Journal of Child and Family Studies (2022) 31:1158–1171
https://doi.org/10.1007/s10826-022-02250-z

ORIGINAL PAPER

An Intersectional Modeling of Risk for Nonsuicidal Self-Injury among LGBTQ Adolescents

Stephanie R. Speer[1] · Brittanie Atteberry-Ash[2] · Shanna K. Kattari[3] · Leo. Kattari[4] · Rohini Gupta[5] · N. Eugene Walls[6]

Accepted: 21 January 2022 / Published online: 10 February 2022

Abstract

Non-suicidal self-injury (NSSI) is described as the intentional destruction of one's own bodily tissue without lethal intent and is a common behavior among adolescents and young adults. While previous research highlights the disparities regarding non-suicidal self-injury for lesbian, gay, bisexual, queer/questioning, and transgender students, few studies examine the nuances between sexual orientation and gender identity. This study ($N = 10{,}330$) uses the 2015 Healthy Kids Colorado Survey to examine variations in adolescents' risk and protective factors based on the intersection of sexual orientation and gender identity. This study investigates how these identities along with other known risk factors impact the likelihood of engaging in non-suicidal self-injury. Results from this study indicate that non-suicidal self-injury is a common experience among lesbian, gay, bisexual, queer/questioning, and transgender youth and that the likelihood of these experiences are differential based on the intersection of sexual orientation and gender identity.

Keywords NSSI · Transgender · LGBQ · Sexual orientation · Youth

Highlights

- The results from this study suggest that not only are transgender and LGBQ youth at increased risk of experiencing NSSI compared to their cisgender and heterosexual counterparts, but that the intersection of gender identity and sexual orientation augment these risks in nuanced ways among members of this community.
- Contextual factors, such as depression, suicidality, or recent experiences of dating violence affect these levels of risk for transgender and LGBQ youth.
- These findings underscore the importance of caring adults in the lives of young people who were half as likely to participate in NSSI than young people without caring adults.

✉ Stephanie R. Speer
Rspeer@brynmawr.edu

[1] Graduate School of Social Work and Social Research, Bryn Mawr College, 300 Airdale Rd, Bryn Mawr, PA 19010, USA

[2] School of Social Work, University of Texas at Arlington, 211 South Cooper Street, Arlington, TX 76019, USA

[3] School of Social Work, University of Michigan, 1080 S. University Ave, Ann Arbor, MI 48109, USA

[4] School of Social Work, Michigan State University, 655 Auditorium Rd, East Lansing, MI 48824, USA

[5] Graduate School of Professional Psychology, University of Denver, Denver, CO 80208, USA

[6] Graduate School of Social Work, University of Denver, 2148 S. High Street, Denver, CO 80208, USA

Nonsuicidal Self-Injury

Nonsuicidal self-injury (NSSI) is the deliberate destruction of one's own bodily tissue without suicidal intent (Robinson et al., 2021) and is distinct from suicidality, as suicide attempts involve potentially lethal, self-inflicted harm with the intention to die (Prinstein, 2008). While some individuals may use a single NSSI method, such as cutting, burning, scratching, or hitting (DiStefano, 2008), it is not uncommon for individuals to use multiple methods of self-injury (Klonsky, 2011). Research suggests that self-injury occurs on a continuum ranging from superficial injury to moderate and severe self-injury (Wang et al., 2016).

NSSI is a surprisingly common behavior among adolescents and young adults (Wang et al., 2016; Klonsky, 2011),

with lifetime prevalence rates of NSSI among adolescents in the United States ranging from 7.3 to 46.5% (Brown & Plener, 2017; Rojas-Velasquez et al., 2021). Rates among youth in psychiatric settings have been documented to be upwards of 60.0% (Kaess et al., 2013), with the typical onset being around 12–14 years of age and often continuing into adulthood (Cipriana et al., 2017; Nock & Prinstein, 2004). Both neurobiological and psychosocial factors, as well as the interaction of the two, may contribute to the higher rates of NSSI among youth and young adults compared to adults. Because of brain development processes, adolescence is a developmental phase marked by elevated levels of impulsivity and emotional reactivity (Casey et al., 2008), which can play a role in NSSI. Differences in various neurobiological processes (e.g., hypothalamic-pituitary adrenocortical axis regulation, higher cortisol awakening responses, neural processing) have been found between adolescents who engage in NSSI and those who do not (Groschwitz et al., 2016; Nater et al., 2010; Reichl et al., 2016). Socially, some experiences that are correlated with NSSI occur more frequently among adolescents than among adults, which may contribute to a higher NSSI prevalence as well. These include difficulties in navigating processes of identity development for stigmatized identities, bullying, dysfunctional family relationships, social contagion/exposure to peers engaging in NSSI, and the prevalence of NSSI among certain peer groups, such as goth and emo subcultures (Bowes et al., 2015; Hankin & Abela, 2010; Jarvis et al., 2013; Lereya et al., 2015; Young et al., 2014).

Research examining the prevalence of NSSI among racially diverse groups of adolescents is limited, and existing research suggests results are mixed. For example, Rojas-Velasquez et al. (2021) conducted a systematic review of the literature focusing on NSSI among African American and Hispanic adolescents and young adults. They found that while some studies demonstrated no racial or ethnic differences in the prevalence of NSSI, others reported significant variation, with most of those findings suggesting higher rates among White adolescents and young adults (Rojas-Velasquez et al., 2021). However, one study in their review found a significantly higher prevalence of NSSI among African American youth living in a relatively low-income area of rural Mississippi compared to their White peers (Rojas-Velasquez et al., 2021). This finding suggests that further research may be warranted to better understand how NSSI may vary based on racial identity.

Psychosocial Correlates of NSSI

Mental health, suicidality, and alcohol use

While NSSI has been demonstrated to be a serious health concern in both nonclinical and clinical populations (Forbes et al., 2019), NSSI rates are highest among populations with mental illness and are associated with multiple types of psychopathology (Cipriano et al., 2017; Klonsky et al., 2003), particularly depression, suicidality, and alcohol use. Numerous studies suggest that depression increases the risk for NSSI (Glenn & Klonsky, 2013; Wang et al., 2016), with a systematic review finding that half of patients presenting to hospitals following NSSI also struggle with depression (Hawton et al., 2013). The connection between depression and NSSI may not come as a surprise, given that depression often includes symptoms of hopelessness, negative affect, and recurrent thoughts of death and suicide (American Psychiatric Association, 2013). Those who engage in NSSI tend to report greater levels of negative emotions associated with depression compared to those who do not engage in NSSI (Laye-Gindhu & Schonert-Reichl, 2005). NSSI may be used to avoid or escape emotionally distressed states related to depression (Chapman et al., 2006).

NSSI may be a risk factor for suicidal behavior, as NSSI and suicidality demonstrate high comorbidity with being a strong predictor of future suicide attempts (Wilkinson et al., 2011). A meta-analysis suggests that adults with a history of NSSI are over four times more likely to subsequently attempt suicide (Ribeiro et al., 2016). Among youths, engaging in NSSI has been shown to predict the transition from suicidal ideation to suicide attempts (Mars et al., 2019).

Alcohol misuse has been associated with NSSI and is considered a risk factor for NSSI, as some youth may engage in NSSI while under the influence of alcohol or other drugs (Klonsky, 2011; Martiniuk et al., 2015). In a large cross-national sample of adolescents, moderate to heavy drinking was positively associated with NSSI (Rossow et al., 2007), a finding consistent with research suggesting that college students who engage in NSSI report riskier drinking compared to students who do not engage in NSSI (Hasking et al., 2008). The acute effects of alcohol intoxication may trigger NSSI in various ways and may also be associated with repeated episodes of NSSI (Martiniuk et al., 2015; Rossow & Norstrom, 2013). For example, intoxication may increase psychological distress, aggressiveness, and propensity to engage in NSSI, while limiting alternative coping mechanisms (Rossow & Norstrom, 2013).

Victimization

Intimate partner violence (IPV), the physical, psychological, financial, and sexual violence inflected on or by a current or former intimate partner (Carranza et al., 2020), is concerningly common among young adults, with some research suggesting a prevalence rate of more than 27% (World Health Organization, 2021). The existing literature on NSSI has identified a largely positive association between NSSI and IPV victimization and perpetration for males and females (Caron et al., 2018; Levesque et al., 2010), meaning

that those who report IPV victimization or perpetration are also more likely to report engaging in NSSI behaviors (Carranza et al., 2020). Female high school students who reported NSSI were more than twice as likely as those without NSSI to have experienced IPV victimization (Swahn et al., 2010). This statistic might not be surprising given that IPV victimization may be associated with dysregulated emotion, self-criticism, and dissociation (Baetens et al., 2015; Horowitz & Stermac, 2018), which in turn, could lead to engaging in NSSI behaviors.

