

## RESEARCH ARTICLE

# Minority stress and mental health in lesbian, gay, bisexual, transgender, and queer survivors of sexual assault

Carter E. Bedford  | Aoife M. Trotter | Miracle Potter | Norman B. Schmidt

Department of Psychology, Florida State University, Tallahassee, Florida, USA

## Correspondence

Carter E. Bedford, Department of Psychology, Florida State University, 1107 W. Call St., Tallahassee, FL 32306-4301 USA.

Email: [bedford@psy.fsu.edu](mailto:bedford@psy.fsu.edu)

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## Abstract

Extant research has shown that sexual violence disproportionately affects lesbian, gay, bisexual, transgender, and queer (LGBTQ+) individuals, conferring risk for the development of posttraumatic stress symptoms (PTSS) and related mental health conditions. However, little research has focused on specific vulnerabilities among LGBTQ+-identified sexual assault (SA) survivors (e.g., minority stress) and their associations with post-SA psychopathology. To address this gap, we examined associations between experiences of minority stress and post-SA psychopathology in a sample of LGBTQ+ individuals who experienced SA ( $N = 92$ ) and completed a battery of self-report measures. Results revealed significant differences in internalized stigma, community connectedness, alcohol use, and cannabis use across sexual orientation and gender modality groups,  $\eta_p^2 = .08$ –.11. Additionally, regression analyses indicated that experiences of violence and victimization were significantly associated with higher PTSS,  $\beta = .31$ ,  $p = .020$ ; anxiety,  $\beta = .39$ ,  $p = .003$ ; and alcohol use severity,  $\beta = .31$ ,  $p = .027$ , over and above other experiences of minority stress and psychopathology risk factors. Internalized stigma was significantly associated with cannabis use severity,  $\beta = .34$ ,  $p = .011$ . Finally, community connectedness was significantly associated with lower anxiety symptom severity,  $\beta = -.42$ ,  $p = .001$ . Although longitudinal work is needed, findings indicate that experiences of minority stress may serve as risk or maintenance factors for post-SA psychopathology. These results offer important considerations for future treatment approaches tailored to LGBTQ+ survivors of SA.

Sexual assault (SA) is a common but deleterious form of trauma exposure, resulting in a diagnosis of posttraumatic stress disorder (PTSD) for 60%–80% of survivors (e.g., Solomon & Davidson, 1997). Although prevalence rates vary across definitions of SA used, epidemiological studies have found that approximately 25% of women and 4% of men experience SA during their lifetime (Breiding, 2014; Elliott et al., 2004). SA occurs more frequently among lesbian, gay, bisexual, transgender, and queer (LGBTQ+) individuals, who report SA at 2.3–2.6x the rate of their

cisgender–heterosexual peers despite representing 7.1% of the U.S. population (Cramer et al., 2012; Gallup, 2022). SA prevalence differs by sexual orientation and gender identity, with bisexual women reporting the highest rates of SA, followed by heterosexual women, gay men, and bisexual men; heterosexual men and lesbian women report the lowest rates of SA (Ford & Soto-Marquez, 2016). Similarly, transgender individuals report higher rates of SA than both cisgender women and cisgender men (Coulter et al., 2017). The risk for SA increases as sexual and gender identities

intersect with racial and ethnic background; Black transgender individuals have the highest predicted probability of SA.

In addition to being more prevalent, the consequences of SA tend to be more severe for LGBTQ+ individuals. In response to violent crimes such as SA, LGBTQ+ individuals report more acute stress and anxiety than cisgender-heterosexual individuals (Cramer et al., 2012). Similarly, LGBTQ+ youth who have experienced SA report higher levels of posttraumatic stress symptoms (PTSS), anxiety, depression, suicidal ideation and attempts, and marijuana use than their heterosexual peers (e.g., Chakraborty et al., 2021; Smith et al., 2016). The effects of SA may be particularly severe for bisexual and lesbian women. Compared to heterosexual women, bisexual and lesbian women are more likely to report negative consequences of SA, such as concerns about safety and functional impairment (Walters et al., 2013). Bisexual and lesbian women experience more alcohol use problems post-SA than heterosexual women (e.g., Sigurvinsdottir & Ullman, 2015), and bisexual women endorse greater PTSS, depression, and substance use problems post-SA than both lesbian and heterosexual women (e.g., Sigurvinsdottir & Ullman, 2015, 2016).

The severity of post-SA psychopathology among LGBTQ+ individuals may be attributable to minority stress. Minority stress theory (MST; Meyer, 2003) posits that individuals with marginalized identities experience excess stress as a result of stigmatization in their social environment. Minority stress can be conceptualized along a continuum, where proximal stressors reflect subjective perceptions and appraisals, and distal stressors reflect objective environmental conditions (Meyer, 2003). LGBTQ+ individuals face three primary proximal stressors: perceived stigma and expectations of rejection; concealment of one's identity; and internalization of stigma about one's identity, such as internalized homophobia (IH) or transphobia (IT). Distal stressors include experiences of violence and victimization (Meyer, 2003). Minority stress is chronic and additive; therefore, MST would suggest that experiencing SA requires greater adaptation for marginalized individuals than for nonmarginalized individuals.

