Nonsuicidal Self-Injury in the Bisexual+ Community: *Associations with Identity-Related Stress and Coping Styles*

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Research indicates that rates of nonsuicidal self-injury (NSSI) are high among bisexual, pansexual, queer, and fluid (bi+) individuals (Liu et al., 2019). Minority stress theory has been used to explain these disparities and identify risk and protective factors, such as identity-related stress and coping (Feinstein & Dyar, 2017). However, little research has focused on adapting and applying minority stress theory to understanding NSSI among bisexual individuals, through validated, bi-specific measures of identity stress. I examine associations between bi+ identity-related variables and NSSI and whether these associations are moderated by coping styles in a sample of bi+ individuals (*N* = 497) collected as part of longitudinal study at Rosalind Franklin University. My research found gender was consistently a robust predictor of NSSI, while associations between bi+ variables and NSSI were less robust or not statistically significant. This work encourages further research with a variety of samples.

Introduction

Non-suicidal self-injury (NSSI) is defined as "the direct, deliberate destruction of one's own body in the absence of intent to die" (Nock, 2009). NSSI has been described as a harmful coping mechanism "associated with a broad array of self-reported functions, including emotion-regulation, self-punishment or communication of distress" (Edmondson et al., 2016; Klonsky, 2007b). Some common methods include cutting, scratching, hitting, and burning oneself (Muehlenkamp & Gutierrez, 2004). There is some evidence that rates of NSSI may be increasing. A meta-analysis found NSSI prevalence rates were at 22% at lifetime, specifically higher among adolescents (Xiao et al., 2022).

Certain demographics, largely marginalized groups, have a higher risk of NSSI and suicidal ideation, likely due at least in part to minority stressors. Unlike general stressors, minority stressors stem from prejudice against gender and sexual minority individuals (Frost & Meyer, 2024). As seen in Meyer's (2003) Minority Stress Model, minority stressors may include both external stressors (distal minority processes) and internal stressors (proximal minority processes). According to Meyer, distal minority processes refer to external pressures, such as discriminatory actions (Meyer, 2003). Conversely, proximal minority processes refer to the marginalized individual's reactions to distal minority processes. Proximal minority processes include the concealment of identity and internalized stigma (Meyer, 2003). Minority stressors have high associations with a decrease in mental and physical health outcomes (Meyer, 2003), including depressive symptoms, anxiety, negative affect, and low self-esteem (Lick et al., 2013).

Meyer's (2003) model also suggests that associations between these stressors and health outcomes are moderated by coping, among other factors. Coping refers to "thoughts and behaviors mobilized to manage internal and external stressful situations" (Folkman & Moskowitz, 2004). Research says that there's two types of coping styles: engagement, where one actively addresses the stimuli, and disengagement, where one actively avoids the stimuli (Carver & Connor-Smith, 2010). There is a considerable body of empirical work that is consistent with Meyer's model. Coping has also been understood as a moderator in relationships between stress and its outcome, where an individual's coping style influences associations between stress and health (Ngamake et al., 2016). Similarly, Thomassin and colleagues (2017) found that positive reframing, an example of engaging coping, was shown to reduce the association between poor emotion expression and NSSI.

Of relevance to the current study, bisexual individuals (bi+), or those who are attracted to people of more than one gender (Nelson, 2024), are more likely to report NSSI than gay and lesbian individuals (Liu et al, 2019). One potential reason for this difference is that bisexual individuals experience high levels of stigma both outside and inside the LGBTQ+ community (Liu et al., 2019). Indeed, negative attitudes toward bisexuality are present in heterosexual and homosexual individuals (Eliason, 1997). In other words, bi+ people experience extensive biphobia or otherwise known as negative attitudes towards bisexual people (Nelson, 2024). For example, in a sample of heterosexual undergraduate students, 50% rated bisexual women as "unacceptable," while 61% rated bisexual men as "unacceptable," compared to rating lesbian (38%) and gay men (43%) as "unacceptable" (Eliason, 1997). Specifically, it was common for men to be more accepting of bisexual women (Eliason, 1997). These results align with prior research suggesting acceptance towards bisexual women is more common due to heterosexual male sexual attitudes (Genter, 1987). Eliason's (1997) sample of heterosexual undergraduate students emphasizes the prevalence of biphobia. As opinions regarding gay and lesbian individuals become more positive, opinions on bisexual individuals remain in "the middle of the road," meaning there are still disagreements on bisexuality (Dodge et al., 2016). Research has also highlighted the exclusion of bisexual individuals in measurement development, data collection, and data analysis. Ross and colleagues (2017) note that bisexual individuals are often either consolidated with homoerotic identities (gay or lesbian identities, put into sexual orientation groups based on their partners) or completely left out of studies. Consequently, bisexual identities are overlooked, which the potential that this may further maintain or exacerbate stigma.

Some recent work, though, has begun focusing more specifically on bisexual individuals. For example, Feinstein and Dyar (2017) reviewed evidence that bisexual individuals have an increased risk for mental health and substance use problems compared to their homosexual counterparts. Research has also increasingly emphasized the impact of internal minority stressors on marginalized identities. Some common internal minority stressors are anticipated negativity, anticipated negative reaction towards their identity (Quinn et al., 2014); internalized negativity, the internalized belief that their identity is unnatural (Pollitt & Roberts, 2022); identity uncertainty, how uncertain one is about their identity; and identity affirmation, feeling of pride about their identity (Paul et al., 2014). Research has focused on looking at associations between bisexual individuals and internal minority stressors. Specifically, Pollitt and Roberts (2022) focused on associations between bisexual participants' level of internalized binegativity and their connection to the queer community. Compared to men, bisexual women reported higher levels of internalized binegativity, and that connectedness to the LGBTQ community was a protective factor against internalized binegativity (Pollitt & Roberts, 2021). Results proved that internalized stressors potentially play a crucial role in mental health disparities for bisexual people. Another example is provided by Dunlop and colleagues (2021). They found that thwarted belongingness, or "the unmet need to belong in a group" (Van Orden et al., 2012), may have a dynamic relationship with NSSI endorsement in a bisexual sample. Collectively, all of this research emphasizes that internalized identity-related stressors are important risk factors for NSSI.

