

Emotional Distress Among LGBT Youth: The Influence of Perceived Discrimination Based on Sexual Orientation

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Abstract The authors evaluated emotional distress among 9th–12th grade students, and examined whether the association between being lesbian, gay, bisexual, and/or transgendered (i.e., “LGBT”) and emotional distress was mediated by perceptions of having been treated badly or discriminated against because others thought they were gay or lesbian. Data come from a school-based survey in Boston, Massachusetts ($n = 1,032$); 10% were LGBT, 58% were female, and ages ranged from 13 to 19 years. About 45% were Black, 31% were Hispanic, and 14% were White. LGBT youth scored significantly higher on the scale

of depressive symptomatology. They were also more likely than heterosexual, non-transgendered youth to report suicidal ideation (30% vs. 6%, $p < 0.0001$) and self-harm (21% vs. 6%, $p < 0.0001$). Mediation analyses showed that perceived discrimination accounted for increased depressive symptomatology among LGBT males and females, and accounted for an elevated risk of self-harm and suicidal ideation among LGBT males. Perceived discrimination is a likely contributor to emotional distress among LGBT youth.

Keywords Emotional distress · LGBT · Self-harm · Suicide · Depression

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Introduction

Accumulating evidence indicates that adolescents who have same-sex sexual attractions, who have had sexual or romantic relationships with persons of the same sex, or who identify as lesbian, gay, or bisexual are more likely than heterosexual adolescents to experience depressive symptoms, suicidal ideation, and to make suicide attempts (Remafedi et al. 1998; Russell and Joyner 2001; Safren and Heimberg 1999). Data from the 2007 Washington, DC, Youth Risk Behavior Surveillance (YRBS) system showed that 40% of youth who reported a minority sexual orientation indicated feeling sad or hopeless in the past 2 weeks, compared to 26% of heterosexual youth (District of Columbia Public Schools 2007). Those data also showed that lesbian, gay, and bisexual youth were more than twice as likely as heterosexual youth to have considered attempting suicide in the past year (31% vs. 14%). This body of research demonstrates that lesbian, gay, and bisexual youth have high levels of emotional distress.

A much smaller body of research suggests that adolescents who identify as transgendered or transsexual also experience increased emotional distress (Di Ceglie et al. 2002; Grossman and D'Augelli 2006, 2007). In a study based on a convenience sample of 55 transgendered youth aged to 15–21 years, the authors found that more than one-fourth reported a prior suicide attempt (Grossman and D'Augelli 2007). All of those reporting having attempted suicide attributed their urge to take their own lives to being transgendered. There is a paucity of research on transgendered adolescents that comes from larger population-based samples, such as the YRBS surveys, because these surveys do not ask questions to identify transgendered youth. Nonetheless, the existing research suggests that transgendered youth experience high levels of emotional distress along with their lesbian, gay, and bisexual peers.

Explanations for Increased Levels of Emotional Distress among Lesbian, Gay, Bisexual, and Transgendered (LGBT) Youth

One potential explanation for the elevated risk of emotional distress among adolescents with a minority sexual orientation or transgendered identity (hereafter referred to as LGBT) is that these youth must deal with stressors related to having a stigmatized identity (Rosario et al. 2002). There has been substantially increased visibility of LGBT issues in public discourse and in popular culture in recent years (Gibson 2006; Russell 2002), and attitudes towards same-sex relationships have generally become more favorable (Avery et al. 2007). Despite this, social stigma associated with homosexuality and toward deviation from socially prescribed gender roles remains pervasive, particularly for young people (Hoover and Fishbein 1999; Horn 2006; Taywaditep 2001). Although important efforts to improve support for LGBT youth have been undertaken—including development of supportive policies and establishment of student groups such as Gay-Straight Alliances—LGBT youth still face heightened difficulties relative to their heterosexual, non-transgendered classmates (Fetner and Kush 2008; Hansen 2007; Szalacha 2003). LGBT adolescents live in social environments in which they may be exposed to negative experiences, including social rejection and isolation, diminished social support, discrimination, and verbal and physical abuse (Lombardi et al. 2001; Savin-Williams 1994; Wyss 2004).

While bullying and physical victimization are problems among youth in general, they are particularly important issues for LGBT youth. Simply put, LGBT adolescents are more likely than heterosexual, non-transgendered adolescents to report being bullied or physically assaulted (Robin et al. 2002; Russell et al. 2001; Williams et al. 2003) and much of the bullying and victimization has strong

anti-homosexual overtones (Poteat and Espelage 2005). YRBS data from Washington DC show that 31% of youth with a minority sexual orientation reported having been bullied over the past year, compared to 17% of heterosexual youth (District of Columbia Public Schools 2007). YRBS data from both Washington, DC and Massachusetts show that youth with a minority sexual orientation are more likely to report having skipped school in the past month because they felt unsafe there (26 and 20%, respectively), as compared to their heterosexual peers (11 and 6%) (District of Columbia Public Schools 2007; Faulkner and Cranston 1998). Massachusetts YRBS data also show that 45% of youth with a minority sexual orientation report having had their personal property stolen or deliberately damaged at school, compared to 29% of opposite-sex-only experienced adolescents (Faulkner and Cranston 1998). These studies strongly suggest that the social context in which LGBT youth are embedded is a hostile one.

