

## Self-Injurious Thoughts and Behaviors May Be More Common and Severe Among People Identifying as a Sexual Minority

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Research indicates that people who identify as a sexual minority are at higher risk of numerous negative outcomes, including self-injurious thoughts and behaviors (SITBs). The minority stress model proposes that people identifying as a sexual minority are at higher risk of these behaviors due to sexual orientation-specific stressors—however, it does not clarify whether SITBs will be more severe among these individuals. The present study tested whether SITBs are more common and more severe among people identifying as a sexual minority using several metrics, including frequency of SITB engagement, age of onset of SITB, desire

to discontinue SITB engagement, and likelihood of future SITBs. Four independent research samples were used to test this model. Results were then combined and tested in an internal meta-analysis. Findings converge to indicate a longer and more severe course of SITB engagement among people identifying as a sexual minority. Future research is needed to replicate these findings and to advance the understanding of why this imbalance in risk and severity might exist, and how it can be prevented.

*Keywords:* sexual minority; NSSI; suicide; self-injury

**Acknowledgments:** This work was supported in part by funding from the Military Suicide Research Consortium (MSRC), an effort supported by the Office of the Assistant Secretary of Defense for Health Affairs (Award No. W81XWH-10-2-0181). Opinions, interpretations, conclusions, and recommendations are those of the authors and are not necessarily endorsed by the MSRC or the Department of Defense.

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IDENTIFYING AS A SEXUAL MINORITY is associated with a number of poor psychosocial outcomes, including greater engagement in health-risk behaviors as well as higher rates of depression, anxiety disorders, and substance use disorders compared with heterosexual people (see King et al., 2008, for a systematic review and meta-analysis). People identifying this way also appear to be at higher risk of engaging in all self-injurious thoughts and behaviors (SITBs; nonsuicidal self-injury [NSSI], suicide ideation, plans, attempts, death) compared with their heterosexual

peers (Batejan, Jarvi, & Swenson, 2015; King et al., 2008; Marshal et al., 2011). Despite mounting evidence that people identifying as a sexual minority report higher SITB rates, we know little about the characteristics of these behaviors. As such, it remains unclear whether SITBs manifest similarly, or are more severe, among these individuals.

The minority stress model (Brooks, 1981; Meyer, 2003) proposes that people identifying as a sexual minority disproportionately experience life stressors due to their stigmatized sexual identity (e.g., discrimination, concealment of sexual identity, internalized homophobia), which then increases factors such as psychological distress (Hatzenbuehler, Nolen-Hoeksema, & Erickson, 2008), social isolation (Pachankis, 2007), and expectations of rejection (e.g., Mendoza-Denton, Downey, Purdie, Davis, & Pietrzak, 2002). As such, this model predicts higher rates of psychopathology and SITBs among those who identify as a sexual minority. However, it is silent on the issue of severity.

Extending the minority stress model, it is plausible that SITBs will not only be more common among people who identify as a sexual minority but also more severe. Because sexual identity typically develops during adolescence (e.g., Calzo, Antonucci, Mays, & Cochran, 2011), minority stressors and cultural expectations may negatively impact adolescent experiences around sexual-minority identification, thus leading to an earlier age of SITB onset. Similarly, continued perpetuation of these stressors may then promote a greater desire to self-harm and/or a greater desire to die from self-injurious behaviors. If this hypothesis is supported, it would reflect greater suffering, greater physical harm, greater likelihood of prolonged SITB struggles, and ultimately greater risk of suicide death among people who do not identify as heterosexual.

Supporting this possibility, preliminary research has demonstrated greater psychiatric comorbidity, earlier ages of onset, and greater persistence of some psychological disorders among people identifying as a sexual minority (see Hatzenbuehler, 2009). With regard to the severity of SITBs, there is evidence of greater NSSI engagement (Whitlock, Eckenrode, & Silverman, 2006), use of more NSSI methods (Tsypes, Lane, Paul, & Whitlock, 2016), and more medically serious suicide attempts (Stone et al., 2014) among people identifying as a sexual minority compared with people identifying as heterosexual. Additionally, although more large-scale epidemiological research on this topic is needed, preliminary research shows higher rates of suicide death among people identifying as certain sexual-minority groups. For example, in a study conducted in Denmark, suicide death rates were eight times higher among men who were in a same-sex domestic partnership

compared with men in a heterosexual partnership (Mathy, Cochran, Olsen, & Mays, 2011).

However, a competing possibility stemming from the minority stress model is that SITBs will be more common, but not more severe, among people identifying as a sexual minority. Supporting this possibility, Sornberger, Smith, Toste, and Heath (2013) observed similar frequencies of NSSI engagement regardless of sexual orientation among people who reported engaging in these behaviors. Savin-Williams (2001) also observed similar rates of “true” (i.e., serious) suicide attempts across participants across sexual-orientation groups.

There are many factors associated with the decision to engage in SITBs (Franklin et al., 2017; Walsh, Ribeiro, & Franklin, 2017), and it is unlikely that any single factor, such as sexual orientation, will have a large effect on these outcomes. Consequently, single studies are often insufficient to understand the role of these singular factors, as effects are typically small and difficult to detect across small samples. As such, the impact of sexual orientation on SITB engagement is likely best understood when examined across several studies, utilizing a variety of samples and methods. In the present report, we examined differences between participants identifying as a sexual minority (i.e., sexual-minority group) and heterosexual (i.e., heterosexual group) across four independent research studies. Three of the four studies include medium sample sizes and measures of sexual orientation including heterosexual, homosexual, bisexual, questioning/other, and prefer not to say to allow for endorsement of a range of sexual identities. The fourth study includes a more limited assessment of sexual orientation (i.e., heterosexual, homosexual, bisexual, prefer not to say) across a much larger ( $n = 1,025$ ) sample to obtain more reliable effects. Those endorsing “prefer not to say” were not included in either the heterosexual or sexual minority groups because their sexual identity was unclear. We next followed guidelines proposed by Goh, Hall, and Rosenthal (2016), and conducted an internal or “mini” meta-analysis on results from the four studies when possible. This allowed for more reliable comparison of SITB severity across heterosexual and sexual-minority groups. In the descriptions below, the methodology of all the studies is described first, followed by the results of each individual study. We then present the meta-analyzed results, where appropriate. Across these studies, we tested whether a sexual-orientation group would impact each of the following:

1. Self-reported frequency of SITB engagement.
2. Ages of onset of NSSI, suicide ideation, suicide plans, and suicide attempts.

3. Self-reported desire to discontinue NSSI.
4. Self-reported likelihood of future engagement in NSSI and/or future suicide attempts.
5. Self-reported desire to die and confidence in suicide attempt lethality of self-reported average (Studies 3 and 4 only) and most lethal (Study 4 only) suicide attempts.
6. Self-reported injuries resulting from most lethal suicide attempts.

### Study 1 Method

#### PARTICIPANTS

Recruitment and participant information are described elsewhere (see Fox, Toole, Franklin, & Hooley, 2017). Sample characteristics are summarized in Table 1.

#### PROCEDURES

Eligible and consenting participants completed a 2-hour study session. Only data on demographic information, including sexual-minority status and characteristics of SITB histories are included in the present analyses.

#### MEASURES

##### *Demographics*

We created a brief questionnaire to assess demographic information including sexual-minority status. This questionnaire noted participant age, sex, gender, race, country of origin, and sexual orientation. To assess gender, response options included female, male, female → male, male → female, other, and “prefer not to say.” Finally, to assess sexual orientation, response options included heterosexual, homosexual, bisexual, unsure, and “prefer not to say.” Those selecting “prefer not to say” when asked about their sexual orientation were excluded from analysis.

