

**Sexual and Gender Minority (SGM) Adolescents' Disordered Eating:  
Exploring General and SGM-Specific Factors**

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### Abstract

**Objective:** Sexual and gender minority (SGM) adolescents disproportionately report disordered eating, yet have primarily been considered under a larger SGM umbrella. The current study 1) compared disordered eating between sexual minority (SM) and gender minority (GM) adolescents; 2) examined how general psychological factors (self-esteem, depression, stress) and SGM-specific factors (e.g., feelings about SGM identity, access to SGM resources) were associated with disordered eating; and 3) examined whether associations between these factors differed for SM vs. GM adolescents.

**Method:** SGM adolescents in the U.S. ( $N = 8,814$ ; 35.0% GM; 43.7% cisgender girls; 66.9% White;  $M_{age} = 15.6$ ) reported their disordered eating, depressive symptoms, stress, self-esteem, and SGM-related experiences on an anonymous, cross-sectional online survey.

**Results:** GM adolescents exhibited higher prevalence clinical threshold disordered eating than SM adolescents. Self-esteem was associated with lower odds of caloric restriction, purging, and binge eating. Depression was associated with higher odds of caloric restriction, diet pill use, purging, laxatives, and binge eating. Stress was associated with higher odds of purging. Associations were stronger for GM adolescents' caloric restriction. Positive feelings about SGM identity were associated with lower odds of caloric restriction, purging, and binge eating, whereas greater stress of "coming out" was associated with higher odds of caloric restriction, purging, and binge eating.

**Discussion:** These results suggest that SGM adolescents' disordered eating is associated with both general psychological factors and unique SGM experiences. Results highlight the importance of considering how the unique experiences of SGM youth may leave them vulnerable to disordered eating behaviors.

**Keywords:** sexual and gender minorities; adolescent; feeding and eating disorders; depression; self concept; self disclosure; stress, psychological; gender identity; sexual orientation

## 1                   **Sexual and Gender Minority (SGM) Adolescents' Disordered Eating:**

### 2                                   **Exploring General and SGM-Specific Factors**

3                   Disordered eating is relatively common among sexual and gender minority (SGM)  
4 adolescents (Parker & Harriger, 2020). “SGM” is an umbrella term referring to those who  
5 identify with a sexual diverse (e.g., lesbian, gay, bisexual) and/or gender diverse (e.g.,  
6 transgender, nonbinary, genderqueer) identity, including those who identify as both sexual  
7 minority (SM) and gender minority (GM). Nationally representative data from the U.S. suggest  
8 that one-third of SM adolescents engage in disordered eating (Hadland et al., 2014), compared to  
9 national prevalence estimates ranging from 4.4-13% (Centers for Disease Control and  
10 Prevention, 2013). Caloric restriction, purging, and binge eating appear particularly common  
11 among SGM adolescents relative to their heterosexual, cisgender peers (Calzo et al., 2016; 2018;  
12 Guss et al., 2017; Miller & Luk, 2019; Roberts et al., 2021). It is critical to identify both general  
13 and SGM-specific factors that are related to SGM adolescents' disordered eating, as well as how  
14 these factors may differentially affect adolescents with a SM or GM identity.

15                   Stress, depressive symptoms, and self-esteem have been proposed as general  
16 psychological factors contributing to disordered eating during adolescence, though they have  
17 primarily been studied among heterosexual, cisgender samples. Stress is implicated in the  
18 development of eating disorders during adolescence (Ball & Lee, 2000; Rojo et al., 2006), and  
19 depressive symptoms are associated with disordered eating cross-sectionally (Sharpe et al., 2018)  
20 and longitudinally (Ferreiro et al., 2012). Low self-esteem is considered a universal risk factor  
21 for eating disorders (Colmsee et al., 2021) as it increases the risk for body dissatisfaction  
22 (Espinoza et al., 2019). In a sample of Australian adolescents, stress, depressive symptoms, and

1 self-esteem together accounted for approximately 47-56% of the variance in body image (Murray  
2 et al., 2011). These general psychological factors are understudied among SGM youth.