Research on psychopathology among LGBTQ+ individuals has revealed associations between minority stress and adverse mental health outcomes. Experiences of discrimination are associated with psychological distress, mental health problems, alcohol use, and suicidality (e.g., Kuyper & Fokkema, 2011; Lea et al., 2014). Internalized stigma is associated with mental health problems, particularly internalizing symptoms and substance use (Kuyper & Fokkema, 2011; Lehavot & Simoni, 2011; Newcomb & Mustanski, 2010). Findings about the concealment of one's LGBTQ+ identity are mixed, with reports of both positive and negative effects (Brewster et al., 2013;

Hoy-Ellis, 2023). Outness, an overlapping but distinct construct from concealment, has been associated with depressive symptoms, possibly due to an increased likelihood of experiencing discrimination (Meidlinger & Hope, 2014; Riggle et al., 2017). Of note, much of the research applying MST to LGBTQ+ mental health has focused on White, gay-identified men (Newcomb & Mustanski, 2010), limiting generalizability to individuals who do not identify as men and/or people of color who may experience additional stress due to sexism or racism. Further, research has historically ignored the experiences of bisexual individuals, who may experience "double discrimination" and exclusion by both the cisgender-heterosexual and LGBTQ+ communities (Firestein, 1996). Antibisexual stigmatization has been associated with depression, anxiety, and substance use severity (e.g., Smout & Benotsch, 2022).

Previous research on minority stress and mental health outcomes in LGBTQ+ survivors of SA has largely focused on the effects of internalized stigma, including IH and IT. Higher levels of IH are associated with lifetime and past-year sexual victimization (Balsam & Szymanski, 2005; Murchison et al., 2017), indicating that IH may be a risk factor for or consequence of SA. IH is associated with PTSS among LGBTQ+ survivors of SA (Goldbach et al., 2015; Solomon et al., 2021) and has been shown to explain more variance in PTSS than assault severity (Gold et al., 2007). This association is partially explained by experiential avoidance (Gold et al., 2007) and shame-related withdrawal (Straub et al., 2018), suggesting that negative appraisals of one's identity may contribute to PTSS-maintaining avoidance behaviors. Internalized stigma has been associated with post-SA depression, suicidal ideation and attempts, anxiety, sleep difficulties, and substance use (Goldbach et al., 2015; Herek et al., 2009; Huynh et al., 2022; Kolp et al., 2020; Newcomb & Mustanski, 2010). Conversely, studies on the role of social support as a protective factor have found that community connectedness is associated with a decreased risk of sexual victimization (Kolp et al., 2020; Murchison et al., 2017). Further, among transgender individuals, higher levels of social support are associated with lower PTSS (Grocott et al., 2023).

In sum, the extant literature indicates an elevated risk of SA and the development of post-SA psychopathology among LGBTQ+ individuals, and this risk may be attributable to experiences of minority stress. However, little is known about how experiences of minority stress and mental health outcomes differ by identity for LGBTQ+ survivors of SA. Further, although research has demonstrated strong associations between internalized stigma and adverse mental health outcomes, relations between other experiences of minority stress and post-SA

psychopathology remain unclear. Thus, the purpose of the current study was to examine group differences and cross-sectional associations between experiences of minority stress and measures of psychopathology in a sample of LGBTQ+ survivors of SA. Consistent with previous research, we hypothesized that (a) transgender individuals would report significantly higher levels of minority stress and post-SA symptom severity than cisgender individuals; (b) bisexual women would report significantly higher levels of minority stress and post-SA symptom severity than other sexual orientation groups; and (c) internalized stigma would explain a significant amount of variance in each of the psychopathology measures, over and above the other MST subfactors and other known risk factors for post-SA psychopathology (i.e., age, race, and time since the assault).

## METHOD

### Participants

The final sample consisted of 92 adult participants who reported (a) identifying as LGBTQ+ and (b) having experienced at least one instance of SA. Individuals who reported being both cisgender and heterosexual were excluded from the present study. Demographic characteristics are presented in Table 1. The sample was predominantly White (88.0%), cisgender (54.3%), and homosexual (56.5%). Most participants identified as men (59.8%). Participants ranged in age from 18 to 65 years ( $M = 35.96$  years,  $SD = 9.22$ ), and the average time since the SA occurred was 7.10 years ( $SD = 11.80$ ).

### Procedure

Participants were recruited from the Qualtrics (Silver Lake; Seattle, WA, USA) subject pool, a diverse pool of research participants in the United States who are compensated for completing surveys and other computer-based tasks. Potential participants were screened for age, LGBTQ+ identity, and lifetime SA. Lifetime SA was assessed with the question, "Have you ever been sexually assaulted? Sexual assault is defined here as any unwanted sexual contact, verbally coerced sexual contact, attempted rape, and rape (including that which results from use of force or incapacitation due to alcohol or drugs)." Eligible participants completed the self-report survey and received compensation via Qualtrics' point reward system. All procedures were approved by the Institutional Review Board of Florida State University.

**TABLE 1** Demographic characteristics of the sample

Variable	<i>M</i>	<i>SD</i>
Age (years)	35.96	9.22
Time since assault (years)	7.10	11.80
	<i>N</i>	%
Gender modality, by gender identity		
Cisgender men	27	29.3
Cisgender women	28	30.4
Transgender men	23	25.0
Transgender women	13	14.1
Nonbinary	1	1.1
Sexual orientation, by gender identity		
Heterosexual men	14	15.2
Heterosexual women	2	2.2
Gay men	31	33.7
Lesbian women	20	21.7
Bisexual men	8	8.7
Bisexual women	14	15.2
Men with other sexual orientation	2	2.2
Nonbinary with other sexual orientation	1	1.1
Perpetrator gender identity		
Man	70	76.1
Woman	21	22.8
Nonbinary/other gender identity	1	1.1
Race/ethnicity		
White	81	88.0
Black/African American	10	10.9
American Indian or Alaska Native	1	1.1

## Measures

### Demographic characteristics

A demographic questionnaire was used to assess age, gender identity (man, woman, or nonbinary/other), gender modality (cisgender or transgender), sexual orientation (heterosexual, homosexual, bisexual, or other), ethnicity, race, time since the SA, and perpetrator gender.

