



Bias-Based Bullying and School Adjustment among Sexual and Gender Minority Adolescents: The Role of Gay-Straight Alliances

Leah M. Lessard¹ · Ryan J. Watson² · Rebecca M. Puhl^{1,2}

Received: 3 December 2019 / Accepted: 24 January 2020

© Springer Science+Business Media, LLC, part of Springer Nature 2020, corrected publication 2020

Abstract

Adolescents identifying as sexual and/or gender minorities face many challenges at school due to stigma-based peer harassment. This study examined the extent to which sexual and gender minority adolescents experience bias-based bullying across a range of stigmatized identities and attributes, as well as the potential of gay-straight alliances (GSAs, also referred to as gender-sexuality alliances) to reduce simultaneously multiple forms of bias-based bullying, and in turn support school adjustment. Using a United States sample of diverse sexual and gender minority adolescents ($N = 17,112$; $M_{age} = 15.57$, $SD_{age} = 1.27$), multiple mediation analyses indicated lower levels of multiple forms of bias-based bullying (based on body weight, gender, religion, disability, gender typicality, sexuality) at schools with versus without GSAs, and in turn higher perceived school safety, as well as higher grades and reduced school suspension (due to less weight- and sexuality-based bullying). The findings shed light on the broad-reaching stigma-reduction potential of GSAs.

Keywords Bias-based bullying · School adjustment · Gay-straight alliances · Sexual gender minority · Adolescence

Introduction

Schooling experiences are often compromised for adolescents with stigmatized identities and attributes (e.g., sexual minorities, youth with high body weight). At a time when social and academic adjustment are highly intertwined (Juvonen and Wentzel 1996), stigma-based mistreatment by peers can have significant educational costs during adolescence. This is particularly relevant among youth who identify as sexual and/or gender minorities, as they experience frequent peer harassment in the school setting (Kosciw et al. 2018) and are at heightened risk for academic difficulties, including underachievement (Pearson et al. 2007), truancy (Aragon et al. 2014) and expulsion

(Himmelstein and Brückner 2011). On top of bullying related to their sexual and gender identities, sexual and gender minority adolescents contend also with other targeted forms of victimization (e.g., Puhl et al. 2019) likely to compound school-related risk. Given that academic struggles during adolescence can contribute to economic (Oreopoulos and Salvanes 2011) and physical health (Arendt 2005) inequalities in adulthood, the current study aims to understand pathways to support the schooling success of sexual and gender minority adolescents and shed light on the potential of schools to mitigate simultaneously a wide range of bias-based bullying (i.e., based on body weight, race/ethnicity, gender, religion, disability, gender typicality, sexuality). Extending existing research on the psychological (Heck et al. 2013) and health-related (Poteat et al. 2013) benefits of gay-straight/gender-sexuality alliances (GSAs), the current study provides insight into the breadth of stigma-reduction associated with school-based GSAs. Specifically, this investigation examines whether GSA presence at school is associated with lower levels of bias-based bullying across a range of stigmatized identities and attributes, and is related in turn to school adjustment (i.e., perceptions of school safety, academic grades, suspension rates) among a large, diverse national sample of sexual and gender minority adolescents.

✉ Leah M. Lessard
leah.lessard@uconn.edu

¹ Rudd Center for Food Policy & Obesity, University of Connecticut, One Constitution Plaza, Suite 600, Hartford, CT 06103, USA

² Department of Human Development and Family Sciences, University of Connecticut, 348 Mansfield Road, U-1058, Storrs, CT 06269, USA

Bullying and School-Related Adjustment

Although experiencing harassment, bullying, or exclusion is stressful across all stages of development, the consequences of peer victimization may be particularly harmful during adolescence (Graham and Bellmore 2007; Troop-Gordon 2017) – when concern for peer acceptance is heightened (Blakemore and Mills 2014) and sensitivity to social rejection peaks (Sebastian et al. 2010). As such, for adolescents victimized or bullied by their peers, school can be an unpleasant context. Bullying, in particular, is a formidable stressor (Juvonen and Graham 2014) that can significantly compromise adolescents' ability to do well in school (Nakamoto and Schwartz 2010). Indeed, students who are bullied often by their classmates not only like school less (Ladd et al. 2017), but are also more frequently absent and receive lower grades (Juvonen et al. 2000). While such academic problems can be explained in part by victims' heightened psychological (Juvonen et al. 2000) and physical (Nishina et al. 2005) distress, victimization can also directly affect cognitive resources by diverting attention away from schoolwork toward immediate safety needs (Schwartz et al. 2005).

Compared to generalized bullying, victimization targeting specific stigmatized identities – bias-based bullying – can be even more detrimental to adolescents' school adjustment (Russell et al. 2012). For example, Russell et al. (2012) found that over and above general harassment at school, adolescents who reported bias-based harassment (e.g., based on sexual orientation, race/ethnicity) were more likely to be truant and receive lower grades (i.e., mostly Cs or below). Although the mechanisms underlying the academic consequences of bias-based bullying have yet to be tested, it is likely that when youth are victimized for an internal, stable, and uncontrollable characteristic (e.g., sexual orientation), they blame themselves for the mistreatment in ways maladaptive to school success (cf. Graham and Juvonen 1998). Moreover, from a minority stress perspective (Meyer 2003), victimization targeting a stigmatized identity may have added consequences beyond generalized bullying insofar as it devalues one's identity and calls attention to marginalized status. Poorer school-related outcomes among youth with stigmatized identities or attributes are therefore likely to be more reflective of targeted harassment rather than individual academic deficits.

Bias-Based Bullying and School Adjustment among Sexual and Gender Minority Adolescents

Multiple studies indicate that sexual and gender minority adolescents experience both greater school-based peer harassment and poorer academic adjustment compared to their non-sexual and gender minority classmates. A national study, for example, found that 9 out of 10 lesbian, gay, bisexual, and

transgender (LGBT) students in the U.S. are subjected to negative comments at school (Kosciw et al. 2008). Such mistreatment is in turn likely to take a toll on school adjustment and help account for lower grades (Pearson et al. 2007), feelings of school unsafety (Kosciw, Greytak, Zongrone, Clark, & Truong, 2018), and disproportionate disciplinary infractions (i.e., expulsion; Himmelstein and Brückner 2011). Yet, while it is often presumed that sexual and gender minority adolescents' gender and sexual identities account for their heightened social and in turn academic problems, no studies to date have considered how mistreatment targeting other diverse identities may contribute to the school-related outcomes of sexual and gender minority adolescents.

This gap in the literature is significant given increased recognition that adolescents may have multiple stigmatized identities (Ghavami and Peplau 2018). Moreover, recent empirical evidence indicates that sexual and gender minority youth are disproportionately targets of weight-based and disability-based bullying from peers (Bucchianeri et al. 2016), which each independently compromise school adjustment (Krukowski et al. 2009; Russell et al. 2012). In addition, a national study in the U.S. found that over a quarter of LGBQ students reported being victimized at school based on their race/ethnicity, disability and religion (Kosciw et al. 2018). Given the academic toll associated with bias-based bullying (Russell et al. 2012), it is therefore important to investigate mechanisms that reduce not only bullying targeting gender and sexual orientation, but also peer mistreatment based on other stigmatized identities and attributes.

Gay-Straight (Also Commonly Known as 'Gender-Sexuality') Alliances

Based on existing evidence, it is presumed that GSAs may provide a unique mechanism to reduce simultaneously multiple forms of bias-based bullying, and in turn school maladjustment among sexual and gender minority adolescents. A growing body of work has recognized GSAs to facilitate healthy development among sexual and gender minority youth. Although studied most often in the context of psychological (Heck et al. 2013) and health (Poteat et al. 2013) adjustment, there is also evidence that GSAs support positive school outcomes for sexual and gender minority students. Rare prospective data, for example, indicate that gaining a GSA at school predicted greater perceived safety among LGBQ adolescents one year later (Ioverno et al. 2016). In addition, qualitative accounts of LGBT high school students document improved academic performance and school belonging as a function of GSA membership (Lee 2002). Moreover, regardless of whether youth were GSA members themselves, Walls et al. (2010) found that LGBQ students in schools with GSAs were less likely to drop out or miss school than those without a GSA at school.

Although the underlying mechanisms linking GSAs to academic adjustment have yet to be explored, increasing evidence points to a reduction in peer victimization. For example, LGBTQ students who attend schools with a GSA report less frequent victimization related to their sexual orientation and gender expression (Kosciw et al. 2018). However, given that all students – regardless of sexual orientation – are better adjusted in schools with, than without, GSAs (Poteat et al. 2013), it may be that the inclusion orientation of GSAs fosters a broader-reaching climate of social acceptance. Indeed, overall reports of peer victimization are lower at schools with GSAs than without (Goodenow et al. 2006). Not only does the presence of a GSA send a top-down message of acceptance by school administration, but uniting together sexual and gender minority students and their non-sexual and gender minority peers over a shared common goal (akin to cooperative learning paradigms; Roseth et al. 2008) to address social inequality provides a unique opportunity for diverse perspective taking. Building on this idea, recent evidence suggests GSAs can foster self-efficacy to address racial inequality (Chong et al. 2019), as well as social justice issues more broadly (Poteat et al. 2019). The extent to which GSAs may reduce the stigma, and in turn mistreatment, related to other social identities and attributes, however, is unknown.

