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The Impact of Positive School Climate on Suicidality and Mental Health Among LGBTQ Adolescents: A Systematic Review

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Abstract

Lesbian, gay, bisexual, transgender, and queer/questioning (LGBTQ) adolescents are more likely to report suicidality and worse mental health than their heterosexual peers. We conducted a systematic review to examine the relationship between positive school climate and suicidality and mental health among LGBTQ adolescents. We searched the literature using PubMed, PsycINFO, and CINAHL. Six studies met inclusion criteria, and all had low to moderate risks of bias. Results indicate that LGBTQ students in schools with more positive school climates were at lower risk of suicidality and reported fewer depressive symptoms compared to students in less positive school climates. Being at the forefront of health in schools, school nurses have the opportunity to advocate for changes in school environments that promote positive mental health for all youth, including LGBTQ adolescents.

Keywords

mental health; sexual minority youth; gender minority youth; LGBTQ; health disparities; school nurse; systematic review; school climate

In its 2014 *Preventing Suicide: A Global Imperative report*, the World Health Organization declared suicide prevention a public health priority. Globally, close to 800,000 individuals die each year by suicide—a number that equates to roughly one person every 40 s (World Health Organization, 2014). In the United States, suicide is the 10th leading cause of death across all age groups and the second leading cause of death among adolescents aged 12–19

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Author Contributions

April J. Ancheta contributed to conception, design, acquisition, analysis, and interpretation; drafted the manuscript; critically revised the manuscript; gave final approval; and agreed to be accountable for all aspects of work ensuring integrity and accuracy. Jean-Marie Bruzzese contributed to acquisition, analysis, and interpretation; critically revised the manuscript; gave final approval; and agreed to be accountable for all aspects of work ensuring integrity and accuracy. Tonda L. Hughes contributed to analysis and interpretation; critically revised the manuscript; gave final approval; and agreed to be accountable for all aspects of work ensuring integrity and accuracy.

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Supplemental Material

Supplemental material for this article is available online.

years (Curtin et al., 2018). A recent study conducted by the National Center for Health Statistics found that the suicide rate among youth aged 10–24 years increased by 56% between 2007 and 2017 (Curtin & Heron, 2019). Suicide not only has a great mental health burden on the family and friends of the victim (Centers for Disease Control and Prevention [CDC], 2018a), it also carries a substantial economic burden due to costs related to hospitalization, rehabilitation, disability, and premature death. It also impacts productivity; lost productivity makes up 97% of the average cost of suicide and suicidal attempts (Shepard et al., 2016). While it is evident that suicide is a global public health concern that is on the rise (World Health Organization, 2019), it is preventable (Office of the Surgeon General and National Action Alliance for Suicide Prevention, 2012; World Health Organization, 2014).

The term suicidality is an umbrella term for three concepts: (a) suicidal ideation (i.e., serious thoughts about suicide), (b) suicide plans (i.e., deciding on what method to use), and (c) suicide attempts (Posner et al., 2007). Psychological distress, particularly mood disorders, is frequently cited as precipitating conditions for suicidality (Isometsä, 2014; Rihmer, 2007; Stone et al., 2017). According to the *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition, mood disorders include depressive disorders and bipolar disorders (Parker, 2014). Specifically, depression is thought to increase suicidality through its characteristic of hopelessness (Zhang & Li, 2013) and bipolar disorder through persistent and marked mood instability (Rihmer, 2007).

Risk of suicidality is also greatly influenced by sociocultural, economic, and relationship factors and is more prevalent in certain population groups (Office of the Surgeon General and National Action Alliance for Suicide Prevention, 2012; World Health Organization, 2014). One such population group is lesbian, gay, bisexual, transgender, and queer/questioning (LGBTQ) adolescents (CDC, 2017). LGBTQ is a broad umbrella term that encompasses both sexual and gender minorities (SGMs), including individuals who identify as LGBTQ, those with same-sex attractions or same-sex behaviors, and those whose sexual orientation, gender identity or expression, and/or reproductive development does not adhere to traditional binary constructs of sexual orientation, gender, and/or sex (National Institutes of Health Sexual and Gender Minority Research Office, 2020). LGBTQ status can be assessed using questions that ask about sexual identity, sexual attraction, and sexual behaviors (collectively known as one's *sexual orientation*) and about gender identity (Schrager et al., 2019). LGBTQ adolescents are thought to be at higher risk of suicidality due to SGM stigma and discrimination from family, peers, professionals, and society at large. Experiences of stigma and discrimination increase risk of depression and can ultimately lead to suicidal ideation, plans, and suicide attempts (Earnshaw et al., 2017; Hatzenbuehler & Pachankis, 2016; Meyer, 2003). A 2011 meta-analysis (Marshall et al., 2011) examining suicidality and depression disparities between LGB adolescents and their heterosexual peers showed that self-reported suicidality was significantly more likely among LGB adolescents (odds ratio [OR] = 2.92) than heterosexual adolescents. This study also showed that LGB adolescents were more likely than their heterosexual peers to report depressive symptoms. Further, examinations of national data from the CDC show that regardless of sex, LGB adolescents have significantly higher suicidality risk than heterosexual adolescents (Johns et al., 2018; Zaza et al., 2016). This risk has been attributed to LGB adolescents' higher rates of depression and experiences of bullying and

