



# The role of sexual minority stress and community involvement on disordered eating, dysmorphic concerns and appearance- and performance-enhancing drug misuse



Alexandra D. Convertino<sup>a</sup>, John P. Brady<sup>a</sup>, Christopher A. Albright<sup>a</sup>, Manuel Gonzales IV<sup>a</sup>, Aaron J. Blashill<sup>a,b,\*</sup>

<sup>a</sup> San Diego State University/University of California San Diego Joint Doctoral Program in Clinical Psychology, 6363 Alvarado Court, Suite 103, San Diego, CA, 92120, United States

<sup>b</sup> Department of Psychology, San Diego State University, College of Sciences, 5500 Campanile Drive, San Diego, CA, 92182, United States

## ARTICLE INFO

### Article history:

Received 7 May 2020

Received in revised form 9 October 2020

Accepted 22 October 2020

Available online 21 November 2020

### Keywords:

Minority stress

Community involvement

Sexual minority

Body image

## ABSTRACT

Prior research has established that sexual minority (SM) individuals are more likely to experience disordered body image behaviors and concerns than heterosexual individuals. This increased risk may be explained by minority stress theory – that SM individuals are subject to SM-specific stressors, leading to health disparities – but this has not yet been fully examined. Furthermore, this theory states that SM community involvement may mitigate negative outcomes. The current study examines whether minority stress is associated with screening positive for an eating disorder, screening positive for body dysmorphic disorder, and appearance- and performance-enhancing drug misuse in a sample of SM individuals (483 women and 479 men) in the US. This study also examines whether the effect of minority stress is moderated by SM community involvement. Logistic regressions were conducted for each type of minority stress (internalized homophobia, sexual orientation concealment, and heterosexist discrimination) interacting with community involvement. After correction for multiple comparisons, all minority stressors and community involvement were positively associated with increased odds of disordered body image behaviors and concerns, with no evidence of a buffering effect for community involvement. The lack of a buffering effect is contrary to minority stress theory and may inform future prevention efforts.

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## 1. Introduction

Sexual minority individuals (e.g., people who identify as gay, lesbian, bisexual, etc. and/or people who are attracted to or have sexual contact with individuals of the same or multiple genders; [Institute of Medicine, 2011](#)) are disproportionately affected by disordered body image behaviors and concerns. A recent, nationally representative study by [Kamody, Grilo, and Udo \(2020\)](#) found that the prevalence of lifetime eating disorder diagnoses was higher among sexual minority (SM) individuals in comparison to heterosexual individuals (anorexia nervosa, 1.71% versus 0.77%; bulimia nervosa, 1.25% versus 0.24%; binge eating disorder, 2.17% versus 0.81%). In addition, multiple studies have found elevated rates of

eating pathology, such as purging, fasting, dieting, and binge eating, among SM individuals ([Calzo, Blashill, Brown, & Argenal, 2017](#); [Matthews-Ewald, Zullig, & Ward, 2014](#); [Watson, Adjei, Saewyc, Homma, & Goodenow, 2017](#)). SM individuals are also more likely to meet criteria for body dysmorphic disorder (BDD), and endorse greater BDD symptoms, in comparison to heterosexual individuals (women, 7.7% versus 6.1%; men, 2.4% versus 2.3%; [Boroughs, Krawczyk, & Thompson, 2010](#)). Finally, there is some indication that SM individuals may have higher rates of appearance- and performance-enhancing drug (APED) misuse compared to heterosexual individuals ([Blashill, Calzo, Griffiths, & Murray, 2017](#); [Blashill & Safren, 2014](#); [Gonzales & Blashill, 2021](#)). SM adolescent boys have approximately 2.2–5 times greater odds of misusing anabolic androgenic steroids (AAS) as compared to heterosexual peers ([Blashill & Safren, 2014](#); [Blashill et al., 2017](#)). Studies of APED misuse in SM women are typically limited due to the low estimated prevalence of APED use among women ([Calzo, Sonnevile, Scherer, Jackson, & Austin, 2016](#)). However, one prior study found high rates of APED misuse among SM women and noted that these rates were

\* Corresponding author at: San Diego State University/University of California San Diego Joint Doctoral Program in Clinical Psychology, 6363 Alvarado Court, Suite 103, San Diego, CA, 92120, United States.

E-mail address: [ajblashill@sdsu.edu](mailto:ajblashill@sdsu.edu) (A.J. Blashill).

elevated as compared to national rates of misuse in women in other studies (Gonzales & Blashill, 2021). Minority stress theory (Meyer, 2003) and intraminority stress theory (Pachankis et al., 2020) may be useful frameworks to explain disparities in disordered body image behaviors and concerns between SM individuals and heterosexuals.