Current Study

Given that sexual and gender minority adolescents are vulnerable to multiple forms of bias-based bullying that may adversely affect school-related adjustment, the present investigation aimed to assess the potential of GSAs to reduce simultaneously victimization across a range of stigmatized identities and in turn support positive school outcomes during the adolescent years – a period when bias-based bullying is likely to increase (Palmer and Abbott 2018) and the stakes associated with achievement rise (Rumberger and Rotermund 2012). The current study extends previous research linking GSAs to lower levels of general victimization (Goodenow et al. 2006) and sexual and gender minority-specific victimization (Kosciw et al. 2018), by assessing multiple forms of bias-based bullying (i.e., based on body weight, gender, race/ethnicity, religion, disability, gender typicality, sexual orientation), and considering their relative and unique contributions to school-related adjustment (i.e., school safety, academic grades, school suspension). Specifically, this investigation compares how school adjustment varies across sexual and gender minority youth who attend school with versus without a GSA, and whether such variation is related to experiences of bias-based bullying across a range of stigmatized identities and attributes. Presuming that the inclusion facilitated by GSAs might spill over to foster an overall

more accepting social climate, it was hypothesized that GSA presence at school would be related to lower levels of each type of bias-based bullying, and in turn more positive school adjustment for sexual and gender minority adolescents (i.e., higher school safety, academic grades, and lower likelihood of suspension). This mediation sequence, structured based on theoretical precedence (e.g., Ioverno et al. 2016), is tested among a large, diverse sample of sexual and gender minority adolescents which, in addition to greater generalizability, also provides insight into demographic differences in bias-based bullying and school adjustment.

Method

Participants

Data for this study came from a large national web-based survey of sexual and gender minority adolescents (*LGBTQ National Teen Survey*; Watson et al. 2019), comprising a battery of questionnaires to assess victimization, health, family relationships and school experiences (hosted by Qualtrics.com). All participants (ages 13–17 years) identified as LGBTQ, spoke English, and were currently living the U.S. In total, 29,291 adolescents began the survey. The final analytic sample ($N=17,112$) excluded those who screened ineligible (e.g., outside the age range; $n=8985$), completed less than 10% of the survey ($n=3006$), or were flagged in post hoc mischievous responder's sensitivity analyses (for more information regarding these procedures, see Watson et al. 2019). Self-reported ethnicity revealed the sample to be 62% White, 11% Latino/a, 6% African American, 4% Asian, and 17% from other ethnic groups. Taking into account sex assigned at birth and gender identity, participants were 43% cisgender female, 24% cisgender male, 21% transmasculine/non-binary, 8% transgender male/boy, 3% transfeminine/non-binary, and 1% transgender female/girl. Just over a third of the sample identified as gay/lesbian (38%), 35% identified as bisexual, 2% identified as heterosexual and 26% of the sample identified as something else (e.g., pansexual, asexual).

Procedure

The study was approved by the authors' Institutional Review Board (IRB). Recruitment was conducted in partnership with the Human Rights Campaign (HRC) through social media outlets (Twitter, Facebook, Instagram, Reddit, and Snapchat), HRC's comprehensive network of community partners, and with the assistance of social influencers in the LGBTQ community who shared the survey link on their social media profiles. Although recruitment materials clearly targeted sexual and gender minority adolescents, there was no mention of

victimization or academic experiences in recruitment language. Interested adolescents could only begin the survey after reading information about the study's purpose and procedures on the front page of the survey website, and after they had accepted the study conditions and given assent to participate (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. All data collection was conducted online from April to December in 2017. Additional details describing data collection, screening procedures, recruitment, and sample composition are reported elsewhere (see Watson et al. 2019).

Measures

Demographics

The current analyses controlled for several demographic variables (i.e., sex, gender, sexual orientation, ethnicity, age, parental level of education) and relevant covariates, including disability status, body mass index (BMI), and disclosure of sexual and gender minority identity to teachers (i.e., "outness"). Participants reported their *sex* at birth (male/female), as well as their current *gender identity*, which was dichotomized as cis- or transgender (cf. Watson et al. 2019). To assess *sexual orientation*, participants chose their sexual identity from one of the following options, "Gay or Lesbian", "Bisexual", "Straight, that is, not gay", or "Something else". For the current analyses, "something else" is referred to as "other" to encompass the broad range of identities participants indicated (e.g., pansexual, asexual). Self-reported *ethnicity* was represented by four dummy variables (African American, Latino, Asian, Other Ethnic) using White students (the largest ethnic group in the sample) as the reference group. *Parental level of education* and participant *age* were also included in all analyses.

In addition, students' self-reported *disability status* (0 = no disability, 1 = disability) was controlled for, as well as their *BMI* percentile (weight status determined using age- and sex-specific percentile for BMI), which was calculated using the Centers for Disease Control growth charts based on height, weight, age and sex (Kuczmarski et al. 2002). Finally, *outness to teachers* was assessed by asking participants how many teachers currently they think know of their sexual orientation. A binary indicator was then created to compare students reporting that no (45%) versus at least one (55%) teacher know of their sexual orientation.

Presence of a gay-straight alliance

Participants self-reported whether or not their school had a Gay-Straight Alliance (GSA; 0 = no, 1 = yes).

Bias-based bullying

To assess experiences of bias-based bullying, adolescents read a brief description of bullying consistent with Olweus (1994), and were subsequently 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, gender typicality*.

School-related outcomes

Three school-related outcome variables were assessed: self-reported school safety, academic grades, and school suspension. Perceptions of school safety were measured using 8-items from the British Columbia Adolescent Health Survey (Konishi et al. 2013). Items assessed general perceptions of safety in different locations at school (e.g., classroom, library) and were rated from 0 (*never*) to 4 (*always*). A mean score of the items was calculated, with higher values indicating stronger perceptions of school safety ($\alpha = 0.91$). Academic performance was assessed with a single item adapted from the Longitudinal Study of American Youth (Miller 2014). Participants were asked, "Which of the following best describes your grades?" Response options ranged from 5 (*Mostly A's*) to 1 (*Mostly F's*). Assessment of school suspension was based on the National Study of Adolescent Health to Young Adulthood (Add Health; Harris and Udry 2008). Specifically, participants were asked whether they ever received an out-of-school suspension (0 = no, 1 = yes).

Analytic Plan

Data were analyzed in Mplus 8.0 (Muthén and Muthén 1998–2018). First, descriptive information regarding GSAs as well as experiences of each type of bias-based bullying is provided, including demographic correlates and associations with each school adjustment indicator (i.e., safety, grades, suspension). Second, to shed light on correlates of bias-based bullying, the relative contributions of individual difference covariates (e.g., demographics) were tested as well as the main variable of interest – GSAs – on each form of targeted victimization (i.e., 'a' path). Next, the covariate, bias-based bullying and GSA effects were examined on each of the school-related outcomes (i.e., 'b' path). Finally, multiple mediation models, combining the 'a' and 'b' paths, considered the indirect effects of GSAs on school adjustment through each type of bias-based bullying. Specifically, the analyses tested whether lower levels of bias-based bullying partially account for more positive school outcomes for sexual and gender minority youth who attend schools with GSAs.

All analyses controlled for sex assigned at birth (1 = female, 0 = male), gender identity (1 = transgender,

0 = cisgender), disability status (1 = disability, 0 = no disability), outness to teachers (1 = out to at least one teacher, 0 = out to no teachers) as well as sexual orientation (reference group = straight) and ethnicity (reference group = White, as the largest ethnic group in the sample) using dummy coded variables. Continuous predictors (i.e., parental education, age, BMI) were grand-mean centered to facilitate interpretation. Whereas maximum likelihood estimation with robust standard errors (MLR) was used to predict continuous outcomes (i.e., bias-based bullying, school safety, academic grades), a montecarlo integration algorithm was used for the logit model predicting school suspension (0 = no, 1 = yes). Indirect effects of GSA presence on the school-related outcomes were estimated through each of the victimization mediators. An indirect effect was determined to be significant when the corresponding 95% confidence interval did not include zero. Although directionality cannot be concluded with this cross-sectional mediation approach, the results will provide valuable insight for future longitudinal studies.

All participants reported demographic variables (i.e., sex, gender identity, sexual orientation). Missing data was primarily due to bullying based on gender typicality and sexual orientation (39%). Participants with no sexual and gender minority-based bullying felt significantly less safe at school (sexuality-based bullying: $t(1360.55) = 28.03$, $p < 0.001$; gender typicality-based bullying: $t(1423.53) = 24.16$, $p < 0.001$), had lower grades (sexuality-based bullying: $t(1501.12) = 7.72$, $p < 0.001$; gender typicality-based bullying: $t(1563.49) = 7.41$, $p < 0.001$), and were more likely to have been suspended (sexuality-based bullying: $\chi^2(1) = 146.78$, $p < 0.001$; gender typicality-based bullying: $\chi^2(1) = 107.78$, $p < 0.001$). Although there is no empirically confirmed method to test whether data are missing at random (MAR), we address the assumptions of MAR through our inclusion of covariates (i.e., sex, ethnicity, gender identity, sexual orientation, disability status, age, parental level of education, BMI, and outness to teachers) which function as auxiliary variables and are related to missing data for our study constructs, as recommended by Widaman (2006). In addition, missing data was handled using full information maximum likelihood (FIML) estimation (Enders 2010), which permits each participant to contribute whatever data they have to the likelihood function, and is preferable to listwise deletion (Little et al. 2014). Furthermore, it should be noted that the main analyses replicated regardless of whether missing data on the primary predictors was handled using FIML or listwise deletion.

