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What is This?

Inequities in Educational and Psychological Outcomes Between LGBTQ and Straight Students in Middle and High School

Joseph P. Robinson and Dorothy L. Espelage

This study finds that, compared with straight-identified youth, youth who identify as lesbian, gay, bisexual, transgender, or questioning (LGBTQ) are at greater risk of suicidal thoughts, suicide attempts, victimization by peers, and elevated levels of unexcused absences from school. Results disaggregated by LGBTQ subgroups reveal heterogeneity within the broad LGBTQ group, with bisexual youth appearing to be particularly at risk. Also, although the risk gaps in school belongingness and unexcused absences are significant in high school, we find that these gaps are significantly greater in middle school, suggesting heightened early risk for LGBTQ-identified students. By raising awareness of educational inequities related to LGBTQ identification, this study lays the descriptive groundwork for interventions aimed at improving psychological and educational outcomes for these students.

Keywords: at-risk students; gay/lesbian studies; multilevel modeling; stress/coping

Previous research has indicated that sexual minority youth—lesbian, gay, bisexual, transgender, or questioning (LGBTQ)—tend to have higher rates of negative psychological and educational outcomes than do straight youth (e.g., Bontempo & D'Augelli, 2002; Elze, 2007; Russell, Driscoll, & Truong, 2002; Russell, Seif, & Truong, 2001). More recently, studies have suggested that LGBTQ youth are not a homogeneous group in relation to their educational and psychological experiences, with some LGBTQ youth reporting few mental health or educational concerns (Horn, Kosciw, & Russell, 2009). However, much more research is needed in order to understand the heterogeneity of this population, as well as whether there are developmental differences between LGBTQ and straight students in terms of when risk factors become elevated.

Using a large, population-based sample of students spanning middle school to high school, we explore differences between LGBTQ- and straight-identified youth in both psychological and educational outcomes, testing for evidence of grade-related developmental differences. Specifically, we explore differences in mental health outcomes (i.e., suicide ideation, suicide attempts), victimization (i.e., cyber-bullying victimization, general victimization), school connections (i.e., school connectedness, openness to study with LGBTQ youth), and truancy. The sample is unique in that it includes middle school students, not just high school students. This feature permits us to explore whether risk levels for LGBTQ- and straight-identified youth change at different rates between middle and high school. This analysis will add to our understanding of whether interventions need to be targeted to different grade levels.

In addition, we add much-needed work on heterogeneity of outcomes among LGBTQ-identified students. Our sample is also unique in including students who identify as transgender, and the sample recruitment methods did not specifically target sexual minority students; thus our sample is more likely to reflect the full spectrum of LGBTQ students, including students who are questioning their sexuality, which allows us to explore heterogeneity among the LGBTQ-identified students. Some preliminary studies suggest that *bisexual* and *questioning* youth—who most likely outnumber youth who identify as strictly gay or lesbian (Espelage, Aragon, Birkett, & Koenig, 2008; Russell et al., 2001; Savin-Williams, 2005)—may be at even greater risk for negative outcomes (Espelage et al., 2008; D'Augelli, Hershberger, & Pilkington, 2001). For example, bisexual youth appear to have worse school outcomes than lesbian or gay youth (Russell & Seif, 2002; Russell et al., 2001). As a result of their work, Russell and Seif (2002) called for research to separate bisexual from lesbian and gay youth in order to understand the unique risk factors for each group.

Although little is known about the bisexual and questioning community, even less is known about *transgender*-identified youth. *Transgender* usually is an umbrella term used to describe youth with gender identities, expressions, or behaviors that are different from the biological sex at birth (Kirk & Kulkarni, 2006). In a recent study, McGuire, Anderson, Toomey, and Russell (2010) conducted a survey with 68 transgendered youth and also conducted focus groups with 35 youth. The results of this study suggest that harassment due to transgendered identity is pervasive and associated with negative school safety perceptions for these youth. This is not surprising given the finding that gender nonconformity, regardless of sexual orientation, is often

associated with victimization among peers (Brooks, 2000; Kosciw, 2004).

Finally, note that our hierarchical analyses account for the fact that students are nested within schools and that school climates toward LGBTQ identity may covary with negative outcomes, as suggested by Espelage and colleagues (2008) and Birkett, Espelage, and Koenig (2009). We also perform several analyses to address potential limitations and to assess the stability of our results. In sum, the objective of this study is to provide a contemporary set of rigorous statistics on these issues, which we hope will motivate causal-effects research on the mechanisms that contribute to differences in outcomes between LGBTQ and straight students, and encourage the development of effective interventions aimed at eliminating those mental health and educational inequities.

Background

We begin by briefly discussing the literature on developmental milestones in LGBTQ identification, which suggests that the students in our sample are likely to understand terms like *lesbian* or *gay* and may themselves be in the process of identifying as a sexual minority. We then review the existing literature on LGBTQ and straight individuals as it relates to the outcomes of interest in our study.

Youth and LGBTQ Identification

In our sample, the median age is 13 years for middle school students and 16 years for high school students. Prior research suggests that children already know about LGBTQ labels by these ages and have likely experienced same-sex attraction and displayed gender nonconformist behavior as well. Rieger, Linsenmeier, Gygax, and Bailey (2008) found that, compared with straight individuals, gay individuals exhibited significantly more gender nonconformist behavior in earlier home videos (when they were on average 4–5 years old in the videos). The mean age of self-awareness of same-sex attraction, however, occurs later, by age 10 or 11 years, whereas the mean age of nonheterosexual self-labeling ranges between 14 and 16 years (D'Augelli, 1998; D'Augelli & Hershberger, 1993; Herdt & Boxer, 1993; Rosario, Rotheram-Borus, & Reid, 1996; Savin-Williams & Diamond, 2000). Fewer studies have been conducted to identify the age at which transgendered individuals become aware of the mismatch between their biological sex and their gender identity and the age at which they self-identify as transgender. However, research by Grossman and D'Augelli (2006) suggests that these milestones occur relatively early for transgender individuals as well: In their sample of 24 self-identified transgendered individuals, the mean age of awareness was 10.4 years (range 6–15) and the mean age of self-labeling was 14.3 (range 7–18).

Mental Health Outcomes: Suicidal Ideation and Suicide Attempts

Suicide among sexual minority youth is a major public health concern. A number of studies have reported high rates of suicide attempts among sexual minority youth (D'Augelli & Hershberger, 1993; D'Augelli, Pilkington, & Hershberger, 2002; Espelage et al., 2008; Paul et al., 2002; Safren & Heimberg, 1999), and

these youth were significantly more likely to be at risk of suicidal completion than heterosexual youth (Eisenberg & Resnick, 2006; Remafedi, French, Story, Resnick, & Blum, 1998). The Child Welfare League of America (2009) found that in 2005, 45% of gay, lesbian, or bisexual youth attempted suicide, compared with 8% of heterosexual youth. However, when school climate is perceived as positive, it may serve to buffer against the experience of negative psychological and social concerns among sexual minority youth (Espelage et al., 2008). That is, lesbian, gay, or bisexual (LGB) and sexually questioning students who had experienced homophobic teasing, but perceived their schools as positive, reported less depression, suicidality, and alcohol and drug use than did LGB and questioning students who were bullied and in a negative school climate.

A recent meta-analysis of 25 international population-based studies of adolescents and young adults found that, over their lifetimes, gay or bisexual men were more than four times more likely to attempt suicide than heterosexual men, and lesbian or bisexual women were almost twice as likely as heterosexual women to do so (King et al., 2008). They also found that LGB individuals as a group were twice as likely as heterosexuals to consider suicide.

Victimization: School- and Cyber-Based Bullying

As school-based research with LGBTQ youth moves forward, it is important to understand how victimization in schools and through technology might contribute to educational and psychological experiences. Within the past five years, research has shown that a large percentage of bullying among students involves the use of homophobic teasing and slurs (Poteat & Espelage, 2005; Poteat & Rivers, 2010). Bullying and homophobic victimization occur more frequently for lesbian, gay, bisexual, or transgender (LGBT) youth in American schools than for students who identify as heterosexual (Birkett, Espelage, & Koenig, 2009; Kosciw, Greytak, & Diaz, 2009). A recent nationwide survey of LGBT youth reports that 84.6% of LGBT students reported being verbally harassed, and 40.1% reported being physically assaulted at school in the past year because of their sexual orientation (Kosciw, Greytak, Diaz, & Bartkiewicz, 2010). A population-based study of more than 200,000 California students found that 7.5% reported being bullied in the past year because they were "gay or lesbian or someone thought they were" (O'Shaughnessy, Russell, Heck, Calhoun, & Laub, 2004, p. 3). Of note, among sexual minority youth, transgendered youth appear to be at the greatest risk for school failure and are often victimized because of their gender expression (Brooks, 2000; Kosciw, 2004). However, Bontempo and D'Augelli (2002) found that LGB youth also were at higher risk for school victimization and health risk behaviors such as substance abuse, sexual risk taking, and mental health issues than their non-LGB peers. In addition, LGB youth who were victimized reported more risky behaviors than did nonvictimized LGB youth.