victimization in their schools and communities (De Pedro et al., 2017; Hatzembuehler, 2011; Kann et al., 2016; Russell et al., 2011). In a recent latent class analysis of data from 15,624 adolescents in the 2015 National Youth Risk Behavior Survey, researchers found that adolescents, regardless of sexual identity, who were categorized as having been bullied or having experienced physical or sexual violence had five times greater odds of reporting severe mental health symptoms (defined as a >60% endorsement probability of five mental health symptoms, including depression, all three aspects of suicidality, and difficulty concentrating) as opposed to reporting low mental health symptoms (defined as <3% endorsement probability of the five symptoms; Heiden-Rootes et al., 2020). Although this study found no marked difference between heterosexual and LGB adolescents in their sample, findings provide evidence that peer victimization greatly increases risk of depression and suicidality and that interventions and policies to reduce peer victimization that takes the form of bullying and physical/sexual violence should be implemented.

According to the social ecological model, the growth and development of a child is influenced by the interaction between the child and their environments (Sallis et al., 2015). Schools are particularly important when considering contextual factors that may increase suicidality risk among LGBTQ adolescents. In 2011, the Institute of Medicine called for further research into the effects of school environments on the health and well-being of LGBTQ adolescents, highlighting specifically the need for further research on student perceptions of school safety and the impact of protective school policies. School climate refers to “the quality and character of school life ... based on patterns of people’s experience of school life and reflects norms, goals, values, interpersonal relationships, teaching and learning practices, and organizational structures” (Cohen et al., 2009, p. 182). Moreover, school climate includes both social and physical factors and refers to the relationships within schools, shared vision, school safety, and safety of the larger physical environment (Cohen et al., 2009). Understanding the effect of school climate on suicidality is critically important as positive school climates (i.e., climates that promote the healthy growth and development of students) have been linked to lower levels of violence, bullying victimization, and greater perceived safety among LGBTQ adolescents (De Pedro et al., 2018; Earnshaw et al., 2016). Characteristics of a positive school climate include positive student–teacher relationships, school connectedness, opportunities for student engagement, order and discipline, adequate academic support, academic satisfaction, and positive social and physical environments (Cornell, 2017; Zullig et al., 2010). A negative school climate lacks support for building positive relationships and a sense of connection, lacks adequate academic and social support, and has a poor physical environment and no clear disciplinary structure (Cornell, 2017; Zullig et al., 2010).

We found two systematic reviews that examined the relationships between school climate and adolescent mental and emotional health (Aldridge & Mcchesney, 2018; Kidger et al., 2012). Findings from these reviews were mixed—in some studies, positive school climates improved self-reported mental and emotional health, and in other studies, school climate had no effect. However, these reviews had varying inclusion criteria for studies of school climate—as opposed to one singular, focused definition of school climate—that may have contributed to the mixed findings. Definitions for school climate included the school’s classification as public or private, school support, satisfaction with school, and mental health

promotion in schools—all of which are very different concepts if measured on their own (Aldridge & Mcchesney, 2018; Kidger et al., 2012). Both reviews also focused on adolescents in the general population and not specifically on LGBTQ adolescents who are at higher risk of suicidality.

Existing literature shows that adolescents who report perceptions of a more positive school climate are less likely to report suicidality (Cornell & Huang, 2016; La Salle et al., 2017; Marraccini & Brier, 2017). This is most likely due to positive peer and teacher relationships that are promoted in schools with positive school climates and high levels of safety, disciplinary structure, and social support (Cornell & Huang, 2016; La Salle et al., 2017; Poštuvan et al., 2019). Fewer studies, however, have examined the effects of positive school climates on suicidality among LGBTQ adolescents. Therefore, the objective of this study was to systematically review and qualitatively synthesize the literature on the impact of positive school climate on suicidality and mental health (i.e., psychological distress, depressive symptoms, and mood disorders) among LGBTQ adolescents.