##### *Self-Injurious Thoughts and Behaviors Interview (SITBI)*

The SITBI (Nock, Holmberg, Photos, & Michel, 2007) is a semistructured interview assessing various aspects (e.g., age of onset, frequency, severity) of

SITBs during the past week, month, year, and lifetime. The SITBI also assesses self-reported future likelihood of NSSI and suicide attempts. The interview has strong interrater reliability (average  $K = .99$ ) as well as strong convergent construct validity, with strong associations with other measures of SITBs (Nock et al., 2007). In Study 1, an extra question was included assessing the desire to stop engaging in NSSI. This was rated on a scale of 0 (*not at all*) to 4 (*extremely*).

### Study 2 Method

Aside from the minor changes described below, procedures and measures were identical to Study 1.

#### PARTICIPANTS

Participants were recruited from online, web-based forums related to suicide and psychopathology. They participated as part of a larger treatment study, described elsewhere (see Study 3; Franklin et al., 2016). Prior research has demonstrated that online and in-person recruitment and study completion yield similar results across tasks and populations (Crump, McDonnell, & Gureckis, 2013; Hauser & Schwarz, 2016; Weinberg, Freese, & McElhatten, 2014), including clinical populations (Bauermeister et al., 2012). Given the sensitive nature of studies examining self-injurious populations, online formats have the benefit of decreasing the likelihood of participant bias when reporting on a stigmatized topic and increasing willingness to participate. Table 1 provides sample characteristics.

#### PROCEDURES

Participants who qualified and consented to the study were contacted via an e-mail they provided and asked to complete a survey. To help preserve anonymity, participants were advised to use an e-mail address that did not contain identifiable information. The survey included several questions regarding sexual-minority status and history of self-injury (described in more detail below).

Table 1  
Sample Characteristics Across the Four Studies

	<i>N</i> (% female sex) <sup>a</sup>	Mean age ( <i>SD</i> )	SITB history	<i>N</i> (%) heterosexual	<i>N</i> (%) homosexual	<i>N</i> (%) bisexual	<i>N</i> (%) unsure	<i>N</i> (%) prefer not to say <sup>b</sup>
Study 1	97 (78.35%)	22.53 (4.62)	Past-year NSSI	52 (53.61%)	9 (9.28%)	23 (23.71%)	6 (6.19%)	4 (4.12%)
Study 2	163 (58.89%)	24.50 (6.61)	Past-year SITB	92 (56.44%)	11 (6.75%)	43 (26.38%)	7 (4.29%)	4 (2.45%)
Study 3	183 (86.89%)	25.16 (6.78)	Past-year SITB	93 (50.82%)	6 (3.28%)	60 (32.79%)	17 (9.29%)	6 (3.28%)
Study 4	1,025 (66.44%)	26.54 (7.31)	Past-year SITB	547 (53.37%)	71 (6.93%)	359 (35.02%)	NA	48 (4.68%)

Note. *SD* = standard deviation; SITB = self injurious thoughts and behaviors; NSSI = nonsuicidal self-injury.

<sup>a</sup> Study 4 did not assess participant sex, so the percentage of participants reporting female gender is reported.

<sup>b</sup> Those endorsing “prefer not to say” for sexual orientation were excluded from analyses.

## MEASURES

*Self-Injurious Thoughts and Behaviors*

We used a modified version of the SITBI. The SITBI is typically administered as an interview. However, several researchers (e.g., Franklin, Puzia, Lee, & Prinstein, 2014) have used an online version. Unlike other versions of the SITBI, in this study, only past-week, past-month, and past-year NSSI episodes were calculated. As such, when relevant, only past-year (rather than lifetime) NSSI episodes were compared across groups.

**Study 3 Method**

Procedures and measures were very similar to Study 2 with the following minor changes.

## PARTICIPANTS

Details of online recruitment are described elsewhere (see Fox, Millner, & Franklin, 2016). Sample characteristics are provided in Table 1.

## PROCEDURES

Participants who qualified and provided informed consent were contacted via e-mail and asked to complete a survey. Participants were advised to use an e-mail address that did not contain identifiable information to help maintain their anonymity. The survey included several questions regarding sexual-minority status and history of self-injury (described in more detail below).

## MEASURES

*Self-Injurious Thoughts and Behaviors*

We again used a modified, online version of the SITBI. This is described in more detail in Fox et al. (2016). We included two additional questions to obtain information about self-reported “average” suicide attempt(s). To assess suicide intent, we asked, “On average, how much did you want these suicide attempts to kill you?” We then asked, “On average, how much did you think that these attempts could kill you?” Responses were rated on a scale from 0 (*not at all*) to 4 (*extremely*).

**Study 4 Method**

Procedures and measures were similar to Studies 2 and 3 with the following minor differences.

## PARTICIPANTS

Inclusion criteria required participants to (a) speak English; (b) have daily access to the Internet; (c) be at least 18 years of age; and (d) have attempted suicide in the last year, self-cut without wanting to die at least once in the past 6 months, or experienced frequent active suicide ideation within the last 2 weeks. Sample characteristics are provided in Table 1.

## PROCEDURES

Participants who were eligible and provided informed consent were contacted via e-mail and asked to participate in a longitudinal study designed to examine predictors of short-term SITB risk. Only data on demographic information and characteristics of SITB histories reported at baseline assessment are included in the present analyses.

## MEASURES

*Demographics*

To assess gender, response options included male, female, other, and “prefer not to say.” Regarding sexual orientation, response options included heterosexual, homosexual, bisexual, and “prefer not to say.” Those selecting “prefer not to say” were excluded from analyses.

*Self-Injurious Thoughts and Behaviors*

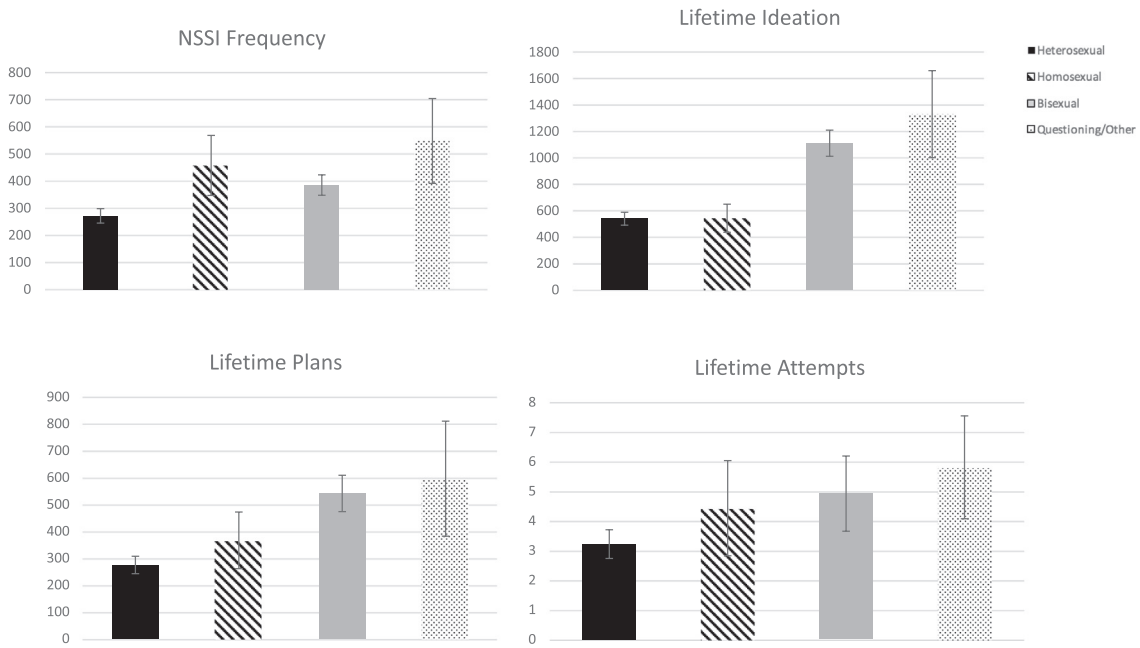
Again, we included two additional questions to the online version of the SITBI to assess for intent of self-reported suicide attempts. On a scale from 0 (*not at all*) to 10 (*extremely*), participants were asked to rate how much they wanted to die when they tried to kill themselves most recently, and how confident they were that using the method would result in death. These same questions were asked for the self-reported most harmful suicide attempt. Additionally, we included a question to assess injuries from one’s self-reported most lethal suicide attempt, ranging from 0 (*no physical damage or very minor physical damage*) to 4 (*severe physical damage; medical hospitalization with intensive care required*).