### PTSD symptoms

Symptoms of PTSD, as defined in the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; American Psychiatric Association, 2013), were assessed using the 20-item, self-report PTSD Checklist for *DSM-5* (PCL-5; Weathers et al., 2013). Participants were asked to report PTSD symptoms pertaining to their experience of SA specifically. Items are rated on a 5-point Likert scale

ranging from 0 (*not at all*) to 4 (*extremely*). Total scores range from 0 to 80; scores above 33 indicate that the individual may be experiencing clinically significant PTSS (Blevins et al., 2015a). The PCL-5 has demonstrated strong psychometric properties (Blevins et al., 2015b). In the present study, the PCL-5 demonstrated excellent internal consistency, Cronbach's  $\alpha = .96$ .

## Depressive symptoms

The 20-item, self-report Center for Epidemiological Studies-Depression (CES-D; Radloff, 1977) was used to assess nonsuicidal depressive symptoms. Items are scored on a 4-point Likert scale ranging from 0 (*rarely or none of the time*) to 4 (*most or all of the time*). Total scores range from 0 to 80, with scores above 16 indicating that the individual may be experiencing clinically significant depressive symptoms. The CES-D has demonstrated strong psychometric properties (Björgvinsson et al., 2013). In the present study, the CES-D demonstrated excellent internal consistency, Cronbach's  $\alpha = .90$ .

## Anxiety symptoms

The 21-item, self-report Beck Anxiety Inventory (BAI; Beck et al., 1988) was used to assess symptoms of anxiety. The items are measured on a 4-point Likert scale ranging from 0 (*not at all*) to 4 (*severely*). Total scores range from 0 to 84, with scores above 16 indicating that the individual may be experiencing clinically significant anxiety symptoms. The BAI has demonstrated strong psychometric properties (Osman et al., 1997). In the present study, the BAI demonstrated excellent internal consistency, Cronbach's  $\alpha = .94$ .

## Alcohol use

The 10-item, self-report Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993) was used to assess alcohol use. AUDIT items measure the frequency and amount of alcohol use, alcohol dependence, and problems resulting from alcohol use. Total scores range from 0 to 40; scores above 8 indicate potentially hazardous alcohol use. The AUDIT has demonstrated strong psychometric properties (de Meneses-Gaya et al., 2009). In the present study, the AUDIT demonstrated excellent internal reliability, Cronbach's  $\alpha = .90$ .

## Cannabis use

The eight-item, self-report Cannabis Use Disorders Identification Test-Revised (CUDIT-R; Adamson et al., 2010) was used to assess cannabis use. CUDIT-R items measure the frequency and amount of cannabis use, cannabis dependence, problems resulting from cannabis use, and related psychological features. Total scores range from 0 to 32; scores above 8 indicate potentially hazardous cannabis use. The CUDIT-R has demonstrated strong psychometric properties (Adamson et al., 2010). In the present study, the CUDIT-R demonstrated excellent internal consistency, Cronbach's  $\alpha = .90$ .

## Minority stress

The minority stress measure (Goldbach et al., 2015) consisted of 16 binary (1 = *yes*, 0 = *no*) questions that were used to assess experiences of four subfactors of MST (Meyer, 2003): violence and victimization (five items; e.g., "Have you ever experienced violence due to your sexual orientation/gender identity?"), outness (four items; e.g., "Have you disclosed your sexual orientation/gender identity to your friends?"), community connectedness (four items; e.g., "Do you know others who identify with your sexual orientation/gender identity?"), and internalized homophobia/transphobia (three items; e.g., "Would you change your sexual orientation/gender identity if you could?"). These items were used to calculate both total and subscale scores. One item from the original measure (i.e., "Have you been to a community center for queer youth?") was omitted due to its limited applicability to the adult population being studied. The items have demonstrated strong content and face validity in previous research (see Goldbach et al., 2015) but have not yet been empirically validated. In the present study, Cronbach's alpha was .75, indicating adequate reliability.

## Data analysis

First, data were examined for participant noncompliance, data entry errors, outliers, skewness, and kurtosis. All participants passed the three attention check variables included in the survey. Due to a data entry error, scores on one CES-D item (Item 18: "I felt sad") were mean-imputed using participants' scores on the other items. Two observed outlier values on the CES-D were brought to the fence. Skewness and kurtosis values fell within an acceptable range.



**TABLE 2** Descriptive statistics and correlations among continuous study variables

Variable	1	2	3	4	5	6	7	8	9
1 PTSS	–	.56**	.51**	.51**	.33**	.25*	–.04	.05	.36**
2 Depressive symptoms		–	.66**	.67**	.53**	.36**	.08	–.03	.42**
3 Anxiety symptoms			–	.57**	.36**	.45**	–.06	–.27**	.49**
4 Alcohol use				–	.69**	.43**	.01	–.02	.50**
5 Cannabis use					–	.28**	.01	.08	.48**
6 Violence and victimization						–	.22*	.16	.52**
7 Outness							–	.59**	.07
8 Community connectedness								–	–.02
9 Internalized stigma									–
<i>M</i>	45.20	30.05	34.82	20.12	13.40	2.76	2.62	2.73	1.07
<i>SD</i>	19.46	11.03	14.64	9.74	9.78	1.69	1.27	1.21	1.11

Note: PTSS = posttraumatic stress symptoms.

