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Multiply marginalized: Linking minority stress due to sexual orientation, gender, and weight to dysregulated eating among sexual minority women of higher body weight

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Abstract

Objective: This study assessed whether baseline levels of distal and proximal minority stressors related to sexual orientation, gender, and weight were associated with prospective risk for dysregulated eating in daily life among sexual minority women with overweight/obesity.

Methods: Fifty-five sexual minority women ages 18–60 ($M = 25 \pm 9$) with BMI > 25kg/m^2 ($M = 32 \pm 5$) completed baseline assessments of distal and proximal minority stressors due to sexual orientation, gender, and weight. Participants then completed an Ecological Momentary Assessment (EMA) protocol. For five days, participants responded to five random prompts assessing engagement in dysregulated eating (i.e., overeating, binge eating). The cumulative number of EMA-measured overeating and binge eating episodes was summed per participant.

Results: Several minority stressors related to sexual orientation, gender, and weight were associated with prospective risk for dysregulated eating behaviors during EMA. Women with higher (vs. lower) baseline levels of internalized homophobia reported more cumulative episodes of binge eating during the EMA period. Women reporting greater (vs. less) baseline sexual orientation concealment reported more episodes of overeating during the EMA period. Women with greater (vs. less) baseline weight bias experiences and internalization reported more overeating and binge eating episodes during the EMA period.

Conclusions: Findings from this pilot study identify internalized homophobia, sexual orientation concealment, and experienced and internalized weight bias as potential risk factors for dysregulated eating behaviors among sexual minority women of higher body weight.

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Keywords

minority stress; sexual minority women; obesity; eating behaviors; LGBT health

Obesity and disordered eating behaviors are disproportionately prevalent among sexual minority women compared to heterosexual women (Boehmer et al., 2007; Eliason et al., 2015). Sexual minority women (**SMW)** include women who self-identify a sexual minority sexual orientation (e.g., lesbian, bisexual) or who report same-sex attraction or behavior (Sell, 1996). SMW are over two times more likely to be overweight/obese relative to heterosexual women, with obesity affecting 37% of lesbian and 41% of bisexual women versus 28% of heterosexual women (Bowen et al., 2008; Ward et al., 2014). SMW also have higher rates of binge eating, fasting, and vomiting compared to heterosexual women (e.g., Bankoff & Pantalone, 2014). Given the negative health consequences associated with obesity and disordered eating (e.g., Klump et al., 2009), research is needed to identify mechanisms that confer risk for these disparities.

Minority Stress Theory (Meyer, 1995, 2003) provides one explanatory framework. Minority stress refers to the psychosocial stress that minority group members experience and internalize due to societal discrimination. These identity-based stressors include experiences of overt unfair treatment, known as distal minority stress, such as instances of prejudice, verbal harassment, or physical assault (Katz-Wise & Hyde, 2012). Marginalized individuals may also internalize negative societal beliefs about their identity, known as proximal minority stress or “self-stigma” (Meyer, 2003), which can lead individuals to try to conceal or deny their identity. Although concealing identities like sexual orientation may allow individuals to control disclosure and reduce discrimination risk, concealment brings about its own unique stress (Quinn, 2018). Over time, chronic exposure to stress is linked to negative physical and psychological effects that underlie health disparities (Lick et al., 2013). Beyond the effects of stress itself, minority stress is also associated with maladaptive coping strategies (e.g., binge eating, substance use) that can further impair health (Hatzenbuehler, 2009).

SMW often face minority stress due to sexual orientation (i.e., heterosexism; Meyer, 2003) and, although women do not constitute a numerical minority in the U.S., many women face comparable stressors based on gender (i.e., sexism; Szymanski & Henrichs-Beck, 2014). Additionally, 61–76% of SMW have overweight/obesity and may experience additional stigma based on body weight (Austin & Irwin, 2010; Blosnich et al., 2014). Contending with multiple sources of stigma may promote chronic stress among SMW, who may turn to dysregulated eating as a strategy for coping with stress (Mason, Smith, et al., 2018).