While studies have documented that LGBT youth suffer more emotional distress than heterosexual, non-transgendered peers, the reasons for their elevated risk are often not explicitly studied or stated. A growing body of research supports the theory that negative experiences resulting from LGBT stigma can lead to chronic stress that contributes to emotional distress among LGBT adolescents and adults, indicating the mediating role of being treated badly (Bontempo and D'Augelli 2002; Clements-Nolle et al. 2006; Murdock and Bolch 2005). Most studies investigating the consequences of stressors on the mental health of LGBT youth have been derived from community-based convenience samples of LGBT youth (e.g. (D'Augelli et al. 2005; Friedman et al. 2006)). These studies typically find support for an association between stressors associated with being LGBT and poorer mental health. For example, in two community-based studies of more than 500 lesbian, gay, and bisexual youth, D'Augelli and colleagues found a strong link between lifetime victimization directly attributable to one's minority sexual orientation (e.g., verbal abuse, threats of violence, physical assault, and sexual assault) and mental health problems (D'Augelli 2002; D'Augelli et al. 2006). Notably, these studies showed that males reported more sexual orientation-related victimization than females.

Less frequently, information about bullying and victimization of LGBT has come from school-based studies, sometimes representative, in which study participants are not selected on the basis of their minority sexual orientation (e.g., Bontempo and D'Augelli 2002; Bos et al. 2008; Williams et al. 2005). One of the earliest school-based studies carried out by Bontempo and D'Augelli (2002) found that 10% of lesbian and bisexual females and 24% of gay and bisexual males reported high levels of past-year victimization at school (i.e., they were assaulted 10 or more times in the past year), compared to 1% of heterosexual

females and 3% of heterosexual males. Moreover, those lesbian, gay, and bisexual youth exposed to high levels of victimization had higher rates of past-year suicide attempts than heterosexual youth exposed to high levels of victimization. The reasons that high levels of victimization appear to be more detrimental to the mental health of lesbian, gay, and bisexual youth as compared to heterosexual youth remain unclear. It is possible that LGBT adolescents have less social support or fewer resources to cope with victimization experiences, or that their victimization experiences are more severe (Dunbar 2006). Research is needed to better understand the mechanisms by which victimization—particularly sexual identity-based bullying and assault—is particularly devastating to LGBT youth.

Limitations of Prior Research

Studies with community and population-based samples have important strengths and notable limitations for investigating the impact of LGBT-associated stressors on the health of LGBT youth (Corliss et al. 2009). For example, studies with community samples contain LGBT-specific measures that allow for a more in-depth assessment tailored to the experiences of the population, but their lack of generalizability is a major limitation. Participants in community samples are frequently recruited from places such as LGBT community social and support groups and “Pride” events, and are therefore likely to be different from the larger population of youth expressing a minority sexual orientation or transgender identity in many ways (Corliss et al. 2009). An additional limitation is that studies with community samples lack a comparable heterosexual, non-transgendered group necessary to quantify differences. While studies with population-based samples, such as school-based studies, are more generalizable, they frequently lack LGBT-specific measures helpful for investigating mechanisms accounting for the greater levels of emotional distress among LGBT youth.

Despite growing evidence of the emotional toll of negative experiences related to LGBT stigma, gaps in knowledge remain. For example, only community-based studies of LGBT youth have assessed the mental health impact of maltreatment specifically attributable to LGBT status. By contrast, the extant school-based studies of youth have used global measures of maltreatment, typically victimization occurring at school, which are not explicitly linked to sexual orientation. For example, YRBS questionnaires ask about victimization generally, without regard to the victim’s perceptions about why he or she was targeted. Consequently, we are unsure about the extent to which LGBT youths’ maltreatment experiences are direct consequences of others’ negative LGBT attitudes and behaviors. In addition, representative studies have yet to

investigate how perceived discrimination on the basis of minority sexual orientation accounts for differences in mental health status of heterosexual and LGBT youth. Directly examining how discrimination based on minority sexual orientation may play a role in the greater emotional distress among a representative sample of LGBT youth has the potential to inform targets for interventions to improve the mental health of LGBT youth on a population level.

Another area that deserves additional investigation is the extent to which there may be gender/sex differences in mechanisms leading to LGBT youths’ greater emotional distress. Some community studies of lesbian, gay, and bisexual youth suggest a greater amount of sexual orientation-related maltreatment among males compared to females (D’Augelli 2002; D’Augelli et al. 2002). However, another study did not find differences between lesbian, gay, and bisexual males and females in reports of stressful life events related to sexual orientation such as having trouble with parents, siblings, teachers, and classmates (Rosario et al. 2002). To what extent this variation may differentially impact the mental health of LGBT males and females remains unknown and warrants attention.

The Current Study

In this study, we explore the contribution of perceived discrimination on the basis of being lesbian, gay, or bisexual to elevated emotional distress among LGBT youth. To address prior methodological limitations and to advance knowledge of the impact of sexual orientation-related discrimination on LGBT youth, we capitalized on data collected from a representative sample of public high school students in Boston, Massachusetts. We examine the associations among LGBT status, perceived discrimination on the basis of minority sexual orientation, and three indicators of emotional distress.

The first aim was to estimate the prevalence of indicators of emotional distress among LGBT youth, including depressive symptomatology, self-harm, and suicidal ideation. Self-harm—which includes self-inflicted painful acts such as cutting or burning oneself—is increasingly recognized as a strong risk factor for suicide and suicide attempts, and is also a symptom of depression (Hawton et al. 2002, 2003). Data from representative samples of youth have yet to quantify differences between LGBT and heterosexual, non-transgendered youth in their risk for deliberate self-harm. Based on the existing literature, we expected that LGBT youth would have significantly higher levels of emotional distress as compared to heterosexual, non-transgendered youth.

