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Stressors and Drinking in Sexual Minority Women: The Mediating Role of Emotion
Dysregulation

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Abstract

Sexual minority women are at elevated risk for exposure to stressors (both traumatic and discriminatory) and have higher rates of alcohol consumption and problems. The psychological mediation framework (Hatzenbuehler, 2009) suggests that both general (e.g., traumatic events to which minorities and nonminorities may be exposed) and minority-group-specific (e.g., discrimination) stressors contribute to psychopathology through mediators such as emotion dysregulation. Guided by this framework, the present study longitudinally examined the relationship between stressors and problematic drinking outcomes (i.e., binge drinking and alcohol-related problems), as mediated by emotion dysregulation, in sexual minority women (SMW). It addressed two research questions: (1) whether stressors longitudinally predict problematic drinking outcomes in SMW, as mediated by emotion dysregulation, and (2) for which *specific* forms of stressor (i.e., traumatic events and/or discrimination) this mediational relationship is present. Young adult women ($N = 1057$) who identified as lesbian or bisexual completed annual measures of daily heterosexism, traumas, and drinking outcomes for four years, and completed a measure of emotion dysregulation during the third year of data collection. We found an indirect relationship between discrimination and problematic drinking outcomes via emotion dysregulation. These findings are consistent with the psychological mediation framework (Hatzenbuehler, 2009) and suggest that SMW group-specific processes such as discrimination may be especially important in conferring risk for problem drinking via emotion dysregulation. Clinicians are advised to assess unique stressors faced by SMW and their potential contribution to problematic drinking outcomes, and to target emotion dysregulation in alcohol treatments.

Keywords: lesbian; bisexual; substance use; minority stress; trauma; emotion regulation

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Public Significance Statement: This study examined the impact of trauma and discrimination on drinking in sexual minority women. Emotion dysregulation mediated the impact of discrimination on drinking, suggesting that minority processes convey risk for drinking problems via emotion dysregulation.

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Stressors and drinking in sexual minority women: The mediating role of emotion dysregulation

Sexual minority women (SMW; individuals identifying as women, including ciswomen and transwomen, who are vulnerable to stigma on the basis of having interest in romantic or sexual relationships with other women) face elevated stressors. SMW report higher rates of trauma exposure (i.e., events involving actual or threatened death, serious injury, or sexual violence) compared to heterosexual women (Austin et al., 2008; Austin, Roberts, Corliss, & Molnar, 2008; Balsam, Rothblum, & Beauchaine, 2005; Hughes, Johnson, & Wilsnack, 2001; Hughes, McCabe, Wilsnack, West, & Boyd, 2010; Morris & Balsam, 2003; Roberts, Austin, Corliss, Vandermorris, & Koenen, 2010). Unlike heterosexual women, SMW are additionally at risk of victimization and discrimination related to societal devaluation of their identity (i.e., heterosexism; Katz-Wise & Hyde, 2012), including crimes perpetrated against them because of sexual orientation (Herek, 2009), public harassment (Bostwick, Boyd, Hughes, West, & McCabe, 2014), and name-calling (Bostwick et al., 2014). In sexual minority adults, young age is predictive of a lower social well-being, including social inclusion and acceptance (Kertzner, Meyer, Frost, & Stirratt, 2010), suggesting that SMW may be particularly affected by discrimination and exclusion in young adulthood. Despite evidence for increased stressor exposure, there are significant gaps in research regarding SMW. In 628 National Institutes of Health-funded studies, only 0.1% focused on sexual minority health and, of those, 13.5% focused on SMW, leading to a call for more longitudinal minority stress-based studies (Institute of Medicine Committee on LGBT Health Issues and Research Gaps and Opportunities, 2011). However, very little research has attempted to understand the impact of stressors in SMW specifically.