## DATA ANALYTIC PLAN

Across studies included, outcome variables were not normally distributed according to Shapiro-Wilk’s tests ( $ps \leq .01$ ). However, except in the two instances noted using footnotes, results using nonparametric (i.e., Mann-Whitney  $U$  tests) were identical to  $t$  tests, likely due to the relatively large sample sizes. As such, results using parametric tests are reported.

*Question 1: Does Sexual-Orientation Group Impact Self-Reported SITB Frequencies? (Studies 1–4)*

To test whether lifetime frequencies of SITBs were different between sexual-minority (Group 1) and heterosexual (Group 2) groups, we conducted four  $t$  tests with group (sexual minority, heterosexual) as the between-subjects factor, and lifetime NSSI, suicide ideation, suicide plans, and suicide attempts as the dependent factors. We also examined differences among the sexual-minority groups (see Figure 1), but we did not conduct statistical tests of frequency differences across sexual-minority groups due to limited power.



**FIGURE 1** Graphs of weighted mean SITB frequencies calculated across three studies for lifetime (Studies 1, 3, 4) and past-year (Study 2) NSSI, lifetime suicide ideation (Studies 1–3), lifetime suicide plans (Studies 1–3), and lifetime suicide attempts (Studies 1–3). Note. SITB = self injurious thoughts and behaviors; NSSI = nonsuicidal self-injury. Error bars represent standard error bars.

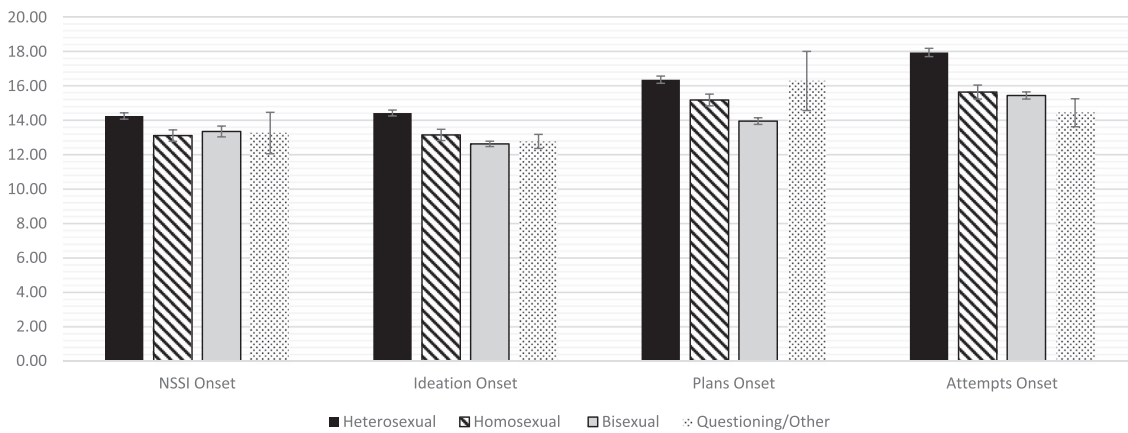
*Question 2: Do the Ages of Onset of NSSI, Suicide Ideation, Suicide Plans, and Suicide Attempts Differ Between Sexual-Orientation Groups? (Studies 1–4)*

We conducted four *t* tests with group (sexual minority, heterosexual) as the between-subjects factor, and ages of onset for NSSI, suicide ideation, suicide plans, and suicide attempts as the dependent factors. We also examined differences among sexual-minority groups (see Figure 2), but did not

conduct statistical tests of ages of onset differences across sexual-minority groups due to limited power.

*Question 3: Does Self-Reported Desire to Discontinue NSSI Differ Between Sexual-Orientation Groups? (Studies 1–4)*

To examine whether self-reported desire to discontinue NSSI was significantly different between sexual-minority and heterosexual participants, we conducted



**FIGURE 2** Graphs of weighted mean SITB ages of onset (AOO) calculated across four studies for NSSI (Studies 1–4), suicide ideation (Studies 1–3), suicide plans (Studies 1–3), and lifetime suicide attempts (Studies 1–4). Note. SITB = self injurious thoughts and behaviors; NSSI = nonsuicidal self-injury. Error bars represent standard error bars. *N*s for NSSI, suicide ideation, suicide plans, and suicide attempts AOOs (respectively) are as follows: heterosexual = 666, 211, 237, 460; homosexual = 87, 24, 16, 97; bisexual = 454, 115, 51, 298; questioning/other = 27, 25, 10, 18.

a *t* test with group (sexual minority, heterosexual) as the between-subjects factor, and desire to discontinue NSSI as the dependent factor. Differences among sexual-minority groups were explored (see Figure 3), but statistical tests were not conducted due to limited power.

*Question 4: Does Self-Reported Likelihood of Future Engagement in NSSI and/or Future Suicide Attempts Differ Between Sexual-Orientation Groups? (Studies 1–4)*

We addressed this question by conducting two *t* tests with group (sexual minority, heterosexual) as the between-subjects factor, and likelihood of future NSSI and likelihood of future suicide attempts as the dependent factors. As before, differences among sexual-minority groups were examined (see Figure 3), but statistical tests were not conducted due to limited power.

*Question 5: Considering the Self-Reported Average (Studies 3 and 4 Only) Suicide Attempts and Most Lethal (Study 4 Only) Suicide Attempts, Does Sexual-Orientation Group Impact Self-Reported Desire to Die and Confidence in Suicide Attempt Lethality?*

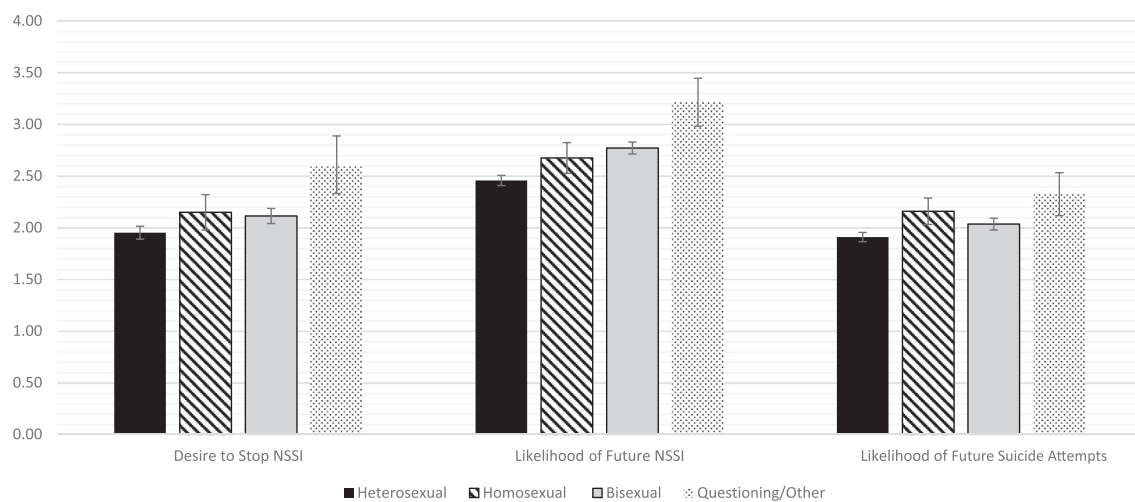
We first conducted a *t* test with group (sexual minority, heterosexual) as the between-subjects factor, and desire to die from the attempt as the dependent factor. We then conducted an additional ANOVA with group as the between-subjects factor and confidence in lethality from the most harmful attempt as the dependent factor.