The remaining research aims address perceptions of sexual identity-based maltreatment, and whether it plays a

role in the association between LGBT status and emotional distress. The second aim was to estimate the extent to which LGBT youth perceived that they had been discriminated against on the basis of sexual orientation. We expected that LGBT youth would be more likely than heterosexual, non-transgendered youth to report this type of discrimination. Our final aim was to examine whether perceived discrimination could explain the association between LGBT status and emotional distress. We hypothesized that perceived discrimination on the basis of minority sexual orientation would mediate, at least partially, this association. For each aim, we investigate differences by sex/gender through stratified analyses.

Methods

Study Sample

Data for this investigation come from the 2006 *Boston Youth Survey (BYS)*, a biennial survey of 9th–12th grade students in selected Boston Public Schools. We used a two-stage, stratified random sampling strategy. The first sampling frame consisted of all 38 high schools in the Boston Public Schools system. Thirty schools were randomly selected for the survey, with a probability of selection proportional to each school's enrollment size. Eighteen schools agreed to participate. The mean high school dropout rate for participating schools was not statistically different from the rate for non-participating schools.

Among the 18 participating schools, we generated a numbered list of unique homeroom classrooms within each school. Classrooms comprised of students with severe emotional or cognitive disabilities were excluded. Classrooms were stratified by grade, and then randomly selected for survey administration within each grade. Those classrooms that listed fewer than five students were skipped and the next randomly selected classroom was chosen. Selection continued until the total number of students to be surveyed ranged from 100 to 125 per school. In the two selected schools that had total enrollments close to 100, all classrooms in the school were sampled.

Data Collection

The BYS data collection instrument was developed by study staff. It covered a range of topics (e.g., health behaviors, use of school and community resources, developmental assets, risk behaviors), and had a particular emphasis on violence. The paper-and-pencil survey was administered in classrooms by trained staff in the spring of 2006. Survey administrators completed a brief training program prior to going into the schools.

Surveys were not marked with any information that could identify an individual. Passive consent was sought from students' parents prior to survey administration. Less than 1% of students were prohibited by their parents from participating. Survey administrators read an introduction and the informed consent statement prior to distributing the survey. Seventy of the 1,323 invited students (5.3%) declined to participate. Survey administrators remained in the room and were available to answer questions throughout the 50 min allotted for the survey. The Office of Human Research Administration at Harvard School of Public Health approved all procedures for this research project.

Measures

Depressive Symptomatology and Additional Indicators of Emotional Distress

We used the Modified Depression Scale (MDS) to measure depressive symptomatology (Dahlberg et al. 2005). The MDS is a shortened version of the DSM Scale for Depression (Kelder et al. 2001; Roberts et al. 1997), and assesses depressive symptomatology within the past 30 days. It has been used in other studies and has been shown to have high internal consistency, with Cronbach's alpha coefficients of 0.74 or greater (Bosworth et al. 1999; Dahlberg et al. 2005; Goldstein et al. 2007). The MDS inquires about the frequency of six symptoms of depression including: sadness, irritability, hopelessness, sleep disturbance, difficulty concentrating, and eating problems. Based on data from pilot work, we dropped the item on eating problems, resulting in a 5-item scale. Each item measured the frequency of a symptom on a scale ranging from 1 (never) to 5 (always), for a total score range of 5–25, with higher scores indicating more frequent depressive symptoms. Because the total score includes the sum of the scores on all 5 items, students with missing values for any of the five items did not have a total score.

In addition to depressive symptomatology, we measured two other indicators of emotional distress. Students were asked about suicidal ideation (“*Did you ever seriously consider attempting suicide?*”) and acts of self-harm (“*Did you ever cut or otherwise injure yourself on purpose?*”), in the 12 months preceding the survey. Both items had yes and no as response options. The item on suicidal ideation was adapted from the 2005 YRBS questionnaire (Centers for Disease Control and Prevention 2005).

Sexual Orientation

To assess sexual orientation respondents were asked to identify which of six categories best described themselves:

(1) heterosexual, (2) mostly heterosexual, (3) bisexual, (4) mostly homosexual, (5) homosexual/gay or lesbian, and (6) not sure. This measure has been used with adolescents in several population-based studies (Austin et al. 2004, 2008; Remafedi et al. 1992). Respondents who indicated that they were mostly heterosexual, bisexual, mostly homosexual, or homosexual were coded as having a minority sexual orientation. Students were also asked whether they considered themselves to be transgendered (yes, no, don't know). Students who confirmed that they were transgendered and/or who had a minority sexual orientation were categorized as LGBT. To assess perceived discrimination on the basis of sexual orientation, students were asked to answer yes or no to the following question: “*Sometimes people feel they are discriminated against or treated badly by other people. In the past 12 months, have you felt discriminated against because someone thought you were gay, lesbian, or bisexual?*”.

Demographic Characteristics

We measured demographic characteristics including: age, sex, Hispanic/Latino ethnicity, and race. Sex was measured with the following item: “What is your sex or gender?”, which had male and female as response options. To assess race, students were asked to indicate if they were: (1) White; (2) American Indian or Alaska Native; (3) Asian; (4) Black or African American; (5) Native Hawaiian or Other Pacific Islander; or (6) Some Other Race. Students were permitted to mark all options that applied to them. For this particular analysis we combined Hispanic/Latino ethnicity and race to create a race/ethnicity variable with the following four levels: (1) Hispanic/Latino; (2) Non-Hispanic, Black/African American; (3) Non-Hispanic, White; and (4) Other, which includes bi- or multi-racial students, Asians, Native Americans, and those who were not Hispanic and who could not specify a race.