3       Compared to their heterosexual and cisgender peers, SGM adolescents experience  
4 chronic stressors related to their minority identity status, contributing to disparities in negative  
5 mental health outcomes (Institute of Medicine, 2011; Parker & Harriger, 2020). Minority stress  
6 theory, a conceptual framework for understanding how these chronic stressors cause mental  
7 health problems for SM (Meyer, 2003; V. R. Brooks, 1981) and GM (Hendricks & Testa, 2012)  
8 populations, explains the association between chronic stressors and increased incidence of  
9 disordered eating among SGM adolescents (Miller & Luk, 2019; Parker & Harriger, 2020). For  
10 example, lesbian women report receiving negative comments about their bodies from men  
11 (Huxley et al., 2014); gay men report immense pressure to fit a muscular, thin aesthetic (VanKim  
12 et al., 2016); bisexual adults experience erasure and invalidation from both the SGM community  
13 and society at large (Brewster et al., 2014; Serpe et al., 2020); and transgender people experience  
14 non-affirmation of their gender identity (Testa et al., 2017). These experiences have been  
15 identified in the literature as risk factors for disordered eating among adults and adolescents  
16 (Calzo et al., 2017; Parker & Harriger, 2020). During adolescence, SGM youth generally  
17 experience poorer mental health than heterosexual, cisgender adolescents, as chronic  
18 discrimination increases their levels of stress and depressive symptoms (Connolly et al., 2016;  
19 Marshal et al., 2011) while lowering self-esteem (McDonald, 2018; Röder et al., 2018).  
20 Therefore, SGM youth may disproportionately experience stress, depressive symptoms, and low  
21 self-esteem—all associated with increased risk for disordered eating (Parker & Harriger, 2020).

22       However, relatively little is understood about how SGM adolescents' *perception* of their  
23 identity may be associated with disordered eating. For example, viewing one's identity positively

1 may be associated with lower levels of disordered eating. Research with SM women suggests  
2 that being open about one's identity is associated with improved body image (Mason et al.,  
3 2018). Additionally, adolescents in more supportive environments may have greater access to  
4 SGM resources and community, potentially improving their wellbeing (Parker & Harriger,  
5 2020). For SGM adolescents, social support can decrease the risk for disordered eating through  
6 reductions in depressive symptoms (Colvin et al., 2019), decreased psychological distress  
7 (Birkett et al., 2015), and increased self-esteem (McDonald, 2018). Therefore, access to SGM  
8 resources and the ability to be "out" as SGM may be negatively associated with disordered  
9 eating. One factor not yet explored is whether adolescents' beliefs about the future as an SGM  
10 person are associated with disordered eating. Extant literature has found that future orientation  
11 (the tendency to plan and think about the future) moderates the association between emotional  
12 victimization and depressive symptoms in early adolescence (Hamilton et al., 2015). However, it  
13 remains unknown whether feeling hopeful about adult life as an SGM person could be a positive  
14 coping mechanism for the increased incidence of victimization that SGM youth experience  
15 (Institute of Medicine, 2011), and therefore, associated with lower levels of disordered eating.

16 Notably, little is known about how general and SGM-specific factors may differentially  
17 affect adolescents with a SM vs. GM identity. SGM adolescents have historically been studied  
18 under an "SGM" umbrella, though this tendency may obfuscate the unique reasons that GM  
19 adolescents engage in disordered eating. GM adolescents may engage in disordered eating to  
20 affirm their gender identity (Griffiths & Yager, 2019; Roberts et al., 2021), to delay or slow  
21 pubertal development, or to alleviate concerns about being misgendered (Romito et al., 2021)—  
22 concerns that cisgender SM individuals may not experience. When SM and GM groups are

1 collapsed into a singular category, important differences in the mechanisms contributing to their  
2 disordered eating may be disguised.

3 To address these gaps in the literature, the current study had three aims. First, we  
4 examined differences in disordered eating behaviors between cisgender SM and GM adolescents.  
5 Second, we examined how general psychological factors (depressive symptoms, stress, and self-  
6 esteem) and SGM-specific factors (feelings about SGM identity, access to SGM resources, future  
7 beliefs about life as an SGM person, openness about SGM identity, and stress of “coming out”)  
8 were associated with disordered eating. Third, we examined whether associations between these  
9 factors and disordered eating differed between cisgender SM adolescents and GM adolescents of  
10 any sexual orientation. To address these questions, we used a nationwide dataset, the *LGBTQ*  
11 *National Teen Survey*. Consistent with other recent nationwide U.S. datasets that include GM  
12 teens (e.g., Salk et al., 2020), the vast majority of GM teens in the current study also identified  
13 with an SM identity; in keeping with prior work, we will refer to all GM teens as simply “GM”  
14 for parsimony (e.g., Roberts et al., 2021).