Even without being a direct target of homophobic bullying, a student may feel isolated from friends and teachers because of the antigay attitudes and behaviors present in schools; 91.4% of students in an LGBT middle and high school sample reported that they *sometimes* or *frequently* heard homophobic remarks in school, such as "faggot," "dyke," or "queer." Of these students, 99.4%

said they heard remarks from students and 63% said they heard remarks from faculty or school staff (Kosciw & Diaz, 2006; Kosciw, Diaz, & Greytak, 2008). The pervasiveness of antigay language in schools suggests that most school environments are hostile for LGBT students and that antigay language may contribute to negative environments for their heterosexual peers as well.

Despite the growing interest in cyber-bullying or electronic aggression, very little is known about the rates of cyber-bullying among LGBT. One exception is a recent study conducted by Blumenfeld and Cooper (2010). Of the 350 self-identified non-heterosexual and 94 "straight ally" participants (ages 11–22 years), 54 reported being cyber-bullied in the past month because of their sexual identity or because of their identification with LGBT youth. When asked how they felt after being cyber-bullied, 45% reported feeling depressed, 38% embarrassed, and 28% anxious about simply going to school; 25% reported having suicidal thoughts. Although these figures are startling, it is important to consider that the sample was limited in size and was limited to LGBT youth and straight allies; thus it is not clear how these rates vary from a general study population.

School Connections and Truancy

According to a 2003 survey of Massachusetts high school students, individuals who identified as LGB were nearly five times as likely as students who identified as heterosexual to report not attending school because of feeling unsafe (Massachusetts Department of Education, 2004). A recent nationally representative survey reported that 29.1% of LGBT students had missed a class at least once and 30.0% had missed at least one day of school in the past month because of safety concerns, compared with only 8.0% and 6.7%, respectively, of a national sample of secondary school students (Kosciw et al., 2010). Also, in this sample, the reported grade point average of students who were more frequently harassed because of their sexual orientation or gender expression was almost half a grade lower than that of students who were less often harassed. LGBT students also tend to have more negative school attitudes (Espelage et al., 2008; Russell et al., 2001) and are more likely to miss school because of fear (Garofalo, Wolf, Kessel, Palfrey, & DuRant, 1998).

Method

The analytic data set contains anonymous survey responses[1] (collected via SurveyMonkey in 2008–2009) from a total of 13,213 students (n = 3,826 middle school [Grades 7–8]; n = 9,387 high school [Grades 9–12]) in 30 schools in Dane County, Wisconsin. The survey included 117 items on a range of topics including sexual identity, suicide, sexual behavior, drug usage, bullying, and victimization. The Dane County Youth Assessment (DCYA) is a survey administered across all schools in the county as a collaborative project among the schools and several community organizations (e.g., the United Way, the Dane County Department of Human Services). The county represents geographically diverse areas ranging from small working farms to a large city. Free or reduced-cost lunch ranged from 16% to 58% across the schools. The survey assessed a wide range of physical and mental health indicators, as well as various attitudes and social behaviors. Students completed these anonymous surveys independently

during proctored sessions while in school. A waiver of active consent was employed, and child written assent was used. Surveys were completed by all 7th- through 12th-grade students, and the response rate was very high, ranging from 90% to 95% across the 30 schools. The DCYA data set contains a total of 17,366 student responses.

Exclusion Criteria

We now discuss three different exclusion criteria that led to our main analytic sample of 13,213 students.

Implausible or missing weights and heights. Students were asked to type in their heights and weights. Students who entered implausible heights and weights (or who did not answer these questions) were dropped from the sample. This left 14,585 records remaining.

Multiple low-frequency responses. The sensitive nature of questions about sexual orientation and transgender identity poses challenges for researchers. Although anonymous questionnaires are in fact deemed most appropriate for asking adolescents about these topics (Badgett, 2009), some adolescents may take advantage of this anonymity and willfully provide false responses, which can lead to incorrect conclusions about minority populations when using self-reported surveys alone (Fan et al., 2006). To reduce the influence of these mischievous responders, we created a screening tool to identify students who consistently provide unusual responses. For this screener, we used eight survey items that were, in principle, unrelated to sexual orientation and transgenderism[2] but that had low-frequency response options (e.g., answering *yes* to a question about having a family member in a gang; see Table 1 for a complete list). Our logic is that these low-frequency response options may tempt students to provide false responses in a manner similar to questions about sexual orientation.

Although students may reasonably provide a low-frequency response to one of the screener items, the probability that the student is taking the survey seriously decreases as the number of low-frequency responses increases (e.g., a student who responds that he or she has more than two children *and* ended a pregnancy *and* is in a gang *and* has not seen a doctor in more than six years). The data were consistent with the possibility that a larger proportion of the LGBTQ-identified students were potentially mischievous responders (see Table 2): Whereas fewer than 3% of straight-identified students supplied two or more low-frequency responses to this set of screener items, more than 12% of LGBTQ-identified students did. As a result, we chose to exclude from the main analytic sample any student who met the criterion of two or more low-frequency responses (a total of 461 students: 335 straight identified, 91 LGBTQ identified, and 35 with ambiguous identities, discussed next). This left 14,124 records remaining.

It is important to note that if the excluded observations were in fact valid (implying that LGBTQ students are at a higher risk level in a more global sense), then our exclusion criterion would result in an *underestimate* of the LGBTQ–straight difference on the outcomes of interest in the current study—that is, our analytic choice biased our results *against* finding differences. Later, we discuss how reintroducing the multiple-low-frequency responders exacerbates differences between straight- and LGBTQ-identified students (and each subgroup).

Table 1
Screener Items: Survey Items Used to Identify Multiple-Low-Frequency Responders

Survey Item	Low-Frequency Response (and the Percentage of Students Selecting It)
On an average school night, how many hours of sleep do you get?	*10+ hours* (2.98%)
When was the last time you were seen by a doctor or other health professional (not including the school nurse)?	*Over 6 years ago* (0.82%)
When was the last time you were seen by a dentist?	*Over 6 years ago* (1.34%)
Is one or more of your family members (excluding yourself) involved in a street gang?	*Yes* (5.19%)
Are you a member of an organized street gang?	*I was in a gang, but am no longer* or *Yes, I am currently in a gang* (3.53%)
Have you ever ended a pregnancy?	*Yes* (1.58%)
If you have children, how many do you have?	*I have more than 2 children* (0.67%)
During the PAST 30 DAYS, on how many days DID YOU carry a weapon onto school property?	*6 or more days* (1.05%)

Table 2
Percentage of Low-Frequency Responses Supplied, by LGBTQ Identification

Number of Low-Frequency Responses Supplied	Straight (*n* = 12,894)	LGBTQ (*n* = 745)	Total (*N* = 13,639)
0	89.10	73.42	88.25
1	8.30	14.36	8.63
2	1.89	6.58	2.15
3	0.47	2.55	0.59
4	0.11	1.34	0.18
5	0.09	0.40	0.11
6	0.01	0.81	0.05
7	0.02	0.54	0.05
8	0.00	0.00	0.00

Note. The horizontal line below 1 low-frequency response indicates our exclusion criterion. LGBTQ = lesbian, gay, bisexual, transgender, or questioning.

Ambiguous sexual orientation/transgender identity. Finally, we retained students with valid responses to the LGBTQ identity question. Specifically, we excluded two types of "ambiguous-identity" students at this stage: (a) those who did not answer the question (i.e., missing data; *n* = 374) and (b) those who said they identified as LGBTQ *and* simultaneously said they did not identify as LGBTQ (i.e., contradictory data; *n* = 537).[3] We later discuss how models including these students generally do not lead to different conclusions.

The final main analytic data set includes 13,213 students from 30 schools. Our statistical models (discussed in the next section) account for the nested structure of the data; failure to account for the nested structure results in artificially small standard errors and, thus, incorrect inferences. Descriptive statistics appear in the supporting online materials, in Tables S1 and S2 (for further details, see supplemental document available on the journal website).

Variables

The DCYA contains 117 items that were developed through an iterative process including expert panels, item-level analyses, and factor analysis for multiple-item scales. Each year, representatives from all Dane County school districts and community funding bodies are invited to provide input on the assessment. Eight of the 117 items are central to the current study and are discussed below. The exact survey items are provided in the online supplemental materials.

LGBTQ identification (Item 6). In the demographic section of the survey, students were asked to identify their sexual orientation or gender identity as *gay, lesbian, bisexual, questioning, transgender*, or *none of the above*. Students could choose more than one category, as coidentification is fairly common among LGBTQ youth (Savin-Williams, 2005). As shown in Table 3, a total of 654 students (4.9% of the analytic sample) selected at least one LGBTQ category. If a student selected *none of the above* and did not also select an LGBTQ category, we considered them "straight identified" (*n* = 12,559).

