behaviors) among a large, diverse national sample of SGM adolescents.

Growing evidence underscores the importance of a safe and supportive school climate for the health of SGM youth.<sup>8,9</sup> Studies of GSAs (i.e., inclusive school-based organizations that bring together SGM youth and supportive non-SGM peers to address stigma and prejudice), in particular, have documented promising health outcomes for youth, regardless of whether students are GSA members themselves. For example, Poteat et al.<sup>10</sup> found that youth in Wisconsin schools with a GSA reported less smoking, drinking, and suicide attempts than those in schools without a GSA. Although all youth, regardless of sexual orientation, exhibited more positive health outcomes at schools with GSAs, the effects were particularly strong for lesbian, gay, bisexual, transgender, and questioning (LGBTQ) youth,<sup>10</sup> and do not appear to be fleeting. Indeed, reports of alcohol use, depression, and general psychological distress are lower among LGBT young adults who attended high schools with a GSA compared to those who attended high schools without a GSA.<sup>11</sup>

Although the underlying mechanisms linking GSAs to health status have yet to be explored, increasing evidence points to a reduction in peer mistreatment. For example, meta-analytic data indicate that SGM-based victimization is less common in schools with a GSA than in those without a GSA,<sup>12</sup> and that victimization, in turn, can “get under the skin” in ways that compromise health,<sup>13</sup> especially when victimization is bias-based.<sup>14</sup> The minority stress model, in particular, suggests heightened consequences for victimization that reinforces the stigmatization of one’s identity.<sup>15</sup> Indeed, sexuality-based bullying is more strongly associated with depression and suicidality than generalized bullying.<sup>16</sup>

However, SGM youth are also vulnerable to other forms of peer victimization beyond those targeting their sexual and gender identities. In fact, recent findings indicate that sexual minority adolescents are disproportionately targets of both weight- and disability-based harassment from peers,<sup>17</sup> each of which independently compromises health.<sup>14,18</sup> Despite increased recognition that adolescents may have multiple stigmatized

identities,<sup>19</sup> no research to the authors’ knowledge has examined the relative contributions of other forms of bias-based bullying on the health of SGM adolescents. Moreover, given that the co-occurrence of multiple forms of bias-based bullying can compound health risk,<sup>20,21</sup> it is critical to understand whether mechanisms of inclusion at school may be able to reduce simultaneously multiple types of targeted victimization. In other words, SGM-related health disparities may persist without efforts to identify mechanisms that also reduce other forms of bias-based bullying in addition to victimization targeting gender and sexual orientation.

To address this significant gap in research, this study explores how health risk varies across SGM adolescents who attend schools with versus without a GSA and whether such variation is related to experiences of bias-based bullying. Extending previous studies linking GSAs to less LGBTQ bullying,<sup>12</sup> multiple forms of bias-based bullying (i.e., based on body weight, gender, race/ethnicity, religion, disability, gender typicality, and sexual orientation) are assessed, each of which is expected to contribute uniquely to adolescents’ health outcomes. Presuming that the social acceptance fostered by GSAs might spill over to cultivate a broadly inclusive school climate, GSA presence at school is expected to be associated with lower levels of each type of bias-based bullying and in turn attenuate health risk among SGM adolescents (i.e., lower levels of depression, sleep problems, stress, and unhealthy weight control behaviors). Along with assessing links between GSAs and depression, which have been examined previously,<sup>11,22</sup> this study focuses on additional health indicators of sleep (i.e., difficulty falling asleep), weight control behaviors, and stress, which are relevant to both short- and long-term adolescent health.<sup>23–25</sup>

## METHODS

### Study Sample

Data for this study came from a large national web-based survey of SGM adolescents (LGBTQ National Teen Survey).<sup>26</sup> At the time of the study, all participants (aged 13–17 years) were living in the U.S., spoke English, and identified as LGBTQ. A total of 29,291 adolescents began the survey. The final analytic sample ( $n=17,112$ ; mean age=15.57, SD age=1.27) excluded those who screened ineligible (e.g., outside the age range;  $n=8,985$ ), completed <10% of the survey ( $n=3,006$ ), or were flagged in post hoc mischievous responder’s sensitivity analyses.<sup>26</sup>