## 15 Method

### 16 Participants and Procedure

17 We utilized a subset of data ( $n = 8,814$ ) from a larger sample of 17,112 adolescents who  
18 participated in the *LGBTQ National Teen Survey*, an online, anonymous, cross-sectional survey  
19 of U.S. SGM adolescents’ experiences (see Watson et al., 2020). Data were collected from April  
20 to December 2017 in partnership with the Human Rights Campaign (HRC). English-speaking  
21 SGM adolescents (ages 13-17) residing in the U.S. were eligible to participate. Participants were  
22 recruited through HRC’s community partners and social media. Respondents spanned all 50 U.S.  
23 states, and were primarily White (66.9%), followed by multiple racial/ethnic identities (13.4%),

1 Hispanic/Latinx (9.7%), Asian American (4.0%), Black (3.9%), and another race not listed  
2 (1.6%). For compensation, participants were offered HRC wristbands and entered in a gift card  
3 raffle. Procedures were approved by the University of Connecticut Institutional Review Board.

#### 4 **Measures**

##### 5 *Sexual Orientation*

6 Participants responded to the survey item “How do you describe your sexual identity?”  
7 with either: “gay or lesbian,” “bisexual,” “straight, that is, not gay,” or “something else.” If they  
8 selected “something else,” they were given additional response options: “queer,” “pansexual,”  
9 “asexual,” “questioning,” and “other.” Participants who selected “other” described their sexual  
10 identity in a text box. If their written response matched one of the earlier response options, they  
11 were then appropriately categorized. If participants wrote in a response that did not match a  
12 previous option, they were categorized as “something else.”

##### 13 *Gender Identity*

14 Participants first responded to “What sex were you assigned at birth?” (response options:  
15 male/female), followed by “What is your current gender identity?” (response options: “male,”  
16 “female,” “trans male/trans boy,” “trans female/trans girl,” “non-binary,” “gender queer/gender  
17 nonconforming,” or “different identity.” Participants who selected “different identity” described  
18 their identity in a text box. If their written response matched one of the previous options, they  
19 were then appropriately categorized. If participants wrote in a response that did not match an  
20 earlier response, they were categorized as “something else.”

##### 21 *Gender Minority and Sexual Minority Categorizations*

22 Adolescents were categorized as GM if they selected a gender identity that did not match  
23 their sex assigned at birth, or if they selected one of the transgender, non-binary, or



1 genderqueer/nonconforming options. Consistent with prior work (e.g., Fox et al., 2020; Roberts  
2 et al., 2021), all adolescents who reported a non-cisgender identity were categorized as GM,  
3 regardless of sexual orientation. Adolescents were categorized as cisgender SM if they selected a  
4 sexually diverse sexual orientation (something other than heterosexual) and reported a gender  
5 identity congruent with their sex assigned at birth. Throughout this manuscript, “SM” refers to  
6 cisgender SM adolescents specifically; and “GM” refers to adolescents who reported a GM  
7 identity, the vast majority of whom (95.36%) also reported a SM identity.

### 8 ***Disordered Eating***

9 Participants were asked, “How often have you done each of the following things in order  
10 to lose weight or keep from gaining weight during the past year?” with options ranging from 1  
11 (“Never”) to 4 (“On a Regular Basis”), as in prior work with adolescents (Neumark-Sztainer et  
12 al., 2002). Scores were dichotomized, such that “on a regular basis” approximated clinical  
13 threshold. Extant research with adolescents has similarly dichotomized distinct disordered eating  
14 behaviors from these items (see Hazzard et al., 2021). Further, “on a regular basis” is the closest  
15 approximation to capture previously used clinical cutoffs with community samples (e.g.,  
16 “regularly engaged in (at least once per week over the past 3 months)”); see Mitchison et al.,  
17 2014). Five behaviors were captured: caloric restriction (3 items; fasting, eating little, and/or  
18 skipping meals), taking diet pills (1 item), purging (1 item; self-induced vomiting), taking  
19 laxatives (1 item), and objective binge eating (2 items; eating an objectively large amount while  
20 experiencing loss of control eating).