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

One-way multivariate analyses of variance (MANOVAs) were used to examine differences in both MST subfactor scores and psychopathology scores across both gender modality groups and sexual orientation groups. Subgroups with less than three respondents (heterosexual women:  $n = 2$ ; homosexual nonbinary individuals:  $n = 1$ ; men with other sexual identities:  $n = 2$ ) were excluded from these analyses. A series of hierarchical linear regressions were used to examine associations between each of the MST subfactors and the psychopathology outcome of interest. In each model, known risk factors for the development of posttrauma psychopathology (Sayed et al., 2015), including age, race, and time since the assault were entered in Step 1. The MST subfactors were entered in Step 2.

## RESULTS

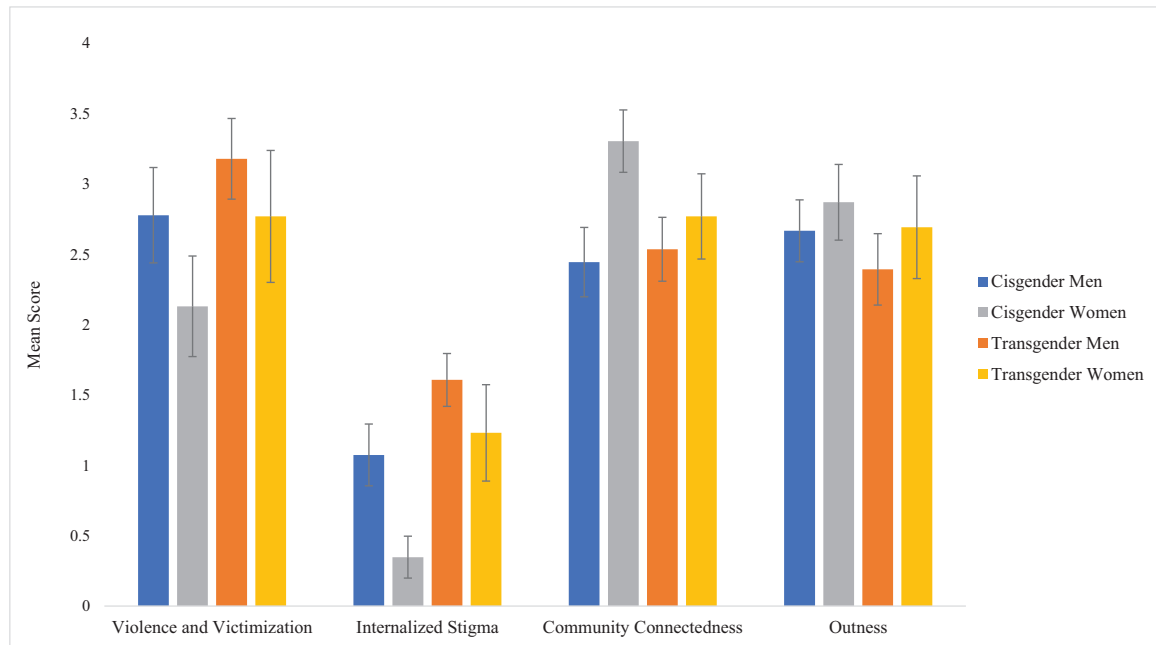
### Preliminary analyses

Means, standard deviations, and bivariate correlations are presented in Table 2. As expected, there were significant positive correlations between the psychopathology measures. Experiences of violence and victimization and internalized stigma were significantly positively correlated with the psychopathology measures and with each other. Community connectedness was significantly negatively associated with anxiety symptoms. Outness was significantly positively associated with violence and victimization and community connectedness. Average scores on the psychopathology measures demonstrated the clinical nature of the sample.

### Group differences in experiences of minority stress

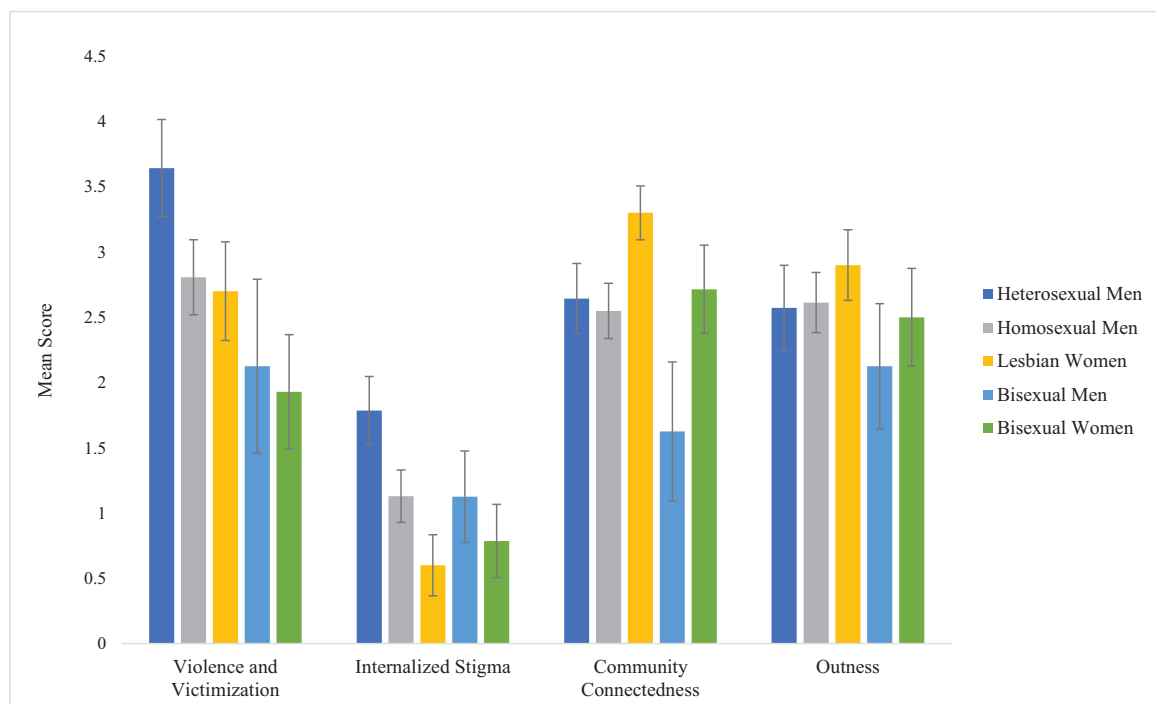
A one-way MANOVA was used to examine differences in MST subfactor scores across gender modality groups; the results are shown in Figure 1. There was a statistically significant difference in MST subfactor scores based on participant gender modality,  $F(12, 222.54) = 2.43$ ,  $p = .006$ , Wilk's  $\lambda = .72$ ,  $\eta_p^2 = .10$ . There was a significant difference in internalized stigma,  $F(3, 87) = 6.80$ ,  $p < .001$ , such that transgender men ( $M = 1.61$ ,  $SD = 0.99$ ) experienced significantly more internalized stigma than cisgender women ( $M = 0.35$ ,  $SD = 0.71$ ),  $p < .001$ .