Bullying victimization is another distinct type of violence that involves behavior that is intended to harm, occurs repeatedly over time, and comprises a power imbalance in which a more powerful person or group attacks a less powerful individual (Aalsma & Brown, 2008). Such victimization is an alarmingly common occurrence in adolescence, in 2019 more than one out of every five (20.2%) youth being bullied in school, and about 41% of youth who reported being bullied indicating that they believe that they will be bullied again (Irwin et al., 2021). Online bullying, also known as cyberbullying, refers to a specific type of bullying behavior that is carried out by an individual against another person using electronic communications (e.g., social media, text messages, email, and mobile phone calls) with the purpose of causing injury to another person through repeated aggressive acts (Hinduja & Patchin, 2008). Research on the prevalence rates of online bullying suggests that about 17% of youth report that they have been targets of online bullying (Hinduja & Patchin, 2019). Some specific identity groups of youth, such as lesbian, gay, bisexual, transgender, and queer/questioning (LGBTQ+) youth are at increased risk for bullying (Fox et al., 2018). However, findings on bully victimization rates for racial and ethnic minorities are inconsistent (Flannery et al., 2016). Regardless of the type of bullying, both cross-sectional and longitudinal studies have shown an association between incidences of bullying in childhood and adolescence and NSSI in adolescence (Lereya et al., 2015; Victor et al., 2019). In a study of 2141 children, half were victims of frequent bullying, which predicted higher rates of NSSI (Fischer et al., 2012). Hay and Meldrum (2010) found that victimization from bullying increased distress, which, in turn, increased the risk of engaging in NSSI to manage that distress (Diaz et al., 2001). Victims of bullying may additionally experience isolation, which leads to the belief that the only way to manage anger is to direct it at oneself (Hazler & Denham, 2002).

Protective factors for NSSI: the role of a caring adult or peer

While there are many risk factors associated with NSSI, it is also important to understand the protective factors that can buffer students' engagement in NSSI. For example, research has shown that children and adolescents with social support are at a decreased risk of engaging in NSSI (Christoffersen et al., 2015). Family support appears to be one of the most salient factors associated with decreases in risk (Tatnell, 2014; Brausch & Guiterrez, 2010). Positive parenting behaviors have also been shown to decrease the odds of NSSI onset (Victor et al., 2019). In fact, family support may be more of a protective factor than peer support (Brausch and Gutierrez 2010; Giletta et al., 2012). However, impaired parental relationships can be buffered by supportive relationships with close adults (Santens et al., 2018). As such, enhancing parent (or other close adult) support may be a potential focus for early intervention (Tatnell, 2014).

LGBTQ Populations and Vulnerability Associated with NSSI

LGBTQ identities and NSSI

Owing to limitations in data collection around sexual orientation and gender identity in large representative samples, such as the census and other datasets, it is challenging to determine the prevalence of the LGBTQ+ population. However, cumulative evidence suggests that about 4.5% of adults identify as lesbian, gay, bisexual, and/or transgender (Conron & Goldberg, 2020). Within that estimate, about 4.0% identify as LGB (3.9% cisgender LGB and 0.16% transgender LGB). No representative research has been conducted on the percentage of queer adults in the United States, as this identity is almost always left off of statewide and federal surveys.

It is similarly difficult to obtain an accurate number of LGBQ+ youth, but research that exists suggests that about 2–2.4% of youth identify as gay or lesbian, 6–8% identify as bisexual, and 3.2–4.2% are unsure of their sexual orientation (Kann et al., 2016; Kann et al., 2018). These numbers likely inadequately represent the actual number of LGBQ youth as language, and terms that young people use to describe their sexual orientation, is often changing, with instruments used to collect demographic information often missing the mark on capturing a young person's identity. For example, young people may use the term bisexual (typically defined as being attracted to both one's own gender and other genders) as a catch-all description of sexual orientation when they actually identify as queer, pansexual, or asexual/demisexual—terms indicating attraction to multiple genders (queer/pansexual/omnisexual) or connections that are not sexually focused (Bosse & Chiodo, 2016).

The size of the transgender and nonbinary (TNB) population is even harder to capture. The term transgender can be used as an umbrella term to describe multiple gender identities, including identities such as transgender women, transgender men, genderqueer, nonbinary, agender, and the many other unique and affirming terms that people use to describe their gender identity. Similar to the limitations of

collecting sexual orientation demographic data, the terms used to capture gender identity on survey instruments may inaccurately represent transgender people and deter some people from responding. Even so, existing evidence suggests that rates vary between 0.4 and 1.0% among adults (Herman et al., 2017; Williams Institute, 2017), of which approximately one-third identify as LGB and two-thirds as heterosexual or other sexual orientations (Williams Institute, 2017). Among young people, between 0.1 and 1.2% identify under the transgender umbrella, with many identifying as nonbinary rather than as male or female (Bosse & Chiodo, 2016; Herman et al., 2017).

As LGBTQ+ populations have higher rates of engagement in self-injurious behavior (Fox et al., 2018; King et al., 2008), it is critical to understand the nuances of the NSSI within this population. The increased risk appears to be related to the unique stressors experienced by this population (Muehlenkamp et al., 2012), as multiple studies have found numerous environmental factors associated with the risk of NSSI among the population. LGBTQ+ individuals who are survivors of physical violence and IPV are more likely to engage in NSSI (House et al., 2011; DiStefano, 2008). Among the population, other risk factors include childhood trauma and victimization (Blosnich & Bossarte, 2012; Cipriana et al., 2017), discrimination (House et al., 2011), and homophobic environments (McDermott et al., 2008; DiStefano, 2008). There is also some variation in the rate in which groups within the LGBTQ+ community engage in NSSI, with greater prevalence among individuals who identify as bisexual (Blosnich & Bossarte, 2012) compared to straight or gay and lesbian individuals, and transgender individuals compared to cisgender individuals (Marshall et al., 2016). Transgender men appear to be at a greater risk for NSSI compared to transgender women, and the discrepancy in prevalence may be associated with different stages of transition or a perceived lack of social support (Marshall et al., 2016). Differences in the method(s) used for NSSI have also been documented, with cisgender women being likelier to engage in cutting behavior, while cisgender men are likelier to use hitting or burning (Klonsky & Muehlenkamp, 2007). Overall, NSSI appears to be more common in LGBTQ+ populations than in non-LGBTQ populations (Sornberger et al., 2013).

Psychosocial correlates of NSSI among LGBTQ individuals

Multiple studies have demonstrated that LGBTQ+ young people experience an array of risk factors that lead to health disparities compared to their heterosexual cisgender peers. Such health disparities include poorer mental health, such as anxiety, depression, and suicidality; higher rates of substance use and abuse; and sexual health risks (Eisenberg et al., 2017; Kann et al., 2016). Further, LGBQ+ youth experience increased rates of victimization or physical abuse, including bullying and IPV (Eisenberg et al., 2017; Kann et al., 2016). Motivation for bullying LGBQ+ youth is often rooted in homophobia based on a young person's actual or perceived sexual orientation (Moyano & del Mar Sánchez-Fuentes, 2020; Orue & Calvete, 2018).

As with research on LGBTQ+ adults, most extant scholarship about LGBTQ+ youth combines sexual orientation and gender identity into one analytic category, or separates the categories completely, which obscures patterns associated with the intersection (i.e., TNB individuals who are also LGBQ+). However, recent findings underscore the importance of examining the experiences of young people from the intersection of their gender identity and sexual identity, as young people who have both a marginalized sexual identity and a marginalized gender identity appear to be at increased risk of negative factors related to their overall health and well-being compared to their cisgender heterosexual peers (Atteberry-Ash et al. 2019; Kattari et al., 2019; Walls et al., 2019; Atteberry-Ash et al., 2020; Bosse & Chiodo, 2016).

In this study, we applied minority stress theory as a conceptual framework. The theory posits that discrimination, stigma, and prejudice produce excess stress and adverse social environments that may contribute to mental health issues among minoritized populations, and connectedness to important individuals may buffer the impact of stressors experienced from identification with a minority group (Meyer, 2003). While research indicates that LGBTQ + people are at a higher risk of experiencing negative health and wellness outcomes due to experiences of bias, stigma, and discrimination, it is important to further explore protective factors, including instances of support, affirmation, and acceptance, that can improve the overall health of LGBTQ+ young people. Research on protective factors has found that young people who experience youth–adult connectedness, school connectedness, and community involvement have improved overall health and wellbeing (Foster et al., 2017; Sieving et al., 2017). Interventions that bolster these protective factors may have a significant impact on LGBTQ youth, specifically family connection, support, and acceptance, which are predictors of the overall health and well-being of LGBTQ young people (Eisenberg et al., 2017; Ryan et al., 2010). For transgender youth, being able to live openly and have their gender identity supported by family and friends can improve mental health outcomes—lowering the risk of other risk behaviors as a young person advances into adulthood (Olson et al., 2016).