Data Analysis

As a first step in constructing the analytic sample, we excluded respondents who did not sufficiently complete the questionnaire. We then excluded respondents who skipped sex, or all of the items assessing emotional distress, including the five depressive symptomatology questions and the items on suicidal ideation and self-harm. For multivariate analyses we excluded respondents without complete data on any of the covariates in the model from the procedure.

Once the analytic sample had been constructed, we conducted descriptive analyses to assess the frequency or level of important covariates, including: sexual orientation, transgender status, LGBT status, age, race/ethnicity, sex, self-harm, suicidal ideation, depressive symptomatology,

and perceived discrimination on the basis of minority sexual orientation status. We also assessed the degree of association among covariates. We computed generalized linear regression models and estimated odds ratios with 95% confidence intervals to describe the association between suicidal ideation, self-harm, and perceived discrimination by race/ethnicity, sex, sexual orientation, and transgender status. We also generated odds ratios to examine the association between perceived discrimination and self-harm and suicidal ideation. To examine whether there were age differences by suicidal ideation, self-harm, and perceived discrimination, we conducted simple *t*-tests. We also conducted *t*-tests or one-way ANOVA models to examine the difference in means on the scale for depressive symptomatology by race/ethnicity, sex, sexual orientation, transgender status, and perceived discrimination. Finally, we used a Pearson's R correlation coefficient to examine the association between age and depressive symptomatology. The analyses described above were conducted with SAS software, version 9.1.3 (SAS Institute Inc. 2008).

To test the hypothesis that perceived discrimination on the basis of minority sexual orientation was a mediator of the association between LGBT status and emotional distress, we followed the steps outlined in Baron and Kenny (1986) for each of the three indicators of emotional distress. The Baron and Kenny method has been used in studies assessing mediation in similar samples (Bos et al. 2008; Busseri et al. 2008), and involves a series of regression equations in which the following associations are estimated: (1) the predictor—LGBT status—with each outcome variable; (2) the predictor and the hypothesized mediator (i.e., perceived discrimination); and (3) the predictor with each outcome variable, while statistically controlling for the hypothesized mediator. For each set of regression equations, if there was a statistically significant and meaningful association found in the first two tests, we conducted a final mediation model. To account for the fact that students were clustered within schools, we used the MLwiN software to estimate the regression models (Centre for Multilevel Modeling 2008). MLwiN uses the iterative generalized least squares algorithm, explicitly models dependence between observations, and adjusts the standard errors to control for clustering (Rasbash et al. 2004).

To quantify the extent to which perceived discrimination mediated the association between LGBT status and emotional distress, we calculated the percent that the regression coefficients changed and the Sobel test related to this magnitude of change (Sobel 1982). If perceived discrimination emerged as strong and statistically significant in the final model and there was attenuation of the effect of LGBT status, then mediation was deemed to be in effect. We expected to find a statistically significant positive

association between LGBT status and each of the three indicators of emotional distress.

Results

Descriptive Statistics

Twelve hundred fifty-three surveys were collected in the 18 schools. The surveys of 38 students (3%) were excluded from data analysis; 35 because they left at least 80% of the items unanswered, and 3 because of erratic answering patterns. An additional 183 respondents were excluded from the analysis because they had missing data on sex ($n = 11$) or on all three indicators of emotional distress ($n = 172$), resulting in a total sample size of 1,032.

The sample reflected the racial and ethnic diversity of Boston public high school students. More than a quarter (30.7%) were Hispanic/Latino, 44.8% were non-Hispanic Black, 13.7% were non-Hispanic White, and 10.8% were Asian, Native Hawaii or Other-Pacific Islander, bi- or multi-racial, or reported being of another race category. The age of respondents ranged from 13 to 19 years, with a mean of 16.3 ($SD = 1.3$). More than half (58.3%) of the respondents were female.

Table 1 shows the distribution of sexual orientation and transgendered status of the respondents. It remains unclear whether those students who checked “not sure” for sexual orientation or “don’t know” for transgender are questioning their identity or did not understand the question. For analyses, we coded those students who answered don’t know or unsure as having missing data on sexual orientation, transgender status, or LGBT status. Nearly 10% of the respondents

identified themselves as lesbian, gay, bisexual, and/or transgendered (103 out of 1,032).

Demographic Differences in Sexual Orientation and Transgendered Status

Females were significantly more likely than males to report a minority sexual orientation (including being mostly heterosexual, bisexual, mostly homosexual, or 100% homosexual) (13.3% vs. 5.3%, $p < 0.0001$). Although more than half of the transgendered students chose female as their sex (11 out of 17), there were no statistically significant sex differences in transgendered status. There was little variation in sexual orientation by age and there were only modest differences by race/ethnicity. Whites were the most likely to have a minority sexual orientation (16.2%), followed by Hispanic/Latinos (9.3%), those in the “other” race category (9.0%), and Blacks (8.5%) ($p = 0.07$). There were too few transgendered students to discern differences by race/ethnicity or age.