*Minority stress theory* (Meyer, 2003) suggests that health disparities between SM individuals and heterosexuals, such as those observed in disordered body image behaviors and concerns, can be partially explained by a dominant culture that enacts prejudice against SM individuals through distal external stressors (discrimination, violence) and the proximal internal stressors that result from a minority identity. Minority statuses in gender, race, and ethnicity are theorized to impact the experience of distal and proximal stressors, as well as confer additional stressors as a result of minority status (Velez, Polihronakis, Watson, & Cox, 2019). SM identities that are then created within this dominant cultural sphere lead to proximal minority stress processes, such as rejection sensitivity, concealment of identity, and internalized homophobia that can lead to negative mental health outcomes (Meyer, 2003). Minority stress is positively associated with various mental health outcomes among SM individuals, such as body concerns (Watson, Grotewiel, Farrell, Marshik, & Schneider, 2015), substance use (Goldbach, Tanner-Smith, Bagwell, & Dunlap, 2014), anxiety and depressive symptoms (Newcomb & Mustanski, 2010), and suicide attempts (Livingston et al., 2015). Recent research has also linked minority stressors to intentions to use AAS (Brewster, Sandil, DeBlaere, Breslow, & Eklund, 2017), disordered eating (Bayer, Robert-McComb, Clopton, & Reich, 2017; Wang & Borders, 2017), and BDD symptoms (Oshana, Klimek, & Blashill, 2020). Although minority stress is associated with myriad negative health outcomes, minority stress theory also includes pathways that may mitigate this association.

The minority stress model states that the effect of minority stress on mental health outcomes can be moderated by coping and social support at the individual and group level (Meyer, 2003). Affiliation with SM communities may provide spaces to avoid heterosexual discrimination and stigmatization from others while also providing support to counter negative evaluations of the minority group (Meyer, 2003). Indeed, affiliation with SM communities is associated with multiple positive outcomes in some studies, including better mental health outcomes (Griffin et al., 2018; Lambe, Cerezo, & O'Shaughnessy, 2017; Puckett, Levitt, Horne, & Hayes-Skelton, 2015), increased HIV testing (Holt et al., 2012; Ross, Tikkanen, & Berg, 2014), and decreased smoking (Johns et al., 2013). Although minority stress theory accounts for some of the disparity in mental health outcomes for SM individuals as compared to heterosexual individuals, there is evidence that minority stress does not explain all of the observed differences in mental health disparities (Meyer, Schwartz, & Frost, 2008; Pachankis et al., 2020). Intraminority stress theory (Pachankis et al., 2020) may provide additional insight into the prevalence of disordered body image behaviors and concerns among SM individuals.

Intraminority stress, the stress derived from *within* the SM community to which one belongs, is a predictor of negative mental health outcomes among SM men (Pachankis et al., 2020). *Intraminority stress theory*, as described by Pachankis and colleagues, refers to the status-based concerns that gay and bisexual men experience from within the SM community, where masculinity, attractiveness, and wealth are elements of status. In addition, men compete for sexual and social gain; since gay and bisexual men often rely on other SM men for both sexual and social relationships, they are comparing themselves to and competing with other SM men in such a way that results in unique and greater status pressures as compared to heterosexual men (Pachankis et al., 2020). While intraminority stress theory was developed to explain the

experience of SM men within their community, previous research has also described similar processes in SM women. Specifically, Boyle and Omoto (2014) found that SM women who perceived that they were not meeting standards within the SM community were at higher risk for depression and anxiety. Intraminority stress theory may help explain why community involvement, despite its previously stated positive health associations, has also been associated with negative mental health outcomes among SM individuals. For SM individuals, community involvement is also associated with increased substance use (Demant, Hides, White, & Kavanagh, 2018; Feinstein, Dyar, & London, 2017) and increased eating disorder symptoms (Davids & Green, 2011; Feldman & Meyer, 2007). Given that community involvement is associated with both positive and negative health outcomes among SM individuals, it is unknown how it may moderate the effect of minority stress on disordered body image behaviors and concerns.

The current study examined the associations between SM stress and disordered body image behaviors and concerns: disordered eating, dysmorphic concerns, and APED misuse. Due to the theoretical frameworks provided by minority stress theory and intraminority stress theory, the direction of the association between community involvement and disordered body image behaviors and concerns was not specified a priori. While many definitions of community involvement exist, for the purposes of the current study community involvement was defined as *behavioral participation* in the SM community, for example by participating in political, social, or cultural events. The current study examined (1) the association between minority stress and disordered body image behaviors and concerns; (2) the association between community involvement and disordered body image behaviors and concerns; and (3) if the association between SM stress and body image outcomes was moderated by community involvement.