### 21 ***General Factors: Self-Esteem, Stress, and Depression***

22 Self-esteem was measured using the Rosenberg Self-Esteem Scale (RSES; Rosenberg,  
23 1965), a 10-item measure validated with adolescents (Bagley & Mallick, 2001; current sample  $\alpha$

1 = .91). To assess stress, participants were asked to “please mark the appropriate number  
2 corresponding with your average level of stress,” with response options ranging from 1 (“not  
3 very stressed”) to 10 (“very stressed”). To measure depression, participants responded to a 10-  
4 item scale adapted from Kutcher’s Adolescent Depression Scale (KADS; S. Brooks, 2004;  
5 current sample  $\alpha = .90$ ) assessing how often participants felt various depressive symptoms with  
6 responses ranging from 0 (“hardly ever”) to 3 (“all of the time”), such as “low mood, sadness,  
7 feeling blah or down, depressed, just can’t be bothered.” The only alteration was removal of one  
8 item assessing suicidality and self-harm.

### 9 *SGM-Specific Factors*

10 **Feelings about one’s SGM identity.** In consultation with the HRC, the research team  
11 created a novel measure of SGM-specific factors, using prior studies of SGM adolescent health  
12 as a guide (see Austin et al., 2020; Rosario et al., 2006). All items and scoring information are  
13 available in supplemental material. Using 15 items, a newly created measure captured four  
14 SGM-specific factors: positive feelings about SGM identity (5 items; e.g., “I am proud to be part  
15 of the LGBTQ community”; current sample  $\alpha = .81$ ); access to SGM resources (3 items; e.g.,  
16 “Do you have access to information about LGBTQ issues?”; current sample  $\alpha = .67$ ); future  
17 beliefs about life as an SGM person (3 items; e.g., “Are you able to see yourself in the future as a  
18 happy or successful LGBTQ adult?”; current sample  $\alpha = .72$ ); and openness about SGM identity  
19 (4 items; e.g., “As an LGBTQ person, are you able to be yourself at home?”; current sample  $\alpha =$   
20  $.75$ ). Responses ranged from 0 (“Definitely no”) to 3 (“Definitely yes”). Scores for each subscale  
21 were averaged, with higher scores indicating more positive feelings, access to resources, positive  
22 future beliefs, and openness relating to one’s SGM identity, respectively.

1           **Stress of Coming Out.** Participants were provided with 10 different scenarios with the  
2 instructions “For each event listed below we would like you to rate how stressful the situation  
3 was for you”; example event: “When your close friends first found out that you were LGBTQ.”  
4 Responses ranged from 0 (“no stress”) to 4 (“extremely stressful”). Each event also included an  
5 “N/A” option. N/A responses were not included in mean score calculations; participants who  
6 indicated N/A for all items were coded as missing for the “stress of coming out” variable. Final  
7 mean scores ranged from 0 to 4, with higher scores indicating more stress related to coming out.  
8 These scenarios have been used previously in research with SM adolescents (see Rosario et al.,  
9 1996).

## 10 **Analytic Plan**

11           Analyses were completed using R Version 4.1.1 (R Core Team, 2021). Chi Square tests  
12 compared clinical threshold disordered eating behavior across subgroups of adolescents:  
13 cisgender gay boys, cisgender lesbian girls, cisgender bisexual boys, cisgender bisexual girls,  
14 cisgender boys with another SM identity, cisgender girls with another SM identity,  
15 transmasculine adolescents, transfeminine adolescents, nonbinary/genderqueer adolescents  
16 assigned female at birth (AFAB), nonbinary/genderqueer adolescents assigned male at birth  
17 (AMAB). A Bonferroni correction was applied to address inflated Type I error (.05/45  
18 comparisons = .0011).