Suicide ideation (Item 53). Students were asked if they had thought seriously about killing themselves in the past month, with mutually exclusive response options: *no; yes, but rarely; yes, some of the time*; and *yes, almost all of the time*.[4]

Suicide attempts (Item 54). This item asked students if they had attempted suicide in the past year, with mutually exclusive response options: *no; yes, 1 time*; and *yes, more than 1 time*.

Victimization composite (Items 110a–d). Four subitems asked how frequently students were the victims of (a) cyber-bullying, (b) bullying on the basis of perceived sexual orientation, (c) bullying on the basis of race or ethnicity, and (d) bullying on the basis of how they looked. Each item had mutually exclusive response options: *never, rarely, sometimes, often*, and *very often*. The internal consistency of the four items was high, α = .72, and they were subsequently averaged to form a single measure.

Cyber-bullying victimization (Item 110a). This item is discussed above. We look at it separately because it is not conceptually

Table 3
LGBTQ (Co)Identification in the Main Analytic Sample

Column Percentage Identifying as	Straight (*n* = 12,559)	LGBTQ (*n* = 654)	Lesbian/Gay (*n* = 90)	Bisexual (*n* = 331)	Transgender (*n* = 72)	Questioning (*n* = 217)
Lesbian/gay	0.0	13.8	100.0	3.6	12.5	5.5
Bisexual	0.0	50.6	13.3	100.0	15.3	10.6
Transgender	0.0	11.0	10.0	3.3	100.0	2.3
Questioning	0.0	33.2	13.3	7.0	6.9	100.0

Note. Total sample size in the main analytic data set is 13,213. Column percentage total for straight is 0, by definition. All other column percentage totals may be greater than 100 because of coidentification as another group (e.g., a lesbian or gay student who also identifies as bisexual). LGBTQ = lesbian, gay, bisexual, transgender, or questioning.

related to a basis for bullying (e.g., perceived sexual orientation) but, rather, is a mode of bullying.

Preferring to attend a school with no gay or lesbian students (Item 109d). Students were asked to choose *strongly disagree, disagree, agree,* or *strongly agree* with respect to the statement "I would rather attend a school where there are no gay or lesbian students."

School belongingness composite (Items 103a–f). Six subitems asked students to choose *strongly disagree, disagree, agree,* or *strongly agree* with respect to statements about (a) the clarity of school rules and expectations, (b) their enjoyment of being at school, (c) the importance of graduating, (d) fair treatment by teachers and other adults, (e) having an adult at the school they could talk to if they had a problem, and (f) feeling that they belonged at the school. These six items displayed high internal consistency, α = .80, and were thus averaged into a single measure.

Unexcused absences (Item 106). Students reported how many days in the past four weeks they had skipped school (i.e., were absent without permission): *none, 1–2 days, 3–5 days, 5–10 days,* or *10 or more days*.[5]

Statistical Analyses

To account for the nested structure of the data (i.e., students nested within schools), we use two different techniques. For categorical outcomes, we use a two-level (Level 1: students; Level 2: schools) generalized linear latent and mixed model (GLLAMM; see Rabe-Hesketh & Skrondal, 2005) with a multinomial logit link function and robust standard errors clustered at the school level.[6] For continuous outcomes, such as the composite victimization scale, we use a school fixed-effect regression with heteroskedastic robust standard errors clustered at the school level.[7]

Categorical outcome models. The basic logic of our GLLAMMs is: For any outcome R (e.g., suicide attempts), a student i in school j could choose survey response option 1 (e.g., no attempts), 2 (e.g., 1 attempt), or 3 (e.g., more than 1 attempt). To make the model more general, say there are a total of A response options. We then model the probability that a student gave each response: For example, we predict the probability that a student responded that he or she had attempted suicide once this past year, $\Pr(R_{ij} = 2)$ and so on. Each student's response is predicted by his or her LGBTQ identification. Our models include an indicator for each individual LGBTQ category (e.g., a lesbian/gay

indicator variable, a transgender indicator variable). The models also include an indicator for whether the student is female and an indicator for whether the student is in middle school. Collectively, we denote the constant term along with this vector of indicator variables as $\mathbf{X}$. Each school has a random intercept for a response option (ω_j^a at Level 2)[8] to allow for variation across schools in the average level of the outcome. The standard errors are appropriately adjusted for clustering at the school level and for heteroskedasticity. Thus for any response option a, the probability of choosing that option is

$$\Pr\left(R_{ij} = a\right) = \frac{\exp\left(\mathbf{X}'_{ij}\boldsymbol{\beta}^{\mathbf{a}} + \varpi_j^a\right)}{\sum_{a=1}^{A}\exp\left(\mathbf{X}'_{ij}\boldsymbol{\beta}^{\mathbf{a}} + \varpi_j^a\right)},$$

where all fixed and random effects are set to 0 when $a = 1$, thus ensuring a reference category for estimation. Coefficient estimates ($\hat{\boldsymbol{\beta}}$) and Level 2 random-effects variances are presented in Tables S3–S7 (see online supplemental document).

Following estimation of the coefficients and variance of the random intercepts, we predict the probability that a student has selected a specific response option a:

$$\widehat{\Pr\left(R_{ij} = a\right)} = \frac{\exp\left(\mathbf{X}'_{ij}\hat{\boldsymbol{\beta}}^{\mathbf{a}}\right)}{\sum_{a=1}^{A}\exp\left(\mathbf{X}'_{ij}\hat{\boldsymbol{\beta}}^{\mathbf{a}}\right)}.$$

Predicted probabilities are presented in Tables S10–S14 (see online supplemental document). These predicted probabilities are helpful for two reasons: First, they translate the estimated coefficients into a more meaningful representation (Raudenbush & Bryk, 2002). Second, because LGBTQ students sometimes coidentify (Savin-Williams, 2005), the predicted probabilities combine the estimated coefficients so that they accurately reflect this coidentification. Note that the main article text presents predicted percentages, which are simply the predicted probabilities multiplied by 100%.

Continuous outcome models. For outcomes on the composite indices for victimization and school belongingness, we estimate school fixed-effects regressions with heteroskedastic robust standard errors clustered at the school level. Like the GLLAMMs used for the categorical response outcomes, these models account for unobserved idiosyncratic differences between school climate and outcomes while adjusting the standard errors for correlated

outcomes within schools. Thus the estimates from these models are consistent, and the inferences are valid. The models take the form

$$y_{ij} = \mathbf{X'_{ij}\beta} + \boldsymbol{\alpha_j} + \boldsymbol{\varepsilon}_{ij,}$$

where outcome *y* (e.g., victimization composite score) is predicted by LGBTQ identity, gender, and grade level (the vector **X**) and an indicator for each school (the vector **α**), and ε is the random error for student *i* in school *j*. (The coefficient estimates from these models are presented in Tables S8 and S9; see online supplemental document.) Also similar to the predicted probabilities for the categorical outcomes, following the regression estimation, we predict the mean levels of the outcome for each group (again, reflecting coidentification), covarying out grade-level, gender, and idiosyncratic school effects. The predicted means are presented in Tables S15 and S16 (see online supplemental document).

Developmental differences in outcomes between middle and high school. It is possible that the patterns of outcomes vary systematically between middle school and high school or that LGBTQ × Middle and High School interactions exist. (Because of the small cell sizes of students who identified in specific LGBTQ subgroups in middle school, we did not have sufficient power to explore these subgroup interactions, e.g., Bisexual Identified × Middle and High School.) For each outcome, we ran preliminary analyses testing for such differential patterns. For categorical outcomes, multinomial logistic regressions with heteroskedastic robust standard errors clustered at the school level were tested for interactions between the LGBTQ category and being in a middle school grade. These preliminary analyses suggested the need for LGBTQ × School Level interactions for only one of the five categorical outcomes: unexcused absences (p = .0006). The LGBTQ × School Level interactions were not significant for suicide ideation (p = .65), suicide attempts (p = .51), preferring to attend a school with no gay or lesbian students (p = .90), or cyber-bullying victimization (p = .27). Regarding the continuous outcomes, the LGBTQ × School Level interaction was significant for school belongingness (p = .02) but not for the victimization composite (p = .80).

Results

All reported values for categorical outcomes are predicted percentages (referred to below as *P*) derived from the GLLAMM coefficient estimates. Reported values for continuous outcomes are predicted means (referred to below as *M*) derived from the fixed-effect regressions.

Suicide Ideation

Straight-identified students were more likely than LGBTQ-identified students to report not considering suicide, P_{straight} = 91.9% vs. P_{LGBTQ} = 74.1%, $\chi^2(1)$ = 303.90, p < .0001. LGBTQ-identified students were significantly more likely to have seriously considered suicide rarely or some of the time, P_{straight} = 7.7% vs. P_{LGBTQ} = 23.1%, $\chi^2(1)$ = 231.66, p < .0001, and almost all of the time, P_{straight} = 0.4% vs. P_{LGBTQ} = 2.8%, $\chi^2(1)$ = 184.81, p < .0001, in the month prior to completing the survey (see the top panel of Figure 1). When disaggregating the LGBTQ group, bisexual- and questioning-identified students were significantly more likely than

straight-identified students to report thinking about suicide, ps < .0001. Perhaps the most sobering statistic from the disaggregated analyses is that although less than half of 1% of straight-identified students reported thinking seriously about killing themselves "almost all of the time," 5.6% of bisexual-identified students reported doing so, $\chi^2(1)$ = 168.42, p < .0001.