## 2. Method

### 2.1. Participants and procedures

479 SM men and 483 SM women aged 18–30 years ( $M = 23.7$ ,  $SD = 3.7$ ) were recruited nationally in the U.S. from April to July 2018. Respondents resided in 49 states (Alaska was not represented) and the District of Columbia. Surveys were collected via Qualtrics Panels, an online survey-based platform that provides a service to distribute surveys to individuals who meet predetermined criteria. Potential participants had to meet the following inclusion criteria based on their Qualtrics profile: 1) between the ages of 18–30 years; 2) self-identify as gay/lesbian/bisexual; 3) self-identify as either i) African American, ii) Non-Hispanic White, iii) Asian American/Pacific Islander, iv) Native American/Alaska Native, or v) Hispanic with any other race; and 4) English speaking. They were sent an invitation stating that they are eligible to participate in a study, but the invitation did not include the purpose of the study. If participants agreed to participate in the study through the invitation, they went through the consent process and then completed a prescreener to confirm that they met the eligibility criteria. If they were eligible, participants completed a 15–20 min survey, where they received \$4 US dollars in e-rewards currency for completing the survey. Participants could redeem e-rewards currency for various gifts such as gift cards or airline miles within Qualtrics. All procedures were reviewed and approved by the San Diego State University Institutional Review Board. This dataset has been reported previously (Gonzales & Blashill, 2021); however, the other article is primarily focused on reporting race and ethnicity group differences in eating disorders, BDD, drive for muscularity, and APED misuse. The current study is unique in that it tested a theorized moderation effect within the minority stress model. None

of the minority stressors included in this article were utilized for analyzes in the other article.

## 2.2. Measures

### 2.2.1. Demographics

Ethnicity was assessed using a single, closed-ended item, “What is your ethnicity?” with response options: *Hispanic/Latino* or *Not Hispanic/Latino*. Race was assessed using a single, closed-ended item, “What is your race?” with response options: *White, Black or African American, Native American or American Indian, and Asian/Pacific Islander*. State of residence was assessed using a single, open-ended item, “What is your state of residence?”

### 2.2.2. Eating Disorder Examination-Questionnaire

Probable diagnosis of an eating disorder was assessed using the Eating Disorder Examination Questionnaire version 6.0 (EDE-Q; Fairburn & Beglin, 2008). The EDE-Q consists of 28 items that measure various eating disorder symptomology over the past 28 days with response options ranging from 0 = *No days* to 6 = *Every day*. An example item is: “Have you been deliberately trying to limit the amount of food you eat to influence your shape or weight (whether or not you have succeeded)?” Of note, while the EDE-Q can be used to derive four theoretical subscales (Restraint, Eating Concern, Shape Concern, Weight Concern), empirical examinations of the measure have revealed many variants (Rand-Giovannetti, Cicero, Mond, & Latner, 2020) and there is no clear standard for use among SM men and women. Thus, a single global score consisting of 22 subscale items was calculated, with a maximum score of 132. Given that six items are free response, they were not included in the global score calculation. Previous research has found an internal consistency of  $\alpha = .83$  (Convertino, Gonzales, Malcarne, & Blashill, 2019) in SM samples. The internal consistency in the current study was  $\alpha = .95$ . Per the procedures of Mond, Hay, Rodgers, Owen, & Beumont, 2004, if participants obtained a global score of 56 or greater, along with the occurrence of any objective binge episodes and/or exercising as a means of weight control at least once per week, they were binary coded as 1 (i.e., screening positive for a probable eating disorder diagnosis), otherwise they were coded as 0 (screening negative for an eating disorder diagnosis; sensitivity = .83, specificity = .96; Mond, Hay, Rodgers, Owen, & Beumont, 2004). The global score was utilized as opposed to the subscales to create a binary variable using the well-established cut-score for probable eating disorder diagnosis.

### 2.2.3. Dymorphic Concerns Questionnaire

Probable diagnosis of BDD was assessed using the Dymorphic Concerns Questionnaire (DCQ; Oosthuizen, Lambert, & Castle, 1998). The DCQ consists of 7 items that measure BDD symptoms, with response options ranging from 0 = *Not at all* to 3 = *Much more than most people*. An example item is: “Have you ever considered yourself misformed or misshapen in some way (e.g., nose/hair/skin/sexual organs/overall body build)?” The DCQ is calculated by summing all responses, with a possible score range of 0–21. Previous studies have found an internal consistency of  $\alpha = .88$  (Oosthuizen et al., 1998) and  $\alpha = .89$  in a sample of SM men and women (for psychometric examination in SM individuals, see Rozzell, Carter, Convertino, Gonzales, & Blashill, 2020). The internal consistency in the current study was  $\alpha = .88$ . Individuals were coded 1 (positive for a probable BDD diagnosis) if they obtained a sum score of 9 or greater; otherwise, they were coded as 0 (screening negative for BDD; sensitivity = 96.4%, specificity = 90.6%; Mancuso, Knoesen, & Castle, 2010).

### 2.2.4. Appearance- and performance-enhancing drugs

Three items were used to assess appearance and performance enhancing drug misuse, which were adapted from the Growing Up Today Study (GUTS; Field et al., 2001). Participants were asked: “During the past year, how often did you use any of the following products?” with three items for non-medically prescribed AAS, non-medically prescribed growth hormone, and dehydroepiandrosterone (DHEA), with response options ranging from 0 = *Never* to 4 = *Daily*. Individuals were binary coded 1 if they endorsed using AAS, growth hormone, and/or DHEA without a prescription; individuals were coded 0 if they selected the “never” option for all three items. The internal consistency in the current study was  $KR-20 = .89$ .