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According to the minority stress model, the high rates of stressors to which SMW are exposed—both general (i.e., stressors that both SMW and non-SMW may be exposed to, such as interpersonal violence and other forms of traumatic events) and minority-specific (i.e., stressors that only SMW are exposed to, like SMW-specific discrimination)—risk for problematic drinking outcomes (Meyer, 2003). Indeed, national, longitudinal cohort, national probability, and meta-analytic studies indicate that SMW report higher rates of alcohol consumption (e.g., Austin & Irwin, 2010; Bränstöröm & Pachankis, 2018; Coulter et al., 2018; Drabble, Midanik, & Trocki, 2005; Drabble et al., 2018; Gonzales & Henning-Smith, 2017; Fish, Hughes, & Russell, 2018; Lehavot, Blosnich, Glass, & Williams, 2017; Lehavot, Williams, Millard, Bradley, & Simpson, 2016; McCabe, Hughes, Bostwick, West, & Boyd, 2009; Medley et al., 2016) and alcohol-related problems (Drabble et al., 2005; Drabble et al., 2018; King et al., 2008; Medley et al., 2016) than heterosexual women. Such problems are particularly evident in young adulthood in SMW. Younger age in adulthood predicts greater alcohol consumption, regardless of sexual minority status (Drabble et al., 2005), and young adult SMW exhibit higher rates of adverse drinking outcomes than older SMW (Veldhuis, Talley, Hancock, Wilsnack, & Hughes, 2017). SMW may thus be particularly vulnerable to minority stress at this point in their development.

Empirical evidence supports that SMW's higher exposure to both trauma and discrimination may explain their increased risk for problematic drinking outcomes. Several studies indicate that trauma exposure is linked to problematic drinking outcomes among individuals unselected for sexual orientation (e.g., Cerda, Tracy, & Galea, 2011; Clark & Foy, 2000; Stewart, 1996), sexual minority adults generally (Charak, Villarreal, Schmitz, Hirai, & Ford, 2019), and young adult SMW specifically (Rhew, Stappenbeck, Bedard-Gilligan, Hughes, & Kaysen, 2017). Further, trauma exposure partially mediates the relationship between sexual

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orientation and problematic drinking outcomes (Bränstörn & Pachankis, 2018). Theorists have explained this relationship by suggesting that alcohol and substance use follows trauma exposure as a means to cope with trauma-related distress (e.g., posttraumatic stress disorder symptoms; Khantzian, 1985), which is supported by observational and experimental studies (e.g., Coffey et al., 2002; Haller & Chassin, 2014; Leeies, Pagura, Sareen, & Bolton, 2010).

The discriminatory stressors that SMW face also exacerbate problematic drinking outcomes. A four-year longitudinal study of young adult SMW showed that higher discrimination predicted more alcohol-related problems, although it did not predict weekly drinking (Wilson, Gilmore, Rhew, Hodge, & Kaysen, 2016). Other studies corroborate that discrimination predicts more problematic drinking outcomes in adult SMW generally (Lehavot & Simoni, 2011), and young adult SMW specifically (Lewis, Mason, Winstead, Gaskins, & Irons, 2016), and partially explains the worse drinking outcomes in sexual minority adults relative to heterosexual counterparts (Bränstörn & Pachankis, 2018). Further, a meta-analysis in sexual minority adolescents indicated that discriminatory experiences are amongst the strongest risk factors for general substance use (Goldbach, Tanner-Smith, Bagwell, Dunlap, 2014). The impact of discrimination on problematic drinking outcomes is further underscored by research indicating that changes in discriminative contexts (e.g., civil union legislation) are associated with reductions in perceived discrimination and drinking consequences (but not frequency or alcohol dependence symptoms) in SMW (Everett, Hatzenbuehler, & Hughes, 2016). Taken together, research corroborates that both general and minority-specific stressors faced by SMW exacerbate problematic drinking outcomes. However, the relative contribution of these stressors to problematic drinking outcomes, and the mechanisms through which they operate in SMW, remain unclear.

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Hatzenbuehler's (2009) psychological mediation framework suggests that general and minority-specific stressors increase risk for problematic outcomes in minority groups through their influence on psychological phenomena like emotion dysregulation. Emotion dysregulation entails abnormalities in emotion processes (e.g., heightened emotional sensitivity) and difficulties modulating them (i.e., problems with emotion regulation; Linehan, 1993). According to Hatzenbuehler (2009), both general and minority-specific stressors contribute to a hostile and stressful environment that promotes emotion dysregulation. Increased emotion dysregulation, consequently, promotes the development of risk behaviors such as problematic drinking outcomes. Indeed, emotion dysregulation has been associated with chronic exposure to life stress (Cicchetti & Toth, 2005) and discrimination (Inzlicht, McKay, & Aronson, 2006; Liao, Kashubeck-West, Weng, & Deitz, 2015), and is a transdiagnostic predictor of several mental health problems (Sloan et al., 2017). However, although emotion dysregulation is associated with increased problematic drinking outcomes in general population samples (Chandley, Luebbe, Messman-Moore, & Ward, 2014), predicts psychological distress in sexual minority samples (Hatzenbuehler, McLaughlin, & Nolen-Hoeksema, 2008; Hatzenbuehler, Nolen-Hoeksema, & Dovidio, 2009; Liao et al., 2015), and is associated with traumatic event exposure in sexual minority young adults (Charak et al., 2019), it has not been investigated as a mediator of the relationship between stressors and drinking outcomes in young adult SMW specifically.