We also apply the theory of intersectionality as a critical framework that is grounded in black feminist thought and begins by understanding the intersection of race and gender. As a theory, intersectionality interrogates the interconnected nature of social categorizations as they apply to a given individual or group (e.g., sexual orientation and gender

identity), creating overlapping and interdependent systems of disadvantage or discrimination (Crenshaw, 2017). Given that most studies combine sexual orientation and gender identity into one analytic group, or separate sexual orientation from gender identity by including both as discrete variables, nuances in risk and protective factors are often obscured. In this study, we address limitations in the existing literature by utilizing an intersectional modeling of risk and protective factors (an approach through which we create categories that represent intersecting identities of sexual orientation and gender identity) to examine NSSI and known correlates (i.e., bullying victimization, depression, suicide attempts, alcohol use, IPV, and connectedness to adults) among a nonclinical and statewide representative sample of young people. Our goal was to examine variations in adolescents' risk and protective factors based on the intersection of sexual orientation and gender identity. We expected to see some unique social–environmental risk and protective factors emerge based on this intersection. Still, given the paucity of research examining the risk and protective factors for NSSI focusing on the intersection of gender identity and sexual orientation, the current study remained exploratory.

Methods

This study is a secondary data analysis of the 2015 Healthy Kids Colorado Survey (HKCS). HKCS is a biennial, statewide, voluntary survey of public middle and high school students in Colorado administered by the Colorado Department of Education, the Office of Behavioral Health at the Colorado Department of Human Services, and the Colorado Department of Public Health and Environment and conducted by the University of Colorado Anschutz Medical Campus (CDPHE, 2017). Beginning in 2011, HKCS combined various youth health surveys conducted in the state (e.g., Youth Risk Behavior Surveillance System) to decrease the burden of data collection; HKCS includes over 160 questions across two survey modules.

Based on public school student enrollment for grades 6–12 in Colorado, schools were randomly selected to participate in the survey. Within selected schools, classrooms were randomly chosen to complete the survey. School district superintendents decided whether their district would participate, and school principals within the school districts also decided whether their school would participate. Additionally, school district superintendents could decide to opt out of specific questions within the survey. For schools that decided to participate in the survey, students and their caregivers were notified prior to the survey administration that their participation was voluntary and to review their informed consent. Parents and students chose whether to participate in the survey. Schools not chosen by a random sample could elect to participate in HKCS. A total of 15,970 randomly selected high school students from 127 randomly selected high schools (response rate of 46.5%) participated in the 2015 state sample (CDPHE, 2017). An additional 26 high schools opted in, giving a total sample size of more than 28,000 high school student participants (CDPHE, 2017). Data are weighted to represent student enrollment in all Colorado public high schools, with weights constructed to account for sampling design, school, student nonparticipation and nonresponse, and differences in grade, sex, and ethnicity between the sample and the student school population (CDPHE, 2017). The data used in this study are a weighted, representative high school sample. The study was found to be exempt from IRB review by the [REDACTED FOR REVIEW] institutional review board, as this data analysis did not qualify as human subjects research.

Analytic Sample

The 2015 HKCS surveyed 28,151 high school students. Approximately half of the schools surveyed were administered Module B, which included the bullying-specific questions of interest, while the remaining schools received Module A, which did not include the dependent variables of interest. As such, this study consists of a sample of 14,080 potential respondents. Three Module B schools participating in the HKCS opted not to include survey questions critical to the study (i.e., gender identity, sexual orientation, and NSSI), meaning 249 (1.8%) students were dropped, which brought the sample size to 13,831 students. An additional 340 (2.5%) respondents indicated that they did not understand the question regarding whether they identified as transgender and were removed from the sample. We dropped an additional 408 (3.0%) participants for failing to respond to the dependent NSSI variable, bringing the study sample to 13,083. Missing data from the sample's independent variables ranged from a low of 0.3% ($n = 44$) for age to a high of 8.9% ($n = 472$) for suicide attempts. Given that the number of missing responses was less than 10% per variable and the sample size was over 1000, we used a listwise deletion method to bring the final analytic sample to 10,330 (Bennett, 2001; Meeyai, 2016).

Measures

Respondents were asked, "What is your sex?" with a dichotomous response set of "male" or "female." To obtain age, students were asked, "How old are you?" with a response set of 12 years old or younger (recoded to 12), 13 years old, 14 years old, 15 years old, 16 years old, 17 years old, 18 years old or older (recoded to 18). Respondents

Table 1 Classification scheme for intersectional sexual orientation and gender identity variables

Sexual Orientation Gender Identity	Heterosexual (straight)	Gay or lesbian	Bisexual	Not sure
No, I am not transgender	Cisgender heterosexual[a]	Cisgender LGB	Cisgender LGB	Cisgender questioning
Yes, I am transgender and think of myself as really a boy or man	Transgender heterosexual	Transgender LGB	Transgender LGB	Transgender questioning
Yes, I am transgender and think of myself as really a girl or woman	Transgender heterosexual	Transgender LGB	Transgender LGB	Transgender questioning
Yes, I am transgender and think of myself in some other way	Transgender heterosexual	Transgender LGB	Transgender LGB	Transgender questioning
I do not know if I am transgender	Don't know if transgender heterosexual	Don't know if transgender LGB	Don't know if transgender LGB	Don't know if transgender questioning
I do not know what this question is asking	Dropped from sample	Dropped from sample	Dropped from sample	Dropped from sample

[a]Analytic reference category

were asked, "Which of the following best describes you?" with a response set of "heterosexual (straight)," "gay or lesbian," "bisexual," and "not sure." They were also asked, "A transgender person is someone whose biological sex at birth does not match the way they think or feel about themselves. Are you transgender?" Responses included "No, I am not transgender"; "Yes, I am transgender, and I think of myself as really a boy or man"; "Yes, I am transgender, and I think of myself as really a girl or woman"; "Yes, I am transgender, and I think of myself in some other way"; "I do not know if I am transgender"; and "I do not know what this question is asking." We combined the responses to these two questions to derive a variable capturing the intersection of sexual orientation and gender identity, which resulted in nine different categories (see Table 1, Atteberry-Ash et al., 2019; Kattari et al., 2019; Walls et al., 2019).

Two questions were asked about race and ethnicity, and another variable was derived, resulting in racial categories of American Indian/Alaska Native, Asian, Black/African American, Latino/Hispanic, Native Hawaiian/Other Pacific Islander, two or more races, or White.

To capture NSSI, participants were asked, "During the past 12 months, how many times did you do something to purposefully hurt yourself without wanting to die, such as cutting or burning yourself on purpose?" with response options of "zero times," "one time," "two or three times," "four or five times," and "six or more times." This variable was recoded into a dichotomous yes/no variable.

To measure experiences of different forms of bullying, respondents were asked, "During the past 12 months, have you ever been bullied on school property?", "During the past 12 months, have you ever been electronically bullied? (Count being bullied through e-mail, chat rooms, instant messaging, websites or texting.)", "During the past 12 months, have you ever been the victim of teasing or name calling because someone thought you were gay, lesbian, or bisexual?", and "During the past 12 months, have you ever been the victim of teasing or name calling because of your race or ethnic background?" All questions had yes/no response sets. Note that the question regarding bullying about sexual orientation focuses on the *perception* of being gay, lesbian, or bisexual rather than on the respondent's actual sexual orientation. It is quite possible that respondents who identify as heterosexual may be perceived by others to be gay, lesbian, or bisexual because of gender expression or other reasons.

To capture depression, students were asked, "During the past 12 months, did you ever feel so sad or hopeless almost every day for two weeks or more in a row that you stopped doing some usual activities?" with a yes/no response set. To capture previous suicide attempts, students were asked, "During the past 12 months, how many times did you actually attempt suicide?" Responses ranged from zero to six attempts and were recoded into a dichotomous yes/no variable. Students were asked about recent alcohol use: "During the past 30 days, how many days did you have at least one drink of alcohol?" Responses ranged from zero to all 30 days and were recoded into a dichotomous yes/no variable. Dating harm was also captured by asking: "During the past 12 months, how many times did someone you were dating or going out with physically hurt you on purpose? (Count such things as being hit, slammed into something, or injured with an object or weapon.)" Reponses included "I did not date or go out with anyone in the past 12 months" and range options of zero or six or more. This variable was recoded into a dichotomous yes/no variable.

To capture the presence of adult support, students were asked, "If you had a serious problem, do you know an adult in or out of school whom you could talk to or go to for help?" with response options of "yes," "no," and "not sure." This variable was recoded into a dichotomous variable with "not sure" responses coded as "no," given that if the student was not sure whether the support existed, then the availability of this support was questionable.