Method

Data Sources and Search Strategy

Guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Liberati et al., 2009), we conducted a comprehensive literature search using three databases: PubMed, PsycINFO, and Cumulative Index to Nursing and Allied Health Literature (CINAHL). Medical subject headings and key words were used to search PubMed and PsycINFO; CINAHL-specific subject headings were used to search this database. The main search terms included (sexual and gender minorities OR sexual identity OR sexual minority OR sexual orientation OR homosexual OR gay OR lesbian OR bisexual OR lgb OR transgender) AND (adolescent OR child OR teen OR kid OR youth OR student) AND ((school AND climate OR environment)). These terms were searched in different permutations in each database to identify studies that reported outcomes of suicidality and mental health in relation to school climate among LGBTQ adolescents. Search terms for suicidality and mental health were not included in the initial search to increase the yield of studies to be reviewed for inclusion. The literature search was conducted in June 2020.

Study Selection and Eligibility for Full-Text Review

Figure 1 shows the PRISMA flow diagram illustrating the process of the review. Our search yielded 1,262 studies; three additional articles were identified through hand searching (i.e., reviewing the reference lists of relevant articles). All 1,265 articles were imported into the web-based systematic review management software Covidence (<https://www.covidence.org/>). A total of 252 duplicate articles were removed, and 1,013 remained for title and abstract screening. At this stage, we considered studies eligible for full-text review if (a) LGBTQ adolescent students (aged 10–19) were the population of interest (any combination of the subgroups was deemed acceptable [e.g., LGB or T adolescents only]), (b) the students either attended middle schools or high schools, (c) school climate was the exposure and was measured on a scale to capture this multifaceted concept (Cohen et al., 2009), (d) the outcome of interest was some aspect of suicidality and mental health (i.e.,

psychological distress, depressive symptoms, and mood disorders), (e) the article reported findings from an empirical study, and (f) the article was written in English. To increase the yield of studies for the final review, we placed no limits on time period or geographic location. Studies were excluded if (a) no subgroup of LGBTQ adolescents was included, (b) school climate was not assessed, (c) suicidality and/or mental health was not the outcome, and (d) the article did not report findings from an empirical study (i.e., the article was an editorial, commentary, or research brief). The first two authors (A.J.A. and J.M.B.) independently screened titles and abstracts for inclusion, with disagreements resolved until consensus was met. After eliminating 978 articles that did not meet inclusion criteria, 35 articles were eligible for full-text review.

A comprehensive, full-text review of the 35 articles was then performed by the two reviewers independently, with disagreements again resolved and consensus met prior to data extraction. Twenty-nine articles were eliminated for one or more of the following reasons: (a) The study provided an incomplete measure of the multifaceted concept of school climate (e.g., only measured the presence of a gay-straight alliance or presence of positive teacher–student relationships; Cohen et al., 2009; Zullig et al., 2010; $n = 15$), (b) school climate was not the main exposure but instead was a covariate or the outcome ($n = 6$), (c) suicidality or mental health was not an outcome ($n = 2$), (d) the article did not report results of an empirical study ($n = 5$), and (e) the article was not written in English (the abstract of the study was translated to English, but the text of the article is in a non-English language; $n = 1$). Six studies met the inclusion criteria and were included in the review.

Quality Appraisal

The Joanna Briggs Institute (JBI, 2017) Checklist for Analytical Cross-Sectional Studies Critical Appraisal Tool was used to assess risk of bias in the six studies—all of which used cross-sectional study designs. The two reviewers rated each study and resolved disagreements. The JBI Checklist includes eight criteria for evaluating potential bias in study design, conduct, and analysis. Criteria include questions related to sampling, description of study subjects, reliability and validity of exposure and outcome variable measurements, measurement of the condition of focus, and statistical analysis strategies (JBI, 2017). Response options for each of the eight items are “yes,” “no,” “unclear,” or “not applicable.” The developers of the JBI Checklist for Analytical Cross-Sectional Studies did not assign a numerical scoring system to aid in determination of study quality. However, previously published systematic reviews using the JBI Checklist have assessed risk of bias using percentage scores (Lam et al., 2019; Melo et al., 2018). Accordingly, a score of “0” or “1” is assigned to each of the eight questions if the answer is “no” or “yes,” respectively. Hence, the maximum possible score for each study is 8. For this systematic review, overall quality scores were calculated as percentages based on the answers of “yes” to each of the eight questions. The risk of bias of each study was rated as low (70%), moderate (50%–69%), or high (49%; Melo et al., 2018). According to the JBI (2017) Checklist, studies assessed as being at high risk of bias should be examined more fully by seeking additional information from the authors or excluding the study from the review. None of the studies included in this review had a high risk of bias. Therefore, all six were included in the review.

Data Extraction

Data extraction was guided by the JBI (2019) Data Extraction Form for observational studies, with major subheadings adapted for relevance in this systematic review. Information regarding the setting, population of interest, data collection year and source, sample size, age range, study purpose, measures of school climate, suicidality, and mental health were extracted. The two reviewers independently performed data extraction for each study, then discussed discrepancies until consensus was reached.