Increasing research links minority stress to dysregulated eating among SMW. Most research has focused on the effects of sexual minority stress. Several distal and proximal sexual minority stressors have been positively associated with disordered eating (Mason & Lewis, 2018; Mason et al., 2017a; Watson et al., 2016), disinhibited eating (Katz-Wise et al., 2015), and risk for obesity (Mereish, 2014) among SMW. Similarly, gender-based minority stress has been linked to dysregulated eating in SMW, although this topic has received less attention. For example, sexism (i.e., sexual objectification, internalized sociocultural

standards of beauty) has been positively associated with binge eating (Mason et al., 2017a) and disordered eating symptoms (Brewster et al., 2014; Watson et al., 2015) among SMW. Further, SMW who deviate from gender appearance norms, and are thus more likely to be targets of discrimination, display higher body mass index (BMI) than their gender-conforming counterparts (Austin et al., 2016). Research also connects weight stigma to dysregulated eating in SMW. Among sexual minority individuals, weight bias is associated with more maladaptive eating behaviors (e.g., disordered eating, unhealthy weight control behaviors; Himmelstein et al., 2019; Mason et al., 2017b), more coping-motivated eating, and less eating self-efficacy (Puhl et al., 2019). These findings underscore the potential relevance of minority stress due to sexual orientation, gender, and weight as risk factors for dysregulated eating in SMW.

Aside from a few recent articles (e.g., Mason et al., 2017b), most prior research examines how only one facet of minority stress (e.g., sexual minority stress) influences dysregulated eating among SMW, neglecting the potential contributions of minority stress from co-occurring stigmatized identities. Examining multiple sources of minority stress is critical for understanding how various sources of minority stress may differentially impact dysregulated eating in SMW. Further, previous research on minority stress and eating among SMW has generally used cross-sectional methods, which are limited by recall bias (Stone et al., 1998), and which cannot provide any information about temporal sequencing. Ecological Momentary Assessment (EMA) is a data collection strategy wherein participants use a smartphone to complete multiple daily reports as they go about their lives (Shiffman et al., 2008). By collecting data in a naturalistic setting and close-in-time to participants' experiences, EMA improves data validity. Additionally, EMA can elucidate the temporal sequencing of variables by allowing researchers to examine baseline variables as prospective predictors of EMA-assessed outcomes (i.e., "micro-longitudinal" analysis). Despite these benefits, few studies have used EMA to assess minority stress as a predictor of dysregulated eating among SMW.

The Current Study

We examined baseline-measured distal and proximal minority stressors due to sexual orientation, gender, and weight as prospective predictors of EMA-reported overeating and binge eating in daily life among SMW with overweight/obesity. We examined whether greater minority stress at baseline due to sexual orientation (Aim 1), gender (Aim 2), and weight (Aim 3) were prospective predictors of more cumulative episodes of overeating and binge eating in daily life.

Method

Participants

Fifty-five SMW assigned female at birth completed the study. Although sexual orientation has myriad facets (e.g., sexual attraction, sexual behavior, self-identification), we defined sexual minority status by self-identification of a sexual minority sexual orientation (e.g., gay/lesbian, bisexual), consistent with most research in this area (Eliason et al., 2015). In this study, 62% of participants identified as bisexual, 33% identified as lesbian, and

5% identified as queer. Participants reported their gender identity to be cisgender female (96%) or gender-queer/gender non-conforming (4%). Age ranged from 18–60 (*M*=25±9). Participants were required to have a BMI over 25kg/m^2 to participate (*M*=32±5; range: 25–45; 36% overweight, 29% obese, 35% very obese). Eligible participants owned smartphones and spoke English fluently. The sample was highly educated (most completed at least some college) and racially diverse (45% identified as women of color). Participants were ineligible if they reported psychotic symptoms or a developmental disorder, conditions likely to impair consent provision or interfere with study procedures. Participants were not enrolled if they were pregnant, had a current serious medical condition, or had a history of weight loss surgery, factors likely to impact hunger and satiety. Exclusion criteria were assessed via participant self-reports.

Procedures

Study procedures were approved by the Institutional Review Board at Rutgers, the State University of New Jersey. Participants were recruited from the community-at-large using online and in-person flyers advertising a “research study on stress and eating” for SMW. Potential participants were invited to attend a 65-minute in-person baseline visit during which they were assessed for eligibility, provided informed consent, and completed baseline surveys using Qualtrics software (Qualtrics, 2005). We measured height and weight to calculate objective BMI (kg/m^2). Participants downloaded the study’s smartphone application hosted by LifeData (LifeData LLC, 2016) onto their personal smartphones and staff trained them in its use. For the subsequent five days, participants used the smartphone application to complete five prompted assessments of dysregulated eating per day. Prompts occurred randomly between 9:00AM-9:30PM, a standard time range (Reichenberger et al., 2018). EMA prompts occurred at least two hours apart (*M*=176±42 minutes) but were not anchored within specific time ranges during the day. Based on standards set in prior EMA research (Sala et al., 2017), prompts not answered within 75 minutes of receipt were classified as missing data. Participants’ average response time to EMA prompts was 13±18 minutes, and 91% of prompts were completed with 45 minutes. Participants received compensation for completing the baseline visit ($15) and EMA procedures ($30).