The IRB of University of Connecticut approved the study. Participants were recruited in partnership with the Human Rights Campaign (HRC) through social media outlets (Facebook, Twitter, Instagram, Snapchat, and Reddit), HRC’s network of community partners, and with the assistance of social influencers in the LGBTQ community. Adolescents interested in the survey began after reading the information about the study’s purpose and

procedures and after accepting the study conditions and giving assent (a waiver of parental consent was obtained from the IRB). To compensate for participation, adolescents could choose to enter a raffle for a random drawing of gift cards and were offered HRC wristbands. Data were collected online from April to December in 2017 and analyzed in 2019. Additional information describing the details of data collection, screening procedures, recruitment, and sample composition are reported elsewhere.<sup>26</sup>

## Measures

Several demographic variables were controlled for in these analyses, along with relevant covariates, including disability status, BMI, and disclosure of SGM identity to classmates (i.e., outness). Participants reported their sex at birth (male or female), in addition to their current gender identity (male, female, transgender male, transgender female, nonbinary, genderqueer, or something else). Gender identity was dichotomized as cisgender (i.e., youth who reported natal sex at birth concordant with their gender identity; e.g., a male assigned at birth who identified as a cisgender male) or transgender (i.e., youth who reported a natal sex at birth discordant with their gender identity; e.g., a male assigned at birth who identified as transgender or nonbinary).<sup>26</sup> To assess sexual orientation, participants selected from the following series of response options: *gay or lesbian*, *bisexual*, *straight*, *queer*, *pansexual*, *asexual*, *questioning*, and *other* (e.g., demisexual). Ethnicity was self-reported and represented by 4 dummy variables (African American, Latino, Asian, or other ethnicities) using white students (the largest ethnic group in the sample) as the reference group. Participant's age and parental level of education were also included in the analyses.

In addition, the analyses controlled for self-reported disability status (0=no disability, 1=disability) and BMI percentile (mean=65.50, SD=30.49), which was determined using the Centers for Disease Control growth charts based on height, weight, age, and sex (i.e., participants' self-reported sex assigned at birth). Finally, outness to classmates was assessed by asking participants how many classmates they think know of their sexual orientation currently. A binary indicator was created to compare students reporting that no (17%) versus at least 1 (83%) classmate know of their sexual orientation.

Participants self-reported whether their school had a GSA (0=no, 1=yes).

To assess experiences of bias-based bullying, adolescents were asked how often, on a 5-point scale (0=never to 4=very often), they are teased or treated badly by other students at school for each of the following reasons: body weight, gender, race/ethnicity, sexuality, religion, disability, and gender typicality.

The following 4 health risk outcome variables were assessed: self-reported depression, sleep problems, unhealthy weight control behaviors, and stress. To assess depression, 10 items were adapted from Kutcher's Adolescent Depression Scale<sup>27</sup> (mean=1.35, SD=0.75,  $\alpha=0.90$ ). Sleep problems were assessed by asking participants to indicate how often they had trouble getting to sleep (mean=2.15, SD=1.19; scale: 0 [never] to 4 [always]), and stress was assessed by self-reported average level of stress (mean=6.47, SD=1.96) using a scale of 1 (not at all stressed) to 10 (very stressed).<sup>28</sup> 9 items from Project EAT (a longitudinal cohort study examining eating and activity behaviors in ethnically and socioeconomically diverse young people)<sup>29</sup> were used to measure

unhealthy weight control behaviors (e.g., vomiting, using laxatives, smoking) that adolescents engaged in during the past year on a scale of 0 (never) to 3 (on a regular basis) (mean=0.50, SD=0.48,  $\alpha=0.79$ ).