### 2.2.5. Internalized Homophobia Scale Revised

Internalized homophobia was assessed using the Internalized Homophobia Scale Revised (IHP-R; Herek, Gillis, & Cogan, 2009). The IHP-R consists of 5 items that assess the degree to which SM individuals internalize the anti-gay societal attitudes towards them, with a 5-point response scale ranging from 1 = *Disagree Strongly* to 5 = *Agree Strongly*. Example items include: “I feel that being lesbian/bisexual is a personal shortcoming for me,” and “I have tried to stop being attracted to women in general.” For men, the words *lesbian/bisexual* and *women* were changed to *gay/bisexual* and *men*, respectively. For the current study, the average was calculated (range = 1–5). Higher scores indicate more negative self-attitudes. Previous studies have found an internal consistency of  $\alpha = .82$  (Herek et al., 2009). The internal consistency in the current study was  $\alpha = .87$ .

### 2.2.6. Sexual Orientation Concealment Scale

Sexual orientation concealment was assessed using the Sexual Orientation Concealment Scale (SOCS; Jackson & Mohr, 2016). The SOCS consists of 6 items that measure the degree to which an individual attempted to conceal their sexual identity within the past two weeks, with response options ranging from 1 = *Not at all* to 5 = *All the time*. An example item is: “In the last two weeks, I have altered my appearance, mannerisms, or activities in an attempt to ‘pass’ as straight.” For the current study, the average was calculated (range = 1–5). Higher scores indicate greater sexual orientation concealment. Previous research has found an internal consistency of  $\alpha = .78$  (Jackson & Mohr, 2016). The internal consistency from the current study was  $\alpha = .87$ .

### 2.2.7. Heterosexist Harassment, Rejection, and Discrimination Scale

Heterosexist Harassment, Rejection, and Discrimination was assessed using the Heterosexist Harassment, Rejection, and Discrimination Scale (HHRDS; Szymanski, 2006). The HHRDS was originally validated in lesbian women (Szymanski, 2006) and later adapted for use in SM men (Szymanski, 2009). The HHRDS consists of 14 items that assess various forms of heterosexist events among SMs within the past year, with response options ranging from 1 = *the event has NEVER happened to you* to 6 = *the event happened ALMOST ALL OF THE TIME (more than 70% of the time)*. An example item is: “How many times have you been treated unfairly by strangers because you are lesbian/bisexual?” In men, *lesbian/bisexual* was changed to *gay/bisexual*. For the current study, the average was calculated (range = 1–6). Higher scores indicate a greater number of heterosexist events. Previous research has found an internal consistency of  $\alpha = .90$  for the total score in lesbian women (Szymanski, 2006) and  $\alpha = .91$  for the total score in SM men (Szymanski, 2009). The internal consistency for the total score in the current study was  $\alpha = .95$ . Given conflicting prior results about the factor structure of this measure (see Smith, Perrin, &

Sutter, 2020 for review), the total score was utilized for the current analyses.

### 2.2.8. Community involvement

Six items were used to assess *behavioral* community involvement, which were adapted from the Social Justice Sexuality Project (SJS; Harris, Battle, Pastrana, & Daniels, 2013). The SJS is a national survey of diverse lesbian, gay, bisexual, and transgender (LGBT) people. The 6 items assess the degree to which individuals participate in LGBT-related activities (i.e., participated in political events, participated in social or cultural events, read newspapers or magazines, used the internet, received goods and/or services, and donated money to an organization) during the past year, with response options ranging from 1 = *Never* to 6 = *More than once a week*. For the current study, the sum was calculated (range = 6–36). Higher scores indicate greater community involvement. Prior to hypothesis testing, items from this scale were entered into an exploratory factor analysis. The results indicated that a single factor was the best fit. For more details on this analysis, see the Supplementary Materials. The internal consistency for the current study was  $\alpha = .79$ .