Given higher rates of problematic drinking outcomes in young adult SMW, and evidence that emotion dysregulation is an important risk factor for these outcomes, it is important to examine this mediator in this specific population, at this specific age range, rather than assume that processes that operate in other populations apply to young adult SMW. The current study tests emotion dysregulation as a mediator of the longitudinal association between stressors (i.e.,

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trauma and discrimination) and problematic drinking outcomes (i.e., binge drinking and alcohol-related problems) in young adult SMW with two research questions: First, does emotion dysregulation mediate the association between stressors and problematic drinking outcomes? Second, for what types of stressors (general or minority-specific) is this mediated relationship present? Based on Hatzenbuehler (2009), we hypothesized that emotion dysregulation would mediate the association between both general (trauma exposure) and minority-specific (discrimination) stressors and problematic drinking outcomes.

Method

Procedures

As part of a larger longitudinal study on health risk behaviors in SMW (Kaysen et al., 2014), women identifying as lesbian or bisexual were recruited via online advertisements for a women's health study. Prospective participants ($N = 4,119$) provided informed consent for a 20-minute online screening. Following screening, 1,877 eligible participants were invited to participate, 1,083 reviewed consent materials, and 1,057 ultimately provided informed consent to participate. Participants were compensated \$25 for baseline measurements, \$30 for each subsequent time point, and a bonus \$35 if all four were completed. The University of Washington Institutional Review Board approved study procedures.

Participants

Participants were 962 young adult women ages 18-25 who identified as lesbian (40.3%) and bisexual (59.7%), were U.S. residents, had valid email addresses, were assigned female sex at birth, and reported at least one drinking problem or binge drinking episode across the four time points. This sample could, and did, include transgender men and gender nonbinary individuals who identified as lesbian or bisexual at the time of recruitment. In terms of retention,

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789, 688, and 681 provided data on at least one study measure at year 2, 3, and 4, respectively.

Participant's baseline mean age was 20.9 years ($SD = 2.1$). The sample identified as White (67.8%), having multiple racial backgrounds (16.0%), Hispanic/Latina (11.5%), African American (9.7%), and Asian/Asian American (2.4%).

Measures

Demographics. Participants reported their age and all racial groups of which they were a member, which was reduced into a dummy variable (referent: white). They also self-reported gender expression ("How would you rate yourself on a gender expression continuum?") with the response options 1 (very butch/dom/stud) to 5 (very femme). Sexual orientation was assessed by asking, "understanding that sexual identity can be complex, which ONE category *best* describes your SEXUAL IDENTITY now?" Response options included: lesbian, gay, straight/heterosexual, bisexual, queer, two-spirit, questioning, and other. Participants who identified as other than lesbian, bisexual, or heterosexual were then asked, if they had to choose one, whether they would best identify as lesbian, bisexual, heterosexual.

Daily heterosexism. Daily heterosexism was measured at all four years via the Daily Heterosexist Experiences Questionnaire (DHEQ; Balsam, Beadnell, & Molina, 2013). The DHEQ asks participants to rate the extent to which 50 sexuality-related biases or marginalization experiences (e.g., "family members not accepting your partner as part of the family") occurred and bothered them in the past 12 months from 0 ("did not happen/not applicable") to 5 ("it happened and it bothered me extremely") across nine subscales. We modified the DHEQ in two ways with the scale authors' approval. First, participants indicated the *frequency* with which daily heterosexist experiences occurred, rather than their associated distress, from 0 ("never") to 5 ("almost every day"). Second, three subscales were excluded: (1) the HIV-related stressors

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subscale, given its lower relevance to SMW (compared to sexual minority men); (2) the victimization subscale, as this content was assessed as part of traumatic life events; and (3) the parenting subscale, given the low prevalence of parents in the sample. We calculated a mean score across included items (range: 0-5). The modified DHEQ was 32 items, $\alpha = 0.90$ at year 1.