## Statistical Analysis

Latent variable structural equation modeling was used to test the relationships among the study constructs in Mplus, version 8.0. Full information maximum likelihood estimation methods were used for missing data. Confirmatory factor analysis was conducted to evaluate factorial validity of the latent health risk construct before building the structural equation model. Following recommended procedures,<sup>30</sup> all "a" paths (i.e., each type of bias-based bullying on GSA presence) and "b" paths (i.e., health risk on each type of bias-based bullying) were estimated simultaneously while accounting for covariates. The Model Constraint command was used to estimate the indirect effect of GSAs on health risk through each type of bias-based bullying (c').

## RESULTS

Table 1 summarizes sample demographic characteristics. A total of 63% of adolescents reported attending schools with a GSA. In addition to the means and SDs, intercorrelations among the continuously modeled variables are depicted in Table 2. Although the indicators of bias-based bullying all captured targeted victimization, they were only slightly to moderately correlated (range=0.13–0.55), suggesting that

**Table 1.** Sample Characteristics (n=17,112)

Variable	n (%)
Sex	
Male	4,739 (27.7)
Female	12,373 (72.3)
Ethnicity	
White	10,225 (61.9)
African American	952 (5.8)
Latino	1,877 (11.4)
Asian	677 (4.1)
Other	2,797 (16.8)
Gender identity	
Cisgender	11,475 (67.1)
Transgender	5,637 (32.9)
Sexual orientation	
Gay or lesbian	6,401 (37.4)
Bisexual	5,970 (34.9)
Straight	279 (1.6)
Pansexual	2,256 (13.2)
Queer	699 (4.1)
Asexual	725 (4.2)
Questioning	424 (2.5)
Other	358 (2.1)

**Table 2.** Means, SDs, and Intercorrelations Among Continuously Modeled Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
(1) Weight-based bullying	—													
(2) Gender-based bullying	<b>0.29</b> <sup>***</sup>	—												
(3) Race/ethnicity-based bullying	<b>0.23</b> <sup>***</sup>	<b>0.19</b> <sup>***</sup>	—											
(4) Religion-based bullying	<b>0.23</b> <sup>***</sup>	<b>0.26</b> <sup>***</sup>	<b>0.20</b> <sup>***</sup>	—										
(5) Disability-based bullying	<b>0.23</b> <sup>***</sup>	<b>0.28</b> <sup>***</sup>	<b>0.13</b> <sup>***</sup>	<b>0.22</b> <sup>***</sup>	—									
(6) Gender typicality-based bullying	<b>0.33</b> <sup>***</sup>	<b>0.45</b> <sup>***</sup>	<b>0.19</b> <sup>***</sup>	<b>0.23</b> <sup>***</sup>	<b>0.23</b> <sup>***</sup>	—								
(7) Sexuality-based bullying	<b>0.39</b> <sup>***</sup>	<b>0.43</b> <sup>***</sup>	<b>0.21</b> <sup>***</sup>	<b>0.27</b> <sup>***</sup>	<b>0.24</b> <sup>***</sup>	<b>0.55</b> <sup>***</sup>	—							
(8) Depression	<b>0.33</b> <sup>***</sup>	<b>0.33</b> <sup>***</sup>	<b>0.17</b> <sup>***</sup>	<b>0.17</b> <sup>***</sup>	<b>0.26</b> <sup>***</sup>	<b>0.27</b> <sup>***</sup>	<b>0.30</b> <sup>***</sup>	—						
(9) Sleep problems	<b>0.22</b> <sup>***</sup>	<b>0.22</b> <sup>***</sup>	<b>0.11</b> <sup>***</sup>	<b>0.13</b> <sup>***</sup>	<b>0.17</b> <sup>***</sup>	<b>0.19</b> <sup>***</sup>	<b>0.19</b> <sup>***</sup>	<b>0.52</b> <sup>***</sup>	—					
(10) Stress	<b>0.21</b> <sup>***</sup>	<b>0.23</b> <sup>***</sup>	<b>0.09</b> <sup>***</sup>	<b>0.13</b> <sup>***</sup>	<b>0.16</b> <sup>***</sup>	<b>0.18</b> <sup>***</sup>	<b>0.20</b> <sup>***</sup>	<b>0.50</b> <sup>***</sup>	<b>0.28</b> <sup>***</sup>	—				
(11) Unhealthy weight control behaviors	<b>0.38</b> <sup>***</sup>	<b>0.29</b> <sup>***</sup>	<b>0.17</b> <sup>***</sup>	<b>0.18</b> <sup>***</sup>	<b>0.20</b> <sup>***</sup>	<b>0.24</b> <sup>***</sup>	<b>0.28</b> <sup>***</sup>	<b>0.47</b> <sup>***</sup>	<b>0.29</b> <sup>***</sup>	<b>0.25</b> <sup>***</sup>	—			
(12) BMI percentile	<b>0.24</b> <sup>***</sup>	<b>0.05</b> <sup>***</sup>	<b>0.04</b> <sup>***</sup>	<b>0.02</b> <sup>*</sup>	<b>0.03</b> <sup>***</sup>	−0.01	<b>0.02</b> <sup>*</sup>	<b>0.10</b> <sup>***</sup>	<b>0.07</b> <sup>***</sup>	<b>0.04</b> <sup>***</sup>	<b>0.20</b> <sup>***</sup>	—		
(13) Parental level of education	−0.12 <sup>***</sup>	−0.03 <sup>***</sup>	−0.09 <sup>***</sup>	−0.01	−0.01	−0.08 <sup>***</sup>	−0.10 <sup>***</sup>	−0.14 <sup>***</sup>	−0.08 <sup>***</sup>	−0.02	−0.14 <sup>***</sup>	−0.11 <sup>***</sup>	—	
(14) Age	−0.03 <sup>***</sup>	−0.07 <sup>***</sup>	−0.02 <sup>*</sup>	−0.02 <sup>*</sup>	−0.02	−0.02	−0.07 <sup>***</sup>	−0.07 <sup>***</sup>	−0.11 <sup>***</sup>	<b>0.02</b> <sup>*</sup>	−0.01	−0.04 <sup>***</sup>	−0.03 <sup>***</sup>	—
Mean	1.16	1.01	0.55	0.52	0.35	1.45	1.52	1.35	2.15	6.47	0.50	65.50	4.19	15.57
SD	1.21	1.20	0.95	0.97	0.85	1.32	1.28	0.75	1.19	1.96	0.48	30.49	1.59	1.27