Analytic Plan

We analyzed the data using Stata 15.0 (StataCorp, 2017). Survey weights were used to account for the survey design. First, to describe the sample, descriptive statistics were run, followed by five logistic regression models predicting NSSI. Assumptions that must be met for logistic regression include that true conditional probabilities are a logistic function of the independent variables, no important variables are omitted, no extraneous variables are included, the independent variables are measured without error, the observations are independent, and the independent variables are not linear combinations of each other (Berry & Feldman, 1985; Menard, 1995). These assumptions were tested in Stata using the linktest command. Results from the linktests were not significant, which likely indicates that the models were well-specified. The first model contained only demographic variables to predict the likelihood of engaging in NSSI. The second model comprised only variables that captured the intersection of gender identity and sexual orientation. The third model comprised only bullying victimization variables. The fourth model comprised variables that captured known risk and protective factors. The fifth model comprised all variables from previous models.

Results

Descriptive Statistics

Table 2 provides the descriptive statistics for all variables. The students' average age was 15.7 years ($SD = 1.22$), and the majority of the sample was White (56.9%, $n = 5881$), followed by Latino/Hispanic (24.6%, $n = 2539$), two or more races (12.0%, $n = 1234$), and Black/African American (2.5%, $n = 259$). This sample included slightly more participants who were assigned female at birth (51.8%, $n = 5356$). Participants mostly identified as heterosexual (87.2%, $n = 9003$), followed by bisexual (7.0%, $n = 727$), not sure (3.8%, $n = 400$), and gay or lesbian (2.0%, $n = 200$). As for gender identity, most students identified as cisgender (i.e., not transgender) (96.8%, $n = 9997$), followed by do not know (1.5%, $n = 153$), transgender male (0.7%, $n = 70$), transgender other (0.5%, $n = 57$), and transgender female (0.5%, $n = 53$).

Approximately 19.2% ($n = 1978$) of participants reported being bullied on school property, 15.4% ($n = 1593$) reported online bullying, 12.4% ($n = 1276$) reported being bullied due to their race, and 8.9% ($n = 915$) reported being bullied because someone thought that they were gay, lesbian, or bisexual. Additionally, 16.6% ($n = 1719$) of participants reported engaging in NSSI, 33.5% ($n = 3460$) reported recent alcohol use, 60.9% ($n = 6295$) reported recent dating violence, 7.8% ($n = 801$) reported a past suicide attempt, and 28.8% (n = 2977) reported recent depression. Roughly 73% (n = 7532) of students reported that they had an adult to whom they could talk if they had a serious problem.

Table 2 Sample characteristics ($n = 10,330$)

	Total Sample	
	n	Percent or Mean
Dependent Variable		
NSSI		
Yes	1719	16.64
No	8611	83.36
Independent Variables		
Age	10,330	15.70
Race/Ethnicity		
White	5881	56.90%
Latino/Hispanic	2539	24.60%
Two or more races	1234	12.00%
Black	259	2.50%
Asian	243	2.40%
Native American	141	1.40%
Native Hawaiian	33	0.20%
Sex Assigned at Birth		
Male	4974	48.20%
Female	5356	51.80%
Sexual Orientation		
Heterosexual	9003	87.20%
Bisexual	727	7.00%
Gay or Lesbian	200	2.00%
Questioning	400	3.80%
Gender Identity		
Cisgender	9997	96.8%
Trans Male	70	0.70%
Trans Female	53	0.50%
Trans Other	57	0.50%
Don't Know if Transgender	153	1.50%
Primary Identity		
Cisgender Heterosexual	8915	86.31%
Cisgender LGB	777	7.52%
Cisgender not sure LGB	305	2.95%
Trans Hetero	47	0.45%
Trans LGB	95	0.92%
Trans not sure LGB	38	0.37%
DK Trans Hetero	41	0.40%
DK Trans LGB	55	0.53%
DK Trans not sure LG	57	0.55%
Bullied		
At School	1978	19.15%
Online	1593	15.42%
Due to Race	1276	12.35%
Due to Sexual Orientation	915	8.86%
Recent Alcohol Use	3460	33.49%
Dating Violence	6295	60.94%
Suicide Attempt	801	7.75%
Recent Depression	2977	28.82%
Caring Adult	7532	72.91%

Inferential Statistics

Model one

Only demographic variables to predict the likelihood of engaging in NSSI were included in the baseline model (see Table 3, Model 1). In terms of age, there was a 6.0% reduction in the odds of having engaged in NSSI with each additional year of age ($p < 0.05$), which is consistent with previous literature on NSSI and age. Regarding race, when compared to White students, Black students were roughly 40% less likely to engage in NSSI ($p < 0.05$) while Native Hawaiian/Pacific Islander students were more than two times as likely to engage in NSSI ($p < 0.05$). Students who reported two or more races were 60% more likely to engage in NSSI ($p < 0.001$) than their White peers. Respondents who indicated being assigned male at birth were 70% less likely to engage in NSSI compared to respondents assigned female at birth ($p < 0.001$).

Model two

In the second model (see Table 3, Model 2), only variables that captured the intersection of gender identity and sexual orientation were included to predict the likelihood of engaging in NSSI. Compared to cisgender heterosexual respondents, all sexual and gender minority identity groups, except individuals who identified as heterosexual but did not know if they were transgender, had significantly elevated odds of engaging in NSSI behaviors. These elevated

Table 3 Logistic regression of NSSI ($n = 10{,}330$)

	Model 1*		Model 2*		Model 3*		Model 4*		Model 5*	
	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE
Age	0.94**	0.02							0.93*	0.26
Race *(White)*										
Latino	0.96	0.06							0.78*	0.07
Black	0.64*	0.13							0.53*	0.13
Asian	0.76	0.15							0.99	0.24
Native Hawaiian	2.19*	0.86							0.97	0.53
Native American	1.47	0.32							1.23	0.03
More than two	1.62***	0.13							0.96	0.1
Sex at Birth *(Female)*										
Male	0.30***	0.02							0.47***	0.03
Primary Identity *(Cisgender Heterosexual)*										
Cisgender LGB			6.74***	0.53					2.48***	0.26
Cisgender not sure LGB			3.44***	0.44					2.80***	0.43
Trans Hetero			3.08***	0.99					1.27	0.53
Trans LGB			15.74***	3.51					6.61***	1.94
Trans not sure LGB			12.45***	4.21					6.27***	1.94
DK Trans Hetero			1.25	0.55					1.75***	0.83
DK Trans LGB			11.76***	3.29					4.49***	1.48
DK Trans not sure LG			5.68***	1.53					5.87***	1.48
Bullied in school					1.99***	0.14			1.44***	0.12
Bullied online					2.52***	0.18			1.21*	0.11
Bullied due to Race					4.91***	0.37			1.01	0.11
Bullied due to Sexual Orientation					1.70***	0.13			1.51*	0.16
Recent Alcohol Use							1.31***	0.09	1.31***	0.09
Dating Violence							1.27**	0.89	1.34***	0.09
Suicide Attempt							8.47***	0.82	6.57***	0.67
Recent Depression							6.98***	0.46	4.90***	0.35
Caring Adult							0.52***	0.03	0.52***	0.04

Odds ratios for logistic regressions are adjusted for the other predictors in the model

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

odds ranged from three times more likely to engage in NSSI for transgender heterosexual students to almost sixteen times more likely to engage in NSSI for transgender LGB students ($p < 0.001$).

Model three

In the third model (see Table 3, Model 3), only bullying victimization variables were used to predict the likelihood of engaging in NSSI. The results indicate that respondents who reported being bullied in school were nearly two times as likely to engage in NSSI than those who did not report in school bullying ($p < 0.001$). Respondents who reported being bullied online were nearly two and a half times as likely to engage in NSSI than those who did not report online bullying ($p < 0.001$). The results also indicate that those who were bullied because someone thought that they were gay, lesbian, or bisexual had nearly five times the odds of engaging in NSSI ($p < 0.001$) compared to students who reported they were not bullied because someone thought that they were gay, lesbian, or bisexual. Also, those bullied due to their race were approximately 1.7 times more likely to engage in NSSI compared to students who indicated they were not bullied due to their race ($p < 0.001$).

Model four

The fourth model included variables to capture known risk and protective factors related to engaging in NSSI (see Table 3, Model 4). The results indicate that those with recent depression were nearly seven times as likely to engage in NSSI than those who did not report recent depression ($p < 0.001$). Similarly, those who reported past suicide attempts had more than eight times the odds of engaging in NSSI compared to students without reported suicide attempts ($p < 0.001$). Those with recent alcohol use and reported dating violence were roughly 30% more likely to engage in NSSI than those who did not report recent alcohol use ($p < 0.001$) or dating violence ($p < 0.01$). Conversely, students who had a caring adult were half as likely to self-harm than those without a caring adult ($p < 0.001$).