Traumatic life events. Traumatic life events were measured at all four years via an adapted version of the Traumatic Life Events Questionnaire (TLEQ; Kubany et al., 2000). The original TLEQ lists 23 traumatic events and asks participants to rate the frequency that they have occurred from 0 (“never”) to 6 (“more than five times”). We calculated the number of trauma types participants experienced, ranging from 0 to 23. The original measure yields similar rates of traumatic event disclosure as in interviews, and has strong temporal stability (Kubany et al., 2000). At the first time point, the TLEQ assessed whether participants had been exposed to the listed traumatic events in their lifetime, and the TLEQ at subsequent time points assessed whether participants had been exposed to the listed traumatic events since the last time point.

Emotion dysregulation. Emotion dysregulation was measured in year 3 only via the Difficulties with Emotion Regulation Scale (DERS; Gratz & Roemer, 2004). The DERS is a 36-item scale that asks participants to rate the extent to which experiences (e.g., “when I’m upset, I lose control over my behavior”) apply from 1 (almost never/0-10% of the time) to 5 (almost always/91-100% of the time) (sum score range: 32-166). The DERS has good psychometric properties and can, for example, distinguish between populations characterized by emotion dysregulation and those not (Kuo & Linehan, 2009). To reduce participant burden, a planned missingness design was used, in which participants were randomly assigned to receive 2/3 of the full set of study measures, including the DERS. When analyzed using maximum likelihood

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procedures, data from planned missingness designs produces unbiased estimates (Graham, Hofer, & MacKinnon, 1996). In the present study, $\alpha = 0.88$ at year 3.

Problematic drinking outcomes. Problematic drinking outcomes were measured via binge drinking and alcohol-related problems at all four years. A definition of a standard drink was offered to participants (i.e., 1.5 oz. of liquor, 5 oz. of wine, or 12 oz. of beer). **Binge drinking** over the past year was assessed with a question adapted from Wilsnack and colleagues (1991): “IN THE LAST 12 MONTHS, how often did you have 4 or more drinks of wine, beer, or liquor in a single day?” Response options ranged from 0 (never in a year) to 7 (5 or times per week or more) and were recoded to approximate number of days per year that each option corresponds to. **Alcohol-related problems** were measured via the Young Adult Alcohol Consequences Questionnaire (YAACQ; Read, Kahler, Strong, & Colder, 2006), which dichotomously examines if 48 consequences of problem drinking (e.g., “I often drank more than I originally planned”) occurred in the past 30 days (sum score range: 0 to 48). It has good psychometric properties and can predict a range of drinking outcomes over time (Read, Merrill, Kahler, & Strong, 2007). In the present study, α ranged from 0.94 to 0.95 across years.

Data analysis. A structural model was tested using MPlus 8 (Muthén & Muthén, 1998-2017). Maximum likelihood estimation was used to reduce bias related to missing data; all participants who contributed at least one observation at any wave were retained. Bootstrapped standard errors, estimated with 5000 iterations, created 95% confidence intervals around the indirect effects. The model contained the direct effect of stressors (discrimination and trauma) at year 1 on drinking outcomes (a latent variable representing binge drinking and alcohol-related problems) at year 4, and indirect effects from both types of stressors to drinking outcomes via emotion dysregulation at year 2. To conservatively estimate model effects, we controlled for

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values of each variable from all other study waves, where available (e.g., we created latent variables for from year 1 to 3 drinking outcomes and regressed them on year 4 drinking outcomes). We controlled for the effect of age, gender expression, sexual orientation, and race (white vs. other) on year 2 stressors¹.