Note: Boldface indicates statistical significance (\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ ).

they are related, but distinct constructs. The intercorrelations also revealed each type of bias-based bullying to be associated with the health risk indicators.

Across the present sample of SGM adolescents, 91% reported at least 1 experience of bias-based bullying—more than double estimates in predominantly non-SGM samples (36%–40%).<sup>14</sup> Moreover, 73% reported experiences of bias-based bullying other than those related to their gender or sexual identities (e.g., based on disability, race/ethnicity, religion, body weight). Table 3 presents the rates of each type of bias-based bullying, broken down by ethnicity and sex. Bullying based on sexual orientation (68%), gender typicality (63%), and weight (57%) were most common, with more than half of the sample reporting at least 1 instance of each of the aforementioned, followed by gender-based (48%), race/ethnicity-based (30%), religion-based (27%), and disability-based (17%) bullying. Bullying based on race/ethnicity was reported as less common among white students, and bullying based on gender was reported less frequently among male students.

To evaluate factorial validity for the health risk latent variable, confirmatory factor analysis was conducted first. Multiple fit indices suggested a good measurement model (chi-square[2]=6.34,  $p=0.04$ ; standardized root mean square residual=0.01; comparative fit index=0.99; Tucker-Lewis index=0.99; root mean square error of approximation [RMSEA]=0.01; RMSEA CI=0.00, 0.03). The mediation model in turn showed acceptable fit (chi-square[91]=3,695.60,  $p < 0.001$ ; standardized root mean square residual=0.03; RMSEA=0.05; RMSEA CI=0.047, 0.049), with all factor loadings  $> 0.50$ . As shown in Figure 1, after accounting for the covariates (i.e., sex, gender, sexual orientation, ethnicity, disability status, BMI, parental level of education, age, and outness to classmates), the