*Question 6: Does Sexual-Orientation Group Impact the Injuries Resulting From the Most Lethal Suicide Attempt? (Study 4 Only)*

We conducted a *t* test with group (sexual minority, heterosexual) as the between-subjects factor, and self-reported injuries from the most lethal suicide attempt as the dependent factor.

*Meta-Analyzed Results*

To obtain more reliable estimates of effects for Questions 1–4, Comprehensive Meta-Analysis Software 3.0 (Borenstein, Hedges, Higgins, & Rothstein, 2014) was used. We calculated raw mean difference scores for outcomes where the scales used across studies were consistent (i.e., number of years for ages of onset, frequency of SITB outcomes) and standardized mean difference scores when the scales used varied across studies (i.e., desire to discontinue NSSI, likelihood of future NSSI, likelihood of future suicide attempt). We utilized randomized effects models only (see Borenstein, Hedges, Higgins, & Rothstein, 2010) because, unlike fixed effects models, these do not assume that there is one “true” effect size, instead allowing for differences across different samples. As such, random effects models typically provide more accurate and generalizable estimates of effect sizes (Lipsey & Wilson, 2001). Indeed,  $I^2$  analyses from the present mini-meta-analysis suggest that 43.33% of variance observed could be accounted for by between-study, rather than within-study, variance—this is considered medium heterogeneity (Higgins, Thompson, Deeks, & Altman, 2003). Random effects models



**FIGURE 3** Graphs of weighted means calculated across four studies for self-reported desire to discontinue NSSI, likelihood of future NSSI, and likelihood of future suicide attempts across sexual-orientation groups. Note. NSSI = nonsuicidal self-injury. Error bars represent standard error bars. *N*s for “Desire to Stop” are as follows: heterosexual = 693, homosexual = 85, bisexual = 455, questioning/other = 28. *N*s for “Likelihood” graphs are heterosexual = 780, homosexual = 97, bisexual = 480, questioning/other = 27.

account for this between-study heterogeneity—as such, they typically provide more accurate and generalizable estimates of effect sizes (Lipsey & Wilson, 2001). These results are described in Table 2.

### Results

#### QUESTION 1. DOES SEXUAL-ORIENTATION GROUP IMPACT SELF-REPORTED SITB FREQUENCIES?

##### A: NSSI Frequency

*Study 1.* There was no significant difference in the frequency of NSSI between the heterosexual ( $M$  lifetime NSSI episodes = 222.78,  $SD$  = 312.87,  $n$  = 51) and sexual-minority ( $M$  lifetime NSSI episodes = 297.55,  $SD$  = 314.76,  $n$  = 38) groups,  $t(87) = 1.11$ , Cohen's  $d = 0.24$ ,  $p = .27$ .

*Study 2.* There was no significant difference in the frequency of NSSI episodes between the sexual-minority ( $M$  past-year NSSI episodes = 66.92,  $SD$  = 136.68,  $n$  = 61) and heterosexual ( $M$  past-year NSSI episodes = 70.39,  $SD$  = 127.39,  $n$  = 92) groups,  $t(151) = -0.16$ , Cohen's  $d = -0.02$ ,  $p = .87$ .

*Study 3.* There was no significant difference in NSSI frequency between the heterosexual ( $M$  lifetime NSSI episodes = 440.25,  $SD$  = 643.69,  $n$  = 91) and sexual-minority ( $M$  lifetime NSSI episodes = 590.47,  $SD$  = 997.63) groups,  $t(170) = 1.19$ , Cohen's  $d = 0.18$ ,  $p = .24$ .

*Study 4.* The sexual-minority group reported significantly more NSSI episodes ( $M$  lifetime NSSI episodes = 383.80,  $SD$  = 927.34,  $n$  = 430) than the heterosexual group ( $M$  lifetime NSSI episodes = 239.61,  $SD$  = 776.29,  $n$  = 547),  $t(975) = 2.64$ , Cohen's  $d = 0.17$ ,  $p = .01$ .

##### B: Suicide Ideation Frequency

*Study 1.* There was no significant difference in the frequency of suicide ideation between the heterosexual ( $M$  lifetime suicide ideation = 206.22,  $SD$  = 373.16,  $n$  = 52) and sexual-minority ( $M$  lifetime suicide ideation = 384.47,  $SD$  = 724.36,  $n$  = 38) groups,  $t(88) = 1.52$ , Cohen's  $d = 0.32$ ,  $p = .13$ .

*Study 2.* The sexual-minority group reported significantly more lifetime suicide ideation ( $M$  lifetime ideation = 1,243.39,  $SD$  = 1389.46,  $n$  = 61) than did the heterosexual group ( $M$  lifetime ideation = 538.45,  $SD$  = 946.63,  $n$  = 92),  $t(151) = 3.73$ , Cohen's  $d = 0.61$ ,  $p = .001$ .

*Study 3.* There was no significant difference in the frequency of lifetime suicide ideation between

the sexual-minority ( $M$  lifetime ideation = 1247.07,  $SD$  = 2,520.88,  $n$  = 83) and heterosexual ( $M$  lifetime ideation = 725,  $SD$  = 1,786.76,  $n$  = 93) groups,  $t(174) = 1.60$ , Cohen's  $d = 0.24$ ,  $p = .11$ .

##### C: Suicide Plans Frequency

*Study 1.* There was no significant difference in the frequency of suicide plans between the heterosexual ( $M$  lifetime suicide plans = 50.77,  $SD$  = 155.35,  $n$  = 52) and sexual-minority ( $M$  lifetime suicide plans = 82.50,  $SD$  = 238.40,  $n$  = 38) groups,  $t(88) = 0.76$ , Cohen's  $d = 0.16$ ,  $p = .45$ .

*Study 2.* The sexual-minority group reported significantly more lifetime suicide plans ( $M$  lifetime suicide plans = 793.70,  $SD$  = 1,301.05,  $n$  = 61) than did the heterosexual group ( $M$  lifetime suicide plans = 210.00,  $SD$  = 545.22,  $n$  = 92),  $t(151) = 3.83$ , Cohen's  $d = 0.62$ ,  $p < .001$ .

*Study 3.* There was no significant difference in the frequency of suicide plans between the heterosexual ( $M$  lifetime suicide plans = 462.59,  $SD$  = 1,317.73,  $n$  = 93) and sexual-minority ( $M$  lifetime suicide plans = 529.31,  $SD$  = 1,657.58,  $n$  = 83) groups,  $t(174) = 0.30$ , Cohen's  $d = 0.05$ ,  $p = .77$ .

##### D: Suicide Attempts Frequency

*Study 1.* There was no significant difference in suicide attempt frequency between the heterosexual ( $M$  lifetime suicide attempts = 0.75,  $SD$  = 1.23,  $n$  = 52) and sexual-minority ( $M$  lifetime suicide attempts = 0.71,  $SD$  = 1.67,  $n$  = 38) groups,  $t(88) = -0.13$ , Cohen's  $d = -0.03$ ,  $p = .89$ .

*Study 2.* The sexual-minority group reported more lifetime suicide attempts ( $M$  lifetime suicide attempts = 9.11,  $SD$  = 15.06,  $n$  = 65) than did the heterosexual group ( $M$  lifetime suicide attempts = 4.30,  $SD$  = 6.57,  $n$  = 90),  $t(149) = 2.65$ , Cohen's  $d = 0.43$ ,  $p = .01$ .