Response patterns (i.e., looking across all three response options for suicide ideation) of straight-identified students differed from those of LGBTQ-identified students collectively, $\chi^2(2)$ = 329.86, p < .0001, as well as from each individual category of LGBTQ (except lesbian/gay, p =.08), ps < .016. Within the group of LGBTQ-identified students, however, there was a great deal of heterogeneity, as indicated by the fact that none of the LGBTQ subgroups share a superscript in the top panel of Figure 1. (Within each panel, groups sharing a superscript have response patterns that are *not* statistically different from each other; i.e., p > .05. That is, to find out if two groups have similar patterns, simply see if they share a superscript; if they do, then their patterns are statistically similar.)

Suicide Attempts

The bottom panel of Figure 1 illustrates that LGBTQ-identified students were more likely than straight-identified students to report attempting suicide once in the year prior to survey completion, P_{straight} = 1.8% vs. P_{LGBTQ} = 6.2%, $\chi^2(1)$ = 53.00, p < .0001, and more than once in that time period, P_{straight} = 0.6% vs. P_{LGBTQ} = 3.0%, $\chi^2(1)$ = 102.57, p < .0001.

Disaggregated analyses show that the pattern of suicide attempts was different between straight-identified students and each category of LGBTQ-identified students, ps < .012, except for transgender-identified students, $\chi^2(2)$ = 3.21, p = .20. Within the LGBTQ group, there was less heterogeneity of responses with respect to suicide attempts than with respect to suicide ideation; nevertheless, bisexual-identified students had response patterns different from those of questioning- and transgender-identified students, ps < .039.

Cyber-Bullying Victimization

Overall response patterns differed between middle and high school students, $\chi^2(4)$ = 16.29, p = .0027, with cyber-bullying victimization slightly higher among middle students; however, recall that our preliminary analyses suggested that there is no LGBTQ × Middle and High School interaction. As a group, LGBTQ-identified students are significantly more likely than straight-identified students to be the victims of cyber-bullying, shown in the top panel of Figure 2. Compared with the 80.8% of straight-identified students who report no cyber victimization, only 66.0% of all LGBTQ-identified students do, $\chi^2(1)$ = 38.20, p < .0001, and only 55.3% of bisexual-identified students do, $\chi^2(1)$ = 53.93, p < .0001.

In addition to the significant differences in the patterns for straight students and the collective group of LGBTQ students, $\chi^2(4)$ = 102.57, p < .0001, Figure 2 shows significantly different response patterns between straight- and bisexual-identified students, $\chi^2(4)$ = 143.98, p < .0001, and questioning-identified students, $\chi^2(4)$ = 18.46, p = .001. Note too that bisexual-, questioning-, and transgender-identified students have response patterns that differ from each other, ps < .035.

Suicide Ideation, by LGBTQ Identification

During the past 30 days, have you seriously thought about killing yourself?

Group	No	Yes, but rarely or Yes, some of the time	Yes, almost all of the time
Straight[a]	91.9	7.7	
LGBTQ[b]	74.1	23.1	
Lesbian/Gay[a]	85.5	14.0	
Bisexual	58.6	35.8	5.6
Transgender	93.9	4.1	
Questioning[b]	71.9	25.5	

Percentage of Group

■ No ■ Yes, but rarely *or* Yes, some of the time ■ Yes, almost all of the time

Suicide Attempts, by LGBTQ Identification

During the past 12 months, have you attempted to kill yourself?

Group	No	Yes, 1 time	Yes, more than 1 time
Straight[a]	97.6		
LGBTQ[b,c]	90.8	6.2	3.0
Lesbian/Gay[b,d,e]	93.4	5.1	
Bisexual[d]	83.2	9.8	7.0
Transgender[a,c,e,f]	97.3		
Questioning[b,f]	90.1	8.2	

Percentage of Group

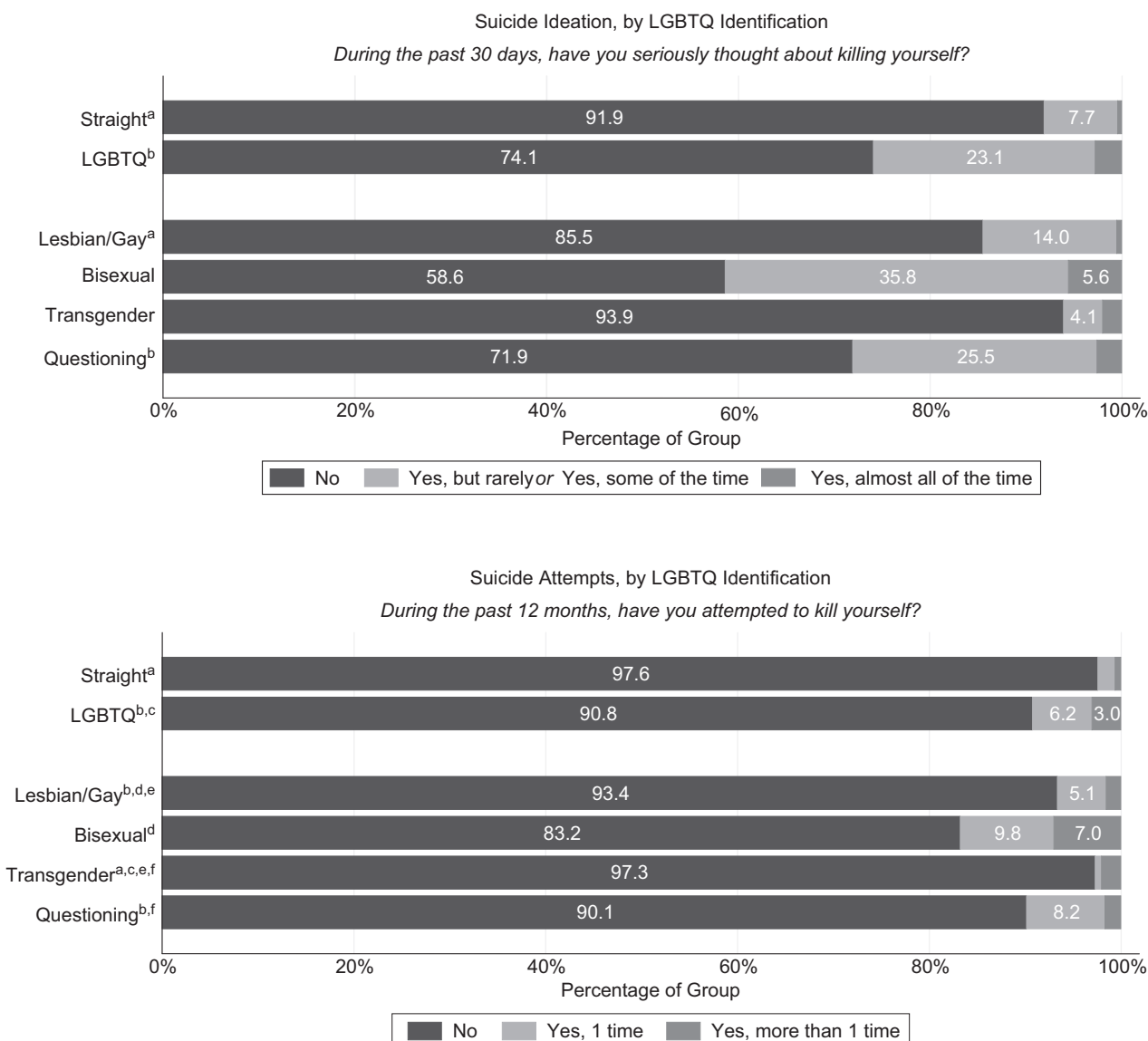■ No ■ Yes, 1 time ■ Yes, more than 1 time

FIGURE 1. *Suicide ideation and attempts, by lesbian, gay, bisexual, transgender, or questioning (LGBTQ) identification. Within each panel, groups with a common superscript letter have response patterns that are* not *significantly different from one another (i.e.,* p > .05). *Precise* p *values can be found in the online supplemental document. For ease of reading, percentages less than 3% are not labeled, but their precise values can be found in the online supplemental document.*

Victimization (Composite)

Middle and high school students did not differ significantly in mean levels of victimization, M_{middle} = 0.34 vs. M_{high} = 0.31, $F(1, 29)$ = 1.56, p = .22. The difference between straight- and LGBTQ-identified students, however, was significant, $M_{straight}$ = 0.30 vs. M_{LGBTQ} = 0.78, $F(1, 29)$ = 158.12, $p < .0001$. Of note, the difference in means between LGBTQ- and straight-identified students is more than 17 times the difference between the means of middle and high school students.