19           To examine the associations between general and SGM-specific factors and clinical  
20 threshold disordered eating, separate logistic regression models for each of the five disordered  
21 eating behaviors were conducted. Each model controlled for race, age, sex assigned at birth, BMI  
22 percentile, and gender identity (1 = cisgender, 0 = GM). Model Set 1 included general  
23 psychological factors (self-esteem, depressive symptoms, stress) as independent variables. Model

1 Set 2 included SGM-specific factors (positive feelings; access to resources; future beliefs;  
2 openness about identity). Model Set 3 added one additional SGM-specific variable to Model Set  
3 2: the stress of coming out. This variable was added at step 3 because it only applies to  
4 adolescents who were out about their SGM identities to at least one person and thus excludes  
5 participants ( $n = 289$ ) who were not yet out to anyone. A Bonferroni correction was applied to  
6 the significance threshold to address inflated Type I error ( $.05/5$  outcomes per model =  $.01$ ).

7 Finally, to assess the moderating role of cisgender vs. GM identity on the associations  
8 between the factors and each disordered eating behavior, interaction terms between gender  
9 identity and each independent variable were added into separate models. These models were  
10 conducted with a gender identity dummy code (1 = cisgender SM adolescents; 0 = GM  
11 adolescents) entered as an interaction term, one at a time, with each general and SGM-specific  
12 factor. This resulted in 15 models testing the interaction between general factors and each of the  
13 five disordered eating behaviors (Model Set 4); 20 models testing the interaction between SGM-  
14 specific factors and each disordered eating behavior among all participants (Model Set 5); and 25  
15 models testing the interaction between SGM-specific factors and each disordered eating behavior  
16 among participants who were “out” (Model Set 6). When models indicated a significant  
17 interaction, simple slope analyses were conducted to ascertain differences in the effect of the  
18 predictor on the outcome for SM adolescents vs. GM adolescents. Within simple slope analyses,  
19 the significance threshold of coefficients for SM and GM adolescents was adjusted to  $.01$  to  
20 adjust for inflated Type I error.

## 21 **Results**

22 The final sample of 8,814 SGM adolescents reflects those who had complete data for all  
23 independent variables and at least one disordered eating behavior. Table 1 displays demographic

1 information. There were at least 11 participants per state included for analyses, and participation  
2 across the four regions of the U.S. was roughly equal. Compared to those who were excluded  
3 from the final sample ( $n = 8,298$ ), included participants were more likely to be AFAB  
4 ( $\chi^2(1) = 95.67, p < .001$ ), older ( $t(16643) = -3.64, p < .001$ ), have a lower BMI percentile  
5 ( $t(14127) = 4.55, p < .001$ ), and identify as GM (vs. cisgender;  $\chi^2(1) = 46.73, p < .001$ ), and  
6 more likely to be White and less likely to be Black ( $\chi^2(6) = 291.84, p < .001$ ). Participants were  
7 excluded largely for early termination, with respondents only providing demographic  
8 information before exiting the survey.

9       A substantial portion of adolescents (16.55%) in the current study met clinical threshold  
10 for at least one disordered eating behavior. The percentage of adolescents meeting clinical  
11 threshold for each behavior, as well as differences across groups, are presented in Table 2.  
12 Clinical threshold binge eating was most common (9.73%), followed by caloric restriction  
13 (6.16%), purging (3.15%), diet pill use (1.44%), and laxative use (0.82%). Transmasculine  
14 adolescents were estimated to have the highest prevalence of clinical threshold diet pill use  
15 (3.00%), purging (7.04%), and binge eating (15.12%). Nonbinary AFAB adolescents were  
16 estimated to have the highest prevalence of clinical threshold caloric restriction (9.54%).  
17 Transfeminine adolescents were estimated to have the highest prevalence of clinical threshold  
18 laxative use (1.98%). Transgender and nonbinary/genderqueer adolescents generally reported  
19 higher rates of disordered eating than SM adolescents.