*Study 3.* There was no significant difference in suicide attempt frequency between the sexual-minority ( $M$  lifetime suicide attempts = 3.41,  $SD$  = 6.23,  $n$  = 82) and heterosexual ( $M$  lifetime suicide attempts = 3.31,  $SD$  = 5.85,  $n$  = 93) groups,  $t(173) = 0.11$ , Cohen's  $d = 0.02$ ,  $p = .91$ .

*Study 4.* The sexual-minority group reported more lifetime suicide attempts ( $M$  lifetime suicide attempts = 4.92,  $SD$  = 14.29,  $n$  = 430) than did the heterosexual group ( $M$  lifetime suicide attempts = 3.25,  $SD$  = 8.11,  $n$  = 547),  $t(975) = 2.30$ , Cohen's  $d = 0.15$ ,  $p = .01$ .

Table 2  
Effect Sizes (Cohen's *d*), Significance Levels, and Meta-Analyzed Results Across Studies

	Frequencies				Ages of Onset					Future Likelihoods	
	NSSI	Suicide ideation	Suicide plans	Suicide attempts	NSSI	Suicide ideation	Suicide plans	Suicide attempts	Desire to stop NSSI	NSSI	Suicide attempts
Study 1	0.24	0.32	0.16	-0.03	0.51*	0.57*	0.23	0.06	0.30	0.51*	0.30
Study 2	-0.02	0.61**	0.62	0.43*	0.25	0.84***	0.39*	0.63***	0.29	0.46*	0.29
Study 3	0.18	0.24	0.62***	0.02	0.08	0.03	N/A	0.02	0.06	0.03	0.32*
Study 4	0.17*	N/A	N/A	0.15*	0.22*	N/A	N/A	0.45***	0.02*	0.25***	0.11

Note. NSSI = nonsuicidal self-injury.

\*  $p < .05$ , \*\* $p < .01$ , \*\*\*  $p < .001$ .

#### Meta-Analyzed Results

	Frequencies				Ages of Onset					Future Likelihoods	
	NSSI	Suicide ideation	Suicide plans	Suicide attempts	NSSI	Suicide ideation	Suicide plans	Suicide attempts	Desire to stop NSSI	NSSI	Suicide attempts
<i>n</i> (% sexual minority)	1,395 (43.80%)	419 (43.44%)	419 (45.82%)	1,397 (44.02%)	1,234 (53.97%)	375 (56.27%)	N/A	841 (54.70%)	1,227 (44.11%)	1,348 (44.29%)	1,299 (44.11%)
Cohen's <i>d</i>	0.14	0.39	0.28	0.16	0.19	0.58	N/A	0.37	0.16	0.28	0.16
95% CI	[0.04, 0.25]	[0.16, 0.63]	[-0.09, 0.66]	[0.01, 0.31]	[0.08, 0.30]	[0.29, 0.87]	N/A	[0.12, 0.62]	[0.05, 0.28]	[0.10, 0.45]	[0.06, 0.27]
<i>p</i>	.008	.001	.14	.04	.0008	.003	N/A	.003	.004	.002	.003

Note. NSSI = nonsuicidal self-injury; CI = confidence interval.

**QUESTION 2. DO THE AGES OF ONSET OF NSSI, SUICIDE IDEATION, SUICIDE PLANS, AND SUICIDE ATTEMPTS DIFFER BETWEEN SEXUAL-ORIENTATION GROUPS?**

*Study 1.* The sexual-minority group reported that they were significantly younger when they began to engage in NSSI ( $M$  age = 12.91,  $SD$  = 3.13,  $n$  = 38) compared with the heterosexual group ( $M$  age = 14.86,  $SD$  = 4.29,  $n$  = 52),  $t(88) = 2.37$ , Cohen's  $d = 0.51$ ,  $p = .02$ .

*Study 2.* There was no significant difference in the age of onset of NSSI between the sexual-minority ( $M$  age = 12.29,  $SD$  = 3.23,  $n$  = 52) and the heterosexual ( $M$  age = 13.33,  $SD$  = 4.79,  $n$  = 64) groups,  $t(1, 114) = 1.34$ , Cohen's  $d = 0.25$ ,  $p = .18$ .

*Study 3.* There was no significant difference in the age of onset of NSSI between the sexual-minority ( $M$  age = 13.31,  $SD$  = 4.79,  $n$  = 80) and heterosexual ( $M$  age = 13.64,  $SD$  = 4.03,  $n$  = 85) groups,  $t(163) = 0.48$ , Cohen's  $d = 0.08$ ,  $p = .63$ .

*Study 4.* The sexual-minority group reported that they were significantly younger when they began to engage in NSSI ( $M$  age = 13.49,  $SD$  = 5.83,  $n$  = 398) compared with the heterosexual group ( $M$  age = 14.43,  $SD$  = 4.93,  $n$  = 465),  $t(861) = 3.17$ , Cohen's  $d = 0.22$ ,  $p = .01$ .

**B: Age of Onset of Suicide Ideation**

*Study 1.* The sexual-minority group reported that they began to think about suicide at an earlier age ( $M$  age = 13.10,  $SD$  = 2.71,  $n$  = 34) than did the heterosexual group ( $M$  age = 14.98,  $SD$  = 3.47,  $n$  = 44),  $t(76) = 2.55$ , Cohen's  $d = 0.57$ ,  $p = .01$ .

*Study 2.* The sexual-minority group was significantly younger when they began to have suicide ideation ( $M$  age = 11.54,  $SD$  = 3.34,  $n$  = 61) compared with the heterosexual group ( $M$  age = 16.23,  $SD$  = 7.06,  $n$  = 81),  $t(140) = 4.80$ , Cohen's  $d = 0.84$ ,  $p < .001$ .

*Study 3.* Compared with the heterosexual group ( $M$  age = 14.17,  $SD$  = 5.37,  $n$  = 86), the sexual-minority group was significantly younger when they first began to experience suicide ideation ( $M$  age = 12.54,  $SD$  = 3.51,  $n$  = 69),  $t(153) = 2.19$ , Cohen's  $d = 0.35$ ,  $p = .03$ .

**C: Age of Onset of Suicide Plans**

*Study 1.* There was no significant difference in the age of onset of suicide plans between the sexual-minority ( $M$  age = 15.36,  $SD$  = 3.49,  $n$  = 22) and heterosexual ( $M$  age = 16.30,  $SD$  = 4.46,  $n$  = 27) groups,  $t(47) = -0.80$ , Cohen's  $d = 0.23$ ,  $p = .43$ .

*Study 2.* The sexual-minority group was significantly younger when they began to first think about suicide plans ( $M$  age = 14.18,  $SD$  = 5.31,  $n$  = 55) compared with the heterosexual group ( $M$  age = 16.40,  $SD$  = 5.98,  $n$  = 62),  $t(115) = 2.11$ , Cohen's  $d = 0.39$ ,  $p = .04$ .

*Studies 3 and 4.* No information.

**D: Age of Onset of Suicide Attempts**

*Study 1.* There was no significant difference between the sexual-minority ( $M$  age = 16.27,  $SD$  = 3.52,  $n$  = 11) and heterosexual ( $M$  age = 16.50,  $SD$  = 3.98,  $n$  = 16) groups, with respect to how old they were when they first made a suicide attempt,  $t(25) = -0.15$ , Cohen's  $d = 0.06$ ,  $p = .89$ .

*Study 2.* The sexual-minority group was significantly younger at the time of their first suicide attempt ( $M$  age = 15.13,  $SD$  = 4.62,  $n$  = 53) compared with the heterosexual group ( $M$  age = 19.26,  $SD$  = 7.74,  $n$  = 70),  $t(121) = 3.44$ , Cohen's  $d = 0.63$ ,  $p = .001$ .

*Study 3.* There was no significant difference in the age of first suicide attempt between the sexual-minority ( $M$  age = 15.53,  $SD$  = 5.43,  $n$  = 43) and heterosexual ( $M$  age = 15.67,  $SD$  = 4.78,  $n$  = 45) groups,  $t(86) = 0.12$ , Cohen's  $d = 0.02$ ,  $p = .90$ .