Preferring to Attend a School With No Gay or Lesbian Students

Overall patterns differed by school level, with middle school students more often preferring to attend a school without gay or lesbian students, $\chi^2(3)$ = 147.31, $p < .0001$. However, there was no evidence of any LGBTQ × Middle and High School interaction. Shown in Figure 3, straight-identified students were more likely than LGBTQ-identified students to prefer to attend school without gay or lesbian students, $\chi^2(3)$ = 148.23, $p < .0001$. Perhaps more interesting is the great deal of heterogeneity *among* LGBTQ-identified students: Among LGBTQ students, only bisexual- and questioning-identified students produced similar responses, $\chi^2(3)$ = 6.05, p = .11.

This difference between transgender-identified students and students identified as lesbian, gay, bisexual, or questioning (LGBQ) may reflect the distinction between sexual orientation and gender identity. That is, transgender individuals do not necessarily identify as gay or lesbian (American Psychological Association, 2011; Carter, 2000; Clements-Nolle, Marx,
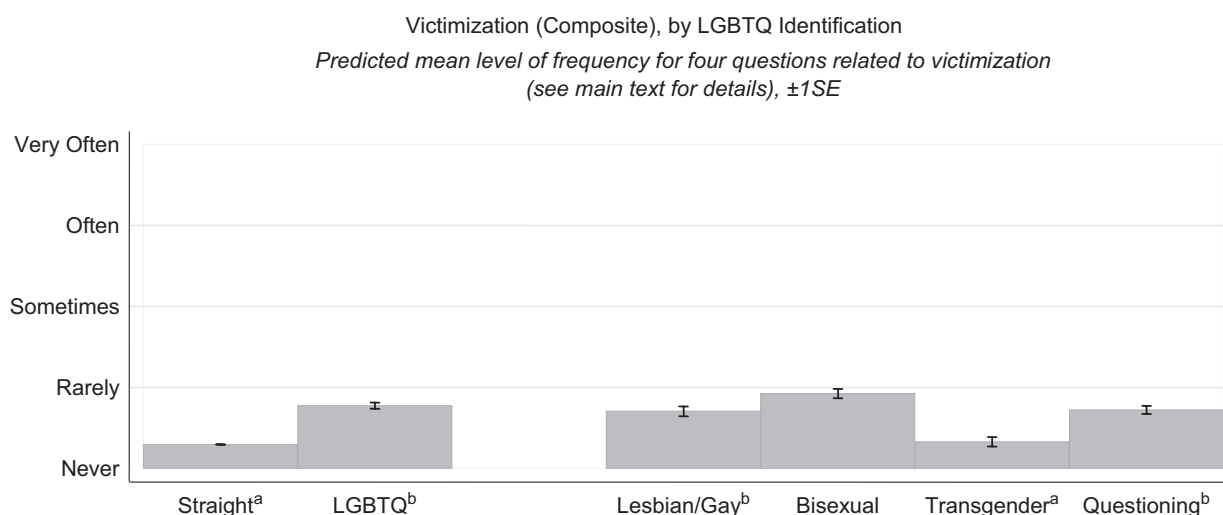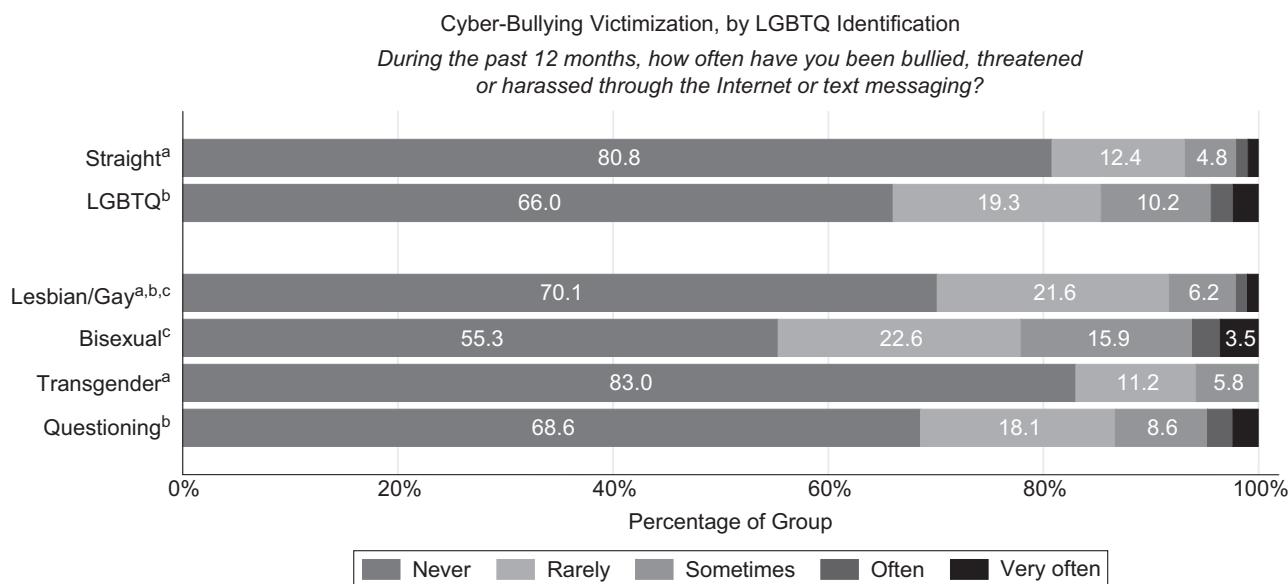
Cyber-Bullying Victimization, by LGBTQ Identification

During the past 12 months, how often have you been bullied, threatened or harassed through the Internet or text messaging?

Victimization (Composite), by LGBTQ Identification

Predicted mean level of frequency for four questions related to victimization (see main text for details), ±1SE

FIGURE 2. *Cyber-bullying victimization and victimization composite score, by lesbian, gay, bisexual, transgender, or questioning (LGBTQ) identification. Within each panel, groups with a common superscript letter have response patterns (top panel) or means (bottom panel) that are* not *significantly different from one another (i.e.,* p *> .05). Precise* p *values can be found in the online supplemental document. For ease of reading, percentages less than 3% are not labeled, but their precise values can be found in the online supplemental document.*

Guzman, & Katz, 2001; Devor, 1993), yet they often get grouped in with LGBQ students and often are the target of homophobia (Carter, 2000; Grossman & D'Augelli, 2006). In our sample, only 12.5% of transgender-identified students also identified as gay or lesbian. Perhaps these transgender students think that if lesbian or gay students were not attending the same school as they, others would associate them less with lesbian or gay students and tease them less. This is purely speculative, but the data patterns suggest that this topic should be explored in future research.

School Belongingness (Composite)

The mean level of school belongingness differed between middle and high school students, M_{middle} = 2.30 vs. M_{high} = 2.21, $F(1, 29)$ = 16.66, p = .0003. Straight students and LGBTQ students also differed in their mean levels, $M_{straight}$ = 2.24 vs. M_{LGBTQ} = 2.03, $F(1, 29)$ = 141.45, p < .0001. Note that the difference in straight and LGBTQ means in school belongingness is more than twice the size of the middle school–high school difference.