Results

Study Characteristics

Online Supplemental Table 1 shows the full data extraction table with the characteristics of each of the six studies. As mentioned above, each of the six studies used cross-sectional designs with data collected between 2005 and 2019. Five of the six studies were conducted in the United States (Birkett et al., 2009; Colvin et al., 2019; Espelage et al., 2008; Hatzenbuehler et al., 2014; Toomey et al., 2019); one was conducted in New Zealand (Denny et al., 2016). Ages of study participants ranged from 11 to 19 years, and sample sizes ranged from 240 to 116,295. Three studies included only high school students (Colvin et al., 2019; Denny et al., 2016; Espelage et al., 2008). One study focused solely on LGBTQ students (Colvin et al., 2019); the other five studies collected data from combinations of LGBTQ and heterosexual students (Birkett et al., 2009; Denny et al., 2016; Espelage et al., 2008; Hatzenbuehler et al., 2014; Toomey et al., 2019). The studies included data collected at the city, county, state, and national levels. The studies also used a variety of scales to assess school climate. Denny et al. (2016) and Hatzenbuehler et al. (2014) used the same three questions to measure suicidality. Birkett et al. (2009) and Espelage et al. (2008) used the same two questions to measure suicidality/depression, although Espelage and colleagues measured this on a scale and provided a measure of internal consistency for this scale. Depression was assessed in all six studies, and the measures of depression focused on symptoms rather than a diagnosis of depression. No other mental health outcomes were included in the studies. Two studies focused only on suicidality (Hatzenbuehler et al., 2014; Toomey et al., 2019), one focused only on depressive symptoms (Colvin et al., 2019), and three focused on both (Birkett et al., 2009; Denny et al., 2016; Espelage et al., 2008). Unfortunately, only two of the six studies collected demographic data on gender identity, and only one study (Colvin et al., 2019) analyzed data from students who identified as gender minorities. However, these data were analyzed as a collective, and no subgroup analyses for gender minorities were performed. The heterogeneity of the studies across multiple domains is clear.

Methodological Quality

According to the quality percentage scoring system for the JBI Checklist for Analytical Cross-Sectional Studies Critical Appraisal Tool (JBI, 2017; Melo et al., 2018), four of the studies had low risk of bias with quality percentage scores ranging from 75% to 100% (Colvin et al., 2019; Denny et al., 2016; Hatzenbuehler et al., 2014; Toomey et al., 2019), whereas the other two studies had moderate risks of bias with quality percentage scores of 50% (Birkett et al., 2009; Espelage et al., 2008). These studies were scored as moderate risk

mainly because confounding factors were not identified, and therefore, strategies to deal with confounding were not mentioned. Further, these studies measured LGBTQ status in a nonstandard way. They did not assess sexual orientation (i.e., they did not include questions about sexual identity, sexual attraction, and/or sexual behaviors). Rather, they asked students whether they were ever confused about their sexual orientation, an unconventional method of sexual orientation assessment (Schrager et al., 2019). Nevertheless, the Birkett et al. (2009) and Espelage et al. (2008) studies met half of the JBI Checklist quality criteria. Two other studies (Hatzenbuehler et al., 2014; Toomey et al., 2019) lost points because they did not describe criteria for inclusion in the sample—most likely because they analyzed data from two large, well-known national data sets (see Table 1).

School Climate and Suicidality

Five of the six studies examined the effects of positive school climates on suicidality among LGBTQ adolescents (Birkett et al., 2009; Denny et al., 2016; Espelage et al., 2008; Hatzenbuehler et al., 2014; Toomey et al., 2019). Unfortunately, the measurement of school climate was vastly different across studies and the number of items in the measure ranged from three to eight. One measure asked teachers and principals about their perceptions of LGBTQ-related school climate (Hatzenbuehler et al., 2014), whereas the other four studies surveyed students themselves and asked about positive school climates in general—so both the exposure and outcome data were reported by the students. Nonetheless, all school climate measures were valid and reliable (see Table 1). For outcome measurement, two of the studies shared the same 3-item suicidality scale that assessed suicidal thoughts, suicide plans, and suicide attempts in the last 12 months (Denny et al., 2016; Hatzenbuehler et al., 2014). The other three measured suicidality by asking only about suicidal thoughts (Birkett et al., 2009; Espelage et al., 2008) or only suicide attempts (Toomey et al., 2019).