Results

Descriptive statistics and intercorrelations for model variables are presented in Table 1. Model fit indices indicated acceptable fit (CFI = 0.97, TLI = 0.96, RMSEA = 0.03, SRMR = 0.04) using standard cutoffs (Browne & Cudeck, 1993; Hu & Bentler, 1999); $\chi^2(102) = 192.35, p < .0001$. Model coefficients are in Figure 1. In terms of focal model paths, significant positive effects were detected only from discrimination (year 2) to emotion dysregulation (year 3), and from emotion dysregulation (year 3) to problematic drinking outcomes (year 4). The indirect effect for these paths was statistically significant, $\beta = 0.03$ ($SE = 0.01$), $p = 0.02$; 95% CI: 0.01 to 0.07. The indirect effect from trauma exposure (year 2) to drinking outcomes (year 4), $\beta = 0.01$ ($SE = 0.01$), $p = 0.18$; 95% CI: 0.00 to 0.04 was not statistically significant. The direct effects from discrimination to drinking outcomes, $\beta = 0.06$ ($SE = 0.05$), $p = 0.25$; 95% CI: -0.03 to 0.18

¹ Results not shown. Lesbian orientation was associated with reporting significantly fewer criterion A events relative to bisexual orientation at wave 2. No other demographic covariates were significant.

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and trauma exposure to drinking outcomes, $\beta = 0.02$ ($SE = 0.05$), $p = 0.69$; 95% CI: -0.07 to 0.12, were not statistically significant.²

Discussion

This was the first test of Hatzenbuehler's (2009) psychological mediation framework exploring the relationship between stressors (i.e., trauma and discrimination) and problematic drinking outcomes, as mediated by emotion dysregulation, among young adult SMW.

Emotion Dysregulation as a Mediator of Stressors and Problematic Drinking Outcomes

Findings indicate that emotion dysregulation may be a mechanism through which young adult SMW's exposure to stressors increases risk for drinking outcomes. Chronically navigating the stress of discrimination may deplete the self-control resources that effective emotion regulation requires, leading to the development of emotion dysregulation among SMW (Hatzenbuehler, 2009). Adaptive emotion regulation that engages with emotion (e.g., thinking about a stressor) is more psychologically resource-demanding than less adaptive behavior that involves disengaging from/avoiding emotion (Sheppes, Catran, & Meiran, 2009; Sheppes, Scheibe, Suri, & Gross, 2011). Indeed, Linehan's (1993) emotion dysregulation model suggests that destructive behaviors like problematic alcohol use reflect maladaptive attempts to regulate dysregulated emotion. More frequent experiences of heterosexism may deplete the psychological resources required for emotion regulation over time, facilitating a default to behaviors that disengage from emotion such as problematic alcohol use to regulate the distress

² Results for indirect effects were identical when trauma and discrimination were tested as predictors of drinking outcomes in separate models and when analyses were run only in individuals who received the DERS.

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associated with heterosexism. However, although theoretically-driven, these findings are non-causal and it remains unclear whether stressors lead to emotion dysregulation and, consequently, problematic drinking outcomes. Causality could be more closely approximated by testing a series of different directional patterns between variables. However, we aimed to specifically to test the directionality specified in Hatzenbuehler's (2009) psychological mediation framework. This theorizing thus remains conjecture.

As emotion dysregulation was only measured at one time point, it remains unclear whether stressors truly elicit emotion dysregulation, or whether it predated them, reflecting trait-level variability. Relatedly, the observed relationships may be accounted for by unmeasured third variables that overlap with emotion dysregulation, such as trait impulsivity (i.e., sensation seeking, urgency, lack of premeditation, lack of perseverance; Whiteside & Lynam, 2001) and low self-control, although emotion dysregulation arguably places greater emphasis on disrupted emotion processes. Indeed, two of six subscales of the emotion dysregulation measure used in the present study focus on difficulties persisting with goal-directed behavior and controlling impulsive behavior under distress (Gratz & Roemer, 2004)- domains that overlap with impulsivity and self-control. Impulsivity is also positively correlated with emotion dysregulation and alcohol consumption (Magid & Colder, 2007; Schreiber, Grant, & Odlaug, 2012). Furthermore, in racial minorities, low levels of the premeditation impulsivity domain potentiate the association between discrimination and alcohol problems (Latzman, Chan, & Shishido, 2013). Perhaps impulsivity, rather than emotion dysregulation, similarly influences the relationship between stressors and problematic drinking outcomes in SMW and accounts for our findings. The data collected in this study prohibits an examination of whether the observed relationships are due to shared components of impulsivity, low self-control, and emotion

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dysregulation or emotional components that may be unique to emotion dysregulation. More research is needed to fully understand the ways in which emotion dysregulation is distinct from, and overlapping with, impulsivity and self-control constructs, and which constructs are pertinent to the relationship between stressors and problematic drinking outcomes in SMW.