Results

Aligning with other nationwide studies of sexual and gender minority adolescents in the U.S. (e.g., Kosciw et al. 2018,

53%), 63% of the current sample reported attending schools with a GSA. GSAs were more common among high school (66%) compared to middle school (27%) students, $\chi^2(1) = 379.36$, $p < 0.001$, as well as among students whose parents had higher levels of education [$t(6971.81) = -11.62$, $p < 0.001$]. Although no differences based on sexual orientation were revealed [$\chi^2(3) = 3.62$, $p = 0.305$], transgender students (65%) were slightly more likely to report GSA presence compared to their cisgender peers [63%; $\chi^2(1) = 5.30$, $p = 0.021$]. Ethnic differences also emerged [$\chi^2(4) = 38.59$, $p < 0.001$], such that Asian students were significantly more likely to attend schools with a GSA compared to all other ethnic groups.

Intercorrelations among the indicators of bias-based bullying ranged from 0.10 to 0.55, indicating that they are distinct, but related, constructs. Table 1 summarizes rates of bias-based bullying by demographic characteristics (i.e., percentage reporting at least some bias-based bullying). Ninety-one percent of sexual and gender minority adolescents in the present sample reported at least one experience of bias-based bullying – a rate more than double estimates in predominantly non-sexual and gender minority samples (36%–40%; Russell et al. 2012). Furthermore, close to three-quarters (73%) of the sample reported being bullied for identities and attributes unrelated to their gender or sexual orientation (e.g., based on body weight, race, religion, disability). The most prevalent types of bias-based bullying targeted adolescents' sexual orientation (68%), gender typicality (63%) and body weight (57%), followed by gender-based (48%), race/ethnicity-based (30%), religious-based (27%), and disability-based (17%) bullying. As to be expected, bullying based on gender was reported less frequently among male and cisgender students. In addition, bullying based on race/ethnicity was least prevalent among White students.

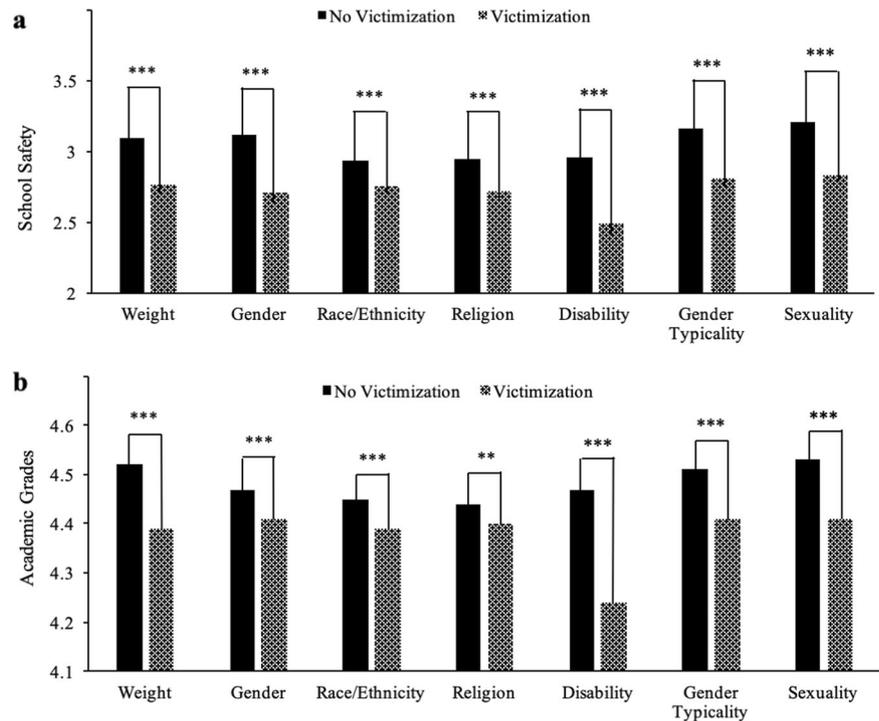
To compare the school-related adjustment of students who had, versus had not, experienced each form of bias-based bullying, chi-square and independent samples *t*-tests were conducted. As shown in Fig. 1, independent samples *t*-tests revealed that relative to adolescents who had not been bullied for each form of targeted victimization, perceptions of school safety as well as grades were lower among those who reported mistreatment based on weight [safety: $t(10248.40) = 22.07$, $p < 0.001$; grades: $t(9888.67) = 8.98$, $p < 0.001$], gender [safety: $t(10764) = 28.76$, $p < 0.001$; grades: $t(10176.27) = 4.15$, $p < 0.001$], race/ethnicity [safety: $t(11098) = 11.19$, $p < 0.001$; grades: $t(5779.29) = 3.71$, $p < 0.001$], religion [safety: $t(11012) = 13.19$, $p < 0.001$; grades: $t(4712.12) = 2.46$, $p = 0.014$], disability [safety: $t(2568.41) = 22.66$, $p < 0.001$; grades: $t(2255.60) = 10.19$, $p < 0.001$], gender typicality [safety: $t(8130.60) = 22.76$, $p < 0.001$; grades: $t(7917.51) = 5.89$, $p < 0.001$], and sexuality [safety: $t(10254) = 23.65$, $p < 0.001$; grades:

Table 1 Rates of bias-based bullying by demographic characteristics

	Rates of bias-based bullying																				
	Weight-based		Gender-based		Race/ethnicity-based		Religion-based		Disability-based		Gender typicality-based		Sexuality-based								
	No (%)	Yes (%)	χ^2	No (%)	Yes (%)	χ^2	No (%)	Yes (%)	χ^2	No (%)	Yes (%)	χ^2	No (%)	Yes (%)	χ^2						
Sex			****			ns			****			****			****						
Male	46	54		77	43		70	30		78	22		90	10		25	75		26	74	
Female	42	58		23	57		70	30		72	28		81	19		41	59		34	66	
Ethnicity			****			****			**			****			****						****
White	43	57		51	49		86	14		73	27		83	17		38	62		30	70	
African American	50	50		65	35		42	58		79	22		89	11		37	63		46	54	
Asian	54	46		57	43		26	74		74	26		88	12		43	57		44	56	
Latino	41	59		55	45		41	59		76	24		87	13		35	65		33	67	
Other	39	61		48	52		42	58		71	29		79	21		36	64		31	69	
Gender identity			****			****			ns			****			****						****
Cisgender	45	55		63	37		69	31		74	26		88	12		44	56		35	65	
Transgender	41	59		28	72		73	27		73	27		75	25		24	76		27	73	
Sexual orientation			****			****			****			****			****						****
Gay or lesbian	46	54		61	39		73	27		77	23		87	13		32	68		25	75	
Bisexual	42	58		52	48		66	34		71	29		85	15		45	55		38	62	
Straight	55	45		24	76		73	27		81	19		81	19		28	72		40	60	
Other	41	59		39	61		72	28		71	29		77	23		35	65		34	66	

** $p < 0.01$; **** $p < 0.0001$

Fig. 1 a Average levels of perceived school safety as a function of experiencing each type of bias-based bullying. **b** Mean academic grades as a function of experiencing each type of bias-based bullying. *** $p < 0.01$; **** $p < 0.001$



$t(6509.77) = 7.32, p < 0.001$]. Differences also emerged in terms of school suspensions for each form of bias-based bullying, with the exception of gender-based bullying, such that adolescents who reported bias-based bullying were more likely to have been suspended from school than their peers who were not bullied based on the corresponding identity or attribute [weight: $\chi^2(1) = 25.44, p < 0.001$; race/ethnicity: $\chi^2(1) = 52.73, p < 0.001$; religion: $\chi^2(1) = 6.29, p = 0.012$; disability: $\chi^2(1) = 23.70, p < 0.001$; gender typicality: $\chi^2(1) = 35.04, p < 0.001$; sexuality: $\chi^2(1) = 20.71, p < 0.001$].

To examine whether adolescents bullied based on multiple (i.e., two or more) identities experience more negative school adjustment than those bullied based on only one identity and those who do not report any bias-based bullying, a series of comparison tests were estimated. Univariate ANOVAs revealed significant differences in perceived school safety [$F(2, 11297) = 214.07, p < 0.001$] and academic grades [$F(2, 10829) = 14.11, p < 0.001$] as a function of the number of types of bias-based bullying experienced. In particular, adolescents who experienced multiple forms of bias-based bullying reported feeling less safe at school, as well as lower grades, compared to those experiencing singular or no bias-based bullying. A chi-square analysis indicated that school suspension was highest among adolescents bullied based on multiple identities (10.1%), followed by those bullied based on one identity (8.5%), and those who did not report any instances of bias-based bullying (6.5%), $\chi^2(2) = 15.13, p < 0.001$.