presence of a GSA at school was associated with less weight- ( $\beta = -0.07$ ,  $p < 0.001$ ), gender- ( $\beta = -0.02$ ,  $p = 0.019$ ), religion- ( $\beta = -0.08$ ,  $p < 0.001$ ), disability- ( $\beta = -0.03$ ,  $p < 0.001$ ), gender typicality- ( $\beta = -0.06$ ,  $p < 0.001$ ), and sexuality-based ( $\beta = -0.09$ ,  $p < 0.001$ ) bullying. In addition, each type of bias-based bullying was positively related to health risk (weight:  $\beta = 0.21$ ,  $p < 0.001$ ; gender:  $\beta = 0.05$ ,  $p = 0.001$ ; race/ethnicity:  $\beta = 0.05$ ,  $p < 0.001$ ; religion:  $\beta = 0.03$ ,  $p = 0.001$ ; disability:  $\beta = 0.04$ ,  $p = 0.016$ ; gender typicality:  $\beta = 0.10$ ,  $p < 0.001$ ; and sexuality:  $\beta = 0.15$ ,  $p < 0.001$ ). The total effect of GSA on health risk was significant such that presence of a GSA at school was related to reduced health risk ( $\beta = -0.06$ ,  $p < 0.001$ ). Tests of indirect effects revealed significant indirect paths from GSA presence to health risk for each type of bias-based bullying (weight:  $b = -0.019$ ,  $p < 0.001$ ; gender:  $b = -0.001$ ,  $p = 0.051$ ; religion:  $b = -0.004$ ,  $p = 0.003$ ; disability:  $b = -0.002$ ,  $p = 0.042$ ; gender

**Table 3.** Percentage of Adolescents Reporting at Least 1 Instance of Each Type of Bias-Based Bullying

Bias-based bullying	Total sample, (%)	White, (%)		African American, (%)		Latino, (%)		Asian, (%)		Other ethnic, <sup>a</sup> (%)	
		Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Weight-based	57	58	53	49	53	60	56	43	54	63	55
Gender-based	48	58	23	40	22	56	21	50	26	61	27
Race/ethnicity-based	30	14	15	57	62	63	52	77	66	59	55
Sexuality-based	68	68	76	47	74	66	71	52	65	67	74
Religion-based	27	28	23	22	19	27	16	28	21	31	25
Disability-based	17	19	11	12	9	16	6	12	11	24	11
Gender typicality-based	63	59	76	57	82	60	75	52	71	61	73

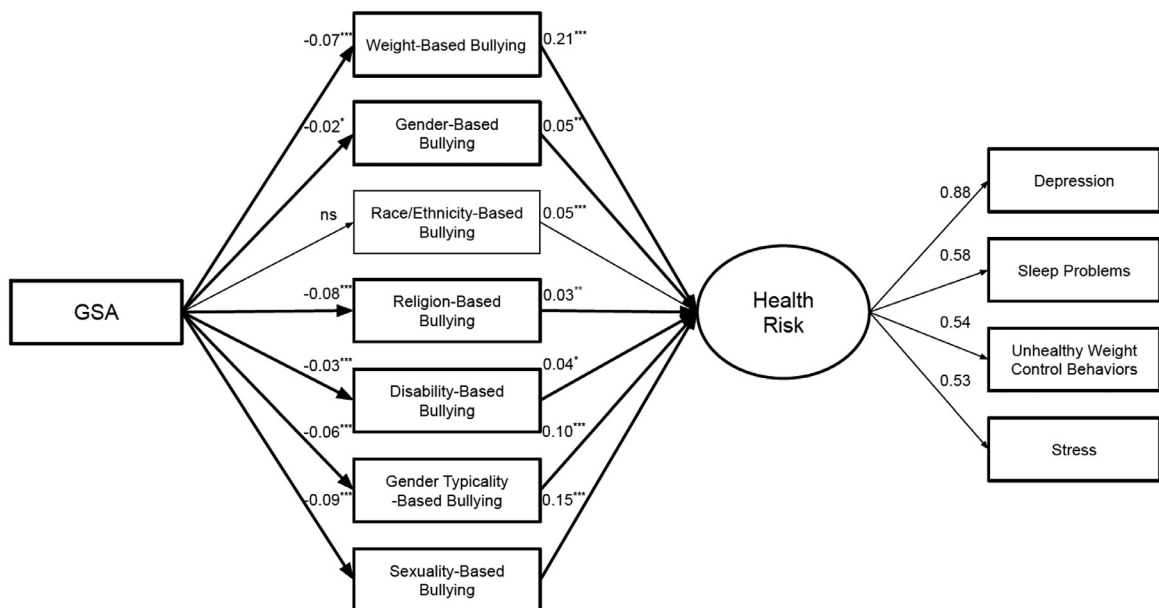
<sup>a</sup>Other ethnic refers to adolescents who self-reported an ethnic group other than the 4 pan-ethnic groups.