The Role of Discrimination Versus Trauma

In contrast to hypotheses, discrimination, but not overall trauma exposure, longitudinally predicted problematic drinking outcomes. Linehan's (1993) model of emotion dysregulation posits that emotion dysregulation develops over time through transactions between an individual and an invalidating environment that rejects the individual's internal experiences, which emphasizes the importance of both the chronicity and invalidating nature of individuals' experiences in their environment. Although our findings remain preliminary, they suggest that, SMW navigating micro (and macro) aggressions in a heteronormative world may result in chronic, frequent, wide-sweeping invalidation of their sexual orientation, emotional and sexual experiences, and identities more broadly. Although both traumatic events and minority stressors have the potential to be invalidating, only minority stressors are *necessarily* related to invalidation of SMW's identity. In addition, unlike the acute stress brought on by a single, isolated trauma, minority stress in the form of daily experiences of discrimination may represent a more chronic form of stress that repeatedly communicates the invalidity of internal experiences and identities. Therefore, frequent heterosexism may be more readily associated with emotion dysregulation than discrete traumas and, accordingly, with problematic drinking outcomes. Although prior studies have found that specific types of traumatic events, such as sexual victimization, predict both problematic drinking outcomes among SMW (Rhew et al., 2017), this may indicate that some specific forms of trauma are associated with problematic drinking

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outcomes, potentially because they are more invalidating. The inclusion of the entire range of traumatic events in the present study from disasters to child abuse may have obfuscated the effects of traumatic events that are more strongly associated with problematic drinking outcomes. However, this finding underscores the importance of examining *both* general and minority-specific stressors on problematic drinking outcomes in SMW, rather than one or the other.

Strengths and Limitations

The focus of this study on young adult SMW made it possible to highlight the SMW-specific and general processes that predict problematic drinking outcomes. SMW are vulnerable to discrimination not only on the basis of sexual orientation, but also gender and/or racial/ethnic identities, but daily experiences of sexism or racism were not assessed in this study. Moreover, our sample was restricted to individuals who are assigned female sex at birth and identify as lesbian or bisexual. Our findings thus do not include, and cannot necessarily generalize to, transwomen or women who identify with other non-heterosexual orientations (e.g., queer, pansexual). It is important for future research to replicate the present works in a more inclusive population of SMW, and to examine whether Hatzenbuehler's (2009) psychological mediation framework has differential applicability to SMW subgroups. We also did not evaluate whether traumatic events were associated with sexual orientation, which could influence the pathways of their influence on problematic drinking outcomes. We also did not examine whether our tested model had differential applicability to lesbian women as compared to bisexual women because it was beyond the scope of the primary research question. Future researchers are also advised to measure multiple forms of discrimination and sexual-orientation-related traumas in relation to drinking outcomes, and the applicability of the present model to SMW subgroups. Furthermore,

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the longitudinal design of this study provides insight into the processes that lead to greater problematic drinking outcomes over time, and controlling for values of variables at prior waves provided conservative estimates of these associations but, as mentioned, we cannot infer causality. Findings should be viewed as preliminary and requiring replication and testing against alternative models. In addition, several measures assessed in the present study pertained to distinct time frames (e.g., the past 30 days, the past year, “since the last assessment”).

Participant’s responses may be contingent on their capacities to track distinct timeframes and the saliency of time delimiters (e.g., “since the last assessment” may be more or less clear than “in the past year”). Variability in interpreting the time frames of each questionnaire may thus confound results, and future researchers are advised to replicate this work with more consistent timeframes. Finally, emotion dysregulation was only measured during one of the study years, precluding the ability to control for its influence at all timepoints, as well as to test whether emotion dysregulation is truly a consequence of stressors or indicative of trait differences that predated them. Building from these findings, future studies of emotion dysregulation in SMW populations will provide greater insight into the relationship among these variables over time.