Correlates of Bias-Based Bullying: The Role of GSAs

To capture individual difference risk factors for bias-based bullying, the direct effects of all covariates as well as GSA presence on each form of bias-based bullying were examined. Standardized regression coefficients are displayed in Table 2 to consider how the relative risk associated with particular individual differences varies across different types of bias-based bullying. Among the present sexual and gender minority sample, females reported more frequent gender- ($\beta = 0.19, p < 0.001$), race/ethnicity- ($\beta = 0.02, p = 0.015$), religion- ($\beta = 0.04, p < 0.001$), and disability- ($\beta = 0.05, p < 0.001$) based bullying relative to males; however, reports of gender typicality- ($\beta = -0.22, p < 0.001$) and sexuality- ($\beta = -0.09, p < 0.001$) based bullying were higher among males, compared to females. As to be expected, ethnic differences were most pronounced in regards to race/ethnicity-based bullying, with all other ethnic groups (i.e., African American, Latino, Asian, Other Ethnic) reporting higher levels than White students. Relative to their cisgender peers, transgender students experienced more frequent weight- ($\beta = 0.03, p = 0.008$), gender- ($\beta = 0.35, p < 0.001$), disability- ($\beta = 0.02, p = 0.022$), gender typicality- ($\beta = 0.28, p < 0.001$) and sexuality- ($\beta = 0.13, p < 0.001$) based bullying, but lower levels of race/ethnicity- ($\beta = -0.03, p = 0.008$) based bullying. Differences based on sexual orientation were most pronounced for bullying based on sexuality, weight, and religion, with levels of each being elevated among adolescents identifying as gay or lesbian (with exception of religion-based

Table 2 Correlates of bias-based bullying

	Weight-based bullying β (SE)	Gender-based bullying β (SE)	Race/ethnicity-based bullying β (SE)	Religion-based bullying β (SE)	Disability-based bullying β (SE)	Gender typicality-based bullying β (SE)	Sexuality-based bullying β (SE)
Covariates							
Sex							
Female	0.00 (0.01)	0.19*** (0.01)	0.02* (0.01)	0.04*** (0.01)	0.05*** (0.01)	-0.22*** (0.01)	-0.09*** (0.01)
Ethnicity							
African American	-0.04*** (0.01)	-0.05*** (0.01)	0.23*** (0.01)	-0.03** (0.01)	-0.02** (0.01)	0.01 (0.01)	-0.05*** (0.01)
Latino	0.00 (0.01)	0.01 (0.01)	0.29*** (0.01)	-0.02 (0.01)	-0.01 (0.01)	0.02* (0.01)	-0.01 (0.01)
Asian	-0.02* (0.01)	0.00 (0.01)	0.26*** (0.01)	0.00 (0.01)	0.00 (0.01)	-0.01 (0.01)	-0.04*** (0.01)
Other ethnic	0.01 (0.01)	0.02** (0.01)	0.34*** (0.01)	0.04*** (0.01)	0.01 (0.01)	0.03*** (0.01)	0.01 (0.01)
Gender identity							
Transgender	0.03** (0.01)	0.35*** (0.01)	-0.03** (0.01)	0.01 (0.01)	0.02* (0.01)	0.28*** (0.01)	0.13*** (0.01)
Sexual orientation							
Gay or lesbian	0.09* (0.04)	-0.08* (0.04)	-0.04 (0.04)	0.04 (0.04)	-0.01 (0.04)	0.08* (0.04)	0.26*** (0.04)
Bisexual	0.12** (0.04)	-0.07 (0.04)	0.01 (0.04)	0.08* (0.04)	-0.01 (0.04)	0.01 (0.04)	0.17*** (0.04)
Other	0.10** (0.04)	-0.06 (0.04)	-0.02 (0.04)	0.07* (0.03)	-0.02 (0.03)	0.01 (0.04)	0.14*** (0.04)
Disability status							
Disability	0.12*** (0.01)	0.12*** (0.01)	0.07*** (0.01)	0.10*** (0.01)	0.63*** (0.01)	0.10*** (0.01)	0.12*** (0.01)
Age	-0.01 (0.01)	-0.03** (0.01)	-0.02* (0.01)	0.00 (0.01)	0.00 (0.01)	-0.03** (0.01)	-0.09*** (0.01)
Parental level of education	-0.09*** (0.01)	-0.03** (0.01)	-0.03** (0.01)	0.00 (0.01)	-0.02* (0.01)	-0.05*** (0.01)	-0.08*** (0.01)
BMI							
BMI	0.22*** (0.01)	0.01 (0.01)	0.02 (0.01)	0.01 (0.01)	0.00 (0.01)	-0.01 (0.01)	0.01 (0.01)
Outness to teachers							
Outness to teachers	0.03* (0.01)	0.09*** (0.01)	0.01 (0.01)	0.03** (0.01)	0.01 (0.01)	0.09*** (0.01)	0.20*** (0.01)
Primary variable							
Gay-straight alliance	-0.06*** (0.01)	-0.03** (0.01)	0.00 (0.01)	-0.08*** (0.01)	-0.03** (0.01)	-0.07*** (0.01)	-0.09*** (0.01)

Sex reference group = male, Ethnicity reference group = White, Gender identity reference group = cisgender, Sexual orientation reference group = straight, Disability status reference group = no disability, BMI body mass index

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

bullying), bisexual, and other (e.g., pansexual) relative to straight. Students with disabilities reported higher levels of each type of bias-based bullying, compared to those without a disability. In general, reports of each type of bias-based bullying declined with age, with the exception of weight-, religion- and disability-based bullying. Students whose parents had less education reported higher levels of each type of bias-based bullying, with the exception of religion-based bullying. Sexual and gender minority youth with higher BMI reported more frequent weight-based bullying ($\beta = 0.22, p < 0.001$). In addition, youth who disclosed that at least one teacher knows their sexual orientation reported higher levels of weight- ($\beta = 0.03, p = 0.010$), gender- ($\beta = 0.09, p < 0.001$), religion- ($\beta = 0.03, p = 0.002$), gender typicality- ($\beta = 0.09, p < 0.001$), and sexuality- ($\beta = 0.20, p < 0.001$) based bullying compared to their counterparts who indicated that no teachers know about their sexual orientation.

Finally, when considering the primary variable of interest – GSA presence – over and above all demographic and covariate variables, student reports of weight- ($\beta = -0.06, p < 0.001$), gender- ($\beta = -0.03, p = 0.007$), religion- ($\beta = -0.08, p < 0.001$), disability- ($\beta = -0.03, p = 0.001$), gender typicality- ($\beta = -0.07, p < 0.001$), and sexuality- ($\beta = -0.09, p < 0.001$) based bullying were lower at schools with a GSA compared to schools without a GSA. That is, with the exception of race/ethnicity-based bullying ($\beta = 0.00, p = 0.656$), all other forms of targeted victimization were lower when students attended schools with a GSA. Given that GSAs were more common among high school than middle school students, we also examined whether the associations between GSA presence and each form of bias-based bullying varied depending on whether students were in middle or high school. However, all two-way interactions were non-significant indicating that regardless of whether students were attending middle or high school, each form of bias-based bullying was less frequent when a GSA was present (with the exception of race/ethnicity-based bullying for which the non-significant GSA effect was consistent across middle and high school students).

Associations between GSAs and School-Related Outcomes

To examine the independent associations of GSAs and each type of bias-based bullying on school-related outcomes, two linear regressions (i.e., school safety and academic grades) and one logistic regression (i.e., school suspension) were conducted, while controlling for the aforementioned set of covariates. Examining the results simultaneously across the three school adjustment indicators (based on Table 3), females reported higher grades ($\beta = 0.04, p = 0.001$) and lower likelihood of suspension (OR = 0.43, $p < 0.001$) compared to males. Relative to White students, African

American ($\beta = -0.05, p < 0.001$), Latino ($\beta = -0.04, p < 0.001$) and students from other specific ethnic groups ($\beta = -0.03, p = 0.006$) reported lower grades, while Asian students reported receiving higher grades ($\beta = 0.03, p < 0.001$). Consistent with past research, African American students were nearly four times more likely to be suspended from school than their White counterparts (OR = 3.74, $p < 0.001$). Additionally, students identifying as transgender reported feeling less safe in school ($\beta = -0.17, p < 0.001$) and lower academic grades ($\beta = -0.09, p < 0.001$) relative to cisgender peers. Students with a disability, as well as those with less educated parents, felt less safe in school, received lower grades and were more likely to be suspended. Higher BMI was associated with both lower grades ($\beta = -0.05, p < 0.001$) and greater likelihood of school suspension (OR = 1.01, $p = 0.003$). In addition, although students reporting outness to teachers felt more safe at school ($\beta = 0.07, p < 0.001$), they received lower grades ($\beta = -0.04, p < 0.001$) and were more likely to be suspended (OR = 1.48, $p < 0.001$) compared to those reporting no teachers know their sexual orientation.

Over and above these covariate effects, GSAs were associated with higher perceived school safety ($\beta = 0.05, p < 0.001$) as well as decreased likelihood of suspension (OR = 0.86, $p = 0.050$). Each type of bias-based bullying uniquely contributed to feelings of unsafety. However, for academic grades and school suspensions, it was only weight-based and sexuality-based bullying that made independent negative contributions.

Indirect Effects

Given the pattern of associations noted above (i.e., significant associations between GSA and bias-based bullying, bias-based bullying and school adjustment, and GSA and school adjustment), the preliminary conditions of cross-sectional mediation were satisfied (cf. Hoyniak et al. 2018). As such, a multiple mediator model (GSA → bias-based bullying → school adjustment) was used to estimate the indirect effects and corresponding 95% confidence intervals. Specifically, the indirect effects of GSAs on each school adjustment outcome (i.e., safety, grades, suspension) were estimated through each type of bias-based bullying, while accounting for all control variables (i.e., sex, ethnicity, gender identity, sexual orientation, disability status, age, parental level of education, BMI, and outness to teachers). An indirect effect was determined to be statistically significant when the corresponding 95% confidence interval did not include zero.