typicality:  $b = -0.008, p < 0.001$ ; and sexuality:  $b = -0.018, p < 0.001$ , with the exception of race/ethnicity (for which the “a” path was nonsignificant). Thus, the association between GSAs and reduced health risk can be partially accounted for by lower levels of multiple forms of bias-based bullying.

**DISCUSSION**

These findings extend prior research on GSAs to highlight a wider range of potential positive contributions to adolescent health. Expanding the breadth of health effects beyond mental health<sup>22</sup> and substance use,<sup>10</sup> the

results show how GSAs also contribute to lower levels of stress, sleep problems, and unhealthy weight control behaviors among SGM youth and shed light on potential mechanisms underlying such associations. Specifically, in addition to reductions in LGBTQ-related victimization from peers at school, these findings indicate that GSAs are related to reductions in bullying across a broad scope of other stigmatized identities and attributes such as weight, religion, and disability. This is important not only because SGM youth may possess multiple stigmatized identities for which they are bullied but also because each type of bias-based bullying was found to be a unique health risk factor, even after accounting for



**Figure 1.** Standardized coefficients for model testing mediation of GSA presence, bias-based bullying, and health risk. Note: Bolded lines indicate significant indirect effects. All paths control for sex, gender, sexual orientation, ethnicity, disability status, BMI, parental level of education, age, and outness to classmates. Chi-square (91)=3,695.60,  $p < 0.001$ ; SRMR=0.03; RMSEA=0.05; RMSEA CI=0.047–0.049. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ . GSA, gay–straight alliance; ns, not significant; RMSEA, root mean square error of approximation; SRMR, standardized root mean square residual.

relevant covariates (i.e., participants' age, sex, ethnicity, gender identity, sexual identity, disability status, parental level of education, BMI, and outness to classmates).

These results provide novel insights that underscore school-based bullying, especially victimization targeting personal attributes and identities, as a significant health concern. In particular, depression, stress, sleep trouble, and unhealthy weight control behaviors were found to be elevated among SGM adolescents who experienced more frequent bias-based bullying. Moreover, these associations were persistent across each form of targeted peer mistreatment. Although more negative outcomes have been documented for youth experiencing multiple, as opposed to 1, type of bias-based bullying,<sup>21</sup> to the authors' knowledge, this investigation is among the first to examine the relative contributions of bullying based on multiple specific identities and attributes to adolescent health. Comparison across standardized coefficients revealed that weight-based bullying was most strongly linked to adverse health, followed by sexuality-based bullying. The high degree of perceived controllability surrounding body weight<sup>31</sup> may intensify feelings of self-blame after weight-based mistreatment in ways that tax physical and psychological health.<sup>32</sup> Given that the health consequences of weight-based victimization in adolescence persist into adulthood<sup>18</sup> and that sexual minority youth are disproportionately targeted,<sup>17</sup> it will be important for future studies to examine how weight-based mistreatment may contribute to life-course SGM health disparities.<sup>2,3</sup>