Model five

The fifth model (see Table 3, Model 5) included all variables from the previous models to predict the likelihood of engaging in NSSI. Age continued to decrease the odds of engaging in NSSI with a 7% reduction in NSSI for each additional year of age ($p < 0.05$). Similar to Model 1, the results indicated that Black/African Americans students were nearly 50% less likely to engage in NSSI compared to White students ($p < 0.05$). However, students indicating more than two races were no longer significantly different from their White peers, while Latino students emerged as less likely to engage in NSSI compared to the White students ($p < 0.05$). Those assigned male at birth were roughly 50% less likely to engage in NSSI compared to those assigned female at birth ($p < 0.001$). In terms of the intersection of gender identity and sexual orientation, all sexual and gender minority identity groups, except individuals who identified as transgender heterosexuals, had significantly elevated odds of engaging in NSSI behaviors. These elevated odds ranged from nearly two times more likely to engage in NSSI for individuals who identified as heterosexual but did not know if they were transgender to more than six times more likely to engage in NSSI for transgender LGB students compared to cisgender heterosexual respondents ($p < 0.001$). The results indicate that respondents who reported being bullied in school were roughly 40% more likely to engage in NSSI than those who did not report in school bullying ($p < 0.001$). Respondents who reported being bullied online were 20% more likely to engage in NSSI than those who did not report online bullying ($p < 0.05$). Students who reported being bullied due to their sexual orientation were 50% more likely to engage in NSSI than students who did not report being bullied due to their sexual orientation ($p < 0.05$). However, being bullied due to race was no longer significantly associated with an increased odds of engaging in NSSI. Like the fourth model, the results indicated that those with recent depression were nearly five times more likely to engage in NSSI than those who did not report recent depression ($p < 0.001$). Students in the sample who reported past suicide attempts had more than six times the odds of engaging in NSSI compared to students without reported suicide attempts ($p < 0.001$). Those with recent alcohol use and reported dating violence continued to be roughly 30% more likely to engage in NSSI than those who did not report recent alcohol use or dating violence ($p < 0.001$). Students who reported having a caring adult were half as likely to self-harm than those without a caring adult ($p < 0.001$).

Discussion and Implications

This study, which is representative of high-school-aged young people in Colorado, replicates the rates of NSSI shown by previous studies to already be high among LGBQ + and TNB individuals (Fox et al., 2018; King et al., 2008). While engaging in NSSI was not an uncommon experience, particularly among LGBQ and transgender youth, the likelihood of reporting NSSI was different based on the intersection of sexual orientation and gender identity when compared with cisgender heterosexual youth. In Model 5, where all the predictive variables of interest were included, students who identified as transgender, whether LGB or

questioning their sexual orientation or gender identity, apart from transgender heterosexual, were at the highest risk for engaging in NSSI. In some cases, such as young people who were both transgender and LGB, and those who were questioning their gender and were LGB, participants were more than six times as likely to engage in NSSI when compared to their cisgender heterosexual peers. While these results are in line with previous research emphasizing the increased risk for NSSI for the LGBTQ+ community (Fox et al., 2018; King et al., 2008), these findings draw attention to the importance of research that examines the intersection of sexual orientation and gender identity and raise concerns about findings from research that fails to examine the differences in risks and resilience at this intersection.

These results underscore the need to develop programs and policies to prevent engagement in NSSI, with a specific curriculum focusing on transgender and LGBQ youth that are mindful of the potential intersectional risk. For example, research suggests that school-based prevention programs may have a positive effect on the likelihood of future engagement in NSSI; however, few school-based NSSI prevention programs exist (Baetens et al., 2020). Moreover, to the best of our knowledge, none of these school-based prevention programs includes a curriculum that focuses on the unique risk factors that impact LGBQ and transgender young people. Developing a prevention program with an inclusive LGBQ and transgender curriculum that can mitigate these risks will be an important step in addressing the disparities experienced by these students. Furthermore, given the high rates and intersectional risks of NSSI for these youths, school districts should develop policies to ensure regular screening and assessment of student NSSI. School counselors and social workers may be uniquely positioned to develop specialized skills and knowledge to provide effective prevention and intervention to transgender and LGBQ youth engaging in NSSI.

It is essential to further contextualize the experiences of LGBQ and transgender youth who are engaging in a world and navigating institutions that are inherently biased or exclusionary. Minority stress theory suggests that prejudice, discrimination, and stigma generate excess stress and adverse social environments, which may contribute to mental health issues among minoritized populations (Meyer, 2003). As noted in previous research (Atteberry-Ash et al., 2019; Kattari et al., 2019; Walls et al., 2019), it is not inherently risky to be TNB or LGBQ; rather, it is the transphobia and homophobia present in our society that infers these risks. For example, sexual minority students were not considered a protected class under federal legislation until the Biden administration (McKay-Jackson & Massat, 2016). School districts can include sexual minority students as a protected group in their nondiscrimination statements (McKay-Jackson & Massat, 2016), and the U.S. Department of Education (2016) reports that it is committed to providing schools with the information they need to provide a safe, supportive, and nondiscriminatory learning environment for all students. However, as of 2015, only 10% of school districts in the United States had explicit LGBQ+ and transgender-inclusive anti-bullying policies (Kull et al., 2015). Research has found that LGBQ and transgender students are more likely to report feeling unsafe in school, skipping school due to safety concerns, and being bulled in person and online when compared to heterosexual cisgender youth (Atteberry-Ash et al., 2019). While this study was conducted in a state with statewide anti-bullying policies that specifically identify LGBQ+ and TNB individuals as a protected group, there were still significantly elevated risks for NSSI among LGBQ+ and TNB youth. Further, in this study, bullying victimization because someone thought that the student was LGB increased the risk of engaging in NSSI, with students who reported being bullied because someone thought that they were LGB 50% more likely to engage in NSSI than students who did not report being bullied because someone thought that they were LGB. Title IX has been used as a foundation for case law that establishes that schools and learning institutions cannot allow harassment of LGBQ+ and TNB students (McKay-Jackson & Massat, 2016), and research has found that gay and lesbian students in districts with more LGBQ and transgender-inclusive anti-bullying policies are significantly less likely to have negative mental health outcomes in the past year compared to students in districts with less inclusive policies (Hatzenbuehler & Keyes, 2013). This finding suggests a need to pass anti-bullying policies at the state and district levels that explicitly include LGBQ+ and TNB students and to implement affirming policies across all school districts.

The results of this study mirror previous research that demonstrated an increased risk of engaging in NSSI among students who reported recent depression, suicidality, alcohol use, and IPV. While these results may not be surprising, given the likelihood of potential comorbidity with NSSI, they do suggest that prevention programs, whether in school or outside of school, may do well to target these risks in NSSI prevention. For example, including psychoeducation on the increased risk of NSSI for those who experience these risks could help destigmatize this behavior and lead to more accurate disclosures. Furthermore, school counselors and social workers who may already screen for these risks but do not include questions for NSSI may be missing an important part of the risk profile. Therefore, ensuring a more comprehensive screening and assessment tool may better identify students at risk for NSSI.

While research indicates that LGBQ+ and TNB youth are at a higher risk of experiencing negative health outcomes connected to their experiences of bias, stigma, and

discrimination in schools, it is important to further explore how instances of support, affirmation, and acceptance can improve the overall health of LGBTQ+ young people. The findings from this study underscore the importance of caring adults in the lives of young people, whether that person is a parent, guardian, or other family member or a teacher, coach, religious figure, neighbor, or other adult who has created a relationship built on trust with the young person. Young people who experience youth–adult connectedness, school connectedness, and community involvement have improved overall health and wellbeing (Sieving et al., 2017). For transgender youth, being able to live openly and be supported in their gender identity by family and friends can improve mental health outcomes, which decreases the likelihood of other risk behaviors as the young person advances into adulthood (Olson et al., 2016). Developing school policies to support LGBQ+ and TNB students and bolstering these protective factors can have a significant influence on the overall health and well-being of LGBQ+ and TNB youth. Fostering youth/adult partnerships, both inside school settings and in the community in general, may be an effective intervention for improving the mental health of young people.

Lastly, Latino/Hispanic and Black/African American young people in this study were less likely to participate in NSSI than their White counterparts. While research on prevalence among racially minoritized populations has been inconsistent in findings, our results are congruent with other research suggesting that rates of NSSI are higher among White individuals compared to individuals of color (Chesin et al., 2013). However, in univariate analyses, Native Hawaiian students and students who reported more than one race were associated with higher risks for NSSI, but this relationship was no longer significant in the multivariate analysis that adjusted for all risk and protective factors. Further, Latino students were not statistically significantly less likely to engage in NSSI when compared to White peers in the univariate model, but this relationship became statistically significant in the multivariate analysis. These findings provide mixed support for the NSSI risk factors associated with racial identity. Cultural aspects of these racial groups may offer more communal support, as previously discussed, or other considerations may allow youth with these racial identities to experience protective factors concerning NSSI. Nonetheless, future research may better elucidate the role that racial identity plays in the engagement of NSSI.