Five of the six studies showed that risk of suicidality was lower in the presence of positive school climates for LGBTQ adolescents. Three of these studies performed moderation analyses to determine whether positive school climate moderated the association between sexual orientation and suicidality. The interaction term was significant in all analyses, indicating that in the presence of more positive school climates, LGBTQ students reported less suicidality compared to LGBTQ students in schools with less positive climates (Birkett et al., 2009; Denny et al., 2016; Hatzenbuehler et al., 2014). Espelage and colleagues (2008) examined the moderating effect of school climate on homophobic teasing and depression/suicidal feelings among LGBQ-identified students. These investigators found a small positive effect of school climate. Toomey et al. (2019) conducted analyses stratified by LGBQ subgroup to examine the association between caring school climate and suicide attempts. Three studies controlled for common covariates such as age, race/ethnicity, and some measure of socioeconomic status (Denny et al., 2016; Hatzenbuehler et al., 2014; Toomey et al., 2019).

Subgroup analyses.—All but the Espelage et al. (2008) article reported the results of sexual orientation subgroup analyses, and one of the studies also stratified by sex (Denny et al., 2016). Birkett et al. (2009) found that suicidal feelings among LGBQ adolescents were lower in more positive school climates compared to less positive school climates.

Hatzenbuehler et al. (2014) found the same relationship for LGB adolescents in their sample but reported that lesbian/gay students had lower odds of reporting past-year suicidal thoughts in more positive school climates ($OR = 0.68$; 95% confidence interval [CI] = [0.47, 0.99]) compared to bisexual students in the same positive school climates ($OR = 0.81$; 95% CI [0.66, 0.99]). Toomey et al. 2019 study was the only one that included an expanded set of response options in their measure of sexual identity; by doing so, they found that adolescents who identified as mostly heterosexual were the only group of the five sexual identity subgroups to report lower risk of ever attempting suicide in more positive school climates ($OR = 0.85$; 95% CI [0.78, 0.93]). Espelage et al. (2008) found that among LGBQ high school students in a Midwestern county, those who reported moderate to high levels of positive school climate also reported significantly less depression/suicidal feelings compared to those who reported low levels of positive school climate. Because this study combined depression and suicidality in the same measure, differentiating how much depression versus suicidal feelings decreased in the presence of a more positive school climate is not possible. Finally, by stratifying by sex, Denny et al. (2016) found that gay and bisexual male adolescents were less likely to report any of the three facets of suicidality in the presence of more positive school climates; however, there was no effect of positive school climates on likelihood of reporting suicidality among lesbian and bisexual females. Only one of the studies assessed gender identity (Toomey et al., 2019), but the researchers did not stratify analyses by gender identity. Taken together, findings suggest that positive school climates decrease the likelihood of suicidality, but evidence is stronger for suicidal thoughts than for suicidal plans and attempts and possibly more so for gay and bisexual male adolescents. This may be due to gay and bisexual male adolescents reporting higher levels of depressive symptoms in the presence of perceived discrimination compared to lesbian and bisexual female adolescents (Almeida et al., 2009).

School Climate and Mental Health

Of the six studies, four investigated the effects of positive school climates on depressive symptoms among LGBQ adolescents (Birkett et al., 2009; Colvin et al., 2019; Denny et al., 2016; Espelage et al., 2008). No two studies used the same measure of depression, and time periods for reporting depressive symptoms ranged from past week to ever. All four studies found that LGBTQ adolescents reported fewer depressive symptoms in the presence of more positive school climates compared to less positive school climates. Similar to analyses focusing on suicidality, several studies used moderation analyses (three of which are the same studies reported in the section above focusing on suicidality; Birkett et al., 2009; Denny et al., 2016; Espelage et al., 2008) and found that positive school climate moderated the relationship between sexual orientation and depressive symptoms. Only two studies included key covariates such as race/ethnicity, age, and socioeconomic status in analyses (Colvin et al., 2019; Denny et al., 2016).

Subgroup analyses.—Each of the studies except Colvin et al. (2019) stratified analyses for school climate and depressive symptoms by sex or sexual identity. Colvin and colleagues (2019) also conducted the only study (of those that examined mental health) to include transgender students in analyses but unfortunately did not stratify by gender identity either. Birkett et al. (2009) found that for LGBQ students, a more positive school climate,

compared with a less positive school climate, lowered the likelihood of reporting depressive feelings. Denny et al. (2016) found similar results, but only for gay and bisexual male adolescents; this association did not hold for lesbian and bisexual female adolescents. Espelage et al. (2008) measured depression and suicidality using a scale that asked about both outcomes. Students who reported moderate to high levels of positive school climate reported significantly less depression/suicidal feelings compared to those who reported low levels of positive school climate.