*Study 4.* The sexual-minority group was significantly younger at the time of their first suicide attempt ( $M$  age = 15.44,  $SD$  = 4.31,  $n$  = 274) compared with the heterosexual group ( $M$  age = 18.06,  $SD$  = 6.78,  $n$  = 329),  $t(601) = 5.54$ , Cohen's  $d = 0.45$ ,  $p < .001$ .

**QUESTION 3. DOES SELF-REPORTED DESIRE TO DISCONTINUE NSSI DIFFER BETWEEN SEXUAL-ORIENTATION GROUPS?**

*Study 1.* There was no significant difference in reported desire to discontinue NSSI between the sexual-minority ( $M$  = 2.76,  $SD$  = 1.10,  $n$  = 38) and heterosexual ( $M$  = 3.10,  $SD$  = 1.11,  $n$  = 52) groups,  $t(88) = -1.43$ , Cohen's  $d = 0.30$ ,  $p = .16$ .

*Study 2.* There was no significant difference in reported desire to discontinue NSSI between the sexual-minority ( $M$  = 2.77,  $SD$  = 1.45,  $n$  = 61) and heterosexual ( $M$  = 2.27,  $SD$  = 1.45,  $n$  = 92) groups,  $t(112) = 1.76$ , Cohen's  $d = 0.29$ ,  $p = .08$ .

*Study 3.* There was no significant difference in reported desire to discontinue NSSI between the sexual-minority ( $M$  = 2.54,  $SD$  = 1.19,  $n$  = 76) and

heterosexual ( $M = 2.48$ ,  $SD = 1.12$ ,  $n = 84$ ) groups,  $t(158) = 0.35$ , Cohen's  $d = 0.06$ ,  $p = .73$ .

*Study 4.* The sexual-minority group reported significantly greater desire to discontinue NSSI ( $M = 4.78$ ,  $SD = 4.07$ ,  $n = 398$ ) compared with the heterosexual group ( $M = 4.16$ ,  $SD = 4.11$ ,  $n = 465$ ),  $t(861) = 2.22$ , Cohen's  $d = 0.02$ ,  $p = .01$ .

**QUESTION 4. DOES SELF-REPORTED LIKELIHOOD OF FUTURE ENGAGEMENT IN NSSI AND/OR FUTURE SUICIDE ATTEMPTS DIFFER BETWEEN SEXUAL-ORIENTATION GROUPS?**

*Study 1.* The sexual-minority group reported a significantly higher likelihood of future NSSI ( $M = 2.89$ ,  $SD = 0.89$ ,  $n = 38$ ) compared with the heterosexual group ( $M = 2.35$ ,  $SD = 1.20$ ,  $n = 52$ ),  $t(88) = 2.37$ , Cohen's  $d = 0.51$ ,  $p = .02$ .

There was no significant difference in self-reported likelihood of future suicide attempts between the sexual-minority ( $M = 1.66$ ,  $SD = 0.78$ ,  $n = 38$ ) and heterosexual ( $M = 1.44$ ,  $SD = 0.67$ ,  $n = 52$ ) groups,  $t(88) = 1.41$ , Cohen's  $d = 0.30$ ,  $p = .16$ .

*Study 2.* Sexual-minority participants reported a significantly higher likelihood of future NSSI ( $M = 3.87$ ,  $SD = 1.06$ ,  $n = 61$ ) compared with heterosexual participants ( $M = 3.34$ ,  $SD = 1.18$ ,  $n = 92$ ),  $t(151) = 2.85$ , Cohen's  $d = 0.47$ ,  $p = .01$ .

There was no significant difference in self-reported likelihood of future suicide attempts between the sexual-minority ( $M = 3.23$ ,  $SD = 1.23$ ,  $n = 61$ ) and heterosexual ( $M = 2.91$ ,  $SD = 0.99$ ,  $n = 92$ ) groups,  $t(151) = 1.76$ , Cohen's  $d = 0.29$ ,  $p = .07$ .

*Study 3.* There was no significant difference in self-reported likelihood of future NSSI between the sexual-minority ( $M = 2.62$ ,  $SD = 1.24$ ,  $n = 78$ ) and heterosexual ( $M = 2.59$ ,  $SD = 1.23$ ,  $n = 90$ ) groups,  $t(166) = 0.14$ , Cohen's  $d = 0.03$ ,  $p = .89$ .

The sexual-minority group reported a significantly greater likelihood of future suicide attempts ( $M = 1.72$ ,  $SD = 1.16$ ,  $n = 75$ ) compared with the heterosexual group ( $M = 1.35$ ,  $SD = 1.16$ ,  $n = 89$ ),  $t(162) = 2.05$ , Cohen's  $d = 0.32$ ,  $p = .04$ .

*Study 4.* The sexual-minority group reported a significantly higher likelihood of future NSSI ( $M = 6.60$ ,  $SD = 3.26$ ,  $n = 430$ ) compared with the heterosexual group ( $M = 5.74$ ,  $SD = 3.47$ ,  $n = 547$ ),  $t(975) = 3.92$ , Cohen's  $d = 0.25$ ,  $p < .001$ .

There was no significant difference in self-reported likelihood of future suicide attempts between the sexual-minority ( $M = 5.02$ ,  $SD = 3.03$ ,  $n = 430$ ) and

heterosexual ( $M = 4.69$ ,  $SD = 3.15$ ,  $n = 547$ ) groups,  $t(975) = 1.66$ , Cohen's  $d = .11$ ,  $p = .10$ .

**QUESTION 5. CONSIDERING THE SELF-REPORTED AVERAGE (STUDIES 3 AND 4 ONLY) SUICIDE ATTEMPTS AND MOST-LETHAL (STUDY 4 ONLY) SUICIDE ATTEMPTS, DOES SEXUAL-ORIENTATION GROUP IMPACT SELF-REPORTED DESIRE TO DIE AND CONFIDENCE IN SUICIDE ATTEMPT LETHALITY?**

*Study 3.* The sexual-minority group reported significantly greater desire to die from their average suicide attempt ( $M = 3.35$ ,  $SD = 0.89$ ,  $n = 46$ ) compared with the heterosexual group ( $M = 2.91$ ,  $SD = 0.89$ ,  $n = 46$ ),  $t(87) = 2.49$ , Cohen's  $d = 0.36$ ,  $p = .02$ .

There was no significant difference in the confidence of suicide attempt lethality between the sexual-minority ( $M = 2.65$ ,  $SD = 0.72$ ,  $n = 43$ ) and heterosexual ( $M = 2.61$ ,  $SD = 1.00$ ,  $n = 46$ ) groups,  $t(87) = 0.23$ , Cohen's  $d = 0.05$ ,  $p = .82$ .

*Study 4.* There was no significant difference in the desire to die from the average suicide attempt between the sexual-minority ( $M = 7.49$ ,  $SD = 2.06$ ,  $n = 274$ ) and heterosexual ( $M = 7.42$ ,  $SD = 2.06$ ,  $n = 330$ ) groups,  $t(602) = 0.40$ , Cohen's  $d = .003$ ,  $p = .69$ .

There was no significant difference in the confidence of suicide attempt lethality between the sexual-minority ( $M = 6.44$ ,  $SD = 2.26$ ,  $n = 274$ ) and heterosexual ( $M = 6.68$ ,  $SD = 2.37$ ,  $n = 330$ ) groups,  $t(602) = 1.26$ , Cohen's  $d = 0.10$ ,  $p = .82$ .

The sexual-minority group reported a significantly greater desire to die from their most lethal suicide attempt ( $M = 8.43$ ,  $SD = 1.96$ ,  $n = 274$ ) than did the heterosexual group ( $M = 8.05$ ,  $SD = 2.17$ ,  $n = 330$ ),  $t(602) = 2.21$ , Cohen's  $d = 0.18$ ,  $p = .03$ .