Studies done by Dumas and Pepper (2023) use validated measured of bi-specific identity. Using the Minority Stress Theory, they explored how bi-specific stress contributed to NSSI with measures specified towards bisexual identity. Despite this, more research needs to be done on NSSI within the bisexual population and its connection to Meyer's (2003) Minority Stress Model, specifically focusing on internal stressors. Considering this, the main objective of this study was to investigate the main and interactive associations of bi+ identity-related variables with NSSI. More specifically, I conducted a secondary data analysis of the Bisexual+ Identity, Stress, Trauma, and Resilience study (BI-STAR), which is being conducted by Dr. Brian Feinstein and colleagues. BI-STAR is an 18-month-long longitudinal study aimed at understanding "how stress and trauma influence mental health, substance use, and relationship functioning among bi+ people." In particular, I focused on the following variables as potential correlates or predictors of NSSI in this study: bi+

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identity stressors (anticipated binegativity, internalized binegativity, identity uncertainty, identity affirmation). Beyond identity-related variables, I also considered whether associations of these variables with NSSI might be moderated by coping strategies (disengaging and engaging coping styles).

In planning and conducting these analyses, I was guided by several specific research questions: 1) Which of the bi+ identity-related internalized stress variables (i.e., higher anticipated binegativity, higher internalized binegativity, lower identity affirmation, and higher identity uncertainty), if any, would be associated with or predict endorsement or frequency of NSSI, either when considered separately or conjointly? 2) Would associations between internalized bi+ stress and NSSI be moderated by coping styles (engaging and/or disengaging)?

I preregistered these questions and associated hypotheses on the Open Science Foundation. My hypotheses were as follows:

H1) Higher levels of internalized binegativity will be associated with higher rates of NSSI at baseline (i.e., endorsement of lifetime NSSI, endorsement of past 6-months NSSI, frequency of past 1-month NSSI), even when adjusting for anticipated binegativity, identity affirmation, identity uncertainty, and gender. Higher levels of anticipated binegativity will be associated with higher rates of NSSI, even when adjusting for internalized binegativity, identity affirmation, identity uncertainty and gender. Lower levels of identity affirmation will be associated with higher rates of NSSI, even when adjusting for anticipated binegativity, internalized binegativity, identity uncertainty, and gender. Higher levels of identity uncertainty will be associated with higher rates of NSSI, even when adjusting for anticipated binegativity, internalized binegativity, identity affirmation, and gender.

H2) The positive associations between binegativity (internalized or anticipated) and NSSI will be moderated by engaging coping, such that the rates of NSSI will be higher when binegativity is higher and engagement is lower. The positive associations between binegativity (internalized or anticipated) and NSSI will be moderated by disengaging coping, such that the rates of NSSI will be higher when binegativity is higher and disengagement is higher.

Method

Participants and Procedures

The current study utilized the Bisexual+ Identity, Stress, Trauma, and Resilience (BI-STAR) dataset, a recently completed longitudinal study, provided by Dr. Brian Feinstein and colleagues. The overarching goal of BI-STAR is to understand "how stress and trauma influence mental health, substance use, and relationship functioning among bi+ people" (B. Feinstein, personal communication, 2024).

Participants were recruited via advertisements on social media and were assessed for the following inclusion/exclusion criteria: 18 years of age and over; reported a sexual identity of bisexual, pansexual, queer, or fluid; reported attractions to more than one gender or regardless of gender; living in the United States; able to read English; had access to the internet; and provided a phone number and email address. For sample demographic characteristics, see Table 1.

Before participating in the main study, participants completed an online eligibility screening. Once they completed all criteria and passed checks for inattentive/careless responses, they received a link to the consent form for the main study. Additionally, participants had to complete a questionnaire to ensure they understood the consent form; if they answered five or more questions incorrectly, participants had to retake the questionnaire. Those who passed the questionnaire and consented to the study received the baseline survey. Participants were asked to complete a baseline survey (T1) and follow-up surveys at 6 months (T2), 12 months (T3), and 18 months (T4). Originally, there were 513 participants, but 16 were excluded due to data quality concerns (e.g., multiple indicators of carelessness or inattentive responding), which brought the dataset to 502 participants. Participants received a $25 Amazon gift card for every survey they completed and a raffle ticket for a chance to win an additional $100 Amazon gift card. All surveys were programmed and completed via Qualtrics (Smith et al., 2005).

The Institutional Review Board at Rosalind Franklin University approved the BI-STAR study before any participant recruitment or data collection. For the purpose of our study, we focused on the following measures: the Bisexual Identity Inventory (Paul et al., 2014), the Lesbian, Gay, and Bisexual Identity Scale (Mohr & Kendra, 2011; adapted towards bi+ identity), the Self-Injurious Thoughts and Behavior-R (measured at both T1 and T2; Fox et al., 2020), and the Coping Strategies Inventory Short-Form (Clifton et al., 2007). Participants in the study completed several other measures at each time point, but these are beyond the scope of the current study and so will not be discussed further.