Limitations

The use of a representative sample of young people in public high schools in Colorado limits the generalizability of the findings to the state. Given demographic and cultural differences, as well as policy variations, the findings should not be interpreted as necessarily generalizable to other geographic contexts, suggesting the importance of replication of the study with representative samples in other locales. Even though the sample is representative within the state of Colorado, issues of an adequate subpopulation sample may exist, given the low numbers of youth from certain racial groups. Future studies that oversample low-incidence racial and ethnic identity groups could strengthen the findings. As school districts and individual schools were able to exclude certain questions from their surveys, data from some districts and schools were not included in this research. While weighting accounted for nonresponse and nonparticipation, should environmental and social factors exist that correlated with this nonparticipation, these factors may skew the findings. Further, these data are cross-sectional, providing information from one point in time, limiting the ability to understand causality and generalizability. Because this study uses secondary data analysis and the researchers did not have control over how questions were asked, approaches to question wording may not have been ideal. Specifically, participants may have been confused or not represented by the language or categories assessing sexual orientation and gender identity, perhaps leading to a lack of representation of certain identities. It should also be noted that any categorization of gender identity and sexual orientation also has limitations. Moreover, the question assessing bullying victimization related to sexual orientation was worded in a way that assessed whether someone perceived the student to be LGB rather than someone bullying the student because they knew that the student was LGB. While this item likely assessed the student's perception of their sexual orientation rather than their actual orientation, the results from this study highlight the negative impact that even an assumption of being LGB can have on bullying victimization and NSSI.

Conclusion

The results from this study suggest that not only are LGBQ+ and TNB youth at increased risk of experiencing NSSI compared to their cisgender and heterosexual counterparts but that the intersection of gender identity and sexual orientation augments these risks in nuanced ways among members of this community. Additionally, other contextual factors, such as depression, suicidality, or recent experiences of dating violence, affect these levels of risk. Interventions to address NSSI among youth need to attend to the intersecting identities of youth to employ more inclusive practices. Moreover, these results indicate that having a caring adult can mitigate NSSI. Therefore, ensuring that youth, particularly LGBQ+ and TNB

youth, have access to a positive and caring adult may have a significant impact on LGBTQ+ youth.

Compliance with Ethical Standards

Conflict of Interest The authors declare no competing interests.

Ethics Approval The study was reviewed and found to be exempt by the [REDACTED FOR REVIEW] institutional review board.

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

References

Aalsma, M. C., & Brown, J. R. (2008). What is bullying? *Journal of Adolescent Health*, *43*(2), 101–102.

American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.). Washington, D.C.

Atteberry-Ash, B., Walls, N. E., Kattari, S. K., Peitzmeier, S. M., Kattari, L., & LangenderferMagruder, L. (2020). Forced sex among youth: Accrual of risk by gender identity, sexual orientation, mental health and bullying. *Journal of LGBT Youth*, *17*(2), 193–213. https://doi.org/10.1080/19361653.2019.1614131.

Atteberry-Ash, B., Kattari, S. K., Speer, S. R., Guz, S., & Kattari, L. (2019). School safety experiences of young adults across sexual orientation and gender identity. *Children and Youth Services Review*, 104(c). https://doi.org/10.1016/j.childyouth.2019.104403

Baetens, I., Claes, L., Hasking, P., Smits, D., & Grietens, H. (2015). The AQ8 relationship between parental expressed emotions and non-suicidal self-injury: The mediating roles of self-criticism and depression. *Journal of Child and Family Studies*, *24*(2), 491–498.

Baetens, I., Decruy, C., Vatandoost, S., Vanderhaegen, B., & Kiekens, G. (2020). School-based prevention targeting non-suicidal self-injury: a pilot study. *Frontiers in Psychiatry*. https://doi.org/10.3389/fpsyt.2020.00437.

Bennett, D. A. (2001). How can I deal with missing data in my study? *Australian and New Zealand journal of public health*, *25*(5), 464–469.

Berry, W.D., & Feldman, S. (1985). Multiple regression in practice. Series on quantitative applications in the social sciences. Sage.

Blosnich, J., & Bossarte, R. (2012). Drivers of disparity: Differences in socially based risk factors of self-injurious behaviors among sexual minority college students. *Journal of American College Health*, *60*(20), 141–149.

Bosse, J. D., & Chiodo, L. (2016). It is complicated: gender and sexual orientation identity in LGBTQ youth. *Journal of Clinical Nursing*, *25*(23–24), 3665–3675.

Bowes, L., Carnegie, R., Pearson, R., Mars, B., Biddle, L., Maughan, B., Lewis, G., Fernyhough, C., & Heron, J. (2015). Risk of depression and self-harm in teenagers identifying with goth subculture: a longitudinal cohort study. *The Lancet: Psychiatry*, *2*(9), 793–800. https://doi.org/10.1016/S2215-0366(15)00164-9.

Brausch, A. M., & Gutierrez, P. M. (2010). Differences in non-suicidal self-injury and suicide attempts in adolescents. *Journal of Youth and Adolescence*, *39*, 233–242.

Brown, R. C., & Plener, P. L. (2017). Non-suicidal self-injury in adolescence. *Current Psychiatry Reports*, *19*(3), 20 https://doi.org/10.1007/s11920-017-0767-9.

Caron, A., Lafontaine, M. F., & Bureau, J. F. (2018). Exploring the relationship between child maltreatment, intimate partner violence victimization, and self-injurious thoughts and behaviors. *Journal of Aggression, Maltreatment & Trauma*, *27*(7), 759–776.

Carranza, A. B., Wallis, C. R. D., Jonnson, M. R., Klonsky, E. D., & Walsh, Z. (2020). Nonsuicidal self-injury and intimate partner violence: Directionality of violence and motives for self-injury. *Journal of Interpersonal Violence*. https://doi.org/10.1177/0886260520922372.

Casey, B. J., Jones, R. M., & Hare, T. A. (2008). The adolescent brain. *Annals of the New York Academy of Sciences*, *1124*(1), 111–126. https://doi.org/10.1196/annals.1440.010.

Chapman, A. L., Gratz, K. L., & Brown, M. Z. (2006). Solving the puzzle of deliberate self-harm: The experiential avoidance model. *Behavior Research and Therapy*, *44*, 371–394.

Chesin, M. S., Moster, A. N., & Jeglic, E. L. (2013). Non-suicidal self-injury among ethnically and racially diverse emerging adults: Do factors unique to the minority experience matter? *Current Psychology*, *32*, 318–328.

Christoffersen, M. N., Møhl, B., DePanfilis, D., & Vammen, K. S. (2015). Non-suicidal self-Injury—does social support make a difference? An epidemiological investigation of a Danish national sample. *Child Abuse & Neglect*, *44*, 106–116.

Cipriana, A., Cella, S., & Cotrufo, P. (2017). Nonsuicial self-injury: a systematic review. *Frontiers in Psychology*, *8*, 1946.

Colorado Department of Public Health and Environment. (2017). Healthy kids Colorado survey. https://www.colorado.gov/pacific/cdphe/hkcs.

Conron, K. J., & Goldberg, S. K. (2020). Adult LGBT Population in the United States. The Williams Institute, UCLA, Los Angeles, CA. https://williamsinstitute.law.ucla.edu/wp-content/uploads/LGBT-Adult-US-Pop-Jul-2020.pdf

Crenshaw, K. W. (2017). *On intersectionality: essential writings*. Chicago: The New Press.

Diaz, R. M., Ayala, G., Bein, E., Henne, J., & Marin, B. (2001). The impact of homophobia, poverty, and racism on the mental health of gay and bisexual Latino men: Findings from 3 US cities. *American Journal of Public Health*, *91*, 927–932.

DiStefano, A. S. (2008). Suicidality and self-harm among sexual minorities in Japan. *Qualitative Health Research*, *18*(10), 1429–1441.

Eisenberg, M. E., Gower, A. L., McMorris, B. J., Rider, G. N., Shea, G., & Coleman, E. (2017). Risk and protective factors in the lives of transgender/gender nonconforming adolescents. *Journal of Adolescent Health*, *61*(4), 521–526.

Fischer, H. L., Moffitt, T. E., Houts, R. M., Belsky, D. W., Arseneault, L., & Caspi, A. (2012). Bullying victimisation and risk of self-harm in early adolescents: longitudinal cohort study. *BMJ*, *344*, e2683.

Flannery, D. J., Todres, J., Bradshaw, C. P., Amar, A. F., Graham, S., Hatzenbuehler, M., Masiello, M., Moreno, M., Sullivan, R., Vaillancourt, T., Le Menestrel, S. M., & Rivara, F. (2016). Bullying prevention: a summary of the report of the national academies of sciences, engineering, and medicine. *Prevention Science*, *17*(8), 1044–1053.