As shown in Fig. 2, the multiple mediator analyses revealed significant indirect paths from GSA presence to school safety through each type of bias-based bullying [weight: 95% CI (0.008 to 0.017); gender: 95% CI (0.002 to

Table 3 Correlates of school-related outcomes

	School safety β (SE)	Academic grades β (SE)	School suspension Odds ratio (SE)
Covariates			
Sex			
Female	−0.01 (0.01)	0.04** (0.01)	0.43*** (0.04)
Ethnicity			
African American	0.00 (0.01)	−0.05*** (0.01)	3.74*** (0.50)
Latino	0.01 (0.01)	−0.04*** (0.01)	1.25 (0.15)
Asian	0.01 (0.01)	0.03*** (0.01)	0.87 (0.19)
Other ethnic	0.00 (0.01)	−0.03** (0.01)	1.61*** (0.15)
Gender identity			
Transgender	−0.17*** (0.01)	−0.09*** (0.01)	1.13 (0.10)
Sexual orientation			
Gay or lesbian	−0.03 (0.09)	0.07 (0.06)	0.41*** (0.08)
Bisexual	−0.02 (0.09)	0.05 (0.06)	0.49*** (0.09)
Other	−0.06 (0.08)	0.06 (0.06)	0.40*** (0.08)
Disability status			
Disability	−0.06*** (0.01)	−0.09*** (0.02)	1.58** (0.19)
Age	0.08*** (0.01)	−0.06*** (0.01)	1.07* (0.03)
Parental level of education	0.08*** (0.01)	0.16*** (0.01)	0.81*** (0.02)
BMI	0.02 (0.01)	−0.05*** (0.01)	1.01** (0.01)
Outness to teachers	0.07*** (0.01)	−0.04*** (0.01)	1.48*** (0.13)
Primary variables			
Bias-based bullying			
Weight-based	−0.11*** (0.01)	−0.07*** (0.01)	1.08* (0.03)
Gender-based	−0.12*** (0.01)	0.00 (0.01)	1.04 (0.04)
Race/ethnicity-based	−0.04*** (0.01)	0.01 (0.01)	1.05 (0.04)
Religion-based	−0.03** (0.01)	−0.01 (0.01)	1.02 (0.04)
Disability-based	−0.05*** (0.01)	−0.02 (0.02)	1.03 (0.05)
Gender typicality-based	−0.11*** (0.01)	0.00 (0.01)	1.06 (0.04)
Sexuality-based	−0.20*** (0.01)	−0.04** (0.01)	1.18*** (0.04)
Gay-straight alliance	0.05*** (0.01)	0.00 (0.01)	0.86* (0.07)

Sex reference group = male, Ethnicity reference group = White, Gender identity reference group = cisgender, Sexual orientation reference group = straight, Disability status reference group = no disability, *BMI* body mass index

* $p \leq 0.05$; ** $p < 0.01$; *** $p < 0.001$

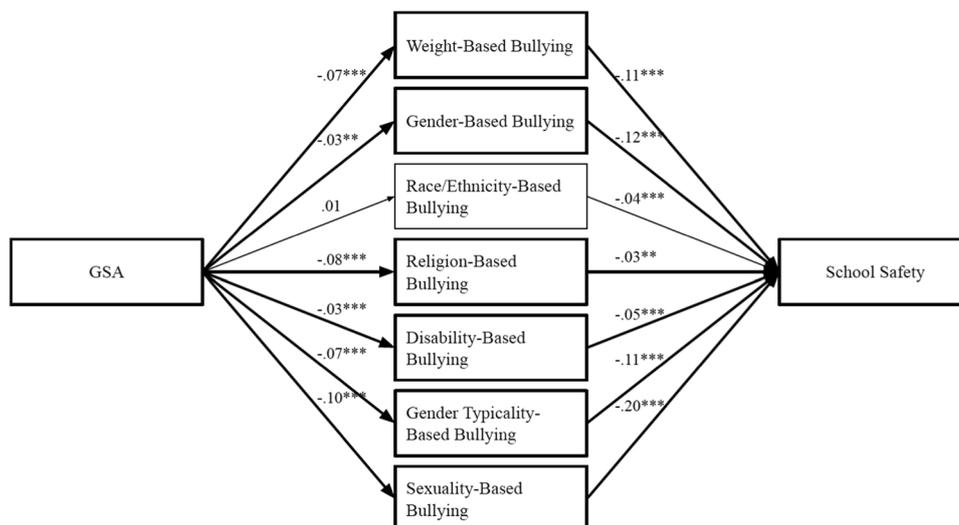
0.010); religion: 95% CI (0.001 to 0.006); disability: 95% CI (0.001 to 0.005); gender typicality: 95% CI (0.008 to 0.017); sexuality: 95% CI (0.025 to 0.041), with the exception of bullying based on race/ethnicity (for which the ‘a path’ was non-significant). As such, the association between GSAs and perceived safety at school can be in part accounted for by lower levels of multiple forms of bias-based bullying. When accounting for all control variables, GSAs were related to academic grades and school suspensions through lower levels of only weight-based bullying [grades: 95% CI (0.006 to 0.014); suspension: 95% CI (−0.029 to −0.002)] and sexuality-based bullying [grades: 95% CI (0.002 to 0.012); suspension: 95% CI (−0.075 to

−0.027)]. Thus, the findings shed light on the process whereby GSAs contribute to academic grades and school suspension: GSAs are related to lower levels of weight- and sexuality-based bullying, which in turn are associated with higher grades and decreased likelihood of school suspension.

Discussion

On top of heightened vulnerability to physical, social and emotional maladjustment, sexual and gender minority youth are at a disadvantage in terms of college enrollment (Sansone 2019) and long-term economic wellbeing (Emlet

Fig. 2 Standardized coefficients for model testing mediation of gay-straight alliance (GSA) presence, bias-based bullying and school safety. 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 teachers. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$



2016) – risk often attributed to social stigma. As such, it is imperative to examine mechanisms to disrupt the stigma-related mistreatment sexual and gender minority youth face earlier in development. However, the predominant focus of existing research on the stigma that sexual and gender minority youth experience has been based on their sexual and gender identities, without sufficient consideration of the relative contributions of other forms of bias-based mistreatment. The current study captured the breadth of sexual and gender minority adolescents' bias-based bullying experiences across a range of stigmatized identities and attributes. Supporting recent calls for schools to take proactive steps to promote broad-reaching social inclusion (Juvonen et al. 2019), the study findings suggest that GSAs could be a potential school-based stigma-reduction mechanism during adolescence. In addition to underscoring the need to recognize that sexual and gender minority adolescents may have multiple stigmatized identities that simultaneously compound social, and in turn educational risk, the results of this study offer evidence for a wider range of potential positive contributions of GSAs to school adjustment than documented previously.

Consistent with the early adolescent peak in generalized bullying (Pepler et al. 2006), our results indicate that victimization targeting sexual and gender minority students' sexual and gender identities declined in frequency over the course of adolescence. The current findings move beyond the typical approach of examining sexual and gender minority youths' experiences of bullying based on their sexual and gender identities by also highlighting the broad range of stigmatized identities and attributes for which sexual and gender minority youth are bullied. Not only did over 90% of sexual and gender minority adolescents in the present sample report at least one experience of bias-based bullying,

but most (73%) reported being bullied for identities and attributes unrelated to their gender or sexual orientation. In particular, over half of the sexual and gender minority youth in the sample reported experiencing weight-based bullying, and almost a third were victimized due to their race/ethnicity and religious affiliation. These rates are concerning given that bias-based bullying is even more consequential than generalized bullying across multiple domains, such as economic (Baams et al. 2017) and health (Russell et al. 2012) adjustment. Also, more negative outcomes have been documented for youth experiencing multiple, as opposed to one, type of bias-based bullying (Mulvey et al. 2018). Thus, as evidence that sexual and gender minority youth are at heightened risk for multiple forms of bias-based bullying continues to emerge (Bucchianeri et al. 2016), it is more critical than ever to identify mechanisms to reduce simultaneously the multiple forms of bias-based bullying that sexual and gender minority youth face.

The present investigation offers novel insights regarding the potential of GSAs to help reduce simultaneously the multiple forms of bias-based bullying sexual and gender minority adolescents experience. Extending past research on the social benefits of in-school GSAs, the current findings demonstrate that GSAs provide a fertile context to reduce not only sexual and gender minority-specific victimization (cf. Kosciw et al. 2018), but also bullying based on a broad range of stigmatized identities and attributes – including body weight, religion and disability. Indeed, over and above all covariate effects (i.e., participants' age, sex, ethnicity, gender identity, sexual identity, disability status, parental level of education, BMI and outness to teachers), rates of bias-based bullying were lower at schools with a GSA present. And, importantly these lower rates of bias-based bullying at schools with compared to without a GSA

were consistent across both middle and high school students. This potentially protective function of GSAs is likely to reflect a more inclusive school environment. Similar to studies suggesting that school diversity based on one type of social identity can protect youth with other stigmatizing attributes (Lanza et al. 2018), it may be that GSAs cultivate a broad-reaching inclusive climate in schools that spills over to improve social acceptance of students with other stigmatized identities and attributes (e.g., students with high body weight). Although the process whereby GSAs contribute to bias-based bullying reductions was beyond the scope of the current study, it is possible that bringing together sexual and gender minority youth and their non-sexual and gender minority peers facilitates the formation of cross-group friendships. While linked causally to bias-reduction only in the context of cross-ethnic friendships (Davies et al. 2011), close relationships formed within GSAs between dissimilar students are likely to minimize perceived differences that often drive social mistreatment during the adolescent years. Moreover, regardless of (dis)similarity, GSAs are likely to broadly decrease sexual and gender minority adolescents' heightened social isolation (Martin-Storey et al. 2015) which can make them more vulnerable to victimization (Hodges et al. 1999) and feelings of unsafety.