Implications

Our preliminary findings have important clinical implications. It is important for clinicians to understand the group-specific minority stressors that SMW clients experience. Overemphasis on general stressors may result in neglect of key, SMW-specific, stressors that influence psychopathology. Clinicians are also advised to consider focusing on the development of healthy emotion regulation strategies among SMW clients who report problematic alcohol use. Additional research is needed to determine whether standard emotion regulation-focused treatments, such as dialectical behavior therapy skills (Linehan, 2015), or transdiagnostic

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interventions targeting emotion regulation that have been developed for sexual minority men (Parsons et al., 2017) require tailoring to meet SMW's unique needs.

Conclusion

In sum, these findings provided preliminary longitudinal support that SMW-specific stressors (i.e., discrimination) operate through more general psychological processes (i.e., emotion dysregulation) to increase problematic drinking outcomes in SMW over time. However, subsequent causal research is still needed. Based on these findings, the psychological mediation framework (Hatzenbuehler, 2009) provides one potential explanatory model for understanding elevated problematic drinking outcomes in SMW and identifying possible avenues for clinical intervention, although it is important for future work to test alternative pathways and models.

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Table 1

Means, standard deviations, and ranges for all study variables and time points

Variable	<i>n</i>	<i>M</i> (<i>SD</i>)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Trauma (Y1)	962	5.80 (4.61)	--															
2. Trauma (Y2)	747	1.93 (2.49)	0.50*	--														
3. Trauma (Y3)	686	1.62 (2.44)	0.39*	0.40*	--													
4. Trauma (Y4)	678	1.41 (2.31)	0.37*	0.42*	0.41*	--												
5. Discrimination (Y1)	960	1.58 (0.75)	0.24*	0.16*	0.09*	0.10*	--											
6. Discrimination (Y2)	743	1.18 (0.79)	0.12*	0.15*	0.13*	0.17*	0.58*	--										
7. Discrimination (Y3)	684	1.06 (0.74)	0.09*	0.09*	0.18*	0.10*	0.50*	0.68*	--									
8. Discrimination (Y4)	675	1.01 (0.74)	0.10*	0.10*	0.11*	0.22*	0.51*	0.60*	0.69*	--								
9. Emotion dysreg. (Y3)	456	83.99 (25.03)	0.12*	0.11*	0.12*	0.17*	0.17*	0.25*	0.23*	0.21*	--							
10. Binge drinking (Y1)	961	35.65 (61.88)	0.18*	0.12*	0.11*	0.11*	0.08*	0.01	-0.04	-0.03	0.05	--						
11. Binge drinking (Y2)	764	27.49 (54.29)	0.08*	0.09*	0.10*	0.18*	0.02	0.06	0.03	0.07	0.10*	0.50*	--					
12. Binge drinking (Y3)	688	29.80 (62.77)	0.12*	0.10*	0.18*	0.17*	-0.05	0.04	0.04	-0.01	0.14*	0.44*	0.52*	--				
13. Binge drinking (Y4)	680	28.25 (58.31)	0.15*	0.09*	0.15*	0.16*	0.04	0.09*	0.02	0.03	0.16*	0.39*	0.40*	0.57*	--			
14. Alcohol problems (Y1)	952	8.73 (9.33)	0.26*	0.17*	0.12*	0.15*	0.18*	0.11*	0.05	0.05	0.17*	0.51*	0.43*	0.33*	0.31*	--		
15. Alcohol problems (Y2)	757	6.55 (8.66)	0.13*	0.15*	0.07	0.15*	0.10*	0.16*	0.13*	0.10*	0.15*	0.36*	0.56*	0.36*	0.29*	0.59*	--	
16. Alcohol problems (Y3)	680	5.91 (7.93)	0.16*	0.14*	0.16*	0.21*	0.06	0.16*	0.14*	0.07	0.22*	0.37*	0.43*	0.53*	0.40*	0.47*	0.58*	--
17. Alcohol problems (Y4)	670	5.45 (8.26)	0.18*	0.16*	0.12*	0.28*	0.10*	0.17*	0.14*	0.20*	0.26*	0.26*	0.38*	0.34*	0.49*	0.38*	0.47*	0.57*

Note. Y = year; *n* = number of subjects; *M* = mean; *SD* = standard deviation; * *p* < .05.

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FIGURE CAPTIONS

Figure 1. Structural model results from primary study analyses. Nonsignificant paths are represented by dashed lines and significant paths are represented by solid lines. $*p < .05$, $**p < .01$, $***p < .001$ (two tailed).

Note. Standardized effects are presented.