Forbes, C. N., Tull, M. T., Richmond, J. R., Chapman, A. L., Dixon-Gordon, K. L., & Gratz, K. L. (2019). Motives for nonsuicidal self-injury in individuals with lifetime depressive disorders and posttraumatic stress disorder. *Journal of Psychopathology and Behavioral Assessment*, *41*(4), 652–661. https://doi.org/10.1007/s10862-019-09739-w.

Foster, C. E., Horwitz, A., Thomas, A., Opperman, K., Gipson, P., Burnside, A., Stone, D. M., & King, C. A. (2017). Connectedness to family, school, peers, and community in socially vulnerable adolescents. *Children and Youth Services Review*, *81*, 321–331.

Fox, K. R., Hooley, J. M., Smith, D. M. Y., Ribeiro, J. D., Huang, X., Nock, M. K., & Franklin, J. C. (2018). Self- injurious thoughts

and behaviors may be more common and severe among people identifying as a sexual minority. *Behavior Therapy*, *49*, 768–780.

Giletta, M., Scholte, R. H. J., Engels, R. C. M. E., Ciairano, S., & Prinstein, M. J. (2012). Adolescent non-suicidal self-injury: A cross-national study of community samples from Italy, the Netherlands and the United States. *Psychiatry Research*, *197*, 66–72.

Glenn, C. R., & Klonsky, E. D. (2013). Nonsuicidal self-injury disorder: an empirical investigation in adolescent psychiatric patients. *Journal of Clinical Child and Adolescent Psychology*, *42*(4), 496–507.

Groschwitz, R. C., Plener, P. L., Groen, G., Bonenberger, M., & Abler, B. (2016). Differential neural processing of social exclusion in adolescents with non-suicidal self-injury: an fMRI study. *Psychiatry Research: Neuroimaging*, *255*, 43–49. https://doi.org/10.1016/j.pscychresns.2016.08.001.

Hankin, B. L., & Abela, J. R. (2010). Nonsuicidal self-injury in adolescence: Prospective rates and risk factors in a 2½ year longitudinal study. *Psychiatry Research*, *186*(1), 65–70. https://doi.org/10.1016/j.psychres.2010.07.056.

Hasking, P., Momeni, R., Swannell, S., & Chia, S. (2008). The nature and extent of non-suicidal self-injury in a non-clinical sample of young adults. *Archives of Suicide Research*, *12*, 208–218.

Hatzenbuehler, M. L., & Keyes, K. M. (2013). Inclusive anti-bullying policies and reduced risk of suicide attempts in lesbian and gay youth. *Journal of Adolescent Health*, *53*(1), S21–S26.

Hawton, K., Casañas-Comabella, C., Haw, C., & Saunders, K. (2013). Risk factors for suicide in individuals with depression: A systematic review. *Journal of Affective Disorders*, *147*(1–3), 17–28.

Hay, C., & Meldrum, R. (2010). Bullying victimization and adolescent self-harm: testing hypotheses from general strain theory. *Journal of Youth and Adolescence*, *39*, 446–459.

Hazler, R. J., & Denham, S. A. (2002). Social isolation of youth at risk: conceptualizations and practical implications. *Journal of Counselling and Development*, *80*(4), 403–409.

Herman, J.L., Flores, A.R., Brown, T.N., Wilson, B.D., & Conron, K. J. (2017). Age of individuals who identify as transgender in the United States. Williams Institute.

Hinduja, S., & Patchin, J. W. (2008). *Bullying beyond the schoolyard: Preventing and responding to cyberbullying*. Thousand Oaks, CA: Corwin Press.

Hinduja, S., & Patchin, J. W. (2019). Connecting adolescent suicide to the severity of bullying and cyberbullying. *Journal of School Violence*, *18*(3), 333–346.

Horowitz, S., & Stermac, L. (2018). The relationship between interpersonal trauma history and the functions of non-suicidal self-injury in young adults: An experience sampling study. *Journal of Trauma & Dissociation*, *19*(2), 232–246.

House, A. S., Van Horn, E., Coppeans, C., & Stepleman, L. M. (2011). Interpersonal trauma and discriminatory events as predictors of suicidal and nonsuicidal self-injury in gay, lesbian, bisexual, and transgender persons. *Traumatology*, *17*(2), 75–85.

Irwin, V., Wang, K., Cui, J., Zhang, J., and Thompson, A. (2021). Report on Indicators of School Crime and Safety: 2020 (NCES 2021-092/NCJ 300772). National Center for Education Statistics, U.S. Department of Education, and Bureau of Justice Statistics, Office of Justice Programs, U.S. Department of Justice. Washington, DC. Retrieved from https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2021092.

Jarvis, S., Jackson, B., Swenson, L., & Crawford, H. (2013). The impact of social contagion on non-suicidal self-injury: a review of the literature. *Archives of Suicide Research*, *17*(1), 1–19. https://doi.org/10.1080/13811118.2013.748404.

Kaess, M., Parzer, P., Mattern, M., Plener, P. L., Bifulco, A., Resch, F., & Brunner, R. (2013). Adverse childhood experiences and their impact on frequency, severity, and the individual function of nonsuicidal self-injury in youth. *Psychiatry Research*, *206*(2–3), 265–272. https://doi.org/10.1016/j.psychres.2012.10.012.

Kann, L., McManus, T., Harris, W. A., Shanklin, S. L., Flint, K. H., Queen, B., Lowry, R., Chyen, D., Whittle, L., Thornton, J., Lim, C., Bradford, D., Yamakawa, Y., Leon, M., Brener, N., & Ethier, K. (2018). Youth Risk Behavior Surveillance—United States, 2017. MMWR. Surveillance Summaries, 67. https://doi.org/10.15585/mmwr.ss6708a1.

Kann, L., Olsen, E.O.M., McManus, T., Harris, W.A., Shanklin, S.L., Flint, K.H., Queen, B., Lowry, R., Chyen, D., Whittle, L., Thornton, J., Lim, C., Yamakawa, Y., Brener, N., & Zaza, S. (2016). Sexual identity, sex of sexual contacts, and health-related behaviors among students in grades 9-12—United States and selected sites, 2015. Morbidity and mortality weekly report. Surveillance Summaries. Volume 65, Number 9. Centers for Disease Control and Prevention.

Kattari, S. K., Atteberry-Ash, B., Walls, N. E., Klemmer, C., Rusow, J., & Kattari, L. (2019). Missing from the conversation: Sexual risk factors across young people by gender identity and sexual orientation. *International Journal of Sexual Health*, *31*(4), 394–406. https://doi.org/10.1080/19317611.2019.1667938.

King, M., Semlyen, J., Tai, S. S., Killaspy, H., Osborn, D., Popelyuk, D., & Nazareth, I. (2008). A systematic review of mental disorder, suicide, and deliberate self-harm in lesbian, gay and bisexual people. *BMC Psychiatry*, *8*, 70.

Klonsky, E. D. (2011). Non-suicidal self-injury in United States adults: Prevalence, sociodemographic, topography and functions. *Psychological Medicine*, *41*, 1981–1986.

Klonsky, E. D., & Muehlenkamp, J. J. (2007). Self-injury: a research review for the practitioner. *Journal of Clinical Psychology*, *63* (11), 1045–1056.

Klonsky, E. D., Oltmanns, T. F., & Turkheimer, E. (2003). Deliberate self-harm in a nonclinical population: prevalence and psychological correlates. *American Journal of Psychiatry*, *160*(8), 1501–1508.

Kull, R.M., Kosciw, J.G., & Greytak, E.A. (2015). From statehouse to schoolhouse: antibullying policy efforts in U.S. States and School Districts. Gay, Lesbian and Straight Education Network (GLSEN). https://files.eric.ed.gov/fulltext/ED570446.pdf.

Laye-Gindhu, A., & Schonert-Reichl, K. A. (2005). Nonsuicidal self-harm among community adolescents: Understanding the "whats" and "whys" of self-harm. *Journal of Youth and Adolescence*, *34*, 447–457.

Lereya, S. T., Copeland, W. E., Costello, E. J., & Wolke, D. (2015). Adult mental health consequences of peer bullying and maltreatment in childhood: Two cohorts in two countries. *The Lancet: Psychiatry*, *2*(6), 524–531.

Levesque, C., Lafontaine, M., Bureau, J., Cloutier, P., & Dandurand, C. (2010). The influence of romantic attachment and intimate partner violence on non-suicidal self-injury in young adults. *Journal of Youth and Adolescence*, *39*, 474–483.

Mars, B., Heron, J., Klonsky, E. D., Moran, P., O'Connor, R. C., Tilling, K., Wilkinson, P., & Gunnell, D. (2019). Predictors of future suicide attempt among adolescents with suicidal thoughts or non-suicidal self-harm: a population-based birth cohort study. *Lancet Psychiatry*, *6*(4), 327–337. https://doi.org/10.1016/S2215-0366(19)30030-6.