A one-way MANOVA was used to examine differences in MST subfactor scores across sexual orientation groups. Subgroups with less than three respondents (heterosexual women:  $n = 2$ ; homosexual nonbinary individuals:  $n = 1$ ; men with other sexual identities:  $n = 2$ ) were excluded from the present analysis; the results are illustrated in Figure 2. There was a statistically significant difference in MST subfactor scores based on participant sexual orientation,  $F(16, 241.99) = 1.79$ ,  $p = .033$ , Wilk's  $\lambda = .71$ ,  $\eta_p^2 = .08$ . There was a significant difference in community connectedness,  $F(4, 82) = 3.26$ ,  $p = .016$ , such that lesbian women ( $M = 3.30$ ,  $SD = 0.92$ ) reported significantly more community support than bisexual men ( $M = 1.62$ ,  $SD = 1.51$ ),  $p = .007$ . In addition, there was a significant difference in internalized stigma,  $F(4, 82) = 2.87$ ,  $p = .028$ , such that lesbian women ( $M = 0.60$ ,  $SD = 1.05$ ) reported significantly less internalized stigma than heterosexual men ( $M = 1.79$ ,  $SD = 0.97$ ),  $p = .016$ .



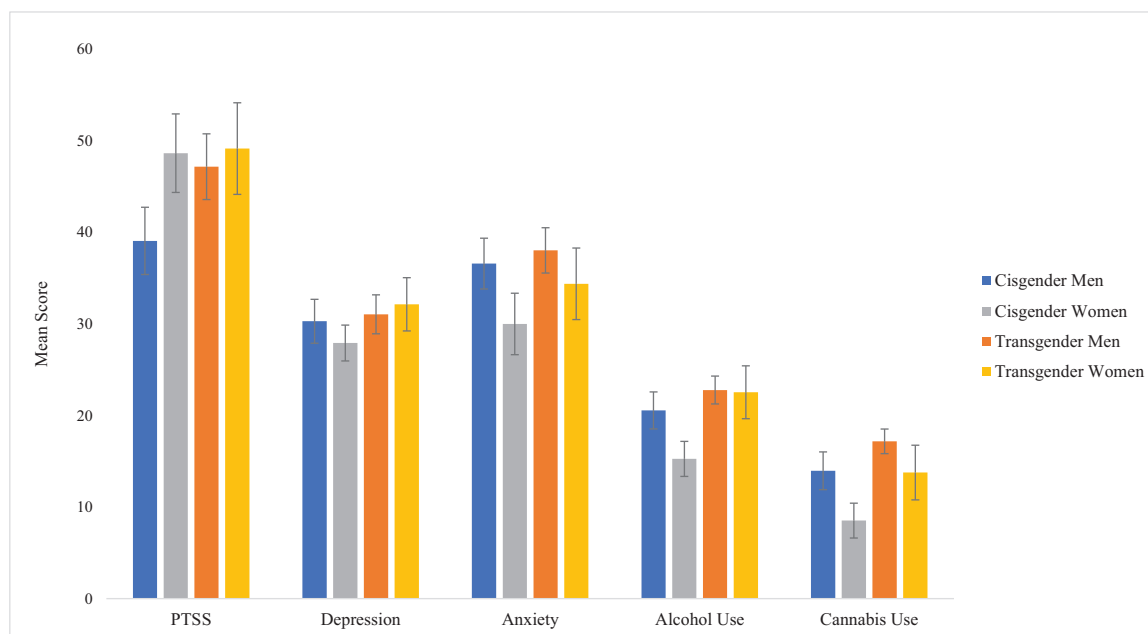
**FIGURE 1** Experiences of minority stress, by gender modality and gender identity

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



**FIGURE 2** Experiences of minority stress, by sexual orientation and gender identity

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



**FIGURE 3** Mental health outcomes, by gender modality and gender identity

Note: PTSS = posttraumatic stress symptoms.