Measures

Demographics.—Six items measured self-reported demographics. Response options were fixed-choice with additional options to select “other” or to decline to answer. Participants reported their self-identified sexual orientation (i.e., straight/heterosexual, bisexual/pansexual, gay/lesbian/homosexual, queer, asexual, unsure) and their biological sex (e.g., male, female), which were used as inclusion criteria. Participants reported their race/ethnicity, age, and education level, which were used as covariates. Participants also reported their gender identity (i.e., female, male, trans female/woman, trans male/man, gender-queer/gender non-conforming).

BMI.—A calibrated digital scale and stadiometer were used to measure weight to the nearest 0.1 kilogram and height to the nearest millimeter to compute BMI (kg/m^2). Participants were weighed in light clothing without shoes. BMI was included as a covariate in all models.

Baseline disordered eating behaviors/attitudes.—The 28-item Eating Disorder Examination-Questionnaire (EDE-Q; Fairburn & Beglin, 2008) assessed global disordered eating behaviors/attitudes over the past 28 days on a scale from 0 (not at all) to 6 (markedly). The EDE-Q has been used to assess disordered eating behaviors/attitudes in SMW (Mason, Lewis, et al., 2018) and was used in this study as a covariate in post-hoc analyses.

Lifetime experiences of heterosexism.—The 14-item Heterosexist Harassment, Rejection and Discrimination Scale (HHRDS; Szymanski, 2006) used three subscales to measure lifetime (1) harassment and rejection, (2) work/school discrimination, and (3) other discrimination based on sexual orientation on a scale from 1 (never) to 6 (almost all of the time). Reliability was adequate for harassment and rejection (α=0.80), work/school discrimination (α=0.79), and other discrimination (α=0.67). The HHRDS has been widely to assess minority stress among SMW (Bankoff et al., 2016).

Internalized homophobia.—The eight-item "personal feelings about being a lesbian" subscale of the Lesbian Internalized Homophobia Scale (LIHS; Szymanski & Chung, 2001) measured attitudes toward one's sexual orientation on a scale from 1 (strongly disagree) to 7 strongly agree). Reliability in this study was good (α=0.72). The original scale used lesbian-specific language and was revised to refer to sexual orientation more broadly. The LIHS has been used in prior studies examining eating in SMW (Bankoff et al., 2016).

Sexual orientation concealment.—The five-item Sexual Orientation Concealment Scale (Meyer et al., 2002) measured sexual orientation disclosure to co-workers, heterosexual and sexual minority friends, family, and healthcare providers on a scale from 1 (out to all) to 4 (out to none). This scale showed good reliability (α=0.72) and has been used previously among SMW (Lehavot & Simoni, 2011).

Lifetime experiences of sexism.—The 20-item Schedule of Sexist Events (SSE; Klonoff & Landrine, 1995) measured the frequency of lifetime sexist stigmatization on a scale from 1 (never) to 6 (almost all of the time). The scale assessed sexist events, workplace discrimination, and sexism in relationships, showed excellent reliability (α=0.93), and has been used to measure sexist stigmatization in SMW (Szymanski, 2005).

Internalized sexism.—The 17-item Internalized Misogyny Scale (IMS; Piggot, 2004) measured internalized sexist beliefs on a scale from 1 (strongly disagree) to 7 (strongly agree). The IMS assesses distrust of women, gender bias toward men, and devaluing women (Szymanski et al., 2009) and showed excellent reliability in this study (α=0.88).

Lifetime experiences of weight stigma.—The 50-item Stigmatizing Situations Inventory (Myers & Rosen, 1999) measured the frequency of lifetime weight stigma experiences on a scale from 0 (never) to 9 (daily). The global factor obtained good reliability (α=0.93) in our sample. The scale has been widely used to measure stigmatization among adults with obesity (Puhl & Brownell, 2006).