This study shows that the documented social challenges facing SGM youth go beyond those tied to their sexual and gender identities. In fact, most of the adolescents (73%) in the current sample were bullied for identities and attributes unrelated to their gender or sexual orientation. Specifically, more than half of the SGM youth in the sample reported experiencing weight-based bullying, and almost a third were victimized because of their race/ethnicity and religious affiliation. Thus, rather than adhering to a one-size-fits-all approach by considering bias-based bullying related to a single social identity (e.g., sexual orientation *or* disability *or* religion), it is critical to recognize that adolescents may experience multiple forms of targeted harassment that each independently exacerbate health risk. As such, identifying mechanisms to increase inclusion and acceptance overall (as opposed to targeting specific groups) may be a more comprehensive and effective approach to reducing the multiple forms of bias-based bullying that SGM youth face.

Supporting recent calls for schools to take proactive steps to promote inclusion,<sup>7</sup> these findings highlight GSAs in particular as a potential mechanism of stigma

reduction across a wide range of social identities that place youth at risk for bullying. More work is needed to determine the nature of this relationship, including potential reasons why GSAs may reduce multiple forms of bias-based bullying. One possible explanation is a "diffusion of inclusion" effect, where schoolwide acceptance of SGM youth through GSAs fosters a broadly inclusive school climate that spills over to increase acceptance of those possessing other stigmatized identities or attributes (e.g., high body weight). Support for GSAs affecting the overall school climate comes from studies showing that all students, regardless of sexual orientation, are better adjusted in schools with versus without GSAs.<sup>10</sup>

### Limitations

Several limitations of this study should be noted. First, this investigation is cross-sectional; therefore, causation cannot be inferred. In addition, there may be fundamental differences between schools with and without GSAs contributing to the health risks that were not assessed in this study. For example, evidence suggests that GSAs are more common in schools with a greater proportion of students from higher socioeconomic backgrounds<sup>10</sup> who are at a health advantage.<sup>33</sup> Future multilevel studies that take into account school-level (e.g., anti-bullying policies) and community-level (e.g., political orientation) differences could help tease apart GSA effects from other contextual characteristics. Second, GSA membership was not assessed, instead only GSA presence at school was. Investigating whether individual differences in GSA involvement (e.g., membership duration and engagement) offer additional health benefits beyond GSA presence will be important to examine in future research.

In addition, despite a large, diverse sample of SGM adolescents, these findings cannot be generalized to those who do not utilize or have access to online networks where HRC advertised the study. Also, as gender identity was dichotomized because of the complexity of the analytic models, the authors were unable to disentangle nuances in the associations between GSAs and bias-based bullying across diverse gender minorities, particularly nonbinary or genderqueer youth who may not self-identify as transgender but were classified as such in this paper. Finally, all measures in this study were self-reported by adolescents. Thus, it will be important to replicate these findings with objective assessments such as peer nominations of victimization and physiologic assessment of health indices (e.g., actigraphy to measure sleep and cortisol levels to capture stress). Furthermore, BMI was calculated on the basis of self-reported data (height, weight, age, and sex assigned at

birth), and given increasing discussion regarding BMI guidelines that are gender-inclusive,<sup>34</sup> future research should be cognizant of changes for measurement of BMI among transgender youth if new guidelines emerge.

## CONCLUSIONS

This study highlights that the social challenges negatively affecting the health of SGM adolescents extend beyond those related to their sexual and gender identities. In considering approaches to mitigate health risk, increased attention is needed toward the wide range of bias-based bullying experienced by SGM adolescents. Given the breadth of stigma reduction across multiple social identities, school-based GSAs represent a promising avenue to support healthy outcomes for SGM youth.

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LML, RMP, and RJW conceived of the study, participated in analysis and interpretation of the data, and helped to draft the manuscript. RMP and RJW were principal investigators on the larger project from which the present analyses were conducted. All the authors read and approved the final manuscript.

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