Indicators of Emotional Distress

The mean score on the 5-item scale of depressive symptomatology was 13.4 ($SD = 4.0$). (The scale ranged from 5 to 25, with higher scores indicating more severe depressive symptomatology.) The scale demonstrated high internal consistency, as measured by a Cronbach’s alpha coefficient of 0.75. The depressive symptomatology score for girls ($M = 14.3$, $SD = 3.9$) was significantly higher than the score for boys ($M = 12.2$, $SD = 3.9$) (F statistic = 69.3, $p < 0.0001$). There were no statistically significant

Table 1 Sexual orientation and transgendered status of respondents, $n = 1,032$

Sexual orientation	Transgender status								
	“Yes”		“No”		“Don’t know”		Skipped		Total
	%	(<i>n</i>)	%	(<i>n</i>)	%	(<i>n</i>)	%	(<i>n</i>)	
“Heterosexual”	0.6%	(5)	89.7%	(760)	4.8%	(41)	4.8%	(41)	847
“Mostly heterosexual”	5.7%	(3)	90.6%	(48)	3.8%	(2)	–	(0)	53
“Bisexual”	11.5%	(3)	76.9%	(20)	11.5%	(3)	–	(0)	26
“Mostly homosexual”	–	(0)	100.0%	(3)	–	(0)	–	(0)	3
“Gay or lesbian”	9.1%	(1)	90.9%	(10)	–	(0)	–	(0)	11
“Not sure”	20.8%	(5)	41.7%	(10)	29.2%	(7)	8.3%	(2)	24
Skipped item	–	(0)	58.8%	(40)	17.7%	(12)	23.5%	(16)	68
Total		17		891		65		59	1,032

Note: The dark gray shading represents respondents who are classified as transgendered ($n = 17$); the comparison group includes non-transgendered youth ($n = 891$). The black shading reflects the number of respondents who are classified as having a minority sexual orientation ($n = 93$); the comparison group includes heterosexual youth ($n = 847$). The light gray shading represents respondents who are classified as LGBT ($n = 103$); the comparison group includes heterosexual, non-transgendered youth ($n = 760$)

differences in depressive symptomatology by either age or race/ethnicity.

Less than one-tenth of the sample reported having engaged in self-harm (7.6%) or having experienced suicidal ideation (8.6%) in the 12 months preceding survey administration. Although girls had significantly higher rates of suicidal ideation compared to boys (11.0% vs. 5.2%, $p = 0.0014$), there were only modest, statistically non-significant differences in self-harm by sex (8.0% vs. 7.1%, $p = 0.63$). There was little difference in the prevalence of suicidal ideation and self-harm by race/ethnicity and age.

Table 2 shows the prevalence of indicators of emotional distress by LGBT status stratified by self-reported sex/gender. For these and most of the remaining analyses we analyzed LGBT youth as a single group (24 males, 79 females), with heterosexual, non-transgendered students as the comparison group (330 males, 430 females). This was done to maximize power and because results from individual group analyses (i.e., transgendered vs. not; minority

sexual orientation vs. heterosexual) showed similar patterns (data not shown).

Among both males and females, LGBT youth displayed more emotional distress as compared to heterosexual, non-transgendered youth as evidenced by significantly higher prevalence rates for suicidal ideation and self-harm. The prevalence of self-harm was particularly high among LGBT males, 41.7% of whom reported engaging in that behavior (10 out of 24). LGBT youth also had significantly higher depressive symptomatology scores than heterosexual, non-transgendered youth.

Perceived Discrimination

About seven percent of the respondents reported that they had experienced discrimination because someone thought they were gay, lesbian, or bisexual. There were no notable differences in rates of perceived discrimination by age, race, or sex. Not surprisingly, youth with a minority sexual

Table 2 Indicators of emotional distress among Boston youth, stratified by self-reported sex/gender ($n = 863$)

	Suicidal ideation in the past year			
	Percent	(No)	Odds ratio	(95% CI)
Female				
LGBT	30.8%	(24)	5.38	(2.95, 9.80)
Heterosexual, not transgendered	7.6%	(32)		
Male				
LGBT	29.2%	(7)	10.67	(3.73, 30.56)
Heterosexual, not transgendered	3.7%	(12)		
	Self-harm in the past year			
	Percent	(No)	Odds ratio	(95% CI)
Female				
LGBT	14.3%	(11)	2.17	(1.04, 4.55)
Heterosexual, not transgendered	7.1%	(30)		
Male				
LGBT	41.7%	(10)	20.26	(7.38, 55.62)
Heterosexual, not transgendered	3.4%	(11)		
	Score on the depressive symptoms scale ^a			
	Mean (SD)	(No)	F statistic	p value
Female				
LGBT	15.4 (4.1)	(77)	5.70	0.0174
Heterosexual, not transgendered	14.2 (3.9)	(410)		
Male				
LGBT	13.6 (4.4)	(22)	4.50	0.0346
Heterosexual, not transgendered	11.9 (3.6)	(315)		

Note: These analyses are restricted to respondents who did not have missing data on LGBT status ($n = 863$). Of those, several respondents were missing data on suicidal ideation ($n = 28$), self-harm ($n = 22$), and depressive symptomatology ($n = 52$)

^a A test of significant differences in means by group was conducted using a *T* test. Depressive symptomatology was assessed with a 5-item scale assessing frequency of symptoms, a higher score reflects more symptoms (range: 5–25)

orientation were significantly more likely than heterosexual youth to report perceived discrimination (33.7% vs. 4.3%, $p < 0.0001$). Similarly, a larger percentage of transgendered youth reported discrimination than non-transgendered youth (18.8% vs. 6.4%). LGBT youth as a whole had a substantially increased prevalence of perceived discrimination compared to heterosexual, non-transgendered youth (31.3% vs. 3.7%, $p < 0.0001$). Among LGBT youth, a significantly larger percentage of males reported discrimination (12 out of 24, 50%) than LGBT females (19 out of 75, 25.3%).