In relative terms, the middle school difference in predicted mean levels of school belongingness between LGBTQ- and straight-identified students is 0.271, which is twice the difference between middle and high school straight-identified students (0.132). In high school, the difference between LGBTQ- and straight-identified students is 0.197, which is 1.5 times the straight-identified students' grade-related differential. Thus, although we should be concerned about the suggestive drop in school belongingness that straight-identified students experience
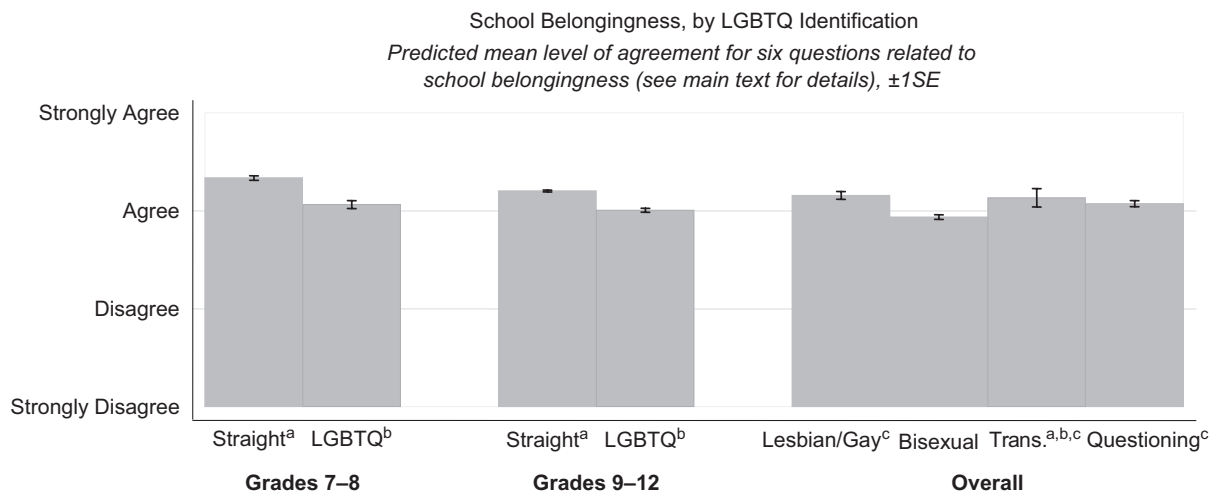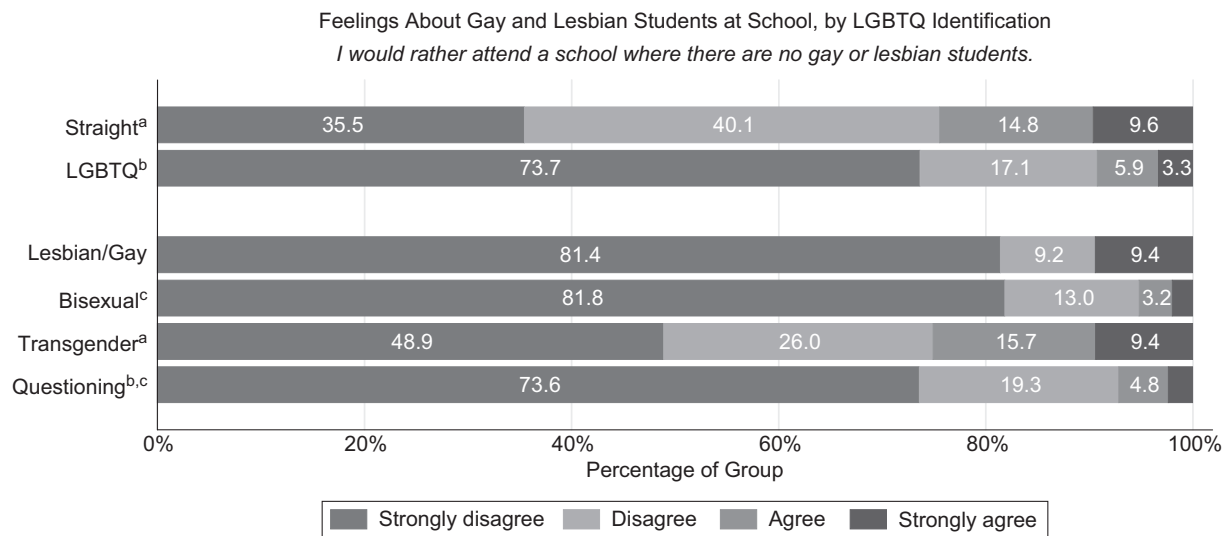
FIGURE 3. *Preferring to attend a school without gay or lesbian students and school belongingness, by lesbian, gay, bisexual, transgender, or questioning (LGBTQ) identification. For school belongingness, mean responses for LGBTQ are different in middle school and high school, as are mean responses for straight students. For consistency with our other analyses and to maximize power, we compare the average (not grade-specific) mean responses for straight- and LGBTQ-identified with the individual LGBTQ subgroups. Within each panel, groups with a common superscript letter have response patterns (top panel) or means (bottom panel) that are* not *significantly different from one another (i.e.,* p *> .05). Precise* p *values can be found in the online supplemental document. For ease of reading, percentages less than 3% are not labeled, but their precise values can be found in the online supplemental document. Trans. = transgender.*

between middle school and high school, the evidence suggests we should be keenly concerned with the difference between LGBTQ- and straight-identified students. Moreover, heightened concern is warranted during middle school, where the LGBTQ differential is bigger.

The mean values for straight-identified students are significantly different from those for the collective group of LGBTQ-identified students, $F(1, 29) = 141.45$, $p < .0001$, and from those for each individual LGBTQ category (except transgender, $p = .26$), ps < .039. When looking among LGBTQ students, we again see heterogeneous outcomes, driven primarily by

bisexual-identified students' exhibiting lower levels of school belongingness than all other groups, ps < .030.

Unexcused Absences

LGBTQ-identified students have similar patterns of unexcused absences in middle and high school, $\chi^2(4) = 2.61$, $p = .46$; however, the patterns of straight-identified students suggest an increase in skipping between middle and high school, $\chi^2(4) = 39.71$, $p < .0001$. Looking at Figure 4, note that this differential is driven by LGBTQ students' being at a much elevated level of risk in middle school, $\chi^2(4) = 55.76$, $p < .0001$, which remains

Unexcused Absences, by LGBTQ Identification

In the last 4 weeks, how many days of school have you missed because you skipped (absent without permission)?
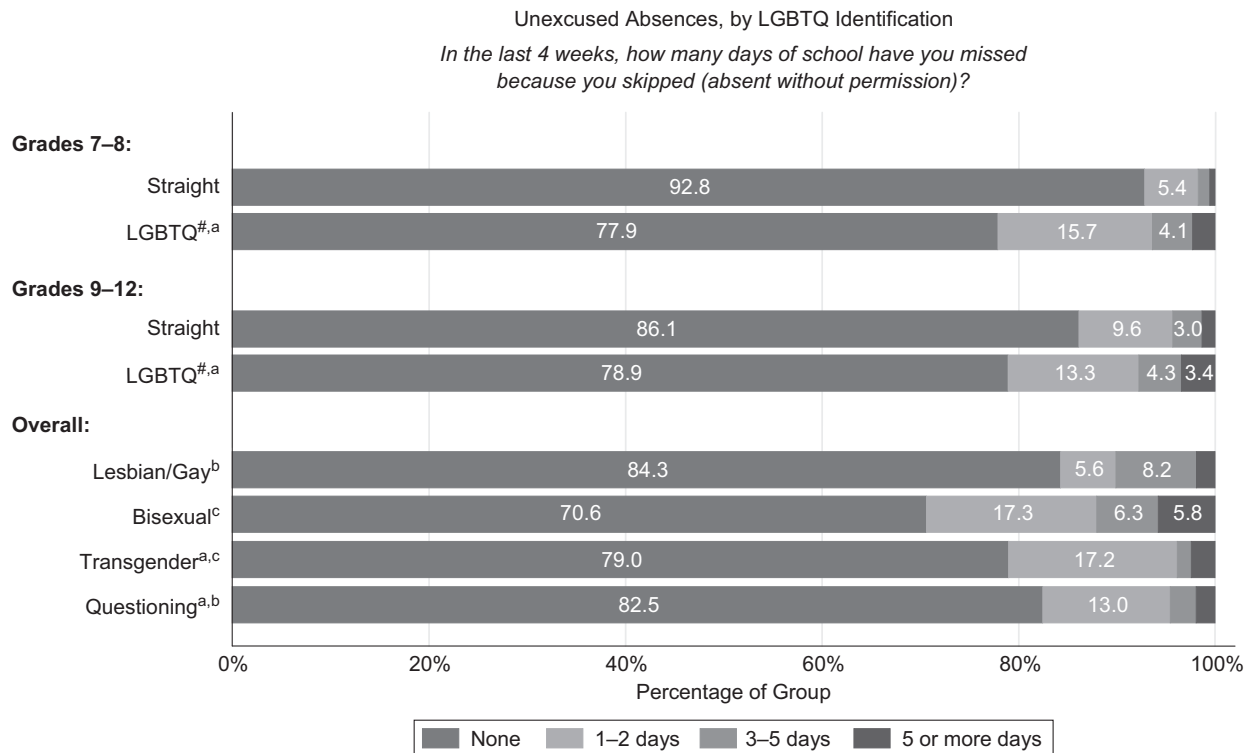

FIGURE 4. *Unexcused absences, by lesbian, gay, bisexual, transgender, or questioning (LGBTQ) identification. The pound sign (#) indicates that the LGBTQ patterns are not significantly different in middle and high school, although the straight patterns are. For consistency with our other analyses and to maximize power, we compare the average (not grade-specific) responses for straight- and LGBTQ-identified with the individual LGBTQ subgroups. Groups with a common superscript letter have response patterns that are* not *significantly different from one another (i.e.,* p *> .05). Precise* p *values can be found in the supporting online materials. For ease of reading, percentages less than 3% are not labeled, but their precise values can be found in the online supplemental document.*

higher than for straight-identified students in high school despite the increase in straight students' truancy, $\chi^2(4) = 38.79$, $p < .0001$.

This grade-related differential suggests that although we see a difference between LGBTQ-identified and straight-identified students in skipping in high school—indicating cause for an educational equity concern related to opportunity to learn—the cause for concern was already present (and relatively bigger) in middle school. Thus this suggests that interventions aimed at reducing truancy among LGBTQ students should begin early, as this group is at increased risk in middle school.

Potential Limitations

Self-Reported, Anonymous Questionnaires

Although responder anonymity may make children feel comfortable answering truthfully to questions about their sexual orientation (Badgett, 2009; Turner et al., 1998), it may also lead children to treat the survey nonseriously (Fan et al., 2006). First, we consider whether our sample of students was more likely to identify as LGBTQ, perhaps because some straight students provided "joking" responses. Then, we compare our estimates of the LGBTQ differential for suicide attempts with the results of a recent meta-analysis to see if our estimate is consistent with prior work. Both of these checks suggest little reason for concern.