Discussion

To our knowledge, this is the first systematic review to examine the impact of positive school climate on suicidality and mental health among LGBTQ adolescents. Six studies with low to moderate risks of bias were reviewed. Results strongly support the importance of positive school climates on suicidality and depressive symptoms among LGBTQ adolescents. However, results are more robust for suicidal thoughts/feelings than for suicidal plans and attempts and for gay and bisexual male adolescents. With suicide increasing among adolescents in general (CDC, 2018b), and among LGBTQ adolescents in particular (Johns et al., 2018), it is important that researchers and practitioners consider structural forms of stigma and discrimination that increase psychological distress within these vulnerable population groups. Fostering a positive school climate is one way to address health disparities based on sexual orientation and gender identity, and school nurses have an important role in promoting these structural changes.

However, the results of this study should be considered in the context of several discussion points. The date range of data collection for the studies included is important to note. Taking into account trends in societal attitudes over time is important, given that many physical and mental health disparities faced by LGBTQ adolescents are driven by minority stress, which can be manifested at multiple levels (Kosciw et al., 2018; Lucassen et al., 2015). Minority stress is caused by factors that are both internal (e.g., internalized homophobia) and external (e.g., stigma and discrimination) to the individual (Hatzenbuehler & Pachankis, 2016). Over the last 60 years, across gender, age, and racial/ethnic groups, Americans' attitudes toward same-sex relations, same-sex marriage, and feelings toward this population have grown increasingly more positive (Fetner, 2016). More recently, with the legalization of same-sex marriage in the United States in 2015, public support for the legalization of same-sex marriage was 61% in 2019; conversely, in 2004, the percentage of Americans who opposed same-sex marriage was 60% (Pew Research Center, 2019). Four of the six studies included in our review (Birkett et al., 2009; Denny et al., 2016; Espelage et al., 2008; Hatzenbuehler et al., 2014) were conducted prior to the legalization of same-sex marriage. It is possible that the results of studies in this review (that largely showed that more positive school climates are associated with lower rates of suicidality and depressive symptoms among LGBTQ adolescents) may have been different if all had been conducted more recently.

Only one of the six studies included in the review was conducted outside the United States (Denny et al., 2016). New Zealand and the United States have comparable social attitudes toward gay rights and same-sex relationships (Smith et al., 2014), permitting analyses of these results to be interpreted within relatively similar social climates. However, the Denny

et al. (2016) study included a nationally representative sample, whereas data for the U.S.-based studies were either collected from convenience samples (Colvin et al., 2019), states and cities from mainly progressive areas (Hatzenbuehler et al., 2014), one U.S. county (Birkett et al., 2009; Espelage et al., 2008), or recruited nationally, but not using probability sampling methods (Toomey et al., 2019). Future studies, especially those conducted in the United States, should focus on recruiting samples that are more representative of the country in terms of geographic location to increase generalizability for the United States. Further, understanding the impact of positive school climates in countries with different levels of acceptance would be informative.

The Hatzenbuehler et al. (2014) study was the only study to collect school climate data from teachers and principals and not from LGBTQ students themselves. These authors argue that measuring both school climate and mental health at the student level introduces bias as both are self-reported by the student. Denny et al. (2016) addressed this point by saying that students who experience depression are more likely to report negative feelings about school compared to those without depression and that having a school-level school climate measurement reported by teachers or other personnel would be ideal. On the other hand, Colvin et al. (2019) argue that students' self-perceptions of supportiveness and safety are most important. Nevertheless, the heterogeneity in measurement of school climate across these included studies highlights the need for theoretically based, psychometrically sound, and comprehensive measures of school climate for LGBTQ adolescents that can be used by multiple researchers. Some empirical work has been published on the creation of an LGBTQ-specific school climate measure and intervention for high school students (Gower, Saewyc, et al., 2019; Saewyc et al., 2014). However, more work is still needed. A positive LGBTQ-specific school climate, as opposed to a general positive school climate, is one that has supportive staff, teachers, and nurses who provide a sense of safety and support for LGBTQ students, promotes student empowerment and visibility through gay-straight alliances and inclusive curricula, has policies that explicitly enumerate protections on the basis of sexual orientation and gender identity, has staff that are required to learn about LGBTQ topics as part of their professional development, and has staff that intervene when sexual orientation and gender identity-based harassment take place (Kosciw et al., 2018; Russell & McGuire, 2008).