Measures

The Bisexual Identity Inventory, or BII, (Paul et al., 2014) is a self-report questionnaire that seeks to measure several aspects of bisexual identity, including the extent to which respondents anticipate that they will encounter binegativity, have internalized binegnativity, and affirm their bisexual identity. The BII is notable in that it was developed specifically with the bi+ context in mind and addresses stereotypes and stigmas that are specific to bi+ individuals, rather than lumping bi+ individuals with gay or lesbian individuals. The BII contains 46 self-reported items on a 7-point Likert scale from 1 = *strongly disagree* to 1 = *strongly agree.* There are three subscales: anticipated binegativity (five items, e.g; "When I talk about being bi+, I get nervous"), internalized binegativity (4 items, e.g., "My life would be better if I was not bi+"), and identity affirmation (six items, e.g., "Being bi+ is rewarding to me.). Several adaptations were made to the BII for the BI-STAR study, those being: reducing survey length, edits to clarify sexual orientation (e.g., "bisexual" was changed to "bi+), gender edits for inclusivity, and briefly edited response options. Prior research shows that BII is validated in bi+ individuals. Feinstein and colleagues (2024) have previously used BII when examining disclosure, experiences of minority stress, and mental health outcomes among bi+ adults. In their study, BII was validated, finding results such as internalized binegativity was higher among bi+ cisgender women, which is consistent with prior research (Dorell et al., 2024).

The Lesbian, Gay, and Bisexual Identity Scale or LGBIS (Mohr & Kendra, 2011; adapted towards bi+ identity) measures identity centrality and uncertainty. The LGBIS is a revised and extended version of the Lesbian and Gay Identity Scale (Mohr & Kendra, 2008), containing a new Likert scale with no neutral option. The revised LGBIS incorporates more inclusive language and less stigmatizing language. The LGBIS contains 27 self-reported items on a Likert scale from 1= *disagree strongly* and 6= *agree strongly.* BI-STAR study uses nine items out of the 27. Items are designed to assess respondents' feelings about their sexual identity; specifically, how uncertain they feel about their sexual identity (four items, e.g., I can't decide whether I am bi+ or gay/lesbian) and how central their sexual identity is to their overall identity (five items, e.g., Being bi+ is a very important aspect of my life). For the purposes of the BI-STAR study, several adaptations were made to the LGBIS: all instances of "LGB" were changed to "bi+", and the order of the two items was flipped for clarity. Prior research used the Lesbian and Gay Identity Scale (2008) to measure concerns about being stigmatized (Timmins et al., 2019), with successful results indicating that there are indirect negative effects of outness on the expectation of rejection.

The Self-injurious Thoughts and Behavior-Revised Questionnaire, or SITB-R (Fox et al., 2020), accounts for self-harm, suicidal ideation, suicidal planning, suicide attempts, and proximity to suicide. For the purposes of these analyses, I focused only on the items related to NSSI. More specifically, I focused on the items that assessed lifetime engagement in NSSI (a dummy-coded dichotomous variable measured only at T1; "In your lifetime, have you ever purposefully hurt yourself?"; 0 = *no,* 1 = *yes*), engagement in NSSI in the past six months (a dummy-coded dichotomous variable measured at T1 and T2; "In the past 6 months, have you ever purposefully hurt yourself?"; 0 = *no,* 1 = *yes*), and frequency of NSSI in the past month (a count variable measured at T1 and T2; "In the past month [30 days], on how many days did you hurt yourself without wanting to die?;

possible range of 0-30). Adaptions included: Consolidated individuals into groups based on relationships (e.g., brother, sister, mother, father = family member), replaced gendered relationships with gender-neutral language, added religious or spiritual leaders to disclosure measures, and added examples to crisis phone lines and medical professionals. Chang and colleagues (2024) used SITB-R to assess NSSI and STB (suicide ideation, planning, etc). Regarding gender, they found similar results to prior research: trans and gender-diverse individuals had the highest risk of NSSI, while cis men had the lowest (Chang et al., 2024).

The Coping Strategies Inventory Short-Form, or CSI-SF (Clifton et al., 2007), accounts for problem-focused engagement, problem-focused disengagement, emotion-focused engagement, and emotion-focused disengagement. The CSI-SF is a 16-item self-report measure, which is developed from the 78-item Coping Strategies Inventory, or CSI (Tobin et al., 1989). The 16 items measure how people handle stress, specifically, the strategies that people say they tend to use. Responses are provided on a 5-point Likert scale from 1 = *never,* 2 = *seldom,* 3 = *sometimes*, 4 = *often*, and 5 = *almost always* (Addison, Jenkins, & White, 2024). Problem-focused engagement include items like, "I make a plan of action and follow it." Emotion-focused engagement include items like, "I try to talk about it with a friend or family." Problem-focused disengagement include items like, "I try to put the problem out of my mind." Emotion-focused disengagement include items like "I try to spend time alone." For the purpose of this study, we focused on two superordinate factors: engaging coping and disengaging coping. Adaptations included: "I try to talk about it with a friend, or family" changed to "I try to talk about it with friends or family." In a study of nursing students' coping strategies, CSI-SF was validated through confirmation that measurement levels correlated with social support and anxiety in an adverse environment (Lainsamputty & Gerungan, 2024).

Data Analysis Plan

I preregistered my hypotheses and data analysis plan on the Open Science Framework (OSF). For the analyses, I used data from the baseline (T1) and 6-month follow-up (T2) time points. Before testing the hypotheses, I calculated univariate statistics (e.g., mean, standard deviation, frequency, skewness, kurtosis) for all key variables. Considered covariates were age and gender.To test hypotheses, I visualized bivariate associations and calculated bivariate statistics. I used Pearson R correlations for pairings of continuous variables with dichotomous variables and pairings of dichotomous variables. To test hypothesis one and hypothesis two, I computed parallel multiple regression models where I entered gender, internalized binegativity, identity affirmation, anticipated binegativity, and identity uncertainty as regressors and the binary NSSI variables as the outcomes (e.g., endorsement of lifetime NSSI at baseline, endorsement of past 6-month NSSI at baseline, and endorsement of past 6-month NSSI at the 6-month follow-up). In these models, I computed odds ratios for each regressor, as well as an overall coefficient of determination (Tjur's *d*). Regarding the count of past-month NSSI (at baseline and again at the 6-month follow-up), I again computed parallel generalized linear models. The model specification was based on the extent to which the outcome variables were dispersed relative to a Poisson distribution, which was assessed with the check_overdispersion function in the performance package in R. For the count of past-month NSSI variables that were significantly over dispersed, I used a negative binomial regression. If they were not over dispersed, I used Poisson regression. I computed incidence rate ratios for each regressor. All of these steps were repeated for Hypothesis Two but with the relevant moderators and moderation terms added (e.g.; coping styles). I used the approach described by McCabe et al. (2020, 2021) with the modlgm package in R.