Perceived Discrimination, LGBT Status, and Depressive Symptomatology

Respondents who reported having been discriminated against on the basis of minority sexual orientation were significantly more likely than those who did not to report self-harm (25.0% vs. 6.3%) and suicidal ideation (23.9% vs. 7.4%), and also had significantly higher mean scores on the depressive symptomatology scale ($M = 15.6$, $SD = 4.3$ vs. $M = 13.3$, $SD = 3.9$). We tested our expectation that the association between perceived discrimination and emotional distress would vary by LGBT status in multiple regression models. Specifically, we examined whether the interaction term of perceived discrimination and LGBT status was associated with increased levels of depressive symptomatology and found that the term was statistically significant for males ($F = 5.22$, $p < 0.05$), but not for females ($F = 1.58$, $p = 0.21$) (Fig. 1). (Due to limited power, we were unable to examine whether perceived discrimination modified the association between LGBT status and self-harm or suicidal ideation in a similar manner as

depressive symptoms.) Results indicate that, in the absence of perceived sexual orientation-based discrimination, LGBT males and females have levels of depressive symptomatology similar to their heterosexual, non-transgendered peers. By contrast, in the face of discrimination, LGBT males have higher levels of depressive symptomatology relative to heterosexual, non-transgendered boys, and LGBT girls have slightly lower levels of depressive symptomatology relative to heterosexual, non-transgendered girls.

Perceived Discrimination as a Mediator of the Association between LGBT Status and Emotional Distress

Because descriptive results showed that there were associations between LGBT status and depressive symptomatology, self-harm, and suicidal ideation, and between LGBT status and perceived discrimination on the basis of sexual orientation, we ran the full mediation analysis strategy. Table 3 summarizes the results of the regression analyses for each indicator of emotional distress stratified by self-reported sex/gender. We did not control for race/ethnicity or age in the mediation analyses because these variables were not significantly associated with LGBT status or indicators of emotional distress.

The mediation analyses for depressive symptomatology are presented in the top rows of Table 3. Model 1 shows that LGBT status was associated with significantly increased depressive symptoms for both girls and boys. Model 2 shows the association between LGBT status and depressive symptoms adjusting for the effect of perceived

Fig. 1 Depressive symptomatology scores by LGBT status and perceived discrimination. *Note:* Depressive symptomatology was assessed with a 5-item scale assessing frequency of symptoms, a higher score reflects more symptoms (range: 5–25)

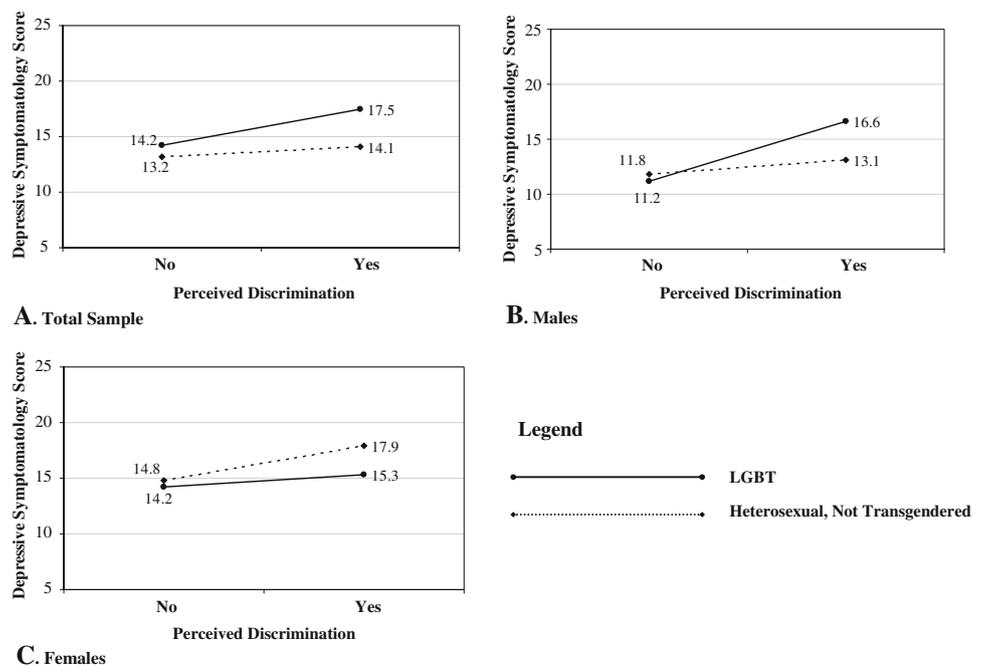


Table 3 The mediating effect of perceived discrimination on the association between LGBT status and emotional distress among Boston public high school students