There was no significant difference in the confidence of the most lethal suicide attempt lethality between the sexual-minority ( $M = 7.15$ ,  $SD = 2.56$ ,  $n = 274$ ) and heterosexual ( $M = 6.80$ ,  $SD = 2.83$ ,  $n = 330$ ) groups,  $t(602) = 1.57$ , Cohen's  $d = 0.13$ ,  $p = .12$ .

**QUESTION 6. DOES SEXUAL-ORIENTATION GROUP IMPACT THE INJURIES RESULTING FROM THE MOST LETHAL SUICIDE ATTEMPT?**

*Study 4.* There was no significant difference in the self-reported injuries resulting from the most lethal suicide attempt between the sexual-minority ( $M = 1.68$ ,  $SD = 1.07$ ,  $n = 274$ ) and heterosexual ( $M = 1.58$ ,  $SD = 1.11$ ,  $n = 274$ ) groups,  $t(602) = 1.10$ , Cohen's  $d = 0.09$ ,  $p = .27$ .

## Discussion

A large and growing body of research indicates that people identifying as sexual minorities are at increased risk for SITBs (Batejan et al., 2015; King et al., 2008; Marshal et al., 2011). This manuscript adds to this literature. Summarizing results across four independent studies, including different sample types (e.g., in-person vs. online, past-year NSSI history vs. any past-year SITB history), the results converge on a similar conclusion: in addition to higher rates of SITB engagement, people identifying as a sexual minority report more severe SITBs across several domains. Indeed, across 46 tests of SITB severity, 43 (93.47%) were in the direction of more severe SITB engagement within the sexual-minority group. Although not all effects were significant, studies using larger samples were more likely to find significant effects. Of meta-analyzed severity indices (i.e., those variables with data from three or more studies), all but one effect (i.e., suicide plan frequency) were significantly more severe in the sexual-minority group compared with the heterosexual group, with effect sizes ranging from small to medium. Specifically, those participants reporting sexual-minority identification tended to start engaging in NSSI, suicide ideation, and suicide attempts at a younger age; they tended to engage in more NSSI, suicide ideation, and suicide attempts; and they tended to report a greater likelihood of future suicide attempts and future NSSI in conjunction with a greater desire to discontinue NSSI engagement. Regarding effects with too few studies to meta-analyze, results showed that people identifying as a sexual minority reported a greater desire to die from their most harmful suicide attempt. However, sexual orientation did not significantly impact self-reported confidence regarding the lethality of the average or most lethal suicide attempts, the desire to die from the average suicide attempt, nor injuries from the most lethal suicide attempts.

Minority stress models (Brooks, 1981; Meyer, 2003) postulate that discrimination and other variables (i.e., minority stressors) create a hostile social environment that increase vulnerability to mental health problems, including SITBs, among minority groups, including people identifying as sexual minorities. Supporting this model, people who report experiencing more minority stressors due to their sexual orientation (e.g., internalized stigma, concealment, negative societal reactions) tend to report increased depressive symptoms, substance use, and suicide ideation (Meyer, 1995, 2003). Although useful for understanding higher rates of SITBs among sexual minority groups, the

minority stress model does not speak to the issue of severity. Our results suggest that, across several indices, SITB engagement is more severe among people who identify as a sexual minority compared with people who identify as a heterosexual.

These findings are particularly important in light of recent research supporting the minority stress model in a real-world setting. Raifman, Moscoe, Austin, and McConnell (2017) conducted a naturalistic study involving a large sample of high school students across 32 states in the United States. Legalization of same-sex marriage decreased the rate of suicide attempts among students reporting sexual-minority identification by an estimated 7% relative to states that did not institute this policy change. Although the naturalistic design of the study precludes strong causal conclusions, the results are consistent with the possibility that policy-level changes decreased actual and perceived inequality and reduced the sexual orientation-specific minority stress experienced in these states, resulting in fewer suicide attempts. Nonetheless, even after this policy change, the authors noted that about one in five adolescents reporting sexual-minority identification reported a history of attempting suicide. The present results indicate that minority stress may also be associated with greater SITB severity, highlighting the potential importance of and impact that changes in social policy could potentially have.

Results are limited by several factors. First, although a range of sexual-orientation identities were assessed, sexual-minority identification was predominantly bisexual, and participants were predominantly female. Differences (or lack thereof) between sexual-minority and heterosexual groups were likely disproportionately driven by female participants identifying as bisexual. As such, results may not generalize to people who identify with other sexual-minority labels (e.g., homosexual, other, questioning), or even to males who identify as bisexual. Similarly impacting generalizability, results of this investigation were drawn from only four studies, and results were not invariably consistent across studies. Although our findings support the idea that SITBs may be more severe among individuals who identify as a sexual minority, more research is needed across diverse samples to replicate and extend these findings. These types of questions are best suited for large, epidemiological studies that ideally should be conducted both within and outside the United States. Importantly, for such questions to be tested, researchers need to include complete measures of sexual orientation and sexual behavior, gender identification, SITB frequencies, and other SITB characteristics. These are often not included in large-scale epidemiological investigations.

Second, all participant responses were based on retrospective self-report. As such, observed differences could be an artifact of incorrect or biased SITB memory rather than reflecting true differences. However, this bias was present across all participant groups—therefore, it is unlikely that this bias accounted for group differences. Third, across all four studies, participants were recruited based on a history of some form of SITB. As such, it is unclear whether these differences would persist in a general community sample. However, given prior research indicating higher SITB risk in sexual minorities (replicated here), we believe that these findings would likely, at least in part, generalize to community samples. Fourth, although we present differences in outcomes by sexual-minority groups, we did not conduct analyses examining statistical differences within specific sexual-minority groups. This decision was largely based on the relatively small number of participants within each of these categories, preventing sufficiently powered statistical tests even when summarizing across studies. However, providing these data may permit future meta-analyses to test such differences in the context of many additional studies.

Despite these limitations, results extend prior research to suggest that people identifying as sexual minority are both disproportionately at risk for SITB engagement and experience a longer and more severe course of SITB engagement. Results reflect greater suffering, greater physical harm, and greater likelihood of prolonged SITB difficulties among these individuals. More research is needed to both replicate these findings in larger, more reliable samples and to examine specific factors that lead to this increased severity. Such research could be particularly informative for future treatment and prevention strategies.

#### Conflict of Interest Statement

The authors declare that there are no conflicts of interest.