### 2.3. Statistical analyses

SPSS version 25 (IBM Corp., 2017) was utilized for all analyses. Logistic regression was utilized to examine associations between minority stressors, community involvement, and their interaction with eating pathology, dysmorphic concerns, and APED misuse. Logistic regression assumptions of independence and lack of multicollinearity were met. To assess the assumption that independent variables are linearly related to the log of odds, the Box-Tidwell test was performed (Hosmer & Lemeshow, 1989). If indicated by the Box-Tidwell test, a quadratic main effect and interaction term for each non-linear predictor was added. For each of the three outcomes, three separate hierarchical logistic regression models – for a total of nine models – were conducted in the following steps: (1) sociodemographic covariates including race, ethnicity, age, gender, and sexual identity; (2) minority stressor (i.e., internalized homophobia, sexual orientation concealment, or heterosexist discrimination) and community involvement (including any quadratic effects as indicated by Box-Tidwell); and (3) the interaction of the minority stressor and community involvement. Given the various drawbacks of conducting simple slopes analyses (Carden, Holtzman, & Strube, 2017), Johnson-Neyman regions of significance were utilized to interpret any significant interaction effects (Johnson & Fay, 1950). To correct for multiple comparisons within models, a Benjamini-Hochberg adjustment (Benjamini & Hochberg, 1995) was applied for the total number of predictors in all models. The Benjamini-Hochberg adjustment decreases the false discovery rate (i.e., the proportion of false positives) with multiple comparisons, thus reducing the chances of incorrectly concluding that an effect is true, when in reality it is false. The Benjamini-Hochberg adjustment does not change the  $p$  values observed; rather the adjustment changes the  $p$  value at which results were considered significant. Thus,  $p$  values required to be significant were presented in the results for observed  $p$  values greater than  $p < .001$ , though all observed  $p$  values were compared to the Benjamini-Hochberg adjusted  $p$  value for significance.

## 3. Results

Demographic information is presented in Table 1. Internalized homophobia, sexual orientation concealment, heterosexist discrimination, community involvement, APED misuse, positively screening for an eating disorder, and positively screening for BDD were all positively correlated (Table 2). Overall, 172 women (35.8%)

and 140 men (29.7%) screened positive for an eating disorder, 240 women (49.7%) and 249 men (52.1%) screened positive for BDD, and 123 women (25.5%) and 171 men (35.7%) engaged in AAS, growth hormone, or DHEA misuse.

### 3.1. Eating pathology

#### 3.1.1. Internalized homophobia

See Table 3 for full results. Greater internalized homophobia ( $p < .001$ ) and greater community involvement ( $p < .001$ ) were associated with higher odds of screening positive for an eating disorder. There was no significant interaction between internalized homophobia and community involvement.

#### 3.1.2. Sexual orientation concealment

See Table 3 for full results. Greater sexual orientation concealment ( $p < .001$ ) and greater community involvement ( $p < .001$ ) were associated with higher odds of screening positive for an eating disorder. There was no significant interaction between sexual orientation concealment and community involvement.

#### 3.1.3. Heterosexist discrimination

See Table 3 for full results. Greater heterosexist discrimination ( $p < .001$ ) and greater community involvement ( $p = .002$ ; Benjamini-Hochberg adjustment  $p = .014$ ) were associated with higher odds of screening positive for an eating disorder. There was no significant interaction between heterosexist discrimination and community involvement. See Table 3 for full results.

### 3.2. Dysmorphic concerns

#### 3.2.1. Internalized homophobia

See Table 4 for full results. Greater internalized homophobia ( $p < .001$ ) and greater community involvement ( $p < .001$ ) were associated with higher odds of screening positive for BDD. There was no significant interaction between internalized homophobia and community involvement ( $p = .026$ ) after applying a Benjamini-Hochberg adjustment ( $p = .023$ ).

#### 3.2.2. Sexual orientation concealment

See Table 4 for full results. As indicated by the Box-Tidwell test, a quadratic term was added for sexual orientation concealment in Step 2. In Step 3 the interaction between sexual orientation concealment and community involvement as well as the interaction between sexual orientation concealment squared and community involvement was entered. Greater community involvement ( $p < .001$ ) was associated with higher odds of screening positive for BDD. Both the linear ( $p < .001$ ) and quadratic ( $p = .021$ , Benjamini-Hochberg adjustment  $p = .022$ ) terms of sexual orientation concealment were associated with odds of screening positive for BDD. That is, the odds of screening positive for BDD increased from sexual orientation concealment's minimum value of 1 (1.35 SD below mean) to 4.61 (1.97 SD above mean), and then the odds of screening positive for BDD decreased from 4.61 to the scale's maximum value of 5 (2.33 SD above mean; see supplemental information for figure). There was no significant interaction terms in Step 3.

#### 3.2.3. Heterosexist discrimination

See Table 4 for full results. Greater heterosexist discrimination ( $p < .001$ ) and greater community involvement ( $p = .004$ , Benjamini-Hochberg adjustment  $p = .016$ ) were associated with higher odds of screening positive for BDD. There was no significant interaction between heterosexist discrimination and community involvement.