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

## Group differences in psychopathology

A one-way MANOVA was used to examine differences in psychopathology scores across gender modality groups; the results are illustrated in Figure 3. There was a statistically significant difference in psychopathology scores based on participant gender modality,  $F(15, 229.53) = 2.06$ ,  $p = .013$ , Wilk's  $\lambda = .71$ ,  $\eta_p^2 = .11$ . There was a significant difference in alcohol use severity,  $F(3, 87) = 3.07$ ,  $p = .032$ , such that transgender men ( $M = 22.79$ ,  $SD = 8.05$ ) reported significantly more alcohol use than cisgender women ( $M = 15.26$ ,  $SD = 9.18$ ),  $p = .029$ . A similar pattern was observed for cannabis use severity,  $F(3, 87) = 3.66$ ,  $p = .015$ , with transgender men ( $M = 17.18$ ,  $SD = 7.11$ ) reporting significantly more cannabis use than cisgender women ( $M = 8.52$ ,  $SD = 9.12$ ),  $p = .008$ .

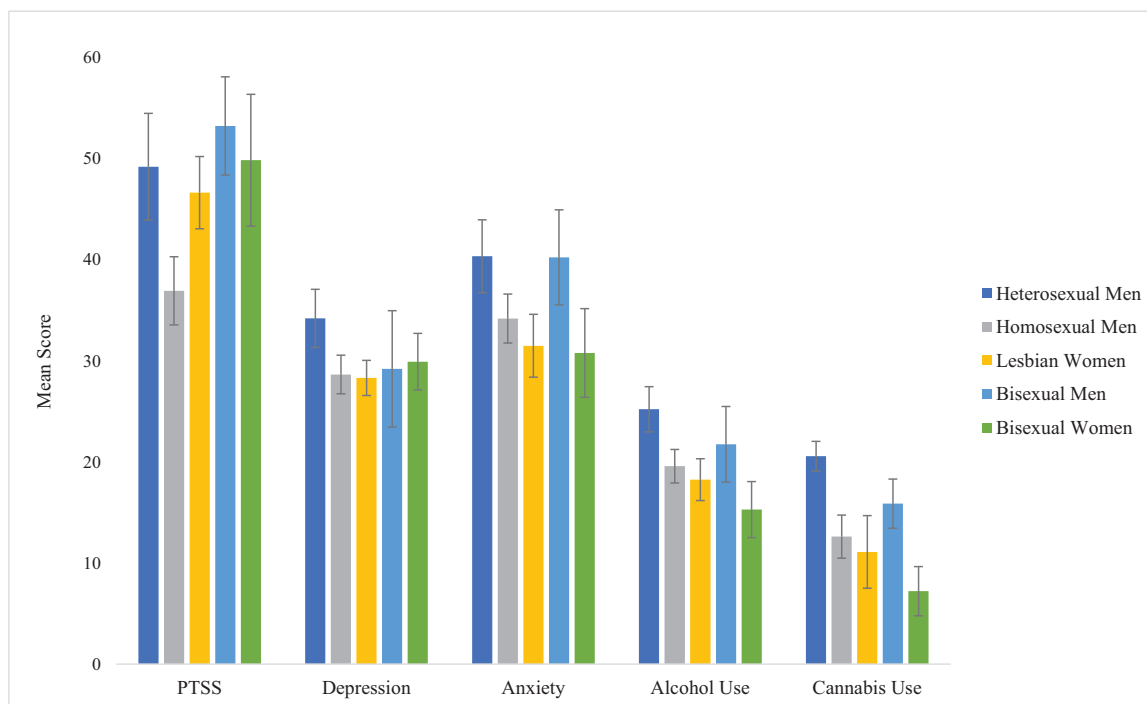
A one-way MANOVA was used to examine differences in psychopathology scores across sexual orientation groups. Subgroups with less than three respondents were excluded from the present analysis; the results are illustrated in Figure 4. There was a statistically significant difference in psychopathology scores based on participant sexual orientation,  $F(20, 259.65) = 1.98$ ,  $p = .008$ , Wilk's  $\lambda = .62$ ,  $\eta_p^2 = .11$ . For cannabis use severity,  $F(4, 82) = 4.49$ ,  $p = .002$ , bisexual women ( $M = 7.21$ ,  $SD = 9.11$ ) reported significantly less cannabis use than heterosexual men ( $M = 20.57$ ,  $SD = 5.49$ ),  $p = .001$ ; lesbian women ( $M = 11.10$ ,  $SD = 9.53$ ) also reported significantly less cannabis use than heterosexual men,  $p = .024$ .

## Associations between minority stress and mental health

Results from the hierarchical regression models examining PTSS, depressive symptoms, and anxiety symptoms are presented in Table 3. For each measure, the combined MST subfactors explained a significant amount of variance in symptom severity,  $\Delta R^2 = .13$ – $.34$ . Significant positive associations were found between experiences of violence and victimization and both PTSS and anxiety symptom severity. Conversely, community connectedness was significantly negatively related to anxiety symptom severity. There were no significant associations between any of the MST subfactors and depressive symptom severity. The results of the hierarchical regression models examining alcohol and cannabis use are presented in Table 4. For both measures, the combined MST subfactors explained a significant amount of variance in symptom severity,  $\Delta R^2 = .12$ – $.21$ . Experiences of violence and victimization were significantly associated with alcohol use severity, whereas internalized stigma was associated with cannabis use severity.

## DISCUSSION

The current study represents the first application of MST to post-SA psychopathology among LGBTQ+ survivors of SA. Our first hypothesis, which stated that transgender



**FIGURE 4** Mental health outcomes, by sexual orientation and gender identity

Note: PTSS = posttraumatic stress symptoms.