LGBTQ identification in sample compared with population estimates. We can assess the likelihood of a substantial potential bias due to nonserious responses by comparing the percentage of students in the analytic sample self-identifying as LGBTQ with the estimated percentage of LGBTQ people in the population. That is, if our analytic sample has a higher proportion of individuals identifying as LGBTQ than found in other studies, the higher identification may be attributable to nonserious responses. The exact percentage of LGBTQ people in the population is unknown, but it is estimated from the American Community Survey that, in 2005, 4.1% of 18- to 45-year-olds identified as LGB (not counting transgender or questioning) in the United States and 5.7% in the Wisconsin congressional district covering Dane County (Gates, 2006). In a different study—deemed the "highest quality" study in a recent meta-analysis by King et al. (2008)—3.6% of the sample (from 1990–1992) reported having same-sex intercourse in the past five years (Gilman et al., 2001). In our analytic sample, 409 of 13,213 students (or 3.1%) identified as LGB, which suggests that our sample is below the various population estimates and that a preponderance of invalid responses is unlikely.

Estimate comparison with prior studies. In addition, we compared the responses of our sample with respect to suicide attempts with the range found in previous studies and reported in a recent

meta-analysis. Our finding that sexual minority youth had a 6.8 percentage point higher prevalence of suicide attempts falls toward the lower end of the range identified in King et al.'s (2008) meta-analysis, which was 1 to 21 percentage points.

Single-Item LGBTQ Identification

Pertaining to sexual orientation, an expert panel recently suggested using items that gauge sexual *identity, behavior*, and *attraction* (Badgett, 2009; see also Savin-Williams, 2005; Sell & Becker, 2001). Although the DCYA included only a single item pertaining to sexuality, its approach is consistent with the expert panel's recommendations. The single sexual orientation–related item on the DCYA most directly measures sexual identity, but it may also tap into the sexual attraction dimension to some extent because it contains the option "questioning my sexuality." The only dimension that is not measured in the survey is sexual behavior; however, an expert panel at the Charles R. Williams Institute on Sexual Orientation Law (University of California, Los Angeles) has raised concerns about the accuracy of adolescent reports of sexual behavior in particular and recommends the use of anonymous surveys that include items on identification and attraction for studies with youth (Badgett, 2009). We should also mention that, since conducting the research in this study, we have suggested modifications to Dane County for the next wave of survey collection. Finally, note that throughout the current article we have explicitly referred to observed outcome differences between LGBTQ-*identified* and straight-*identified* students, which may not perfectly correlate with same-sex attraction or sexual behaviors.

Effects of Alternative Sample Exclusion Criteria

Including Students With Multiple Low-Frequency Responses

Recall that our main analytic sample excluded students who supplied two or more low-frequency responses on the eight-item screener, which we argued could result in an underestimate of differences in outcomes between straight- and LGBTQ-identified students. We now reintroduce these previously excluded students ($n = 426$) and re-estimate all models to see if the significance patterns are sensitive to this exclusion criterion. Table 4 demonstrates that the previously significant differences remained so. However, whereas most differences between straight- and transgender-identified students were not significant in the main analyses (Table 4, Panel A), these differences became significant with the inclusion of the low-frequency responders (Panel B). This is largely because the previously excluded transgender-identified students exhibited patterns of particularly high risk.

We conclude that despite the *potential* to learn about the transgender community from the survey, the striking changes in response patterns when using and not using the screener leads to inconclusive results regarding risk levels for the transgender-identified group. For all other sexual minority groups, the similarity of the response patterns and significance levels suggests that the differences between sexual minority students and straight-identified students are not dependent upon screener usage, suggesting robust findings.

Including Students With Ambiguous Sexual Orientation Identifications

Recall that 911 records were excluded for having ambiguous responses to the sexual orientation and gender identity question. To explore how the ambiguous-identity students compared with LGBTQ- and straight-identified students, we compared their responses on each of the seven outcomes with those of LGBTQ- and straight-identified students in middle school and again in high school. The results of these analyses are presented in Table 5, Panel A. For all but one of the seven outcomes in middle school and all outcomes in high school, the ambiguous-identity students exhibited patterns markedly different from those of the included LGBTQ students ($ps < .030$). By comparison, and despite the improved power to detect differences between them, the outcomes for ambiguous-identity and straight-identified students (because of the large size of the straight-identified sample) were much more similar, with no significant differences in middle school and with differences in high school only in suicide ideation, cyber-bullying, and preferring to attend a school with no gay or lesbian students ($ps < .009$).

Despite this evidence suggesting that the ambiguous-identity students are far more similar to the straight-identified students in terms of outcomes, we wanted to test if the significant differences between straight- and LGBTQ-identified students noted above were robust to the inclusion of the ambiguous-identity students, first as "LGBTQ-identified" students and then (in a separate set of analyses) as "straight-identified" students. As shown in Panel B of Table 5, regardless of whether these previously excluded students are counted as LGBTQ or straight, each difference (except cyber-bullying in middle school) between LGBTQ- and straight-identified students remains significant, $ps < .004$. Thus our findings are relatively robust to the inclusion of the previously excluded, ambiguous-identity students.

Discussion

Youth who identified as sexual minorities in this study reported higher rates of psychological and education-related risk than did their straight-identified peers, and in general the rates for the most extreme categories were highest for bisexual-identified youth. Although most LGBTQ subgroups (e.g., lesbian- and gay-identified students) had significantly different outcomes from those of straight-identified students, there was also considerable heterogeneity in outcomes among LGBTQ students. Much like research on other minority groups (e.g., English language learners) and in agreement with recent work by Horn et al. (2009), our study demonstrates that sexual minority youth are not a monolith. Future research should acknowledge the variation within the LGBTQ community and identify how interventions may differentially benefit specific LGBTQ subgroups.

Two Divergent Patterns

This article highlights two interesting and divergent patterns: First, the majority of LGBTQ-identified youth are *not* at risk—that is, they report not thinking about suicide, not attempting suicide, not being victimized, and not skipping school. This first pattern is compatible with the notion that LGBTQ-identified students

Table 4

Alternative-Sample Analysis: Significance Levels (p Values) Comparing Outcomes Between Straight- and LGBTQ-Identified Students, When Excluding and Including Multiple-Low-Frequency Responders

Outcome	A. Main Analysis (Excluding Multiple-Low-Frequency Responders)				
	LGBTQ	Lesbian/Gay	Bisexual	Transgender	Questioning
Suicide ideation	**< .0001**	.0788	**< .0001**	**.0151**	**< .0001**
Suicide attempts	**< .0001**	**.0116**	**< .0001**	.2013	**< .0001**
Cyber-bullying victimization	**< .0001**	.1711	**< .0001**	.8129	**.0010**
Victimization (composite)	**< .0001**	**< .0001**	**< .0001**	.5893	**< .0001**
Preferring to attend school with no gay or lesbian students	**< .0001**	**.0001**	**< .0001**	.4108	**< .0001**
School belongingness (composite)	**< .0001**	**.0386**	**< .0001**	.2565	**< .0001**
Unexcused absences	**< .0001**	**.0087**	**< .0001**	**.0065**	**.0225**

Outcome	B. Alternative Sample (Including Multiple-Low-Frequency Responders)				
	LGBTQ	Lesbian/Gay	Bisexual	Transgender	Questioning
Suicide ideation	**< .0001**	**< .0001**	**< .0001**	**< .0001**	**< .0001**
Suicide attempts	**< .0001**	**.0058**	**< .0001**	**< .0001**	**< .0001**
Cyber-bullying victimization	**< .0001**	**.0101**	**< .0001**	.5173	**< .0001**
Victimization (composite)	**< .0001**	**< .0001**	**< .0001**	**.0003**	**< .0001**
Preferring to attend school with no gay or lesbian students	**< .0001**	**< .0001**	**< .0001**	**< .0001**	**< .0001**
School belongingness (composite)	**< .0001**	**.0012**	**< .0001**	**.0082**	**< .0001**
Unexcused absences	**< .0001**	**< .0001**	**< .0001**	**< .0001**	**.0001**

Note. Boldface indicates differences are significant at the α = .05 level. LGBTQ = lesbian, gay, bisexual, transgender, or questioning.

can develop as healthy teenagers (Savin-Williams, 2005). However, the second pattern reveals that, compared with straight-identified youth, an unusually large percentage of LGBTQ-identified youth are at elevated risk. Thus, although it is possible for sexual minority youth to have psychologically and academically healthy adolescences, more effort should be placed on reducing the disproportionate concentration of LGBTQ youth still at risk and on understanding factors causing this elevated risk.