Internalized weight bias.—The 11-item Weight Bias Internalization Scale (Durso & Latner, 2008) measured the degree to which participants apply negative beliefs about people

with obesity to themselves on a scale from 1 (strongly disagree) to 7 (strongly agree). Item 1 was excluded from final analyses based on psychometric research (Hilbert et al., 2014). The 10-item version showed excellent reliability (α=0.90) in our sample.

Total overeating and binge eating during the EMA period.—At each EMA prompt, participants were asked, “Have you eaten food since the last prompt?” (Yes/No). Those endorsing food intake were asked, “Since the last prompt, how many separate episodes of eating did you have?” with options “1”, “2”, or “3 or more.” Participants answered a separate set of follow-up questions for each eating episode they reported (up to three), so although each individual eating episode was coded as either binge eating, overeating, or neither, up to three binge/overeating episodes could be reported at each EMA prompt. To assess binge eating, participants answered: (1) “Did you eat what most people would regard as an unusually large amount of food given the circumstances?”, and (2) “While you were eating, did you feel out of control?” (Yes/No). If participants endorsed both items, we coded the episode as binge eating. To assess subjective overeating, participants answered: “To what extent did you overeat?” using an 11-point scale from 0 (not at all) to 10 (extremely). Overeating was defined as any episode with an overeating rating ≥ 5 that did not meet criteria for binge eating. Items were drawn from the EDE-Q (Fairburn & Beglin, 1994) and have been adapted to assess momentary dysregulated eating in EMA studies (Berg et al., 2014). For each participant, we summed the cumulative number of overeating/binge eating episodes reported during the EMA period.

Data Analytic Strategy

Study aims were tested by conducting generalized linear models (GLM) in SPSS Version 25.0. Outcome variables with non-normal distributions (i.e., count variables, like number of overeating episodes) were accounted for by using GLM models with a Poisson distribution and log link function. We used standard (i.e., non-multilevel) GLMs to examine associations among distal and proximal minority stressors and the total number of EMA-measured overeating and binge eating episodes. Poisson effect sizes were measured with relative risk ratios (RRs), which denote a relative increase in the outcome count for every one unit increase in the independent variable. Given limitations of sample size, the effects of each independent variable on the dependent variable was tested separately. In each model, we included BMI, age, race, education level, and EMA compliance rate as covariates.

Results

Descriptive Data

All women who completed the baseline visit also completed EMA procedures, and no attrition occurred during the EMA period. Participants completed 1,051 of 1,375 EMA prompts (76%). Compliance to the EMA protocol was calculated by assessing the percentage of EMA prompts each participant completed out of 25 total prompts. A compliance rate of at least 40% was required for inclusion in analyses (Forman et al., 2017). All participants met this criterion, with most participants (73%) completing at least 70% of prompts. Throughout the EMA period, participants reported 659 total eating events (M=12±5); 150 were subjective overeating episodes (M=3±3), and 54 were binge eating

episodes (M=1±2). Most participants (74%) reported at least one overeating episode (range: 0–13) and 44% reported at least one binge episode (range: 0–6). Participant characteristics are described in Table 1.

Baseline Minority Stress Predicting Future Dysregulated Eating During EMA

Sexual minority stress.—See Table 2. Women reporting greater baseline sexual orientation concealment endorsed a greater number of EMA-measured overeating episodes ($p < 0.01$, RR=1.38). Each unit increase in concealment was associated with a 38% greater risk for overeating. Women with greater internalized homophobia reported a greater number of binge episodes during EMA ($p < 0.05$, RR=1.37). Each unit increase in internalized homophobia was associated with 37% greater risk for binge eating. However, heterosexist experiences were not predictive of dysregulated eating during EMA.

Gender-based minority stress.—See Table 3. Women endorsing more baseline internalized sexism reported fewer overeating episodes during EMA ($p < 0.01$, RR=0.69). Each unit increase in internalized sexism was associated with 31% less risk for overeating. Internalized sexism was not predictive of future binge eating and prior sexist events were not predictive of any future dysregulated eating behaviors.