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

**TABLE 3** Hierarchical linear regression examining variance explained in internalizing disorder symptoms

Variable	PTSS				Depressive symptoms				Anxiety symptoms			
	<i>B</i>	<i>SE B</i>	$\beta$	$\Delta R^2$	<i>B</i>	<i>SE B</i>	$\beta$	$\Delta R^2$	<i>B</i>	<i>SE B</i>	$\beta$	$\Delta R^2$
Step 1: Known risk factors				.27								
Age	0.17	0.27	.08		0.12	0.17	.10		0.32	0.23	.21	
Race	13.83	5.38	.28*		2.08	3.29	.08		2.23	4.43	.06	
Time since assault	−0.85	0.23	−.50**		−0.26	0.14	−.28		−0.43	0.19	−.34*	
Step 2: Minority stress factors				.13								
Violence and victimization	3.66	1.53	.31*		1.69	0.93	.26		3.37	1.11	.39**	
Outness	−3.03	1.99	−.20		1.37	1.20	.17		0.97	1.44	.09	
Community connectedness	0.15	1.99	.01		−2.03	1.21	−.24		−4.92	1.45	−.42**	
Internalized stigma	1.62	2.59	.08		2.05	1.57	.19		2.83	1.88	.20	

Note: PTSS = posttraumatic stress symptoms.

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

individuals would report significantly higher levels of minority stress and symptom severity than cisgender individuals, was partially supported. Transgender men reported significantly higher levels of internalized stigma, alcohol use severity, and cannabis use severity than cisgender women. These results may be attributable to the consequences of “transphobic rape” in which SA is used to punish individuals for perceived transgressions of gender norms (e.g., Mujugira et al., 2021). Antitrans discrimina-

tion and violence are known to occur in private, gendered spaces, such as restrooms and locker rooms (Price-Feeney et al., 2021), and SA is overwhelmingly perpetrated by men (Breiding, 2014). Taken together, transgender men may be at heightened risk for SA, and the experience of transphobic rape may contribute to self-stigmatization. Men are also more likely than women to use substances to self-medicate PTSS (Leeies et al., 2010), which may explain increased substance use severity among transgender men



**TABLE 4** Hierarchical linear regression examining variance explained in substance use disorder symptoms

Variable	Alcohol Use				Cannabis Use			
	<i>B</i>	<i>SE B</i>	$\beta$	$\Delta R^2$	<i>B</i>	<i>SE B</i>	$\beta$	$\Delta R^2$
Step 1: Known risk factors				.12				.29
Age	0.32	0.15	.32*		0.40	0.13	.41**	
Race	−0.09	2.85	< −.01		1.15	2.51	.05	
Time since assault	−0.36	0.12	−.43**		−0.55	0.11	−.67**	
Step 2: Minority stress factors				.21				.12
Violence and victimization	1.76	0.78	.31*		0.18	0.72	.03	
Outness	−0.31	1.01	−.04		−0.16	0.94	−.02	
Community connectedness	−0.61	1.02	−.08		0.61	0.94	.08	
Internalized stigma	2.41	1.32	.25		3.19	1.22	.34*	

Note: \* $p < .05$ . \*\* $p < .01$ .

compared to cisgender women. However, longitudinal studies are required to examine the validity of these claims.

Our second hypothesis, which stated that bisexual women would report significantly higher levels of minority stress and symptom severity than the other sexual orientation groups, was not supported. Heterosexual men were found to have significantly more internalized stigma than lesbian women and significantly higher levels of cannabis use severity than both lesbian and bisexual women. Due to the nature of the sample, all heterosexual men in this sample also endorsed a transgender gender modality; thus, these findings may be attributable to factors described previously, such as transphobic rape. Alternatively, because SA is overwhelmingly perpetrated by other men (Breiding, 2014), the experience of SA as a heterosexual man—irrespective of gender modality—may be particularly threatening to one's sexual identity. Previous research has found that heterosexual men assaulted by other men report more negative outcomes, including doubts about their sexuality, compared to men assaulted by women (Struckman-Johnson & Struckman-Johnson, 1994). Men are also less likely to report their assault or receive psychological services post-SA (Davies, 2002), increasing the risk of psychopathology. The present study also found that lesbian women reported significantly more community connectedness than bisexual men. This lack of social support for bisexual men may be explained by biphobic double discrimination (Firestein, 1996). Notably, the present study did not find evidence of increased minority stress or higher levels of symptom severity among bisexual women, as has been found in much of the previous literature (e.g., Salim et al., 2023; Sigurvinsdottir & Ullman, 2015, 2016). It is possible that the current study was underpowered to detect these effects, as bisexual women represented only around 15% of the sample. Replication studies are needed to further examine these associations among bisexual SA survivors.