A positive LGBTQ-specific school climate is an important factor in decreasing suicidality among LGBTQ adolescents as school factors specific to this vulnerable population have the potential to increase protection beyond that of a general positive school climate (Kosciw et al., 2018). Further, a school climate may be positive for the general student population but may still perpetuate heteronormativity in schools (i.e., beliefs and attitudes that view heterosexuality as the norm and that privilege and sanction individuals based on their perceived gender and sexuality; Toomey et al., 2012). Such heteronormativity is apparent in policies that aim to promote school connectedness by increasing participation in team sports but limit participation to those who only conform to the binary definition of gender and express gender in a "conventional" way (Mereish & Poteat, 2015; Russell & McGuire, 2008). Anti-bullying policies that are authoritative may appear to be protective for students but ultimately can be limiting if they contain broad, unspecific language. Better protection for LGBTQ adolescents would be more inclusive anti-bullying policies that contain language

explicitly prohibiting bullying on the basis of sexual orientation and gender identity (Kull et al., 2015). An overall general positive school climate may be beneficial for adolescents, but a positive LGBTQ-specific school climate would help decrease feelings of exclusion for LGBTQ students (Benbenishty et al., 2018; Kosciw et al., 2018).

Limitations

Findings from this systematic review have the potential to improve the health and well-being of LGBTQ adolescents by drawing attention to their unique needs. However, the review is not without limitations. First, we restricted the search to articles written in English and searched only three databases, which may have contributed to the relatively low number of studies included in the review. Also, no two studies included the same school climate measures, which compromises replicability and comparison across studies. The years of data collection spanned a wide range, from 2005 to 2019, making it difficult to account for the influence of changing societal attitudes toward LGBTQ people. Results of studies from earlier years may not be generalizable to today's societal landscape. Another limitation is that we decided a priori to examine the general concept of positive school climate and not positive school climate specifically for LGBTQ adolescents. Several studies have drawn attention to the need for research on LGBTQ-specific school climates (Gower, Saewyc, et al., 2019; Saewyc et al., 2014), but such studies are currently lacking.

Implications for School Nursing Practice and Research

LGBTQ adolescents are in need of protection and supportive services that take the form of positive environments, relationships, school structures, and class curricula. This requires the active participation of multiple school personnel, especially school nurses who attend to many psychosocial and mental health needs of the youth for which they care (Larson et al., 2019). School nurses' roles in helping to reduce bullying and risk of suicidality among adolescents through counseling and protection of victims have been well-documented (Cooper et al., 2012; Reynolds, 2011). However, school nurses can go beyond these traditional roles by understanding how school environments and culture can impact student health and well-being and acting to improve this climate.

Since 1999, the National Association of School Nurses (NASN, 2016) has recognized LGBTQ adolescents as a population with unique vulnerabilities and needs. The 2016 NASN's latest position statement highlights the role it sees school nurses playing in the lives of LGBTQ adolescents. It states:

School nurses are uniquely positioned to model and promote respect for diversity, reduce stigma and provide confidential health services for LGBTQ students in a safe environment School nurses are leaders who can foster the supportive school environment and make a positive impact in the lives of everyone in the school community. (NASN, 2016, p. 2)

School nurses serve in distinct positions as confidants for students who are targets of stigma as they view school nurses as outside the traditional academic system (Gower, Valdez, et al., 2019; Reynolds, 2011). School nurses can leverage this unique role by advocating for more professional development opportunities to increase knowledge about LGBTQ issues,

building a culture of inclusivity within physical spaces, working with counselors and teachers to ensure that school policies create a sense of safety and support, and by practicing and promoting confidentiality and privacy of the students they treat and serve. Future research is needed that examines the impact of school nurses' engagement in promoting positive school climates and reducing suicidality among LBTQ adolescents.