	Depressive symptomatology			
	Girls (n = 480)		Boys (n = 326)	
	Model 1 b coefficient (se)	Model 2 b coefficient (se)	Model 1 b coefficient (se)	Model 2 b coefficient (se)
Orientation				
LGBT	1.18 (0.48)*	0.91 (0.52)~	1.75 (0.79)*	0.77 (0.85)
Heterosexual, non-transgendered	reference	reference	reference	reference
Discrimination				
Yes		2.21 (0.78)**		2.58 (0.81)**
No		reference		reference
	Self-harm			
	Girls (n = 552)		Boys (n = 398)	
	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 1 OR (95% CI)	Model 2 OR (95% CI)
Orientation				
LGBT	2.17 (1.04, 4.55)	2.23 (1.00, 4.98)	20.27 (7.40, 55.50)	8.76 (2.69, 28.50)
Heterosexual, non-transgendered	reference	reference	reference	reference
Discrimination				
Yes		1.17 (0.35, 3.88)		3.29 (1.02, 10.67)
No		reference		reference
	Suicidal ideation			
	Girls (n = 552)		Boys (n = 398)	
	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 1 OR (95% CI)	Model 2 OR (95% CI)
Orientation				
LGBT	5.39 (2.95, 9.84)	5.32 (2.77, 10.23)	8.58 (2.79, 26.44)	5.37 (1.41, 20.44)
Heterosexual, non-transgendered	reference	reference	reference	reference
Discrimination				
Yes		1.26 (0.47, 3.35)		3.06 (0.77, 12.24)
No		reference		reference

Note: Depressive symptomatology was assessed with a 5-item scale assessing frequency of symptoms, a higher score reflects more frequent symptoms (range: 5–25). Symbols are as follows: ~ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

discrimination on the basis of sexual orientation. The addition of perceived discrimination attenuated the effect of LGBT status on depressive symptoms for girls by 23%. Evidence for the mediating role of perceived discrimination was obtained by conducting a Sobel test (Z-score 2.55, $p < 0.05$). Among boys, the attenuation in the effect of LGBT status on depressive symptoms was even more pronounced (56%), and results of the Sobel test revealed that perceived discrimination was a highly significant mediator of this relationship (Z-score 2.81, $p < 0.005$).

Results for self-harm stratified by sex are presented in the center rows of Table 3. Model 1 shows that LGBT girls and boys had significantly increased risks of self-harm

compared to their heterosexual, non-transgendered peers. Model 2 shows that the addition of perceived discrimination slightly increased the effect of LGBT status on self-harm among girls by 2%, so that the effect of LGBT status was not statistically significant. The Sobel test for mediation revealed that perceived discrimination was not a significant intervening variable between LGBT status and acts of self-harm (Z-score 0.89, $p = 0.37$) for girls. Among boys the effect of being gay, bisexual, or transgendered on self-harm was attenuated by 57% after accounting for the role of perceived discrimination. Results of the Sobel test indicated that discrimination on the basis of sexual orientation strongly mediates the relationship between LGBT

status and self-harm among boys (Z -score 4.16, $p < 0.0001$).

The results of the stratified analysis for suicidal ideation are presented in the bottom rows of Table 3. Model 1 shows that LGBT girls and boys had significantly increased risks of suicidal ideation compared to their heterosexual, non-transgendered counterparts. Model 2 shows results of the final step of the mediation analysis by regressing suicidal ideation on LGBT status while controlling for perceived discrimination among girls and boys. With the addition of the proposed mediator to the model, the effect of LGBT status was reduced by 1% among girls (Z -score 0.56, $p = 0.5$). Therefore, we concluded that perceived discrimination did not mediate the relationship between LGBT status and suicidal ideation among girls. For boys, the main effect of LGBT status was attenuated by 37% with the addition of perceived discrimination to the model, and results of the Sobel test indicated that it was a significant mediator of the relationship between LGBT status and suicidal ideation (Z -score 3.5, $p < 0.001$). Results of the mediation analyses revealed that the mechanism by which LGBT girls experience increased emotional distress may be distinct from the ways in which LGBT status among boys leads to greater emotional distress.

Discussion

Overview of Findings

In this study we used data from a representative sample of high school students in Boston, Massachusetts, to examine: (1) emotional distress among LGBT youth as compared to heterosexual, non-transgendered youth, (2) whether LGBT youth were more likely to report being treated badly or discriminated against by others on the basis of presumed minority sexual orientation, and (3) the extent to which perceived discrimination was a mediator of the LGBT-emotional distress association. About 10% of youth in the sample identified as LGBT, a proportion similar to other youth samples (Austin et al. 2004, 2008; Savin-Williams and Ream 2007). Similar to prior studies (e.g., Garofalo et al. 1999; Lock and Steiner 1999; Russell and Joyner 2001), we found that LGBT youth were more likely than their heterosexual, non-transgendered peers to have emotional distress as demonstrated by higher levels of depressive symptoms, and a greater likelihood of reporting self-harm and suicidal ideation.

Also as expected, we found that LGBT adolescents were significantly more likely to report perceived discrimination on the basis of their minority sexual orientation status. Almost one-third of LGBT youth reported this type of discrimination, compared to just 4% of heterosexual, non-

transgendered youth. More LGBT males experienced discrimination (50%) than females (25%). This finding is consistent with community-based studies of LGBT youth, which found that males were more likely than females to report sexual orientation-related victimization (D'Augelli 2002; D'Augelli et al. 2002, 2006). While few studies have examined the prevalence of discrimination in population-based studies of LGBT youth, results are consistent with a study of US adults in which lesbian, gay, and bisexual respondents were more likely than heterosexual respondents to report lifetime experiences of discrimination both in the form of discrete events such as being fired from a job and in day-to-day mistreatment by others (Mays and Cochran 2001).