20       Associations between general factors, SGM-specific factors, and disordered eating for the  
21 entire SGM sample (without examining SM vs. GM differences) are presented in Tables 3 and 4.  
22 Self-esteem was associated with lower odds of clinical threshold caloric restriction (OR = .44,  
23 95% CI = .35-.54), purging (OR = .67, 95% CI = .50-.88), and binge eating (OR = .75, 95% CI =

1 .64-.88). Depressive symptoms were associated with higher odds of clinical threshold caloric  
2 restriction (OR = 3.16, 95% CI = 2.63-3.80), diet pill use (OR = 3.51, 95% CI = 2.48-4.95),  
3 purging (OR = 4.06, 95% CI = 3.17-5.21), laxative use (OR = 3.03, 95% CI = 1.91-4.81), and  
4 binge eating (OR = 1.92, 95% CI = 1.67-2.21). Positive feelings about being SGM were  
5 associated with lower odds of clinical threshold caloric restriction (OR = .70, 95% CI = .60-.82),  
6 purging (OR = .69, 95% CI = .56-.85), and binge eating (OR = .77, 95% CI = .67-.87). Openness  
7 with one's SGM identity was associated with lower odds of clinical threshold caloric restriction  
8 (OR = .82, 95% CI = .71-.94). Of SGM adolescents who were "out," higher stress of coming out  
9 was associated with higher odds of clinical threshold caloric restriction (OR = 1.23, 95% CI =  
10 1.11-1.35), purging (OR = 1.38, 95% CI = 1.21-1.58), and binge eating (OR = 1.13, 95% CI =  
11 1.05-1.22).

12 In the moderation models, which tested whether general and SGM-specific factors  
13 differently affected SM vs. GM adolescents' odds of meeting clinical threshold disordered  
14 eating, few significant interaction terms emerged. A summary of results is presented in Tables 5  
15 and 6. Full results are available in supplemental material. Self-esteem was significantly  
16 associated with lower odds of clinical threshold caloric restriction for both SM (OR = .53,  $p <$   
17 .001) and GM adolescents, with a particularly strong association for GM adolescents (OR = .33,  
18  $p <$  .001). Depression was significantly associated with higher odds of clinical threshold caloric  
19 restriction for both SM (OR = 2.66,  $p <$  .001) and GM adolescents, though this association was  
20 also particularly strong for GM adolescents (OR = 3.90,  $p <$  .001). Lastly, stress was  
21 significantly associated with higher odds of clinical threshold caloric restriction among GM  
22 adolescents (OR = 1.15,  $p <$  .001) but not SM adolescents (OR = .99,  $p =$  .81). SGM-specific  
23 factors did not differently affect SM vs. GM adolescents' odds of engaging in disordered eating.

## 1 **Discussion**

2 The current study advances prior work by comparing how general and SGM-specific  
3 factors uniquely relate to disordered eating among SGM adolescents using a national sample. For  
4 SM and GM adolescents, depressive symptoms and the stress of coming out were generally  
5 associated with higher odds of clinical threshold disordered eating, whereas self-esteem, positive  
6 feelings about SGM identity, and openness about SGM identity were generally associated with  
7 lower odds of clinical threshold disordered eating. These results suggest that both unique SGM-  
8 specific cognitions and general psychological factors may be implicated in SGM adolescents'  
9 disordered eating. Given the disparities in disordered eating between SGM and cisgender,  
10 heterosexual youth, results from this study highlight the importance of considering how the  
11 unique experiences of SGM youth may leave them vulnerable to disordered eating behaviors.

### 12 **Disordered Eating among SGM Adolescents**

13 Many adolescents in the current study met clinical threshold for a disordered eating  
14 behavior. GM adolescents exhibited greater prevalence of caloric restriction, purging, and binge  
15 eating than SM youth, generally. These findings echo recent evidence of elevated restriction and  
16 purging among transgender adolescents (Roberts et al., 2021) and adults (Diemer et al., 2015).  
17 Prior research suggests that GM youth may engage in these behaviors to prevent or delay  
18 pubertal development (Romito et al., 2021). Importantly, other research has documented higher  
19 rates of disordered eating among SM college students than GM college students (Simone et al.,  
20 2020). In the current study, bisexual girls exhibited elevated prevalence of clinical threshold  
21 disordered eating, consistent with prior work demonstrating high prevalence of disordered eating  
22 among bisexual populations (Simone et al., 2020). Bisexual+ populations may be at elevated risk  
23 for disordered eating due to unique bisexual minority stress; research with adults supports that

1 bisexual women experience sexual objectification in its traditional sense, in addition to  
2 fetishization of their bisexual identity, erasure, antibisexual discrimination, and internalized  
3 biphobia (Brewster et al., 2014; Serpe et al., 2020), ultimately contributing to eating disorder  
4 symptomatology (Brewster et al., 2014).