Weight-based minority stress.—See Table 4. Women endorsing more lifetime weight stigma events reported more overeating episodes ($p < 0.05$, RR=1.58) and binge episodes ($p < 0.05$, RR=1.80) during the EMA period. Each unit increase in lifetime weight stigma was associated with 58% greater risk for overeating and 80% greater risk for binge eating. Similarly, women with higher levels of internalized weight bias reported more overeating episodes ($p < 0.05$, RR=1.25) and binge episodes ($p < 0.05$, RR=1.39) during EMA. Each unit increase in internalized weight bias was associated with 25% greater risk for overeating and 39% greater risk for binge eating during EMA.

Post-hoc analyses.—Models were also adjusted to control for sexual orientation and baseline overeating/binge eating. Adjusting for sexual orientation produced a nearly identical pattern of findings except one: the effect of internalized sexism on overeating frequency was no longer significant. When adjusting for baseline overeating/binge eating frequency, study findings were unchanged except effects of internalized homophobia and weight bias internalization on binge eating only trended towards significance (p=0.120 and 0.107, respectively). This change likely represents limited statistical power, given the low frequency of binge eating behaviors.

Discussion

In this study, we examined associations among baseline distal and proximal minority stressors related to sexual orientation, gender, and weight and prospective risk for EMA-measured dysregulated eating in SMW with overweight/obesity. Results revealed that women with higher baseline internalized homophobia, sexual orientation concealment, and weight bias experiences and internalization reported more cumulative episodes of overeating and binge eating during a subsequent five-day EMA period. These findings underscore the

potential relevance of several sexual and weight-based minority stressors as markers of elevated risk for dysregulated eating among SMW of higher body weight.

Extant research has demonstrated cross-sectional links between dysregulated eating and both sexual minority stress and weight bias. The current study extends prior work by showing that sexual and weight-based minority stress were associated with *prospective* risk for, not just co-occurrence with, dysregulated eating, providing longitudinal evidence for the temporal precedence of minority stress over subsequent dysregulated eating. These findings are consistent with Minority Stress Theory and suggest that, for SMW of higher body weight, internalizing homophobia, concealing one's sexual orientation, and experiencing or internalizing weight bias may elicit stress and promote coping-motivated eating behaviors (Meyer, 1995, 2003). These findings demonstrate how members of multiply marginalized groups may carry compounded risk for problems like dysregulated eating and obesity. Our results underscore the importance of considering how multiple co-occurring sources of marginalization, rather than one single source, may influence risk behaviors in SMW and other multiply marginalized groups.

Study findings also demonstrate the particular relevance of proximal minority stressors (e.g., internalized homophobia, weight bias) as potential predictors of dysregulated eating in this population. SMW with obesity who are more accepting of hetero-normative and thin ideals may negatively judge themselves, resulting in chronic feelings of shame and dissatisfaction that they may try to alleviate through dysregulated eating (Bayer et al., 2017; Durso et al., 2012). In addition to identifying the effects of individual stressors on risk behaviors, it is also important for future work to identify how co-occurring proximal stressors interact and/or compound to influence risk for dysregulated eating. Study findings suggest that assessing proximal sexual and weight-based minority stress may be a clinically useful tool for identifying SMW with greater risk for unhealthy eating. Although more research is needed to assess causal links between minority stress and eating in this group, future studies should consider testing whether addressing sexual and weight-based minority stressors in interventions for disordered eating and obesity improves treatment outcomes in SMW. Evidence-based interventions for depression and anxiety have been adapted to address sexual minority stress to improve outcomes in sexual minority adults (e.g., Pachankis et al., 2015), and future research may consider tailoring obesity and disordered eating treatments for SMW to address multiple facets of minority stress.

Several study findings were unexpected. Women with higher levels of internalized sexism reported *fewer* cumulative overeating episodes during the EMA period. This finding contradicts prior work linking sexism to higher levels of disordered eating among SMW (Brewster et al., 2014; Mason et al., 2017a; Watson et al., 2015). This contradiction could be explained by the fact that several prior studies have specifically measured appearance-focused facets of internalized sexism (Brewster et al., 2014; Watson et al., 2015), while the measure used in this study (i.e., internalized misogyny) captures internalized sexism more broadly. Alternatively, it is possible that SMW who are more accepting of sexist standards of female behavior may be more likely to endorse thin body ideals and, thus, be less likely to engage in or to report overeating. Rather, these women may be more likely to engage in restrictive or compensatory dietary behaviors, and future research should examine this

possibility. It should also be noted that when study models controlled for sexual identity, internalized sexism was no longer associated with overeating frequency. This underscores the need for future work to clarify how internalized sexism impacts dysregulated eating in SMW.