An additional interesting finding relevant to gender differences was the interactive effect of discrimination and depressive symptomatology. Among those not reporting discrimination, LGBT youth and heterosexual, non-transgendered youth had similar levels of depressive symptomatology, across both sexes. However, among those who did report discrimination, LGBT males had significantly higher levels of depressive symptoms than heterosexual, non-transgendered males, whereas LGBT females actually had lower levels of depressive symptomatology than heterosexual, non-transgendered females. The results for LGBT girls were surprising. It is possible that factors contributing to depressive symptoms among LGBT males and females may be differently distributed, or they may have different magnitudes of effect. Alternatively, there could have been a ceiling effect for depressive symptoms among LGBT females due to the higher depressive symptoms scores observed among girls in general.

Our third aim was to examine whether perceived discrimination on the basis of sexual orientation partially mediated the association between LGBT status and three indicators of emotional distress. Because research has demonstrated that sexual minority youth exist in a social environment that may be hostile in a variety of ways and that could affect their mental health, we expected to see perceived discrimination account for higher levels of emotional distress among LGBT youth. Our data support this hypothesis for males, but not females. Discrimination accounted for one-third to more than a half of the excess risk in indicators of emotional distress among LGBT males, as compared to heterosexual, non-transgendered males. Results were quite different for females. While perceived discrimination related to sexual orientation was found to be a modest mediator of the LGBT status-depressive symptoms association, it was not a mediator of the associations between LGBT status and self-harm or suicidal ideation.

These findings highlight the important role of perceived discrimination on the basis of sexual orientation in explaining the association between LGBT status and

depressive symptomatology among youth. Specifically, results suggest that perceived discrimination on the basis of sexual orientation may more strongly account for increased depressive symptoms reported by LGBT boys, compared to the role that it plays in depressive symptoms among LGBT girls. However, future studies are needed to confirm these findings. Those studies should assess for differences based on subgroup of sexual minority status. As sexual orientation distributes differently among males and females, it is possible that our finding may reflect this uneven distribution. Males are more likely to identify as gay, whereas females are more likely to identify as bisexual or mostly heterosexual. These differences may mean that a greater proportion of minority sexual orientation males are “out” and affiliated with the LGBT community, as compared to minority sexual orientation females. Both of these factors are related to the risk of sexual orientation-related victimization and discrimination (Huebner et al. 2004; D’Augelli et al. 2002).

Policy Directions

This study reports on the experiences of high school students in Boston, Massachusetts in 2006. Compared to other states in the United States, Massachusetts has taken important steps to expand rights to the LGBT population, including the adoption of same-sex marriage and policies to address LGBT inequalities. For example, in 1993, Massachusetts became the first state to establish a statewide program, the Safe Schools Program for Gay and Lesbian Youth, with the purpose of enhancing support for and safety of LGBT youth (Szalacha 2003). Despite the Program’s success in improving the school climate for LGBT students and in increasing tolerance for diversity, the results of this study indicate that more work needs to be done. A significant proportion of LGBT students attending Boston public high schools say that they experienced discrimination in the past year because someone thought they were gay, lesbian, or bisexual. It is not surprising that these discrimination experiences appear to negatively impact the mental health of LGBT youth and to explain some of their excess risk for emotional distress. Population-based studies of adults have also documented a robust association between perceived discrimination and poorer mental health (Kessler et al. 1999). The good news is that expanding supportive policies and services in schools for LGBT adolescents may help to counter the detrimental effects of discrimination. Goodenow et al. (2006) documented the positive impact of LGBT support groups (e.g., Gay-Straight Alliances) and other efforts to improve the climate for LGBT high school students. For example, lesbian, gay, and bisexual high school students who attended schools with support groups had half the risk of reporting victimization and were less likely to report multiple suicide

attempts. In addition, lesbian, gay, and bisexual students who perceived that there was a school staff member to whom they could turn for help had a lower likelihood of reporting multiple suicide attempts.

Limitations

This study has several important limitations and should be considered carefully within the full body of literature on the well-being of sexual minority youth. Nearly one-third (382 of 1,215) of the Boston Youth Survey participants are not included in the analysis because they did not respond to items about sex, sexual orientation, transgendered status, depressive symptomatology, self-harm, or suicidal ideation. Due to the fact that most of those were excluded from the analysis sample because they did not finish the questionnaire—and therefore did not answer the questions of primary interest—rather than because they selectively skipped questions on depressive symptoms and sexual orientation, we do not believe that the results were inconsistent with what they would have been if all participants were represented. Nonetheless, it is unclear how those participants’ answers would have changed results. As there were only about 100 sexual minority youth, we had limited power to conduct subgroup analyses. Classifying all the different types of sexual minority youth together into one category certainly masks some of the variation within the group (Savin-Williams 2001). Future research should replicate this research with a larger, possibly nationally representative population, and outline the extent to which results vary by whether youth are gay, lesbian, bisexual, or transgender.

Our study suggests that LGBT youth have significantly higher levels of emotional distress than heterosexual, non-transgendered youth, and that the perception of being discriminated against based on sexual orientation is a likely contributor to that distress, particularly for males. To our knowledge, this is the first study to use a representative sample of high school students with LGBT youth and a heterosexual, non-transgendered comparison group to assess differences in emotional distress, to examine the role of perceived discrimination on the basis of sexual orientation, and test for differential effects of this proposed mediator by gender. Taken with the entire body of literature on health among adolescent LGBT, our findings underscore the importance of understanding the experiences of these youths, the distinct experiences of LGBT females and males, as well as the crucial role in developing initiatives to create safe and supportive environments to ensure their emotional well-being (Galliher et al. 2004; Russell and Joyner 2001; Silenzio et al. 2007).

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