All analyses were carried out in R v. 024.12.0.467 (R Core Team, 2024), including the following R packages: Questionr (Barnier et al., 2023), Hmisc (Harell, 2025), Modglm (McCabe, 2025), Performance (Lüdecke et al., 2021), Psych (Revelle, 2025), sjPlot (Lüdecke, 2024), and MASS (Venables and Ripley, 2002).

Results

Univariate statistics

A total of 497 bi + participants (*M*= 28.56 years old, *SD* = 8.19) were included in this analysis. Descriptive statistics regarding demographic (e.g., age, gender, race, ethnicity) are presented in Table 1. Descriptive statistics for the bi+ identity stress variables and NSSI-related items are presented in Table 2.

Bivariate Statistics

A series of Pearson correlation analyses were calculated to examine associations between bi+ identity stress variables, coping styles, and NSSI-related items. Bivariate correlations between these variables are presented in Table 3.

Regarding associations between bi+ identity stress variables, identity uncertainty had a positive association with internalized binegativity and anticipated binegativity, indicating that participants who reported high uncertainty within their identity also tended to report higher levels of internalized binegativity and anticipated binegativity towards their identity. Identity affirmation had a negative association with internalized binegativity and anticipated binegativity. The results of those correlations indicated that higher levels of identity affirmation were associated with lower levels of anticipated binegativity, internalized binegativity, and identity uncertainty, implying identity affirmation may be associated with reducing internal and external stigma. When examining coping strategies, there was a negative correlation between engaging coping and disengaging coping, implying that participants who reported higher use of disengaging coping also reported lower levels of engaging coping.

I also examined the associations of these variables with NSSI variables at both lifetime endorsement during lifetime (T1) and endorsement at 6-month follow-up (T2). Regarding correlations for identity uncertainty, every time point at endorsement during lifetime (T1) and endorsement at 6-month follow-up (T2) was associated with higher endorsement of NSSI. Regarding anticipated binegativity was associated with higher endorsement of NSSI at 6 months (T1), past month (T1), likely to endorse again (T1), past month (T2), and past month (T2). Conversely, anticipated binegativity was negatively associated with endorsement of NSSI at lifetime (T1) and likelihood to endorse (T2). Regarding internalized binegativity, all of the six-month follow-ups (T2) were negatively associated. For NSSI endorsement asked at baseline (T1), all were positively associated except for lifetime baseline (T1). These associations, however, were generally weak (i.e., *r*s < .20).

Identity affirmation, anticipated binegativity, internalized binegativity, and identity uncertainty all had non-significant *r*s close to zero. Similar patterns were found at the 6-month follow-up, except internalized binegativity had a negative correlation with endorsement of NSSI (*r*= -0.03; *r*= -0.01, *r*= -0.03). Notably, identity uncertainty consistently showed a positive correlation across both time points (baseline and 6-month follow-up). Also, disengaging coping consistently showed moderate positive correlations across both time points.

A chi-square test was run to examine the distribution of gender identities. Results suggested that the frequency of gender categories was significant, $x^2(496, 497) = 14{,}093.00$, $p < .001$.

Multiple Regressions

A series of parallel multiple logistic regression models were computed to examine associations between bi+ identity stress variables (e.g; internalized binegativity, anticipated binegativity, identity affirmation, identity uncertainty) and the dichotomous NSSI-related items (i.e., endorsement of lifetime NSSI at baseline (T1), endorsement of past 6-month NSSI at baseline (T1), and endorsement of past 6-month NSSI at the 6-month follow-up (T2). The results of these models are seen in Table 4.

Lifetime NSSI at Baseline

Regarding lifetime NSSI at baseline (T1), none of the bi+ identity stress variables (internalized binegativity, anticipated binegativity,

identity affirmation, or identity uncertainty) were significant predictors (all *p*s > 0.05). Conversely, gender significantly predicted lifetime NSSI at baseline (T1). Compared to cis men, cis women, trans men, trans women, and nonbinary/gender diverse participants, all indicated that there are strong associations between gender identity and lifetime NSSI.

Past 6-month NSSI at Baseline

Regarding past 6-month NSSI at baseline (T1), none of the bi+ identity stress variables (internalized binegativity, anticipated binegativity, identity affirmation, or identity uncertainty) were significant predictors (all *p*s > 0.05). Conversely, trans and nonbinary/gender diverse identities were significant predictors regarding past 6-month NSSI at baseline (T1). Trans men, trans women, and nonbinary/gender diverse participants all indicated that there are strong associations between gender identity and past 6-months NSSI at baseline.

Past 6-month NSSI at the 6-month follow-up

Regarding past 6-month NSSI at follow-up (T2), anticipated binegativity was statistically significant, indicating that higher levels of anticipated binegativity at T1 predicted a higher likelihood of endorsement in NSSI at the 6-month follow-up. None of the other bi+ identity stress variables (internalized binegativity, identity affirmation, or identity uncertainty) were significant predictors (all *p*s > 0.05). Conversely, trans men and nonbinary/gender diverse participants were statistically significant.

Parallel Generalized Linear Models with Count Variables

A series of parallel generalized linear models were conducted to examine associations between bi+ identity stress variables (e.g; internalized binegativity, anticipated binegativity, identity affirmation, identity uncertainty) and the number of instances of NSSI in the past month (measured at baseline and again at the 6-month follow-up). Relative to a Poisson distribution, the count variables were significantly overdispersed. Therefore, following my preregistered data analysis plan, I computed two parallel negative binomial models. The results of these models are seen in Table 5.