### 5 **General Correlates of Disordered Eating**

6       When examining which general factors were most relevant to SM and GM adolescents'  
7 disordered eating behaviors, several important findings emerged. For both SM and GM  
8 adolescents, findings extend prior work indicating that depression is associated with increased  
9 odds of disordered eating, whereas self-esteem is associated with decreased odds (Murray et al.,  
10 2011). Indeed, low self-esteem has been identified as a risk factor for disordered eating within  
11 reviews of SM adolescent and adult research (Parker & Harriger, 2020). More work is needed to  
12 identify associations between stress, self-esteem, and disordered eating among GM populations.

13       Differences between SM and GM adolescents emerged when examining associations  
14 between general factors and disordered eating, with particularly strong associations among GM  
15 youth. These findings point to the importance of separately considering the experiences of SM  
16 and GM youth, rather than collapsing them into a singular category. These results suggest that,  
17 for eating disorder prevention to be most effective for GM youth, interventions could target  
18 mental health concerns as a potential mechanism contributing to disordered eating.

### 19 **SGM-Specific Correlates of Disordered Eating**

20       The current study also examined which SGM-specific factors were particularly relevant  
21 for SM or GM adolescents' disordered eating. Notably, differences in the associations between  
22 SGM-specific factors and disordered eating did not emerge for SM vs. GM youth. More positive  
23 feelings about SGM identity were associated with lower odds of clinical threshold caloric



1 restriction, purging, and binge eating among both SM and GM adolescents. Further, openness  
2 about one's SGM identity was associated with lower odds of clinical threshold caloric restriction  
3 for both SM and GM youth. These results are largely consistent with prior work. For example,  
4 youth who feel positively about their SGM identity may experience lower internalized  
5 homophobia and/or transphobia, known stressors associated with disordered eating (Calzo et al.,  
6 2017; Parker & Harriger, 2020; Uniacke et al., 2021). Additionally, the ability to be open about  
7 one's SGM identity could reflect an environment of greater social support, known to reduce the  
8 risk of disordered eating among SGM adolescents (Miller & Luk, 2019; Watson et al., 2017).

9 Surprisingly, access to SGM resources was not associated with disordered eating in the  
10 current study. However, reviews of the literature have found that SGM-specific community  
11 spaces can have either positive or negative effects on an individual's body image and risk for  
12 disordered eating (Parker & Harriger, 2020). For some SGM college students, the SGM  
13 community proliferates unique appearance ideals (e.g., for nonbinary people, a thin, white,  
14 masculine-presenting appearance) (Gordon et al., 2019). Research with adults suggests that SM  
15 men show greater internalized weight bias than heterosexual men (Puhl et al., 2019), perhaps  
16 exacerbating the appearance pressures SM men face in the SGM community (Austen et al.,  
17 2020). However, other SGM adults perceive the SGM community to be accepting of greater  
18 body diversity (VanKim et al., 2016). Future work should attempt to disentangle which pieces of  
19 SGM resources and community may inadvertently encourage unattainable appearance ideals, and  
20 in turn, disordered eating.

21 For SGM adolescents who had "come out" to others, higher stress of coming out was  
22 significantly associated with higher odds of clinical threshold caloric restriction, purging, and  
23 binge eating. These findings indicate that SGM adolescents may use disordered eating to cope

1 with negative emotional experiences that accompany “coming out,” a process that may be  
2 fraught with distress and stigmatization (Cox et al., 2010; Schimmel-Bristow et al., 2018).  
3 Beyond “coming out,” future work should consider identity concealment, in which adolescents  
4 do not share their identity with others. Evidence suggests that among SM adults, concealment of  
5 one’s sexual identity is associated with increased risk of eating disorders (Parker & Harriger,  
6 2020). Both stress of coming out and identity concealment may indicate a lack of social support  
7 or stressful interpersonal relationships, increasing risk for disordered eating behaviors (Parker &  
8 Harriger, 2020). For clinicians working with SGM youth, special care must be taken to help  
9 youth navigate the coming out process and the distress that may accompany it.