**Table 1**  
Demographics of the sample.

Characteristic	Total (N = 962) M (SD)	Men (n = 479) M (SD)	Women (n = 483) M (SD)
Age	23.68 (3.73)	24.03 (3.76)	23.33 (3.68)
Weight	165.35 (54.02)	168.13 (55.22)	162.61 (52.74)
Internalized Homophobia	2.04 (1.05)	2.22 (1.08)	1.86 (1.00)
Sexual Orientation Concealment	2.47 (1.09)	2.64 (1.06)	2.29 (1.09)
Heterosexist Discrimination	2.25 (1.19)	2.34 (1.17)	2.15 (1.20)
Community Involvement	16.91 (6.64)	17.18 (6.48)	16.63 (6.79)
	N(%)	N(%)	N(%)
Sexual Identity			
Gay/Lesbian	336 (34.9)	239 (49.9)	97 (20.1)
Bisexual	564 (58.6)	206 (43.0)	358 (74.1)
Asexual	20 (2.1)	10 (2.1)	10 (2.1)
Other <sup>a</sup>	42 (4.4)	24 (5.0)	18 (3.7)
Sexual Attraction			
Only Same Sex	295 (30.7)	203 (42.4)	92 (19.0)
Mostly Same Sex	142 (14.8)	89 (18.6)	53 (11.0)
Equally Opposite and Same Sex	525 (54.6)	187 (39.0)	338 (70.0)
Race <sup>b</sup>			
White	371 (38.6)	184 (38.4)	187 (38.7)
Black/African American	294 (30.6)	146 (30.5)	148 (30.6)
Native American/American Indian	23 (2.4)	13 (2.7)	10 (2.1)
Asian/Pacific Islander	272 (28.3)	134 (28.0)	138 (28.6)
Ethnicity			
Hispanic/Latino	234 (24.3)	120 (25.1)	114 (23.6)
Non-Hispanic/Latino	728 (75.7)	359 (74.9)	369 (76.4)
U.S. Region			
West	224 (23.3)	111 (23.2)	113 (23.4)
Southwest	112 (11.6)	54 (11.3)	58 (12.0)
Midwest	174 (18.1)	90 (18.8)	84 (17.4)
Southeast	264 (27.4)	134 (28.0)	130 (26.9)
Northeast	188 (19.5)	90 (18.8)	98 (20.3)
Positive Eating Disorder Screen	312 (32.4)	140 (29.7)	172 (35.8)
Positive Body Dysmorphic Disorder Screen	489 (50.8)	249 (52.1)	240 (49.7)
Appearance- and Performance-Enhancing Drug Misuse	294 (30.6)	171 (35.7)	123 (25.5)

<sup>a</sup> Other reported sexual identities included pansexual, panromantic, omnisexual, demisexual, queer, and straight.

<sup>b</sup> Two men (0.4 % of the sample) did not report race.

**Table 2**  
Correlations between study variables.

	1	2	3	4	5	6	7	8	9	10	11
1. Internalized Homophobia											
2. Sexual Orientation Concealment	.51***										
3. Heterosexist Discrimination	.40***	.56***									
4. Community Involvement	.30***	.26***	.40***								
5. Positive Eating Disorder Screen	.22***	.20***	.26***	.26***							
6. Positive Body Dysmorphic Disorder Screen	.29***	.37***	.48***	.32***	.38***						
7. Appearance- and Performance-Enhancing Drug Misuse	.42***	.28***	.47***	.36***	.20***	.36***					
8. Age	.03	-.09	-.01	.04	-.05	-.13**	.00				
9. Race	.02	.00	-.11*	-.07	-.07	-.13**	-.04	-.14**			
10. Ethnicity	.12**	.07	.20***	.12**	.13**	.20***	.19***	.00	-.22***		
11. Sexual Identity	.07	.02	-.08	-.04	-.01	-.02	.03	-.19***	.03	.02	

Note. Correlation coefficients appear below the diagonal for men and above the diagonal for women. Race was coded as 0 for White and 1 for other. Ethnicity was coded as 0 for not Hispanic/Latino and 1 for Hispanic/Latino. Gender was coded as 0 for women and 1 for men. Sexual Identity was coded as 0 for gay/lesbian and 1 for other. \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

### 3.3. Appearance- and performance-enhancing drug misuse

#### 3.3.1. Internalized homophobia

See Table 5 for full results. As indicated by the Box-Tidwell test, a quadratic term was added for community involvement in Step 2. In Step 3, the interaction between internalized homophobia and community involvement as well as internalized homophobia and the quadratic term of community involvement were entered. Greater internalized homophobia ( $p < .001$ ) was associated with higher odds of misusing APEDs. Both the linear ( $p < .001$ ) and quadratic ( $p = .022$ , Benjamini-Hochberg adjustment  $p = .023$ ) terms of community involvement were associated with odds of APED misuse. That

is, the odds of APED misuse increased from community involvement's minimum value of 6 (1.64 SD below mean) to 32.98 (2.42 SD above mean), and then the odds of APED misuse decreased from 32.98 to the scale's maximum value of 36 (2.88 SD above mean; see supplemental information for figure). There were no significant interaction terms in step 3.