Endorsement of Past-month NSSI at Baseline (T1)

Internalized binegativity was the only bi+ identity stress variable that was statistically significant, indicating that participants with high internalized binegativity were associated with higher endorsement of past-month NSSI at baseline. Regarding gender, all gender identities were significant predictors in association with past-month NSSI at baseline (all *p*s<0.05). Notably, trans men had the strongest statistical association with past-month NSSI at baseline.

Endorsement of Past-month NSSI at 6-month follow-up (T2)

None of the bi+ identity stress variables (internalized binegativity, anticipated binegativity, identity affirmation, or identity uncertainty) were significant predictors (all *p*s > 0.05). Nonbinary/gender diverse individuals were the only association with endorsement in past-month NSSI at 6-month follow-up that had a statistical significance.

Interactions

To test whether coping strategies moderate the relationship between bi+ identity stress, specifically internalized variables, and NSSI, a series of moderated analyses were conducted. None of the bi+ variables (internalized binegativity or anticipated binegativity) were significant in the interactions by engaging or disengaging coping within any time period (T1 and T2; all *p*s > 0.05). Like prior regressions, gender was robustly associated with NSSI when coping styles were added as moderators (*ps* < 0.05). Notably, trans men had significant values in every time-point except for past-month at 6-month follow-up (T2).

Discussion

This study examined associations between bi+ identity stress, NSSI, and coping in a sample of 502 bi+ participants. An initial takeaway, though, pertains to the very high rate of NSSI in this sample. 55.8% of participants reported they endorsed NSSI at lifetime baseline (T1). This statistic can be compared to a recent meta-analysis that reported a lifetime prevalence for NSSI of 14.5% among heterosexual people (Liu et al., 2019). Nearly four times the amount, this result highlights the prevalence of NSSI among bi+ individuals.

Regarding associations between bi+ identity stress and NSSI, the results did not provide strong support for our preregistered hypotheses. While I observed some statistically significant associations in bivariate analyses, these associations were generally inconsistent or weak and, for the most part, did not survive in the multiple regression analyses when adjusting for gender, nor would they have survived correction for multiple comparisons. In contrast, there was more consistent evidence supporting an association between gender identity and NSSI and between disengaging coping and NSSI.

Compared to cis men in this sample, cis women, trans men, trans women, and nonbinary and gender-diverse participants endorsed NSSI at considerably higher rates, with odds ratios in some cases exceeding 5 or even 10. This is consistent with prior research. For example, cis women are more likely to endorse in NSSI than cis men. In their study, Lutz and colleagues (2022) found that 14.47% of women reported past-year NSSI compared to 7.78% of cis men.

For example, a recent meta-analysis found that trans and gender-diverse individuals self-reported endorsement of NSSI at 46.65% compared to 29.68% in sexual minority individuals (Liu et al., 2019). Compared to cis individuals, gender-diverse and trans individuals experience an increase in negative affect, indicating that it is a mediating variable between the association of NSSI and marginalized gender identities (Mutanski & Liu, 2012). Specifically, since marginalized gender groups are at a higher risk for NSSI.

None of the interactions between anticipated binegativity and internalized binegativity were significant in either baseline (T1) or follow-up (T2). These results were surprising, as prior research shows that high internal minority stressors, specifically targeted at bi+ individuals, are associated with NSSI severity (Muehlenkamp et al., 2016; Dumas & Pepper, 2023; Meyer, 2003).

Strengths and Limitations

There were plenty of strengths in this study. BI-STAR used previously valid measures that were specifically adapted to the bi+ community. By adapting these measures, BI-STAR aimed to increase their validity for measuring bi+ individuals' experiences, which differ from gay and lesbian individuals. Additionally, it had a large sample (*n*= 502) with a low dropout rate over the past 18 months. This sample was diverse, containing ranges of different ages (18 years to 70 years, *M= 28.57, SD*= 8.15), ethnicity and race, and gender (see Table 1).

Due to prior research identifying internalized minority stressors as risk factors for endorsement of NSSI in bi+ individuals, notably when they do not feel supported in the queer community (Politt & Roberts, 2021), I chose to not incorporate external minority stressors in the data analyses. However, Meyer's (2003) Minority Stress Model suggests that distal stressors or external factors, such as discriminatory events, play a prominent role in the association of NSSI in marginalized groups that is only partially mediated by internal stress processes. While I acknowledged the importance of external factors, the focus of this study was specifically on internal factors, such as anticipated and internalized binegativity. Prior research stresses how these internal stressors are associated with worse mental health outcomes, potentially labeled as protective factors. Additionally, engaging coping styles, such as reaching out to others, could be described as moderating factors (Meyer, 2003). As prior research suggested, bi+ individuals experience a multitude of internal stressors, since they experience stigma outside and within their community (Liu et al., 2019). With the emphasis on internal factors and research that often excludes or misrepresents bi+ individuals, I was interested in reviewing internal factors and their association with mental health risk factors. However, it is important to consider whether there are main effects of external stress, internal stress, and NSSI. Future research should assess both external and internal minority stressors to better understand how these

might relate to NSSI–either separately or in conjunction with each other.

A plurality of participants in this sample were openly bi+ (49.5%), and most reported moderate-to-high levels of identity affirmation (Mean = 5.878 out of 7, SD = 0.856). One possibility, then, is that the nonsignificant or weak associations I observed may have been attenuated by ceiling or floor effects. It is possible that different associations might be observed in a more closeted or less affirming sample of bi+ people.

Conclusions

This study aimed to explore associations between bi+ identity stress variables, NSSI endorsement, and coping styles. I used the BI-STAR study provided by Dr. Brian Feinstein, which explored the health and wellbeing of bi+ individuals. While the findings did not entirely support the hypotheses, they still offered worthwhile insights. Gender was a consistent and robust predictor of NSSI across both time points: at baseline (T1) and 6-month follow-up (T2). Compared to cis individuals, trans individuals and nonbinary or gender-diverse individuals had higher risks for NSSI, which aligns with previous research. Overall, though, these findings are perplexing, as they did not match prior research (Muehlenkamp et al., 2016; Dumas & Pepper, 2023; Meyer, 2003). Multiple explanations can be considered, including the sole focus on internal stressors and the fact that most participants in this sample were high in identity affirmation and open about their sexuality. Future research should look at the association or potential main effect with internal and external stressors. Additionally, I am interested in learning more about this sample and understanding if they have more positive experiences with their bi+ identity compared to other samples. Overall, this study contributed to critical research, which focuses on understanding risk factors among marginalized groups.