This study also failed to show significant relations between heterosexist or sexist experiences and dysregulated eating among SMW, inconsistent with prior research (e.g., Katz-Wise et al., 2015). It is possible that relevant moderators, which were not examined in this study, may be operating. For example, some SMW who face stigma may seek social support or use adaptive coping strategies, moderators that may attenuate the main effect of minority stress on eating over time (Ybarra et al., 2015). Alternatively, standard measures of heterosexist discrimination (e.g., HHRDS) may be less effective at capturing the unique stigma experiences of bisexual women (who comprise 62% of the sample) versus lesbian women (Brewster & Moradi, 2010), potentially contributing to the null relation between minority stress and eating in this study and highlighting the need for research designed to delineate such effects.

Limitations and Future Directions

This study was designed to be a pilot project with a moderate sample and a short EMA period. Thus, larger studies are needed to understand the generalizability of study findings. This study's sample included women with heterogeneous sexual minority identities, and, out of necessity, the experiences of lesbian, bisexual, and queer women were examined in aggregate. Lesbian, bisexual, and queer women are likely to have different experiences of sexual, gender, and weight-based minority stress and, thus, future studies should be designed to explore these experiences separately, or to recruit larger samples of each group to enable comparisons (Puckett et al., 2016). Study results also primarily reflect the minority stress experiences of cisgender SMW. Transgender, gender-queer, and non-binary individuals may have distinct or magnified experiences of minority stress that may link to risk for dysregulated eating in unique ways (Brewster et al., 2019) that merit future investigation. Highly educated women are also overrepresented in the current sample, underscoring the need to test study aims in populations with more diverse educational and economic backgrounds. Further, participant age ranged from 18–60 years old, and given possible generational differences in experiences/internalization of minority stress and their effects on health (Rice et al., 2019), future work powered to test generational effects is warranted.

Study results report associations between minority stress and eating behaviors, and no conclusions can be drawn about the causality of these associations. Future research investigating the impact of multiple minority stressors on SMW's health is needed, particularly larger, well-powered trials capable of testing causal relations and teasing out the temporal sequence of events in daily life. Due to sample size limitations, each type of minority stress was modeled separately to understand links to dysregulated eating, and models did not account for general stress levels. Larger trials are needed to consider how multiple facets of minority stress, taken together, relate to dysregulated eating and to provide stronger tests of Minority Stress Theory by accounting for general stress. Further, no control

arms were recruited due the pilot nature of the study. A comparison sample of heterosexual women with obesity, for example, would elucidate how minority stress may impact SMW in unique ways and inform how future health interventions may be tailored for this group. Finally, the order of the baseline instrument was not randomized to control for participant fatigue or order effects.

Conclusion

This EMA study identified minority stress due to sexual orientation and weight as potential risk factors for dysregulated eating among SMW with overweight/obesity. Findings justify future research to clarify the distinct impact of multiple, co-occurring sources of minority stress on dysregulated eating behaviors in this group. This work is needed to inform the development of tailored treatments to reduce dysregulated eating and obesity and to improve SMW's health.

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Public significance:

This study identified minority stress due to sexual orientation and body weight as potential risk factors for dysregulated eating among sexual minority women of higher body weight. These findings highlight the need for future research examining weight disparities and intersecting minority stressors among sexual minority women, with the goal of improving treatments to reduce obesity and improve health in this underserved group.

Table 1.

Participant Characteristics

Baseline Measures	**Value**
Age (mean ± standard deviation years)	25.0 (± 9.3)
Race (%)	
Caucasian/White	55%
Black/African-American	7%
Asian	13%
Hispanic/Latina	7%
More than one race	18%
Body Mass Index (mean ± standard deviation kg/m^2)	32.5 (± 4.9)
Education (%)	
High school graduate or equivalent	7%
Bachelor's degree/some college	67%
Associate's degree	7%
Graduate degree/some graduate school	18%
Gender identity (%)	
Cisgender female	96%
Gender-queer/gender non-conforming	4%
Sexual minority stress	**Mean (Standard Deviation)**
Harassment and Rejection (HHRDS, subscale)	2.2 (± 0.8)
Work and School Discrimination (HHRDS, subscale)	1.6 (± 0.9)
Other Discrimination (HHRDS, subscale)	1.9 (± 0.8)
Internalized homophobia (LIHS)	1.4 (± 0.9)
Sexual orientation concealment (SOC)	1.8 (± 0.7)
Gender-based minority stress	
Schedule of Sexist Events (SSE)	3.1 (± 0.8)
Internalized Misogyny Scale (IMS)	2.1 (± 0.8)
Weight-based minority stress	
Stigmatizing Situations Inventory (SSI)	1.2 (± 0.8)
Weight Bias Internalization Scale (WBIS)	4.6 (± 1.4)

Table 2.