Conclusion

Preventing suicidality among LGBTQ adolescents is a public health priority, and school nurses are ideally situated to be at the forefront of suicide prevention. Gower, Saewyc, et al. (2019) suggest that when efforts to improve school climate engage stakeholders at all levels, the effects of these efforts can be even stronger in protecting marginalized adolescents. Nurses are recognized allies of LGBTQ adolescents (Reynolds, 2011; Williams et al., 2018). It is now time to engage school nurses in concerted efforts to help prevent suicide through advocacy for more positive school climates and through actively practicing the promotion of positive school climates for LGBTQ adolescents. Results of this systematic review, although limited, provide important evidence that school nurses can use to leverage their unique positions as health care providers within schools and advocate for policies that support the health and well-being of all students.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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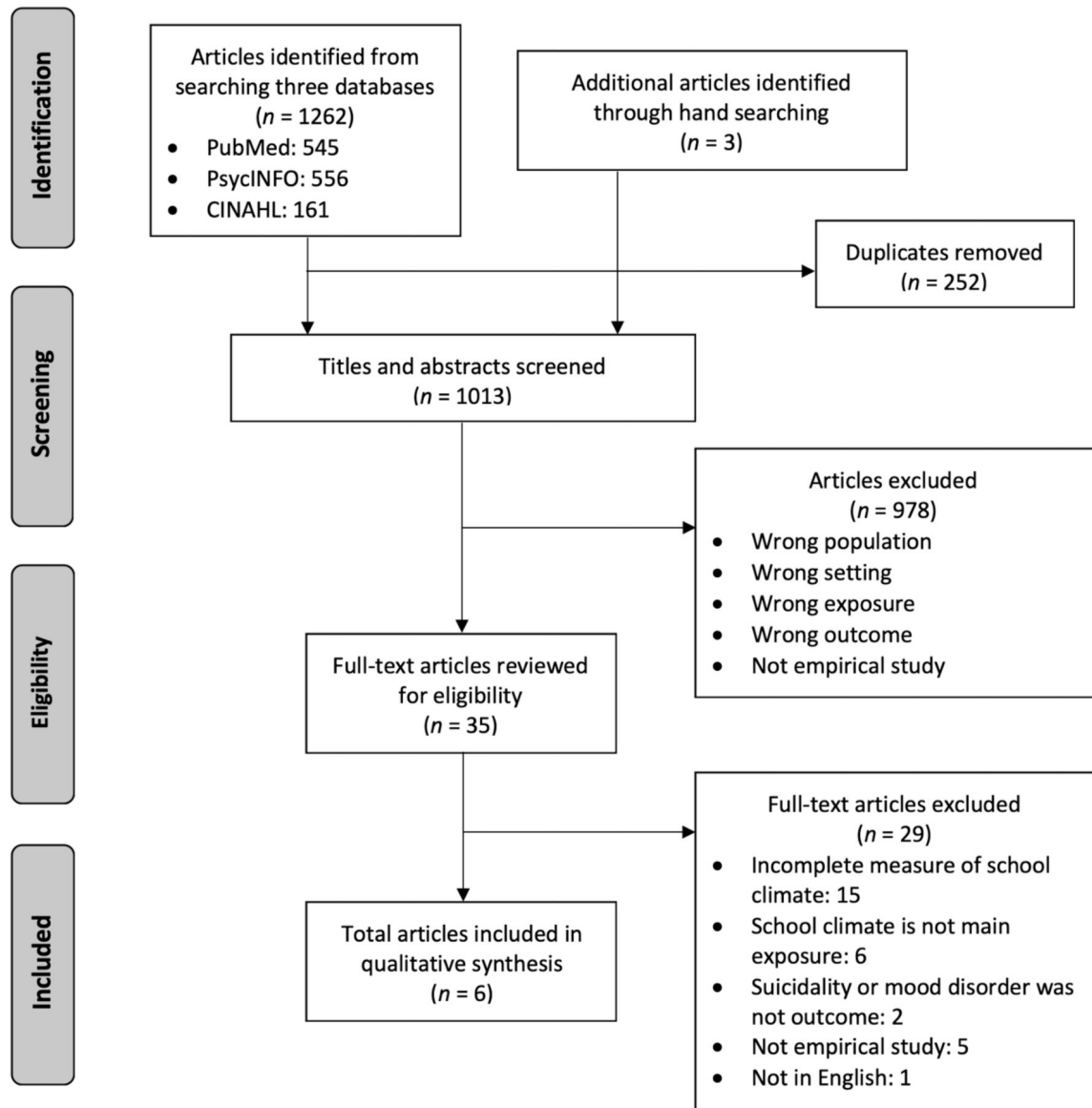


Figure 1.
PRISMA Flow Diagram Illustrating the Literature Search
Note. CINAHL stands for Cumulative Index to Nursing and Allied Health Literature.

The Joanna Briggs Institute Checklist for Analytical Cross-Sectional Studies Critical Appraisal Tool

Table 1

Author (year)	1. Were the criteria for inclusion in the sample clearly defined?	2. Were the study subjects and the setting described in detail?	3. Was the exposure measured in a valid and reliable way?	4. Were objective, standard criteria used for measurement of the condition?	5. Were confounding factors identified?	6. Were strategies to deal with confounding factors stated?	7. Were the outcomes measured in a valid and reliable way?	8. Was appropriate statistical analysis used?	Score percentage (%)	Risk of bias ^a (low/moderate/high)
Birkett et al. (2009)	✓	✓	✓	✗	✗	✗	✗	✓	50%	Moderate
Colvin et al. (2019)	✓	✓	✓	✓	✓	✓	✓	✓	100%	Low
Denny et al. (2016)	✓	✓	✓	✓	✓	✓	✓	✓	100%	Low
Espelage et al. (2008)	✗	✓	✓	✗	✗	✗	✓	✓	50%	Moderate
Hatzenbuehler et al. (2014)	✗	✗	✓	✓	✓	✓	✓	✓	75%	Low
Toomey et al. (2019)	✗	✓	✓	✓	✓	✓	✗	✓	75%	Moderate

Note. ✓ = Yes, ✗ = No.

^aRisk of bias: low = score of 70% or higher, moderate = 50%–69%, high = 49% or lower.