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Table 1

Demographic Characteristics of Participants

Sample Characteristics	*N*	*%*
Race and Ethnicity		
White	198	39.4%
Black or African American	64	12.7%
Latinx	128	25.5%
Asian	36	7.2%
American Indian or Alaska Native	2	0.4%
Middle Eastern or North African	4	0.8%
Multiracial	69	13.7%
Not listed	1	0.2%
Gender		
Cis man	140	27.9%
Cis woman	156	31.1%
Trans man	59	11.8%
Trans woman	32	6.4%
Nonbinary/gender diverse	115	22.9%
Age		
Under 20	57	11.4%
20 – 24	129	25.7%
25 – 29	117	23.3%
30 – 34	97	19.3%
35 – 39	60	12.0%
40 and over	42	8.4%

Table 2
*Descriptive Statistics of Bi+ Identity Stress Variables and NSSI-Related Items (*N = *473-497)*

	M/%	*SD*	Total range	Skew	Kurtosis
Identity Uncertainty (T1)	2.91	1.13	1 – 6	0.78	0.06
Anticipated binegativity (T1)	4	1.19	1 – 7	-0.21	-0.44
Internalized binegativity (T1)	2.2	1.17	1 – 6.4	1.07	0.53
Identity Affirmation (T1)	5.88	0.86	1.67 – 7	-0.87	0.93
Engaging Coping (T1)	27.01	4.74	10 – 40	0.04	-0.12
Disengaging Coping (T1)	24.68	4.96	12 – 38	0.23	-0.20
NSSI measured baseline (T1)					
Lifetime NSSI (T1)	.55	0.50	0– 1	-0.25	-1.94
6 months (T1)	0.12	0.33	0 — 1	2.32	3.39
Past month (T1)	0.26	1.19	0 – 15	7.29	66.96
Likelihood (T1)	.58	.91	0 – 4	1.82	3.20
NSSI measured at 6-month follow-up (T2)					
6 months (T2)	.12	.31	0 – 1	2.52	4.36
Past month (T2)	.20	.77	0 – 6	5.05	28.88
Likelihood (T2)	.59	.98	0 – 4	1.81	2.71

Table 3
Correlation Matrix for Bi+ Identity Stress Variables and NSSI-Related Terms

	Identity Uncertainty	Anticipated Binegativity	Internalized Binegativity	Identity Affirmation	Engaging Coping	Disengaging Coping
Identity Uncertainty	-	.26	.37	-.35	-.13	.23
Anticipated Binegativity	-	-	.49	-.42	-.13	.30
Internalized Binegativity	-	-	-	-.63	-.20	.22
Identity Affirmation	-	-	-	-	.29	-.18
Engaging Coping	-	-	-	-	-	-.41
Disengaging Coping	-	-	-	-	-	-
NSSI measured at baseline (T1)						
Lifetime (T1)	0.04	-.00	-0.04	0.06	0.06	0.17
6 months (T1)	0.01	0.02	0.02	-0.02	-0.04	0.14
Past month (T1)	0.01	0.04	0.07	-0.05	-0.11	0.10
Likelihood (T1)	0.04	0.06	0.02	-0.02	-0.06	0.32
	NSSI measured at 6-month follow-up (T2)					
6 months (T2)	0.08	0.06	-0.03	0.03	-0.04	0.14
Past month (T2)	0.07	0.07	-0.01	-0.01	-0.05	0.15
Likelihood (T2)	0.10	-0.001	-0.03	0.05	0.06	0.18

Table 4
Parallel Multiple Regression for Bi+ Identity Stress Variables and Binary NSSI-Related Items

Endorsement lifetime NSSI at baseline (T1)			
Predictors	Odd Ratios	CI	*p*
Internalized Binegativity	1.19	.93 - 1.52	.17
Anticipated Binegativity	1.08	.89 - 1.32	.43
Identity Affirmation	1.19	.87 - 1.63	.27
Identity Uncertainty	1.03	2.24 - 6.48	.80
Cis woman	3.78	2.25 - 6.48	<0.001***
Trans man	28.87	11.94 - 81.97	<0.001***

Trans woman	5.25	2.29 - 12.52	<0.001***
Nonbinary/gender diverse	8.33	4.70 - 15.19	<0.001***
Endorsement of past 6-month NSSI at baseline			
Internalized Binegativity	1.06	.76 - 1.46	.72
Anticipated Binegativity	1.06	.80 - 1.41	.69
Identity Affirmation	1.02	.68 - 1.55	.93
Identity Uncertainty	1.20	.93 - 1.54	.16
Cis woman	2.68	1.04 - 7.81	.05
Trans man	6.04	2.19 -18.49	<.001***
Trans woman	4.32	1.14-15.84	.03*
Nonbinary/gender diverse	3.95	1.55 - 11.49	.01*
Endorsement of past 6-month NSSI at the 6-month follow-up (T2)			
Internalized Binegativity	.90	.63 - 1.27	.560
Anticipated Binegativity	1.38	1.02 - 1.88	.040*
Identity Affirmation	1.06	.68- 1.68	.795
Identity Uncertainty	1.02	.76 - 1.35	.900
Cis woman	1.72	0.64 - 5.16	.300
Trans man	3.28	1.01 - 10.95	.046*
Trans woman	2.75	.54 - 11.45	.178
Nonbinary/gender diverse	4.68	1.86 - 13.53	.002*

Table 5

Parallel Generalized Linear Models for Bi+ Identity Stress Variables and Count NSSI-Related Items