Marshall, E., Claes, L., Bouman, W. P., Witcomb, G. L., & Arcelus, J. (2016). Non-suicidal self-injury and suicidality in trans people: a systematic review of the literature. *International Review of Psychiatry*, *28*(1), 58–69.

Martiniuk, A. L. C., Chen, H., Glozier, N., Patton, G. E., Senserrick, T., Williamson, A., Woodward, M., & Ivers, R. (2015). High alcohol use a strong and significant risk factor for repetitive self-harm in female and male youth: a prospective cohort study. *The American Journal of Drug and Alcohol Abuse*, *41* (5), 465–473.

McDermott, E., Roen, K., & Scourfield, J. (2008). Avoiding shame: Young LGBT people, homophobia and self-destructive behaviors. *Culture, Health & Sexuality*, *10*, 815–829.

McKay-Jackson, C., & Massat, C.R. (2016). Policy and law affecting school social work with vulnerable populations. In C. Rippey Massat, M. S. Kelly, & R. Constable (Eds.), School social work: Practice, policy, and research (pp. 213–221). Lyceum Books.

Meeyai, S. (2016). Logistic regression with missing data: a comparison of handling methods, and effects of percent missing values. *Journal of Traffic and Logistics Engineering*, *4*(2), 128–134.

Menard, S. (1995). Applied logistic regression analysis. Sage university paper series on quantitative applications in the social sciences. Sage.

Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychological Bulletin*, *129*, 674–697.

Moyano, N., & del Mar Sánchez-Fuentes, M. (2020). Homophobic bullying at schools: A systematic review of research, prevalence, school-related predictors and consequences. *Aggression and Violent Behavior*, *53*, 101441.

Muehlenkamp, J. J., Claes, L., Havertape, L., & Plener, P. L. (2012). International prevalence of adolescent nonsuicidal self-injury and deliberate self-harm. *Child and Adolescent Psychiatry and Mental Health*, *6*, 1–9.

Nater, U. M., Bohus, M., Abbruzzese, E., Ditzen, B., Gaab, J., & Kleindienst, N., et al. (2010). Increase psychological and attenuated cortisol and alpha-amylase responses to acute psychosocial stress in female patients with borderline personality disorder. *Psychoneuroendrocrinology*, *35*(10), 1565–1572. https://doi.org/10.1016/j.psyneuen.2010.06.002.

Nock, M. K., & Prinstein, M. J. (2004). A functional approach to the assessment of self-mutilative behavior. *Journal of Consulting and Clinical Psychology*, *72*, 885–890.

Olson, K. R., Durwood, L., DeMeules, M., & McLaughlin, K. A. (2016). Mental health of transgender children who are supported in their identities. *Pediatrics*, *137*(3), e20153223.

Orue, I., & Calvete, E. (2018). Homophobic bullying in schools: the role of homophobic attitudes and exposure to homophobic aggression. *School Psychology Review*, *47*(1), 95–105.

Prinstein, M. J. (2008). Introduction to the special section on suicide and nonsuicidal self-injury: a review of unique challenges and important directions for self-injury science. *Journal of Consulting and Clinical Psychology*, *76*, 1–8.

Reichl, C., Heyer, A., Brunner, R., Parzer, P., Völker, J. M., Resch, F., & Kaess, M. (2016). Hypothalamic-pituaitary-adrenal axis, childhood adversity and adolescent nonsuicidal self-injury. *Psychoneuroendocrinology*, *74*, 203–211. https://doi.org/10.1016/j.psyneuen.2016.09.011.

Ribeiro, J. D., Franklin, J. C., Fox, K. R., Bentley, K. H., Kleiman, E. M., Chang, B. P., & Nock, M. K. (2016). Self-injurious thoughts and behaviors as risk factors for future suicide ideation, attempts, and death: A meta-analysis of longitudinal studies. *Psychological Medicine*, *46*(2), 225–236. https://doi.org/10.1017/S0033291715001804.

Robinson, K., Garisch, J. A., & Wilson, M. S. (2021). Nonsuicidal self-injury thoughts and behavioral thoughts and behaviours among community adolescents. *Journal of Affective Disorders*, *282*, 1247–1254. https://doi.org/10.1016/j.jad.2020.12.201.

Rojas-Velasquez, D. A., Pluhar, E. I., Bruns, P. A., & Burton, E. T. (2021). Nonsuicidal self-injury among African American and Hispanic adolescents and young adults: a systematic review. *Prevention Science*, *22*, 367–377. https://doi.org/10.1007/s11121-020-01147-x.

Rossow, I., & Norstrom, T. (2013). Heavy episodic drinking and deliberate self-harm in young people: a longitudinal cohort study. *Addiction*, *109*, 930–936.

Rossow, I., Ystgaard, M., Hawton, K., Madge, N., van Heeringen, K., de Wilde, E. J., DeLeo, D., Fekete, S., & Morey, C. (2007). Cross-national comparisons of the association between alcohol consumption and deliberate self-harm in adolescents. *Suicide and Life-Threatening Behavior*, *37*(6), 605–615.

Ryan, C., Russell, S. T., Huebner, D., Diaz, R., & Sanchez, J. (2010). Family acceptance in adolescence and the health of LGBT young adults. *Journal of Child and Adolescent Psychiatric Nursing*, *23*(4), 205–213.

Santens, T., Claes, L., Diamond, G. S., & Bosmans, G. (2018). Depressive symptoms and self-harm among youngsters referred to child welfare: The role of trust in caregiver support and communication. *Child Abuse and Neglect*, *77*, 155–167.

Sieving, R. E., McRee, A. L., McMorris, B. J., Shlafer, R. J., Gower, A. L., Kapa, H. M., Beckman, K. J., Doty, J. L., Plowman, S. L., & Resnick, M. D. (2017). Youth–adult connectedness: a key protective factor for adolescent health. *American Journal of Preventive Medicine*, *52*(3), S275–S278.

Sornberger, M. J., Smith, N. G., Toste, J. R., & Heath, N. L. (2013). Nonsuicidal self-injury, coping strategies, and sexual orientation. *Journal of Clinical Psychology*, *69*(6), 571–583.

Swahn, M. H., Ali, B., Bossarte, R. M., Van Dulmen, M., Crosby, A., Strine, T., & Raskin, S. (2010). Self-harm and its link to peer and dating violence among adolescents in a high-risk urban community. *Suicidology Online*, *1*, 53–65.

Tatnell, R., Kelada, L., Hasking, P., & Martin, G. (2014). Longitudinal analysis of adolescent NSSI: The role of intrapersonal and interpersonal factors. *Journal of Abnormal Child Psychology*, *42*(6), 885–896.

U.S. Department of Education. (2016, May). Examples of policies and emerging practices for supporting transgender students. Office of Elementary and Secondary Education, Office of Safe and Healthy Students. https://www2.ed.gov/about/offices/list/oese/oshs/emergingpractices.pdf.

Victor, S., Hopwell, A. E., Stepp, S., & Scott, N. (2019). Parent and peer relationships as longitudinal predictors of adolescent nonsuicidal self-injury onset. *Child and Adolescent Psychiatry and Mental Health*, *13*(1), 1–13. https://doi.org/10.1186/s13034-018-0261-0.

Walls, N. E., Atteberry-Ash, B., Kattari, S. K., Peitzmeier, S., Kattari, L., & LangenderferMagruder, L. (2019). Gender identity, sexual orientation, mental health, and bullying as predictors of partner violence in a representative sample of youth. *Journal of Adolescent Health*, *64*(1), 86–92. https://doi.org/10.1016/j.jadohealth.2018.08.011.

Wang, B., Lin, M., You, J., & Xu, S. (2016). Developmental trajectories of nonsuicidal self-injury in adolescence and intrapersonal/interpersonal risk factors. *Journal of Adolescent Research*, *27*(2), 392–406.

Wilkinson, P., Kelvin, R., Roberts, C., Dubicka, B., & Goodyer, I. (2011). Clinical and psychosocial predictors of suicide attempts and nonsuicidal self-injury in the Adolescent Depression Antidepressants and Psychotherapy Trial (ADAPT). *American Journal of Psychiatry*, *168*(5), 495–501.

World Health Organization (2021). Violence against women prevalence estimates, 2018: global, regional and national prevalence estimates for intimate partner violence against women and global and regional prevalence estimates for non-partner sexual violence against women. Geneva. License: CC BY-NC-SA 3.0 IGO.

Young, R., Sproeber, N., Groschwitz, R. C., Preiss, M., & Plener, P. L. (2014). Why alternative teenagers self-harm: Exploring the link between non-suicidal self-injury, attempted suicide and adolescent identity. *BMC Psychiatry*, *14*, 137 https://doi.org/10.1186/1471-244X-14-137.