#### References

- Batejan, K. L., Jarvi, S. M., & Swenson, L. P. (2015). Sexual orientation and non-suicidal self-injury: A meta-analytic review. *Archives of Suicide Research, 19*(2), 131–150. <https://doi.org/10.1080/13811118.2014.957450>
- Bauermeister, J. A., Zimmerman, M. A., Johns, M. M., Glowacki, P., Stoddard, S., & Volz, E. (2012). Innovative recruitment using online networks: Lessons learned from an online study of alcohol and other drug use utilizing a web-based, respondent-driven sampling (webRDS) strategy. *Journal of Studies on Alcohol and Drugs, 73*(5), 834–838. <https://doi.org/10.15288/jsad.2012.73.834>
- Borenstein, M., Hedges, L. V., Higgins, J. P. T., & Rothstein, H. R. (2010). A basic introduction to fixed-effect and random-effects models for meta-analysis. *Research Synthesis Methods, 1*(2), 97–111. <https://doi.org/10.1002/jrsm.12>
- Borenstein, M., Hedges, L. V., Higgins, J. P. T., & Rothstein, H. R. (2014). *Comprehensive Meta-Analysis (CMA) software* (Version 3.0). Englewood, NJ: Biostat. Retrieved from <http://www.meta-analysis.com>
- Brooks, V. R. (1981). *Minority stress and lesbian women*. New York, NY: Free Press.
- Calzo, J. P., Antonucci, T. C., Mays, V. M., & Cochran, S. D. (2011). Retrospective recall of sexual orientation identity development among gay, lesbian, and bisexual adults. *Developmental Psychology, 47*(6), 1658–1673. <https://doi.org/10.1037/a0025508>
- Crump, M. J. C., McDonnell, J. V., & Gureckis, T. M. (2013). Evaluating Amazon's mechanical Turk as a tool for experimental behavioral research. *PLoS One, 8*(3), e57410. <https://doi.org/10.1371/journal.pone.0057410>
- Fox, K. R., Millner, A. J., & Franklin, J. C. (2016). Classifying non-suicidal overdoses: Non-suicidal self-injury, suicide attempts, or neither? *Psychiatry Research, 244*, 235–242. <https://doi.org/10.1016/j.psychres.2016.07.052>
- Fox, K. R., Toole, K. E., Franklin, J. C., & Hooley, J. M. (2017). Why does non-suicidal self-injury improve mood? A preliminary test of three hypotheses. *Clinical Psychological Science, 5*(1), 111–121. <https://doi.org/10.1177/2167702616662270>
- Franklin, J. C., Fox, K. R., Franklin, C. R., Kleiman, E. M., Ribeiro, J. D., Jaroszewski, A. C., . . . Nock, M. K. (2016). A brief mobile app reduces non-suicidal and suicidal self-injury: Evidence from three randomized controlled trials. *Journal of Consulting and Clinical Psychology, 84*(6), 544–557. <https://doi.org/10.1037/ccp0000093>
- Franklin, J. C., Puzia, M. E., Lee, K. M., & Prinstein, M. J. (2014). Low implicit and explicit aversion toward self-cutting stimuli longitudinally predict non-suicidal self-injury. *Journal of Abnormal Psychology, 123*(2), 463–469. <https://doi.org/10.1037/a0036436>
- Franklin, J. C., Ribeiro, J. D., Fox, K. R., Bentley, K. H., Kleiman, E. M., Huang, X., . . . Nock, M. K. (2017). Risk factors for suicidal thoughts and behaviors: A meta-analysis of 50 years of research. *Psychological Bulletin, 143*(2), 187–232. <https://doi.org/10.1037/bul0000084>
- Goh, J. X., Hall, J. A., & Rosenthal, R. (2016). Mini meta-analysis of your own studies: Some arguments on why and a primer on how. *Social and Personality Psychology Compass, 10*(10), 535–549. <https://doi.org/10.1111/spc3.12267>
- Hatzenbuehler, M. L. (2009). How does sexual minority stigma “get under the skin”? A psychological mediation framework. *Psychological Bulletin, 135*(5), 707–730. <https://doi.org/10.1037/a0016441>
- Hatzenbuehler, M. L., Nolen-Hoeksema, S., & Erickson, S. J. (2008). Minority stress predictors of HIV risk behavior, substance use, and depressive symptoms: Results from a prospective study of bereaved gay men. *Health Psychology, 27*(4), 455–462. <https://doi.org/10.1037/0278-6133.27.4.455>
- Hauser, D. J., & Schwarz, N. (2016). Attentive Turkers: MTurk participants perform better on online attention checks than do subject pool participants. *Behavior Research Methods, 48*(1), 400–407.
- Higgins, J. P., Thompson, S. G., Deeks, J. J., & Altman, D. G. (2003). Measuring inconsistency in meta-analyses. *BMJ: British Medical Journal, 327*(7414), 557.
- 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), 1–17. <https://doi.org/10.1186/1471-244X-8-70>

- Lipsey, M. W., & Wilson, D. B. (2001). *Practical meta-analysis* (Vol. 49). Thousand Oaks, CA: Sage Publications.
- Marshal, M. P., Dietz, L. J., Friedman, M. S., Stall, R., Smith, H., McGinley, J., . . . Brent, D. A. (2011). Suicidality and depression disparities between sexual minority and heterosexual youth: A meta-analytic review. *Journal of Adolescent Health, 49*(2), 115–123. <https://doi.org/10.1016/j.jadohealth.2011.02.005>
- Mathy, R. M., Cochran, S. D., Olsen, J., & Mays, V. M. (2011). The association between relationship markers of sexual orientation and suicide: Denmark, 1990–2001. *Social Psychiatry and Psychiatric Epidemiology, 46*(2), 111–117. <https://doi.org/10.1007/s00127-009-0177-3>
- Mendoza-Denton, R., Downey, G., Purdie, V. J., Davis, A., & Pietrzak, J. (2002). Sensitivity to status-based rejection: Implications for African American students' college experience. *Journal of Personality and Social Psychology, 83*(4), 896–918. <https://doi.org/10.1037/0022-3514.83.4.896>
- Meyer, I. H. (1995). Minority stress and mental health in gay men. *Journal of Health and Social Behavior, 36*(1), 38–56.
- Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychology of Sexual Orientation and Gender Diversity, 1*(S), 3–26. <https://doi.org/10.1037/2329-0382.1.S.3>
- Nock, M. K., Holmberg, E. B., Photos, V. I., & Michel, B. D. (2007). Self-Injurious Thoughts and Behaviors Interview: Development, reliability, and validity in an adolescent sample. *Psychological Assessment, 19*(3), 309–317. <https://doi.org/10.1037/1040-3590.19.3.309>
- Pachankis, J. E. (2007). The psychological implications of concealing a stigma: A cognitive-affective-behavioral model. *Psychological Bulletin, 133*(2), 328–345. <https://doi.org/10.1037/0033-2909.133.2.328>
- Raifman, J., Moscoe, E., Austin, S. B., & McConnell, M. (2017). Difference-in-differences analysis of the association between state same-sex marriage policies and adolescent suicide attempts. *JAMA Pediatrics, 171*(4), 350–356.
- Savin-Williams, R. C. (2001). Suicide attempts among sexual-minority youths: Population and measurement issues. *Journal of Consulting and Clinical Psychology, 69*(6), 983–991. <https://doi.org/10.1037/0022-006X.69.6.983>
- Sornberger, M. J., Smith, N. G., Toste, J. R., & Heath, N. L. (2013). Nonsuicidal self-injury, coping strategies, and sexual orientation: NSSI, coping, and sexual orientation. *Journal of Clinical Psychology, 69*(6), 571–583. <https://doi.org/10.1002/jclp.21947>
- Stone, D. M., Luo, F., Ouyang, L., Lippy, C., Hertz, M. F., & Crosby, A. E. (2014). Sexual orientation and suicide ideation, plans, attempts, and medically serious attempts: Evidence from local youth risk behavior surveys, 2001–2009. *American Journal of Public Health, 104*(2), 262–271. <https://doi.org/10.2105/AJPH.2013.301383>
- Tsypes, A., Lane, R., Paul, E., & Whitlock, J. (2016). Non-suicidal self-injury and suicidal thoughts and behaviors in heterosexual and sexual minority young adults. *Comprehensive Psychiatry, 65*, 32–43. <https://doi.org/10.1016/j.comppsy.2015.09.012>
- Walsh, C. G., Ribeiro, J. D., & Franklin, J. C. (2017). Predicting risk of suicide attempts over time through machine learning. *Clinical Psychological Science, 5*(3), 457–469.
- Weinberg, J., Freese, J., & McElhattan, D. (2014). Comparing data characteristics and results of an online factorial survey between a population-based and a crowdsourced-recruited sample. *Sociological Science, 1*, 292–310. <https://doi.org/10.15195/v1.a19>
- Whitlock, J., Eckenrode, J., & Silverman, D. (2006). Self-injurious behaviors in a college population. *Pediatrics, 117*(6), 1939–1948. <https://doi.org/10.1542/peds.2005-2543>

RECEIVED: July 13, 2017

ACCEPTED: November 27, 2017

AVAILABLE ONLINE: 5 December 2017