Consistent with past research (e.g., Ioverno et al. 2016), the current findings indicate that students felt safer at schools with GSAs. Perceptions of safety play a critical role in students' overall school adjustment, including their classroom engagement and attendance (Milam et al. 2010). Lesbian, gay and bisexual students, in particular, report that frequent fear at school disrupts attention to and focus on academic tasks (Crothers and Altman 2007). Extending the school-related benefits of GSAs beyond perceived safety, the present results additionally show that suspension rates were lower at schools with GSAs compared to those without. This is important given that sexual minority youth are more likely to be suspended than heterosexual youth (Poteat et al. 2016). Moreover, sexual and gender minority youth suspended from school may be even less likely to return (i.e., more likely to drop out) compared to their non-sexual and gender minority peers (Poteat et al. 2014). Just as racial discipline bias is likely to contribute to the racial achievement gap (Gregory et al. 2016), exclusionary discipline may be similarly disruptive to sexual and gender minority students' learning and play a role in educational attainment disparities (Sansone 2019).

To our knowledge, this study is the first to offer a mechanism linking GSAs to school-related adjustment: bias-based bullying. In particular, perceptions of school safety were higher due to lower levels of multiple types of bias-based bullying. Relative to school safety, the consequences of bias-based bullying were less robust across the

indicators of academic grades and school suspension. Although the descriptive findings indicated that academic performance and discipline were compromised among adolescents experiencing at least one instance of any type of bias-based bullying (with the exception of gender-based bullying for school suspension), once accounting for the relevant covariates, direct links remained significant only for weight-based and sexuality-based bullying. Higher levels of mistreatment based on weight and sexuality were associated with both lower grades and increased likelihood of school suspension. Relative to other stigmatized identities and attributes (e.g., race/ethnicity), sexuality, and especially body weight, are more likely to be perceived as within personal control (Weiner et al. 1988). Such perceived controllability in turn may heighten feelings of self-blame following experiences of weight-based or sexuality-based bullying in ways that undermine classroom performance and appropriate school behavior (cf. Graham and Juvonen 1998).

It is also possible that the links between bias-based bullying and grades, as well as suspensions, were less robust in the current study because these outcomes are more affected by teacher processes – such as teacher biases. Although little is known about sexual and gender minority-specific biases teachers may have, teachers on average display more negative responses toward ethnic minority students for misbehavior than toward White students for misbehaving in the same manner (Okonofua and Eberhardt 2015). Similar findings have been documented for other marginalized groups as well, including the disproportionate discipline of students in special education (Sullivan et al. 2014). Classroom grading practices are also fraught with bias and can leave student performance outcomes up to teacher subjectivity (Jussim 1991). Hence, moving forward it will be critical to consider how the diverse social identities and attributes of sexual and gender minority adolescents bias reactions not only of peers, but also of teachers.

Consideration of teacher biases in future work may be especially critical given the present findings that sexual and gender minority adolescents' experience of outness to teachers contributed to their schooling experiences. That is, while youth reporting being out to teachers felt safer at school, they also received lower grades and were more likely to be suspended. Thus, although students may be more likely to disclose their sexual orientation in environments where they feel safe to disclose, outness may at the same time increase their vulnerability to teacher biases. Alternatively, it could be that outness discourages academic help-seeking behaviors (e.g., homework assistance, course-taking advice), which play a critical role in academic achievement and attainment in general (Ryan et al. 2005). For example, sexual and gender minority youth who are out to their teachers may pass up help-seeking opportunities out

of fear of negative judgment or rejection from teachers due to their gender or sexual identity (Poteat et al. 2014). As such, professional development within schools that addresses best practices to support sexual and gender minority students may be critical, particularly given that over half of teachers report not knowing how or when to intervene when sexual and gender minority students are facing harassment (Swanson and Gettinger 2016). Indeed, initial evidence suggests that teachers who received professional training provide more frequent support and have more positive attitudes toward LGBT students compared with teachers with limited professional development (Swanson and Gettinger 2016).

While the results of the present study are promising, they must be interpreted in light of several methodological limitations. First, without access to objective data on students' school outcomes, this study relied instead on single-item self-reports of grades and school suspension. Thus, the current findings warrant replication using objective performance indicators, for example, with school records data. Second, the sample included only students who identified as sexual and/or gender minority. Although this group is disproportionately targeted for bias-based bullying (Bucchianeri et al. 2016), additional research is needed to examine the effects of GSAs on targeted victimization in other samples. Additionally, while the findings regarding lower grades and increased suspension among sexual and gender minority adolescents who were out to teachers raise questions about potential teacher influences, it is important to note that the assessment of outness was self-reported, asking students' whether or not they thought at least one teacher knew their sexual orientation. Thus, it is not clear whether teachers themselves were aware of students' sexual or gender minority status. It will be informative for future research to examine these relationships using more comprehensive measures of outness and disclosure of sexual and gender minority identity, and to study the nature and extent of teacher bias toward sexual and gender minority students given the important role of teachers as educational "gatekeepers."

Furthermore, while the current study addresses a significant research gap by examining sexual and gender minority youths' experiences of multiple types of bias-based bullying simultaneously, it is important to note that the present approach was not truly intersectional. That is, model complexity (i.e., seven mediators, 14 covariates) precluded testing whether the effects of each type of bias-based bullying on school adjustment varied between students with different identity pairings. For example, the academic implications of race/ethnicity-based bullying are likely different for a lesbian girl of color compared to a transgender White student. Thus, to shed light on these important differences across intersections of various social identities and attributes, it will be important for future research to utilize a more nuanced analytic approach.

It should also be noted that the data structure of the current study (i.e., all variables assessed at the student-level) preclude multilevel modeling. As such, we were unable to examine between-school differences in student outcomes. Follow up studies with access to school identifiers should model students (level 1) nested within schools (level 2) to test for purely school-level GSA effects. Additionally, the cross-sectional design used in the current study limits causal inference about the associations between GSAs, bias-based bullying and school adjustment. Based on theoretical precedence (e.g., Ioverno et al. 2016), it was presumed that GSAs affect the school climate in such a way to reduce instances of targeted victimization, however, it is possible that schools with a more tolerant and accepting student body may also be more likely to establish GSAs. Such alternative—and possibly bidirectional—effects should be tested in future research using a within-school pre/post-test design. Ultimately, the mediated associations tested here will need to be replicated using longitudinal data to further unpack these relations. Finally, the study measures assessed only presence of GSA at school, not GSA membership. Although evidence suggests that GSA presence may be more impactful than GSA membership (e.g., Walls et al. 2013), future work should assess whether individual differences in GSA involvement, such as active engagement or duration of membership, incur additive academic benefits.

Conclusion

Sexual and gender minority adolescents face many challenges in the school setting. The current results shed light on the social mistreatment they experience based on other diverse identities in addition to their sexual and gender identities. Although schools have a responsibility to provide a welcoming and safe environment where students are not harassed or mistreated because of their identity, almost all (91%) of sexual and gender minority adolescents in the present study reported experiencing bias-based bullying by their peers. Each form of bias-based bullying in turn was related to feeling less safe at school, regardless of which specific identity was targeted. In addition, bullying targeting students' body weight and sexual orientation was associated with lower academic grades and increased likelihood of school suspension. These results therefore reinforce the need for educators and school administrators to work collaboratively to develop strategies to curtail the broad range of targeted victimization that sexual and gender minority students face. Based on lower levels of multiple forms of bias-based bullying (based on body weight, gender, religion, disability, gender typicality, sexuality) at schools with versus without GSAs, the current findings in particular underscore school-based GSAs as a promising avenue to

support healthy school adjustment for sexual and gender minority adolescents.

Acknowledgements This research uses data from the *LGBTQ National Teen Study*, designed by R.J.W. and R.M.P. in collaboration with the Human Rights Campaign, and supported by the Research Excellent Program of the Office for Vice President of Research at the University of Connecticut. The authors acknowledge the important contributions of Ellen Kahn, Gabe Murchison, and Liam Miranda in their support, conceptualization, and management related to the *LGBTQ National Teen Study*. R.J.W. acknowledges support from the National Institute on Drug Abuse grant under K01DA047918. Any interpretations and opinions expressed herein are solely those of the authors and may not reflect those of the NIH.

Authors' Contributions L.M.L. conceived of the current study, conceptualized the analytic plan, performed the analyses, participated in interpretation of the data, and drafted the manuscript; R.J.W. conceived of the current study, conceptualized the analytic strategy, participated in interpretation of the data, drafted the manuscript, and was a principal investigator on the larger project from which the present analyses were conducted; R.M.P. conceived of the current study, conceptualized the analytic strategy, participated in interpretation of the data, drafted the manuscript and was a principal investigator on the larger project from which the present analyses were conducted. All authors read and approved the final manuscript.

Data Sharing and Declaration This manuscript's data will not be deposited.