#### 10 **Limitations and Future Directions**

11 While the current study extends prior work examining the general and SGM-specific  
12 factors that may be related to the disordered eating behaviors of SGM youth, there are a number  
13 of limitations. First, the cross-sectional design does not allow for the identification of temporal or  
14 causal relationships between the factors examined. Longitudinal designs would offer insight into  
15 how these factors are associated with disordered eating over time.

16 Second, some of the measures used have not been previously validated. The research  
17 team developed the survey assessing SGM-specific factors and stress of coming out for the larger  
18 study (see Watson et al., 2020), so future validation efforts are recommended to demonstrate its  
19 efficacy. Some SGM-specific factors had low reliability, so future measurement testing is  
20 recommended. Additionally, general stress was assessed with a single item. Future research on  
21 this topic should use a more extensive evaluation of adolescent stress. Further, the disordered  
22 eating items, although used in previous adolescent eating disorder studies (Neumark-Sztainer et

1 al., 2002), did not allow the research team to capture the true frequency of the behaviors  
2 measured as language such as “on a regular basis” was used in lieu of number of times per week.

3 Third, while the current study benefitted from a large sample of SGM adolescents across  
4 the U.S., it is unknown if these results generalize to other cultural contexts. The U.S. is reported  
5 to have generally greater acceptance towards people with SGM identities than other countries,  
6 though is not among the most accepting (Flores, 2019). Future research on SGM adolescents’  
7 feelings about their identity in more- and less-accepting cultural climates will be especially  
8 important to further this research. The sample was also recruited from a community organization  
9 that provides resources to SGM youth; as such, the sample may be biased towards youth in more  
10 supportive environments and who are able to access SGM resources. Additionally, in 2017, at  
11 the time of data collection, general acceptance towards SGM people in the U.S. was on the rise,  
12 and a record number of U.S. cities advanced SGM-inclusive policies, yet there was also a  
13 barrage of anti-SGM legislation including preventing GM people from using bathrooms and  
14 serving in the military (Miller, 2017). This particular cultural context may have affected  
15 participants’ responses.

16 Further, the majority of participants (66.9%) were White, which does not reflect the  
17 current distribution of racial/ethnic breakdown of individuals in the US (51% White; 25%  
18 Latinx; 14% Black; U.S. Census Bureau, 2020). SGM youth with a racial/ethnic minority  
19 identity could be particularly vulnerable to disordered eating, as they must contend with both  
20 SGM-related and race-related minority stressors. Prior reviews of the literature have echoed the  
21 importance of conducting future research addressing intersections of race/ethnicity, gender  
22 identity, sexual identity, and other dimensions of identity that may be associated with disordered  
23 eating within SGM populations (Parker & Harriger, 2020).

1           Despite these limitations, our study possesses unique strengths that advance our  
2 understanding of SGM youth’s mental health. Using a large sample of SGM youth with diverse  
3 identities from across the U.S., the results suggest that SGM adolescents’ perceptions of their  
4 identity may be related to disordered eating, in addition to depressive symptoms and self-esteem.  
5 While the current work examined individual factors associated with SGM adolescents’  
6 disordered eating, future work ought to explore institutional and societal factors that could  
7 mitigate SGM youth’s exposure to minority stressors, and therefore, prevent disordered eating  
8 (Parker & Harriger, 2020). For example, schools are encouraged to implement SGM-specific  
9 programming, end discriminatory disciplinary practices, adopt inclusive policies, and incorporate  
10 SGM-related content into the curriculum (Biegel & Kuehl, 2010).

## 11 **Conclusion**

12           The current study is among the first to examine how both general and SGM-specific  
13 factors contribute to SM and GM adolescents’ disordered eating. For SM and GM adolescents in  
14 the study, depressive symptoms and distress over “coming out” were associated with higher odds  
15 of disordered eating, while self-esteem and positive feelings about one’s SGM identity were  
16 associated with lower odds. By exploring why SGM adolescents are uniquely vulnerable to  
17 eating pathology, the current study sheds light on the factors that clinicians, researchers, and  
18 caregivers to SGM youth ought to consider when evaluating SGM adolescents’ risk for  
19 disordered eating.

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