#### 3.3.2. Sexual orientation concealment

See Table 5 for full results. As indicated by the Box-Tidwell test, both linear and quadratic terms were added for sexual orientation concealment and community involvement in Step 2. In Step 3, four interaction terms were added: (1) linear sexual orientation

**Table 3**  
Summary of Results for Positive Eating Disorder Screen.

	Internalized Homophobia			Sexual Orientation Concealment			Heterosexist Discrimination		
	OR	95% CI	Wald's $\chi^2$	OR	95% CI	Wald's $\chi^2$	OR	95% CI	Wald's $\chi^2$
<b>Step 1: Demographic Variables</b>									
Age	0.96	[0.92, 1.00]	4.41	0.97	[0.93, 1.01]	2.37	0.97	[0.93, 1.01]	2.42
Race	0.88	[0.65, 1.18]	0.75	0.91	[0.67, 1.23]	0.39	0.93	[0.68, 1.26]	0.23
Ethnicity	1.32	[0.95, 1.84]	2.67	1.39	[1.00, 1.93]	3.83	1.32	[0.94, 1.85]	2.49
Gender	<b>0.67</b>	<b>[0.50, 0.91]</b>	<b>6.48</b>	<b>0.68</b>	<b>[0.50, 0.91]</b>	<b>6.49</b>	0.70	[0.51, 0.95]	5.26
Sexual Identity	1.05	[0.76, 1.44]	0.08	1.09	[0.79, 1.50]	0.26	1.21	[0.87, 1.68]	1.26
$\chi^2$	16.62 ( $p = .005$ )			16.70 ( $p = .005$ )			15.93 ( $p = .007$ )		
$R^2$ <sup>a</sup>	.02			.02			.02		
<b>Step 2: Minority Stress and Community Involvement</b>									
Minority Stressor	<b>1.34</b>	<b>[1.16, 1.55]</b>	<b>16.04</b>	<b>1.36</b>	<b>[1.18, 1.56]</b>	<b>18.57</b>	<b>1.41</b>	<b>[1.22, 1.64]</b>	<b>20.69</b>
Community Involvement	<b>1.06</b>	<b>[1.04, 1.08]</b>	<b>24.05</b>	<b>1.06</b>	<b>[1.04, 1.09]</b>	<b>25.59</b>	<b>1.04</b>	<b>[1.01, 1.07]</b>	<b>9.24</b>
Step $\chi^2$	58.31 ( $p < .001$ )			59.92 ( $p < .001$ )			55.72 ( $p < .001$ )		
Model $\chi^2$	74.93 ( $p < .001$ )			76.62 ( $p < .001$ )			71.66 ( $p < .001$ )		
$R^2$ <sup>a</sup>	.11			.11			.11		
<b>Step 3: Interaction</b>									
Minority Stressor $\times$ Community Involvement	1.00	[0.98, 1.02]	0.00	1.00	[0.98, 1.02]	0.07	0.99	[0.98, 1.01]	0.94
Step $\chi^2$	<0.01 ( $p = .989$ )			0.07 ( $p = .788$ )			0.93 ( $p = .335$ )		
Model $\chi^2$	74.93 ( $p < .001$ )			76.69 ( $p < .001$ )			72.59 ( $p < .001$ )		
$R^2$ <sup>a</sup>	.11			.11			.11		

Note. OR = odds ratio; CI = confidence interval. Race was coded as 0 for white and 1 for other. Ethnicity was coded as 0 for not Hispanic/Latino and 1 for Hispanic/Latino. Gender was coded as 0 for women and 1 for men. Sexual Identity was coded as 0 for gay/lesbian and 1 for other. Boldface are significant effects after comparing to Benjamini-Hochberg adjustment  $p$  value.

<sup>a</sup> Nagelkerke  $R^2$  is reported.