Endorsement of Past-month NSSI at baseline (T1)			
Predictors	IRR	CI	p
Internalized Binegativity	1.79	0.89 – 4.02	0.027*
Anticipated Binegativity	0.90	0.57 – 1.41	0.631
Identity Affirmation	0.91	0.40 – 2.04	0.779
Identity Uncertainty	1.17	0.77 – 1.83	0.455
Cis woman	6.19	1.54 – 27.67	0.008*
Trans man	17.04	3.19 – 116.03	<0.001***
Trans woman	8.25	1.09 – 94.68	0.038*
Nonbinary/gender diverse	8.64	1.80 – 48.41	0.003*
Endorsement of Past-month NSSI at 6-month follow-up (T2)			
Internalized Binegativity	0.88	0.51 – 1.52	0.573
Anticipated Binegativity	1.40	0.91 – 2.20	0.090
Identity Affirmation	0.96	0.51 – 1.82	0.897
Identity Uncertainty	1.22	0.86 – 1.78	0.273
Cis woman	1.14	0.33 – 3.97	0.824
Trans man	2.88	0.65 – 13.98	0.124
Trans woman	2.47	0.42 – 17.98	0.302
Nonbinary/gender diverse	3.37	1.01 – 11.64	0.031*

Table 6

Moderating Effects of Coping Styles Between Bi+ Identity Binegativity Variables and NSSI Endorsement

Endorsement of Past-month NSSI at baseline (T1)			
Predictors	IRR	CI	p
Model 1			
Internalized binegativity	1.72	.56 – 5.32	.34
Anticipated binegativity	.99	.33 – 2.99	.98
Identity Affirmation	1.15	.84 – 1.59	.38
Identity Uncertainty	1.03	.85 – 1.25	.76
Engaging Coping	1.04	.94 – 1.20	.56
Cis woman	3.74	2.21 – 6.42	<.001***
Trans man	29.46	12.13 – 83.93	<.001***
Trans woman	5.67	2.45 – 13.68	<.001***
Nonbinary/gender diverse	8.45	4.75 – 15.44	<.001***
Engaging coping * Internalized Binegativity	.99	.95 – 1.03	.506
Engaging coping * Anticipated Binegativity	1.00	.96 – 1.05	.86
Model 2			
Internalized binegativity	.67	.23 – 1.87	.45
Anticipated binegativity	2.05	.80 – 5.34	.14

Identity Affirmation	1.21	.88 – 1.66	.24
Identity Uncertainty	1.00	.82– 1.22	.98
Disengaging Coping	1.11	.97 – 1.29	.14
Cis woman	3.65	2.16 – 6.28	<.001***
Trans man	24.57	10.03 – 70.34	<.001***
Trans woman	3.37	1.86 –10.60	<.001***
Nonbinary/gender diverse	7.63	4.26 – 12.00	<.001***
Disengaging coping x internalized binegativity	1.02	.98 – 1.06	.26
Disengaging coping x anticipated binegativity	.92	.9.94 – 1.01	.14
Past 6 months at baseline (T1)			
Model 3			
Internalized binegativity	1.12	0.24 – 4.93	.89
Anticipated binegativity	1.17	.25 – 5.65	.84
Identity affirmation	1.06	.69 – 1.63	.80
Identity uncertainty	1.19	.92 – 1.54	.17
Engaging coping	1.00	.81 – 1.22	.97
Cis woman	2.72	1.05 – 7.94	.05*
Trans man	6.19	2.23 – 19.10	<.001***
Trans woman	4.18	1.10 – 15.47	.03*
Nonbinary/gender diverse	3.95	1.55 – 11.51	.01*
Engaging coping * Internalized Binegativity	1.00	.94 – 1.06	.95
Engaging coping * Anticipated Binegativity	1.00	.94 – 1.05	.89
Model 4			
Internalized binegativity	0.44	0.09 – 1.95	.29
Anticipated binegativity	1.16	.30 – 4.88	.83
Identity affirmation	1.02	.68 – 1.55	.93
Identity uncertainty	1.17	.90 – 1.50	.24
Disengaging coping	1.02	.84 – 1.24	.86
Cis woman	2.50	.97 – 7.28	.07
Trans man	4.72	1.66 – 14.75	.01*
Trans woman	3.31	.85 – 12.47	.08
Nonbinary/gender diverse	3.33	1.30 – 9.77	.02*
Disengaging coping * Internalized Binegativity	1.03	.98 – 1.09	.26
Disengaging coping * Anticipated Binegativity	.99	.94 – 1.05	.81
Past Month Baseline (T1)			
Model 5			
Internalized binegativity	.35	-.25 – .94	.25
Anticipated binegativity	-.16	-.75 – .42	.59
Identity affirmation	.04	-.12 – .21	.62
Identity uncertainty	.05	-.06 – .15	.36
Engaging coping	-.03	-.10 – .05	.478
Cis woman	.28	-.1 – .57	.06
Trans man	.51	.13 – .88	.01*
Trans woman	.15	-.33 – .63	.54
Nonbinary/gender diverse	.21	-.10 – .51	.18
Engaging coping * Internalized Binegativity	-.01	-.03 – .01	.35
Engaging coping * Anticipated Binegativity	.01	-.02 – .03	.58
Model 6			
Internalized binegativity	.55	.05 – 5.60	.61
Anticipated binegativity	.75	.09 – 6.56	.79
Identity affirmation	.82	.42 – 1.57	.54
Identity uncertainty	1.10	.73 – 1.66	.64
Disengaging coping	1.04	.77 – 1.40	.81
Cis woman	6.94	1.67 – 28.80	.01*
Trans man	16.55	3.15 – 86. 85	<.001***
Trans woman	5.66	.73 – 44.24	.10
Nonbinary/gender diverse	7.79	1.76 – 34.54	.01*
Disengaging coping * Internalized Binegativity	1.04	.95 – 1.13	.42