Compliance with Ethical Standards

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

Ethical Approval All procedures involving human participants in this study were in accordance with the ethical standards of the University's Institutional Review Board and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed assent was obtained from all youth participants included in the study. A waiver of parental consent was obtained from the IRB related to this study.

Publisher's note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

References

- Aragon, S. R., Poteat, V. P., Espelage, D. L., & Koenig, B. W. (2014). The influence of peer victimization on educational outcomes for LGBTQ and non-LGBTQ high school students. *Journal of LGBT Youth, 11*, 1–19. <https://doi.org/10.1080/19361653.2014.840761>.
- Arendt, J. N. (2005). Does education cause better health? a panel data analysis using school reforms for identification. *Economics of Education Review, 24*, 149–160. <https://doi.org/10.1016/j.econedurev.2004.04.008>.
- Baams, L., Talmage, C. A., & Russell, S. T. (2017). Economic costs of bias-based bullying. *School Psychology Quarterly, 32*, 422–433. <https://doi.org/10.1037/spq0000211>.
- Blakemore, S. J., & Mills, K. L. (2014). Is adolescence a sensitive period for sociocultural processing? *Annual Review of Psychology, 65*, 187–207. <https://doi.org/10.1146/annurev-psych-010213-115202>.
- Bucchianeri, M. M., Gower, A. L., McMorris, B. J., & Eisenberg, M. E. (2016). Youth experiences with multiple types of prejudice-based harassment. *Journal of Adolescence, 51*, 68–75. <https://doi.org/10.1016/j.adolescence.2016.05.012>.
- Chong, E. S. K., Poteat, V. P., Yoshikawa, H., & Calzo, J. P. (2019). Fostering youth self-efficacy to address transgender and racial diversity issues: the role of gay-straight alliances. *School Psychology, 34*, 54–63. <https://doi.org/10.1037/spq0000258>.
- Crothers, L., & Altman, C. (2007). Bullying of sexually diverse children and adolescents. *NASP Communique, 35*, 28–30.
- Davies, K., Tropp, L. R., Aron, A., Pettigrew, T. F., & Wright, S. C. (2011). Cross-group friendships and intergroup attitudes: a meta-analytic review. *Personality and Social Psychology Review, 15*, 332–351. <https://doi.org/10.1177/1088868311411103>.
- Emler, C. A. (2016). Social, economic, and health disparities among LGBT older adults. *Generations (San Francisco, Calif.), 40*, 16–22.
- Enders, C. K. (2010). *Applied missing data analysis*. New York: Guilford Press.
- Ghavami, N., & Peplau, L. A. (2018). Urban middle school students' stereotypes at the intersection of sexual orientation, ethnicity, and gender. *Child Development, 89*, 881–896. <https://doi.org/10.1111/cdev.12763>.
- Goodenow, C., Szalacha, L., & Westheimer, K. (2006). School support groups, other school factors, and the safety of sexual minority adolescents. *Psychology in the Schools, 43*, 573–589. <https://doi.org/10.1002/pits.20173>.
- Graham, S., & Bellmore, A. D. (2007). Peer victimization and mental health during early adolescence. *Theory Into Practice, 46*, 138–146. <https://doi.org/10.1080/00405840701233081>.
- Graham, S., & Juvonen, J. (1998). Self-blame and peer victimization in middle school: an attributional analysis. *Developmental Psychology, 34*, 587–599. <https://doi.org/10.1037/0012-1649.34.3.587>.
- Gregory, A., Hafen, C. A., Ruzek, E., Mikami, A. Y., Allen, J. P., & Pianta, R. C. (2016). Closing the racial discipline gap in classrooms by changing teacher practice. *School Psychology Review, 45*, 171–191. <https://doi.org/10.17105/SPR45-2.171-191>.
- Harris, K. M., & Udry, R. J. (2008). *National Longitudinal Study of Adolescent to Adult Health (Add Health)*. Eunice Kennedy Shriver National Institute of Child Health and Human Development.
- Heck, N. C., Flentje, A., & Cochran, B. N. (2013). Offsetting risks: High school gay-straight alliances and lesbian, gay, bisexual, and transgender (LGBT) youth. *Psychology of Sexual Orientation and Gender Diversity, 1*, 81–90. <https://doi.org/10.1037/2329-0382.1.S.81>.
- Himmelstein, K. E. W., & Brückner, H. (2011). Criminal-justice and school sanctions against nonheterosexual youth: a national longitudinal study. *Pediatrics, 127*, 49–57. <https://doi.org/10.1542/peds.2009-2306>.
- Hodges, E. V. E., Boivin, M., Vitaro, F., & Bukowski, W. M. (1999). The power of friendship: Protection against an escalating cycle of peer victimization. *Developmental Psychology, 35*, 94–101. <https://doi.org/10.1037/0012-1649.35.1.94>.
- Hoyniak, C. P., Bates, J. E., Staples, A. D., Rudasill, K. M., Molfese, D. L., & Molfese, V. J. (2019). Child sleep and socioeconomic context in the development of cognitive abilities in early childhood. *Child Development, 90*, 1718–1737. <https://doi.org/10.1111/cdev.13042>.
- Ioverno, S., Belsler, A. B., Baiocco, R., Grossman, A. H., & Russell, S. T. (2016). The protective role of gay-straight alliances for lesbian, gay, bisexual, and questioning students: a prospective analysis. *Psychology of Sexual Orientation and Gender Diversity, 3*, 397–406. <https://doi.org/10.1037/sgd0000193>.