Our third hypothesis, which stated that internalized stigma would explain a significant amount of variance in

each of the psychopathology measures, was partially supported. Internalized stigma was associated with cannabis use severity but did not explain the variance in PTSS, anxiety symptoms, depressive symptoms, or alcohol use severity. This finding replicates previous work that has demonstrated associations between internalized stigma and marijuana use among LGBTQ+ individuals (Goldbach et al., 2015) but is discrepant with much of the literature applying MST to post-SA psychopathology (e.g., Gold et al., 2007, 2009; Newcomb & Mustanski, 2010). Of note, many existing studies have only examined the role of internalized stigma and have not assessed other experiences of minority stress. By contrast, in the present study, experiences of violence and victimization were significantly associated with PTSS, anxiety symptoms, and alcohol use severity. These findings indicate that for certain outcomes, distal stressors, such as experiences of violence and victimization, may confer greater risk than proximal stressors, such as internalized stigma. Because PTSS may arise in response to experiences of violence, the finding that distal stressors explained the largest amount of variance in PTSS is unsurprising. Regarding anxiety, existing models of generalized anxiety disorder implicate both external and internal states in the maintenance of the disorder (Newman et al., 2013). The findings from the present study posit that for LGBTQ+ individuals, external threats may better explain anxiety symptoms than internal threats (e.g., internalized stigma). Finally, regarding alcohol use severity, the present findings are consistent with research indicating that experiences of discrimination are significantly associated with alcohol use, whereas internalized stigma is not (Kalb et al., 2018). However, longitudinal research is required to understand the directionality of this association. Although alcohol may be used to cope after SA (Leeies et al., 2010; Miranda et al., 2002), alcohol use also confers risk for sexual victimization (Parks et al., 2008). Contrary to our hypotheses, we did not observe significant associations between any of the MST subfactors and depressive symptoms despite strong

empirical support for associations between depression and both outness and internalized stigma (McCarthy et al., 2014; Newcomb & Mustanski, 2010; Riggle et al., 2017). Together, the MST subfactors explained a significant amount of variance in depressive symptom severity, and although violence and victimization and a lack of community connectedness appeared to play a role in this association, their contributions to the overall model were nonsignificant. It is possible that a combination of distal and proximal stressors, rather than any one particular stressor, contributes to depressive symptoms among LGBTQ+ survivors of SA.

Regarding potential protective factors, we found that community connectedness shared a significant negative association with anxiety symptoms. This finding replicates previous research indicating that social support bolsters mental health among LGBTQ+ individuals (e.g., McConnell et al., 2015; McDonald, 2018), although they are discrepant with research indicating that social support mediates the association between trauma exposure and PTSS (Travers et al., 2020). However, these associations have only been observed for family support within a sample of LGBTQ+ adolescents, suggesting that for LGBTQ+ adults, other types of social support may offer more substantial protection against the development of psychopathology. Additional research is needed to understand the association between social support and post-SA psychopathology as well as to identify and develop possible psychosocial interventions for LGBTQ+ survivors of SA.

The findings from the present study offer important implications for future research and the development of secondary prevention practices and therapeutic interventions for LGBTQ+ survivors of SA. First, it appears that transgender and heterosexual men experience the highest levels of post-SA internalized stigma and substance use disorders. Although longitudinal research is needed to examine the directionality of these associations, the results underscore the importance of increasing access to post-SA services for men. Second, experiences of violence and victimization were associated with PTSS, anxiety symptoms, and alcohol use-related problems. These findings indicate that individuals who have recently experienced SA may benefit from secondary prevention measures to protect against the development of internalizing or substance use symptoms. These interventions may involve providing psychoeducation about the nature of traumatic stress and anxiety and how to manage symptoms should they develop. Finally, within the present study, community connectedness appeared to buffer against anxiety symptoms. Future treatments may seek to intervene upon social isolation and foster interpersonal connection for LGBTQ+ survivors of SA.

The present results must be considered in light of several limitations. First, as previously discussed, the cross-sectional nature of the design precludes claims about directionality. Second, by nature of the study, participants who self-identified as both cisgender and heterosexual were excluded from the present sample; thus, the individual contributions of gender- and sexual identity-related minority stress cannot be disentangled. Further, items from the MST measure may have captured stress related to gender identity, sexual orientation, or both, depending on the participant's identity; for example, a bisexual transgender person may have responded to items on the measure based on their experiences of biphobia, transphobia, or a combination of the two. Third, participants were included based on their endorsement of at least one instance of sexual assault; however, participants were not asked about experiences of childhood sexual abuse or the number of SAs they experienced over their lifetime. Therefore, additional research is needed to understand how the number of SAs experienced, as well as the age at which they occurred, relates to minority stress and mental health outcomes for LGBTQ+ survivors of SA. Fourth, because all participants endorsed lifetime SA, the results may reflect a floor effect in the measurement of experiences of violence and victimization, resulting in stronger associations between such experiences and mental health outcomes than those seen in previous studies. Fifth, the sample was almost exclusively White, limiting the generalizability of the findings to LGBTQ+ individuals from other ethnic/racial backgrounds. The homogenous nature of the sample also prevented us from examining the effects of intersectionality. Future research should aim to examine these associations in more diverse samples of participants. Finally, participants in the current study completed study procedures remotely, which may have impacted their responses; however, all participants passed the attention check variables included in the survey.

In conclusion, the present study is the first to apply MST to the study of post-SA psychopathology in a sample of exclusively LGBTQ+ survivors of SA. The findings indicate that transgender and heterosexual men endorse the highest rates of internalized stigma about their identities and experience the largest number of substance use problems following SA. Identifying and applying interventions to individuals who report experiencing violence and victimization or elevated levels of internalized stigma may disrupt the onset or maintenance of PTSS, anxiety symptoms, or substance use disorders. However, additional longitudinal research is needed to inform understanding of how experiences of minority stress confer risk for psychopathology over time, particularly in large, diverse samples of LGBTQ+ survivors of SA.

## OPEN PRACTICES STATEMENT

The study reported in this article was not formally preregistered. Neither the data nor the materials have been made available on a permanent third-party archive; requests for the data or materials can be sent via email to the lead author at [bedford@psy.fsu.edu](mailto:bedford@psy.fsu.edu).

## AUTHOR NOTE

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## ORCID

Carter E. Bedford  <https://orcid.org/0000-0002-7553-976X>

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