Disengaging coping * Anticipated Binegativity	1.00	.92 – 1.09	.94
Likelihood to endorse NSSI at Baseline (T1)			
Model 7			
Internalized binegativity	-.05	-.48 – .38	.82
Anticipated binegativity	.04	-.39 – .47	.85
Identity affirmation	-.01	-.13 – .11	.84
Identity uncertainty	.04	-.04 – .11	.31
Engaging coping	-.02	-.01 – .04	.53
Cis woman	.32	.11 – .53	.01*
Trans man	.66	.39 – .94	<.001***
Trans woman	.48	.14 – .83	.01*
Nonbinary/gender diverse	.79	.57 – 1.01	<.001***
Engaging coping * Internalized Binegativity	.00	-.01 – .02	.74
Engaging coping * Anticipated Binegativity	.00	-.02 – .02	.96
Model 8			
Internalized binegativity	-.11	-.49 – .26	.55
Anticipated binegativity	.14	-.20 – .49	.41
Identity affirmation	-.02	-.14 – .09	.71
Identity uncertainty	.02	-.06 – .09	.67
Disengaging coping	.06	.01 – .11	.01*
Cis woman	.26	.06 – .47	.01*
Trans man	.48	.20 – .75	.001**
Trans woman	.29	-.05 – .63	.1
Nonbinary/gender diverse	.67	.45 – .89	<.001***
Disengaging coping * Internalized Binegativity	.00	-.01 – .02	.50
Disengaging coping * Anticipated Binegativity	-.01	-.02 – .01	.37
Past 6-Months at 6-Months Follow-up (T2)			
Model 9			
Internalized binegativity	2.32	.39 – 12.45	.34
Anticipated binegativity	1.96	.38 – 10.78	.43
Identity affirmation	1.12	.70 – 1.81	.64
Identity uncertainty	1.01	.75 – 1.33	.97
Engaging coping	1.09	.87 – 1.37	.45
Cis woman	1.75	.64 – 5.33	.23
Trans man	3.69	1.12 – 12.57	.03*
Trans woman	2.71	.53 – 11.53	.19
Nonbinary/gender diverse	4.84	1.89 – 14.25	.002**
Engaging coping * Internalized Binegativity	.96	.90 – 1.03	.27
Engaging coping * Anticipated Binegativity	.99	.93 – 1.05	.68
Model 10			
Internalized binegativity	.31	.05 – 1.59	.17
Anticipated binegativity	2.15	.49 – 10.19	.32
Identity affirmation	1.05	.68 – 1.67	.82
Identity uncertainty	.96	.72 – 1.28	.80
Disengaging coping	1.08	.88 – 1.35	.46
Cis woman	1.58	.58 – 4.76	.38
Trans man	2.44	.73 – 8.32	.14
Trans woman	2.01	.39 – 8.65	.36
Nonbinary/gender diverse	3.97	1.56 – 11.57	.01*
Disengaging coping * Internalized Binegativity	1.04	.98 – 1.10	.20
Disengaging coping * Anticipated Binegativity	.98	.93 – 1.04	.48
In Past Month at 6-month Follow-up (T2)			
Model 11			
Internalized binegativity	.10	-.21 – .59	.36

Anticipated binegativity	.01	-.37 – .39	.96
Identity affirmation	-.02	-.12 – .09	.78
Identity uncertainty	.02	-.05 – .09	.61
Engaging coping	.00	-.05 – .05	.93
Cis woman	-.00	-.19 – .19	1.0
Trans man	.17	- .08 – .42	.18
Trans woman	.09	-.23 – .40	.60
Nonbinary/gender diverse	.23	.03 – .43	.02
Engaging coping * Internalized Binegativity	-.01	-.02 – .01	.24
Engaging coping * Anticipated Binegativity	.00	-.01 – .02	.77
Model 12			
Internalized binegativity	-.11	-.45 – .24	.55
Anticipated binegativity	.09	-.22 – .41	.55
Identity affirmation	-.03	-.13 – .08	.63
Identity uncertainty	.01	-.06 – .07	.86
Disengaging coping	.02	-.02 – .07	.33
Cis woman	-.03	-.22 – .16	.78
Trans man	.08	-.17 – .34	.52
Trans woman	-.00	-.32 – .39	1.00
Nonbinary/gender diverse	.19	-.01 – .39	.07
Disengaging coping * Internalized Binegativity	.00	-.01 – .02	.74
Disengaging coping * Anticipated Binegativity	-.00	-.01 – 0.01	.73
Likelihood of NSSI at 6-Month Follow-up (T2)			
Model 13			
Internalized binegativity	-.04	-.45 – .53	.87
Anticipated binegativity	-.24	-.72 – .23	.31
Identity affirmation	.03	-.10 –. 17	.62
Identity uncertainty	.06	-.02 – .14	.16
Engaging coping	-.03	-.09 – .04	.42
Cis woman	.26	.03 – .50	.003*
Trans man	.77	.46 – 1.08	<.001***
Trans woman	.45	.06– .84	.02*
Nonbinary/gender diverse	.68	.44 – .93	<.001***
Engaging coping * Internalized Binegativity	-.00	-.02 – .02	.97
Engaging coping * Anticipated Binegativity	.01	-.01 – .03	.26
Model 14			
Internalized binegativity	-.17	-.59 – .26	.44
Anticipated binegativity	.21	-.18 – .60	.28
Identity affirmation	.05	-.08 – .18	.43
Identity uncertainty	.05	-.04 – .13	.29
Disengaging coping	.05	-.01 – .10	.12
Cis woman	.23	-.00 – .46	.05
Trans man	.67	.35 – .98	<.001***
Trans woman	.31	-.09 – .70	.13
Nonbinary/gender diverse	.61	.37 – .86	<.001***
Disengaging coping * Internalized Binegativity	.01	-.01 – 0.02	.37
Disengaging coping * Anticipated Binegativity	-.01	-.02 – .01	.25