- Jussim, L. (1991). Grades may reflect more than performance: comment on Wentzel (1989). *Journal of Educational Psychology*, 83, 153–155. <https://doi.org/10.1037/0022-0663.83.1.153>.
- Juvonen, J., & Graham, S. (2014). Bullying in schools: the power of bullies and the plight of victims. *Annual Review of Psychology*, 65, 159–185. <https://doi.org/10.1146/annurev-psych-010213-115030>.
- Juvonen, J., Lessard, L. M., Rastogi, R., Schacter, H. L., & Smith, D. S. (2019). Promoting social inclusion in educational settings: challenges and opportunities. *Educational Psychologist*, 54, 250–270. <https://doi.org/10.1080/00461520.2019.1655645>.
- Juvonen, J., Nishina, A., & Graham, S. (2000). Peer harassment, psychological adjustment, and school functioning in early adolescence. *Journal of Educational Psychology*, 92, 349–359. <https://doi.org/10.1037/0022-0663.92.2.349>.
- Juvonen, J., & Wentzel, K. R. (1996). *Social motivation: Understanding children's school adjustment*. New York: Cambridge University Press.
- Konishi, C., Saewyc, E., Homma, Y., & Poon, C. (2013). Population-level evaluation of school-based interventions to prevent problem substance use among gay, lesbian and bisexual adolescents in Canada. *Preventive Medicine*, 57, 929–933. <https://doi.org/10.1016/j.ypmed.2013.06.031>.
- Kosciw, J., Diaz, E. M., & Greytak, E. A. (2008). *National climate survey: the experiences of lesbian, gay, bisexual and transgender youth in our nation's schools*. New York: Gay, Lesbian and Straight Education Network.
- Kosciw, J. G., Greytak, E. A., Zongrone, A. D., Clark, C. M., & Truong, N. L. (2018). *The 2017 National School Climate Survey: The experiences of lesbian, gay, bisexual, transgender, and queer youth in our nation's schools*. Gay, Lesbian and Straight Education Network (GLSEN). <https://eric.ed.gov/?id=ED590243>.
- Krukowski, R. A., West, D. S., Perez, A. P., Bursac, Z., Phillips, M. M., & Raczynski, J. M. (2009). Overweight children, weight-based teasing and academic performance. *International Journal of Pediatric Obesity*, 4, 274–280. <https://doi.org/10.3109/17477160902846203>.
- Kuczmariski, R. J., Ogden, C. L., Guo, S. S., Grummer-Strawn, L. M., Flegal, K. M., Mei, Z., & Johnson, C. L. (2002). 2000 CDC Growth Charts for the United States: Methods and development. *Vital Health Statistics*, 11, 1–190.
- Ladd, G. W., Ettekal, I., & Kochenderfer-Ladd, B. (2017). Peer victimization trajectories from kindergarten through high school: differential pathways for children's school engagement and achievement? *Journal of Educational Psychology*, 109, 826–841. <https://doi.org/10.1037/edu0000177>.
- Lanza, H. I., Echols, L., & Graham, S. (2018). A silver lining: the role of ethnic diversity on co-occurring trajectories of weight status and peer victimization across early adolescence. *Journal of Adolescent Health*, 63, 554–560. <https://doi.org/10.1016/j.jadohealth.2018.05.026>.
- Lee, C. (2002). The impact of belonging to a high school gay/straight alliance. *The High School Journal*, 85, 13–26. <https://doi.org/10.1353/hsj.2002.0005>.
- Little, T. D., Jorgensen, T. D., Lang, K. M., & Moore, E. W. G. (2014). On the joys of missing data. *Journal of Pediatric Psychology*, 39, 151–162. <https://doi.org/10.1093/jpepsy/jst048>.
- Martin-Storey, A., Cheadle, J. E., Skalamera, J., & Crosnoe, R. (2015). Exploring the social integration of sexual minority youth across high school contexts. *Child Development*, 86, 965–975. <https://doi.org/10.1111/cdev.12352>.
- Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: conceptual issues and research evidence. *Psychological Bulletin*, 129, 674–697. <https://doi.org/10.1037/0033-2909.129.5.674>.
- Milam, A. J., Furr-Holden, C. D. M., & Leaf, P. J. (2010). Perceived school and neighborhood safety, neighborhood violence and academic achievement in urban school children. *The Urban Review*, 42, 458–467. <https://doi.org/10.1007/s11256-010-0165-7>.
- Miller, J. D. (2014). *Longitudinal study of American youth, 1987–1994, 2007–2011*. Ann Arbor, MI: Inter-University Consortium for Political and Social Research. <https://doi.org/10.3886/ICPSR30263.v5>.
- Mulvey, K. L., Hoffman, A. J., Gönültaş, S., Hope, E. C., & Cooper, S. M. (2018). Understanding experiences with bullying and bias-based bullying: What matters and for whom? *Psychology of Violence*, 8, 702–711. <https://doi.org/10.1037/vio0000206>.
- Muthén, L. K., & Muthén, B. O. (1998). *Mplus user's guide* (7th ed.). Los Angeles, CA: Muthén & Muthén.
- Nakamoto, J., & Schwartz, D. (2010). Is peer victimization associated with academic achievement? a meta-analytic review. *Social Development*, 19, 221–242. <https://doi.org/10.1111/j.1467-9507.2009.00539.x>.
- Nishina, A., Juvonen, J., & Witkow, M. R. (2005). Sticks and stones may break my bones, but names will make me feel sick: the psychosocial, somatic, and scholastic consequences of peer harassment. *Journal of Clinical Child & Adolescent Psychology*, 34, 37–48. https://doi.org/10.1207/s15374424jccp3401_4.
- Okonofua, J. A., & Eberhardt, J. L. (2015). Two strikes: Race and the disciplining of young students. *Psychological Science*, 26, 617–624. <https://doi.org/10.1177/0956797615570365>.
- Olweus, D. (1994). Bullying at school: Basic facts and effects of a school based intervention program. *Journal of Child Psychology and Psychiatry*, 35, 1171–1190. <https://doi.org/10.1111/j.1469-7610.1994.tb01229.x>.
- Oreopoulos, P., & Salvanes, K. G. (2011). Priceless: the nonpecuniary benefits of schooling. *Journal of Economic Perspectives*, 25, 159–184. <https://doi.org/10.1257/jep.25.1.159>.
- Palmer, S. B., & Abbott, N. (2018). Bystander responses to bias-based bullying in schools: a developmental intergroup approach. *Child Development Perspectives*, 12, 39–44. <https://doi.org/10.1111/cdep.12253>.
- Pearson, J., Muller, C., & Wilkinson, L. (2007). Adolescent same-sex attraction and academic outcomes: the role of school attachment and engagement. *Social Problems*, 54, 523–542. <https://doi.org/10.1525/sp.2007.54.4.523>.
- Pepler, D. J., Craig, W. M., Connolly, J. A., Yuile, A., McMaster, L., & Jiang, D. (2006). A developmental perspective on bullying. *Aggressive Behavior*, 32, 376–384. <https://doi.org/10.1002/ab.20136>.
- Poteat, V. P., Calzo, J. P., Yoshikawa, H., Lipkin, A., Ceccolini, C. J., Rosenbach, S. B., O'Brien, M. D., Marx, R. A., Murchison, G. R., & Burson, E. (2019). Greater engagement in gender-sexuality alliances (GSAs) and GSA characteristics predict youth empowerment and reduced mental health concerns. *Child Development*. Advanced online publication. <https://doi.org/10.1111/cdev.13345>.
- Poteat, V. P., Scheer, J. R., & Chong, E. S. K. (2016). Sexual orientation-based disparities in school and juvenile justice discipline: a multiple group comparison of contributing factors. *Journal of Educational Psychology*, 108, 229–241. <https://doi.org/10.1037/edu0000058>.
- Poteat, V. P., Scheer, J. R., & Mereish, E. H. (2014). Factors affecting academic achievement among sexual minority and gender-variant youth. In L. S. Liben & R. S. Bigler (Eds.), *Advances in child development and behavior* (Vol. 47, pp. 261–300). JAI. <https://doi.org/10.1016/bs.acdb.2014.04.005>.
- Poteat, V. P., Sinclair, K. O., DiGiovanni, C. D., Koenig, B. W., & Russell, S. T. (2013). Gay–straight alliances are associated with student health: a multischool comparison of LGBTQ and heterosexual youth. *Journal of Research on Adolescence*, 23, 319–330. <https://doi.org/10.1111/j.1532-7795.2012.00832.x>.
- Puhl, R. M., Himmelstein, M. S., & Watson, R. J. (2019). Weight-based victimization among sexual and gender minority

- adolescents: findings from a diverse national sample. *Pediatric Obesity*, 14, 1–11. <https://doi.org/10.1111/ijpo.12514>.
- Roseth, C. J., Johnson, D. W., & Johnson, R. T. (2008). Promoting early adolescents' achievement and peer relationships: the effects of cooperative, competitive, and individualistic goal structures. *Psychological Bulletin*, 134, 223–246. <https://doi.org/10.1037/0033-2909.134.2.223>.
- Rumberger, R. W., & Rotermund, S. (2012). The relationship between engagement and high school dropout. In *Handbook of research on student engagement*. (pp. 491–513). Boston, MA: Springer. https://doi.org/10.1007/978-1-4614-2018-7_24.
- Russell, S. T., Sinclair, K. O., Poteat, V. P., & Koenig, B. W. (2012). Adolescent health and harassment based on discriminatory bias. *American Journal of Public Health*, 102, 493–495. <https://doi.org/10.2105/AJPH.2011.300430>.
- Ryan, A. M., Patrick, H., & Shim, S.-O. (2005). Differential profiles of students identified by their teacher as having avoidant, appropriate, or dependent help-seeking tendencies in the classroom. *Journal of Educational Psychology*, 97, 275–285. <https://doi.org/10.1037/0022-0663.97.2.275>.
- Sansone, D. (2019). LGBT students: new evidence on demographics and educational outcomes. *Economics of Education Review*, 73, 101933. <https://doi.org/10.1016/j.econedurev.2019.101933>.
- Schwartz, D., Gorman, A. H., Nakamoto, J., & Toblin, R. L. (2005). Victimization in the peer group and children's academic functioning. *Journal of Educational Psychology*, 97, 425–435. <https://doi.org/10.1037/0022-0663.97.3.425>.
- Sebastian, C., Viding, E., Williams, K. D., & Blakemore, S.-J. (2010). Social brain development and the affective consequences of ostracism in adolescence. *Brain and Cognition*, 72(1), 134–145. <https://doi.org/10.1016/j.bandc.2009.06.008>.
- Sullivan, A. L., Van Norman, E. R., & Klingbeil, D. A. (2014). Exclusionary discipline of students with disabilities: student and school characteristics predicting suspension. *Remedial and Special Education*, 35, 199–210. <https://doi.org/10.1177/0741932513519825>.
- Swanson, K., & Gettinger, M. (2016). Teachers' knowledge, attitudes, and supportive behaviors toward LGBT students: relationship to Gay-Straight Alliances, antibullying policy, and teacher training. *Journal of LGBT Youth*, 13, 326–351. <https://doi.org/10.1080/19361653.2016.1185765>.
- Troop-Gordon, W. (2017). Peer victimization in adolescence: the nature, progression, and consequences of being bullied within a developmental context. *Journal of Adolescence*, 55, 116–128. <https://doi.org/10.1016/j.adolescence.2016.12.012>.
- Walls, N. E., Kane, S. B., & Wisneski, H. (2010). Gay-straight alliances and school experiences of sexual minority youth. *Youth & Society*, 41, 307–332. <https://doi.org/10.1177/0044118X09334957>.
- Walls, N. E., Wisneski, H., & Kane, S. (2013). School climate, individual support, or both? Gay-straight alliances and the mental health of sexual minority youth. *School Social Work Journal*, 37. <https://www.ingentaconnect.com/content/iassw/sswj/2013/00000037/00000002/art00008>.
- Watson, R. J., Wheldon, C. W., & Puhl, R. M. (2019). Evidence of diverse identities in a large national sample of sexual and gender minority adolescents. *Journal of Research on Adolescence*. <https://doi.org/10.1111/jora.12488>.
- Weiner, B., Perry, R. P., & Magnusson, J. (1988). An attributional analysis of reactions to stigmas. *Journal of Personality and Social Psychology*, 55, 738–748. <https://doi.org/10.1037/0022-3514.55.5.738>.
- Widaman, K. F. (2006). Missing data: What to do with or without them. *Monographs of the Society for Research in Child Development*, 71, 42–64. <https://doi.org/10.1111/j.1540-5834.2006.00404.x>.

Leah M. Lessard is a Postdoctoral Fellow at the University of Connecticut, Rudd Center for Food Policy and Obesity. Her research focuses on the social processes that steer adolescent development, with particular attention to how relational and contextual factors impact schooling experiences.

Ryan J. Watson is an Assistant Professor of Human Development and Family Sciences at the University of Connecticut and is interested in the health and well-being of sexual and gender minority adolescents.

Rebecca M. Puhl is a Professor of Human Development and Family Sciences at the University of Connecticut and Deputy Director at the Rudd Center for Food Policy and Obesity. Her research examines the prevalence and origins of weight stigma, interventions to reduce weight bias, and the impact of weight stigma on emotional and physical health.