Distal and proximal minority stress due to sexual orientation predicting total number of overeating and binge eating episodes during the EMA period (Aim 1)

Predictor	Overeating episodes during the EMA period					Binge eating episodes during the EMA period				
	b	***SE***	***Wald***	***CI***	***RR***	***b***	***SE***	***Wald***	***CI***	***RR***
Lifetime heterosexist experiences (HHRDS)										
Harassment and Rejection	−0.03	0.12	0.06	−0.27–0.21	0.97	−0.16	0.20	0.63	−0.56–0.24	0.85
Work and School Discrimination	0.05	0.10	0.27	−0.15–0.26	1.06	0.00	0.18	0.00	−0.36–0.36	1.00
Other Discrimination	−0.64	0.13	0.25	−0.32–0.19	0.94	−0.34	0.23	2.13	−0.79–0.12	0.72
Internalized homophobia (LIHS)	0.10	0.10	0.90	−0.10–0.29	1.10	**0.32**	**0.15**	**4.41** *	**0.02–0.61**	**1.37**
Sexual orientation concealment (SOC)	**0.33**	**0.12**	**7.05** **	**0.09–0.57**	**1.38**	0.30	0.20	2.33	−0.09–0.69	1.35

Notes: Covariates in all models include age, education, race, body mass index, and EMA compliance rate.

* $p < .05$,

** $p < .01$,

*** $p < .001$.

SE, Standard error; RR, Relative risk ratio; CI, 95% Confidence Interval; HHRDS, Heterosexist Harassment, Rejection, and Discrimination Scale; LIHS, Lesbian Internalized Homophobia Scale; SOC, Sexual Orientation Concealment.

Table 3.

Distal and proximal minority stress due to gender predicting total number of overeating and binge eating episodes during the EMA period (Aim 2)

Predictor	Overeating episodes during the EMA period					Binge eating episodes during the EMA period				
	b	***SE***	***Wald***	***CI***	***RR***	***b***	***SE***	***Wald***	***CI***	***RR***
Lifetime experiences of sexism (SSE)	0.12	0.11	1.17	−0.10–0.34	1.13	0.19	0.19	0.99	−0.19–0.57	1.21
Internalized sexism (IMS)	**−0.38**	**0.12**	**9.33** ***	**−0.62– −0.14**	**0.69**	−0.03	0.18	0.02	−0.38–0.32	0.97

Notes: Covariates in all models include age, education, race, body mass index, and EMA compliance rate.

* $p < .05$,

** $p < .01$,

*** $p < .001$.

SE, Standard error; RR, Relative risk ratio; CI, 95% Confidence Interval; SSE, Schedule of Sexist Events; IMS, Internalized Misogyny Scale.

Table 4.

Distal and proximal minority stress due to weight predicting total number of overeating and binge eating episodes during the EMA period (Aim 3)

Predictor	Overeating episodes during the EMA period					Binge eating episodes during the EMA period				
	b	*SE*	*Wald*	*CI*	*RR*	*b*	*SE*	*Wald*	*CI*	*RR*
Lifetime experiences of weight stigma (SSI)	**0.46**	**0.12**	**14.5** ***	**0.22–0.70**	**1.58**	**0.59**	**0.20**	**8.48** **	**0.19–0.99**	**1.80**
Internalized weight bias (WBIS)	**0.22**	**0.07**	**9.74** **	**0.08–0.36**	**1.25**	**0.33**	**0.12**	**7.76** **	**0.10–0.56**	**1.39**

Notes: Covariates in all models include age, education, race, body mass index, and EMA compliance rate.

* $p < .05$,

** $p < .01$,

*** $p < .001$.

SE, Standard error; RR, Relative risk ratio; CI, 95% Confidence Interval; SSI, Stigmatizing Situations Inventory; WBIS, Weight Bias Internalization Scale