Different Developmental Trends

In addition to the heightened risk levels of LGBTQ-identified youth, the data suggest that some of the higher risk levels of LGBTQ students develop early. That is, the trend among straight students is an increase in the prevalence of unexcused absences from about 7% skipping in middle school to about 14% skipping in high school. Yet about 22% of LGBTQ students were already skipping school in middle school, staying around that level in high school. We observe a parallel differential trend for school belongingness: Straight-identified students exhibit a reduction in school belongingness from middle school to high school, whereas LGBTQ-identified students' school belongingness remains relatively stable and significantly lower than their straight peers' levels. Although the causal relationships (if any) between homophobic school environments, school belongingness, and unexcused absences are unknown, the similar patterns of LGBTQ differential trends in school belongingness and truancy suggest that possible causal relationships warrant further study.

What Can Schools Do?

From an equity and opportunity-to-learn perspective, the data suggest that LGBTQ-identified students are not being exposed to new material as consistently as straight-identified students are because of the higher level of unexcused absences among LGBTQ youth. In addition, LGBTQ-identified students have lower levels of school belongingness (e.g., whether they agree that they belong at their school, that graduating is important, or that there are adults at the school they can talk to if they have a problem). These lower levels of belongingness and higher levels of truancy are particularly pronounced in middle school; thus early intervention may be crucial. Moreover, the findings of this study suggest that LGBTQ youth are disproportionately the victims of bullying, which can further impede learning and may explain part of the differences observed in this article.[9]

Bullying may have other consequences as well. Research suggests that sexual minority youth who are the targets of homophobic language and who do not have supports in place from their families, peers, or schools are at the greatest risk for acting on their suicidal thoughts (Espelage, Holt, & Poteat, 2010; see also Eisenberg & Resnick, 2006; Hershberger & D'Augelli, 1995). Incorporating discussions about sexual orientation and sexual identity in bullying prevention programs may contribute to safer environments and more positive outcomes for LGBTQ youth.

Prior research suggests that school personnel may themselves contribute to homophobic school climates. Nearly two thirds (63%) of LGBTQ students in the Gay, Lesbian and Straight

| | A. Comparing the Responses of Ambiguous-Identified Students | | | |
| | vs. LGBTQ-Identified Students | | vs. Straight-Identified Students | |
Outcome	Middle School	High School	Middle School	High School
Suicide ideation	**.0001**	**< .0001**	.1745	**.0084**
Suicide attempts	**< .0001**	**.0005**	.4293	.3777
Cyber-bullying victimization	.1158	**< .0001**	.2929	**< .0001**
Victimization (composite)	**< .0001**	**< .0001**	.8395	.4166
Preferring to attend school with no gay or lesbian students	**.0005**	**< .0001**	.4605	**< .0001**
School belongingness (composite)	**.0291**	**.0125**	.2317	.3900
Unexcused absences	**< .0001**	**.0037**	.7300	.4265

| | B. Comparing Outcomes for LGBTQ- and Straight-Identified Students, After Recoding All Ambiguous-Identified Students as | | | |
| | LGBTQ | | Straight | |
Outcome	Middle School	High School	Middle School	High School
Suicide ideation	**< .0001**	**< .0001**	**< .0001**	**< .0001**
Suicide attempts	**.0037**	**< .0001**	**< .0001**	**< .0001**
Cyber-bullying victimization	.5606	**< .0001**	.0708	**< .0001**
Victimization (composite)	**.0011**	**< .0001**	**< .0001**	**< .0001**
Preferring to attend school with no gay or lesbian students	**< .0001**	**< .0001**	**< .0001**	**< .0001**
School belongingness (composite)	**.0002**	**< .0001**	**< .0001**	**< .0001**
Unexcused absences	**.0010**	**< .0001**	**< .0001**	**< .0001**

Note. Boldface indicates differences are significant at the $\alpha = .05$ level. LGBTQ = lesbian, gay, bisexual, transgender, or questioning.

Education Network's National School Climate Survey reported hearing homophobic remarks from school staff (Kosciw et al., 2008). Moreover, teachers appear to intervene less frequently when homophobic remarks are made in comparison to when racist and sexist remarks are made (Kosciw et al., 2008). This lack of response from other students and teachers to homophobic remarks may play a role in maintaining a school environment that is unsupportive of sexual minority students (Bagley & D'Augelli, 2000; Espelage & Swearer, 2008; Nichols, 1999).

Future Directions

The current study reports descriptive differences between LGBTQ- and straight-identified students in a population sample of middle and high schools in Dane County, Wisconsin. Given the nonexperimental, cross-sectional nature of our data, we did not attempt to explore causal mechanisms (or even moderating relationships, as we do not want them to be misconstrued as moderators in any causal sense). Our descriptive analyses reduce the influence of potentially mischievous responders, carefully account for the nested structure of the data, explore heterogeneity of outcomes among LGBTQ-identified students, and demonstrate grade-related differential trends between LGBTQ- and straight-identified students in educational outcomes relating to equity and opportunity to learn. Although our work goes beyond prior studies in identifying heterogeneity and differential

developmental trends, as well as in efforts to reduce the influence of mischievous responders, the main finding that LGBTQ-identified students are at higher risk levels than straight-identified students is consistent with prior studies.

Given this consistency, future work should focus on the causal mechanisms that lead LGBTQ youth to exhibit elevated levels of psychological and academic risk. Identifying these mechanisms will enable us to develop effective interventions. However, one area where much additional descriptive work is needed is the risk levels for transgender-identified students. As previously noted, the current study had potential to shed light on the risk levels of this understudied population, but the conspicuously different patterns for this group when using and not using the screener items led to inconclusive results.

Although we call for more causal research on this topic, periodic descriptive research will be necessary to monitor changing trends in the LGBTQ risk differentials. For example, in the brief two years since these data were collected, several political, social, and cultural events have occurred that highlight how LGBT issues are in a state of flux. In 2010, Americans in favor of gay marriage outnumbered those opposed to it for the first time in the General Social Survey (a long-running, National Science Foundation–funded survey collected by the University of Chicago), and the Don't Ask Don't Tell Repeal Act of 2010 was signed into law. Perhaps more salient for middle and high school

students, pop culture has seen the meteoric rise of explicitly pro-LGBT artists like Lady Gaga (e.g., the song "Born This Way") and the television series *Glee*. In September 2010, prompted by a string of gay teen suicides, Dan Savage founded the It Gets Better project, for which President Obama recorded a video. These events may affect this field of research, as they can affect secular trends in LGBTQ risk differentials (for descriptive research) as well as the causal-effect estimates of longitudinal interventions.

The present study brings to light differences in suicide attempts and ideation, victimization, school belongingness, and truancy between LGBTQ- and straight-identified students. As prior research suggests (e.g., Massachusetts Department of Education, 2004; Rivers, 2001), these differences are likely to affect the academic outcomes and career prospects of LGBTQ youth. For instance, if LGBTQ youth more often contemplate suicide and are more consumed with personal safety concerns each day, how much new academic material can they acquire even on the days they are in school? How do these stressors affect their likelihood of graduation or of college enrollment? Our study highlights differences between LGBTQ- and straight-identified youth not only in health outcomes but also in educational equity, laying the groundwork for new research in the development, implementation, and effectiveness of programs and policies aimed at improving the educational experiences and outcomes of LGBTQ youth.

NOTES

[1]One potential limitation of this study is that the data are self-reported. However, given that adolescents are reluctant to acknowledge same-sex attractions, behaviors, or self-identification in research (Turner et al., 1998), we used anonymous surveys to maximize truthfulness.

[2]Survey items concerning sexual risk and drug usage could not be included in the screener because they have been linked to lesbian, gay, bisexual, transgender, or questioning (LGBTQ) status (see, e.g., Bontempo & D'Augelli, 2002). Thus we used only items that are, in principle, unrelated to LGBTQ status in order to minimize the likelihood that we would exclude legitimate LGBTQ students.

[3]Disaggregating the responses for the 537 students providing contradictory data yields the following: 523 lesbian/gay, 510 bisexual, 520 transgender, and 509 questioning their sexuality. And of the 537 students, 507 (or 94%) checked every category of LGBTQ and "none of the above."

[4]For analyses of this question, the response options *yes, but rarely* and *yes, some of the time* were collapsed into a single category because they were both infrequently chosen.

[5]For analyses of this question, response options *5–10 days* and *10 or more days* were collapsed into a single category because they were both infrequently chosen.

[6]Readers may be familiar with the hierarchical linear model (HLM; see Raudenbush & Bryk, 2002) as a type of multilevel modeling technique. The generalized linear latent and mixed model (GLLAMM) is similar in the way we employ it. Concerning the GLLAMMs, estimation uses adaptive quadrature, known to be considerably more accurate than ordinary quadrature (Rabe-Hesketh & Skrondal, 2005).

[7]In addition, we ran school random-effects models—that is, two-level HLMs with random school-level (Level 2) intercepts. The conclusions were identical.

[8]Initial models included school-level random effects for each response option, but these were deemed unnecessary because of their high correlations. Thus the final models include school-level random effects for one response category.

[9]Preliminary analyses suggest that accounting for bullying does explain a portion of the straight–LGBTQ differential in the outcomes studied here; however, a thorough examination of all factors related to the differentials is beyond the scope of this article.

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