**Table 4**  
Summary of Results for Positive Body Dysmorphic Disorder Screen.

	Internalized Homophobia			Sexual Orientation Concealment			Heterosexist Discrimination		
	OR	95% CI	Wald's $\chi^2$	OR	95% CI	Wald's $\chi^2$	OR	95% CI	Wald's $\chi^2$
<b>Step 1: Demographic Variables</b>									
Age	<b>0.94</b>	<b>[0.90, 0.97]</b>	<b>11.74</b>	<b>0.95</b>	<b>[0.91, 0.99]</b>	<b>7.09</b>	<b>0.94</b>	<b>[0.90, 0.97]</b>	<b>10.47</b>
Race	<b>0.67</b>	<b>[0.50, 0.90]</b>	<b>7.08</b>	<b>0.66</b>	<b>[0.49, 0.90]</b>	<b>7.07</b>	0.76	[0.56, 1.03]	3.07
Ethnicity	<b>1.67</b>	<b>[1.19, 2.34]</b>	<b>8.89</b>	<b>1.78</b>	<b>[1.26, 2.52]</b>	<b>10.65</b>	<b>1.60</b>	<b>[1.12, 2.29]</b>	<b>6.53</b>
Gender	0.95	[0.71, 1.28]	0.11	0.88	[0.65, 1.18]	0.75	0.96	[0.71, 1.31]	0.06
Sexual Identity	1.00	[0.74, 1.37]	0.00	1.03	[0.75, 1.41]	0.03	1.31	[0.94, 1.83]	2.54
$\chi^2$	37.55 ( $p < .001$ )			37.75 ( $p < .001$ )			34.06 ( $p < .001$ )		
$R^2$ <sup>a</sup>	.05			.05			.05		
<b>Step 2: Minority Stress and Community Involvement</b>									
Minority Stressor	<b>1.57</b>	<b>[1.35, 1.82]</b>	<b>34.91</b>	<b>1.94</b>	<b>[1.68, 2.24]</b>	<b>81.49</b>	<b>2.13</b>	<b>[1.81, 2.51]</b>	<b>80.94</b>
Community Involvement	<b>1.08</b>	<b>[1.06, 1.11]</b>	<b>43.72</b>	<b>1.08</b>	<b>[1.04, 1.12]</b>	<b>20.56</b>	<b>1.04</b>	<b>[1.01, 1.07]</b>	<b>8.16</b>
Minority Stressor <sup>2</sup>	n/a			<b>0.86</b>	<b>[0.75, 0.98]</b>	<b>5.30</b>	n/a		
Step $\chi^2$	110.35 ( $p < .001$ )			159.44 ( $p < .001$ )			163.95 ( $p < .001$ )		
Model $\chi^2$	147.90 ( $p < .001$ )			197.20 ( $p < .001$ )			198.00 ( $p < .001$ )		
$R^2$ <sup>a</sup>	.19			.25			.26		
<b>Step 3: Interaction</b>									
Minority Stressor $\times$ Community Involvement	1.03	[1.00, 1.05]	4.95	1.02	[1.00, 1.04]	3.29	0.99	[0.97, 1.01]	1.16
Minority Stressor <sup>2</sup> $\times$ Community Involvement	n/a			1.00	[0.98, 1.02]	0.02	n/a		
Step $\chi^2$	5.29 ( $p = .022$ )			3.56 ( $p = .169$ )			1.13 ( $p = .288$ )		
Model $\chi^2$	153.18 ( $p < .001$ )			200.75 ( $p < .001$ )			199.13 ( $p < .001$ )		
$R^2$ <sup>a</sup>	.20			.25			.26		

Note. OR = odds ratio; CI = confidence interval. Race was coded as 0 for white and 1 for other. Ethnicity was coded as 0 for not Hispanic/Latino and 1 for Hispanic/Latino. Gender was coded as 0 for women and 1 for men. Sexual Identity was coded as 0 for gay/lesbian and 1 for other. Boldface are significant effects after comparing to Benjamini-Hochberg adjustment  $p$  value. <sup>2</sup> indicates a quadratic term.

<sup>a</sup> Nagelkerke  $R^2$  is reported.

concealment and community involvement, (2) linear sexual orientation concealment and quadratic community involvement, (3) quadratic sexual orientation concealment and linear community involvement, and (4) quadratic sexual orientation concealment and community involvement were added. For sexual orientation concealment, both the linear ( $p < .001$ ) and quadratic terms ( $p = .003$ , Benjamini-Hochberg adjustment  $p = .015$ ) were associated with odds of APED misuse. That is, the odds of APED misuse increased from sexual orientation concealment's minimum value of 1 (1.35 SD below mean) to 3.31 (0.78 SD above mean), and then the odds of APED misuse decreased from 4.00 to the scale's maximum value of 5

(2.33 SD above mean; see supplemental information for figure). For community involvement, the quadratic term was not significant ( $p = .064$ ) but the linear term was significant ( $p < .001$ ), indicating that greater community involvement is associated with greater odds of misusing APEDs. There were no significant interaction terms in Step 3.

3.3.3. Heterosexist discrimination

See Table 5 for full results. As indicated by the Box-Tidwell test, a quadratic term was added for heterosexist discrimination in Step 2. In Step 3, the interaction between heterosexist discrimi-

**Table 5**  
Summary of Results for Appearance- and Performance-Enhancing Drug Misuse.

	Internalized Homophobia			Sexual Orientation Concealment			Heterosexist Discrimination		
	OR	95% CI	Wald's $\chi^2$	OR	95% CI	Wald's $\chi^2$	OR	95% CI	Wald's $\chi^2$
<b>Step 1: Demographic Variables</b>									
Age	1.00	[0.96, 1.05]	0.01	1.02	[0.97, 1.06]	0.45	1.00	[0.95, 1.05]	0.00
Race	1.03	[0.72, 1.45]	0.02	1.06	[0.76, 1.49]	0.12	1.22	[0.85, 1.77]	1.16
Ethnicity	<b>1.85</b>	<b>[1.27, 2.69]</b>	<b>10.38</b>	<b>2.00</b>	<b>[1.40, 2.88]</b>	<b>14.15</b>	<b>1.74</b>	<b>[1.17, 2.59]</b>	<b>7.34</b>
Gender	1.29	[0.92, 1.83]	2.12	1.38	[0.99, 1.93]	3.55	<b>1.65</b>	<b>[1.15, 2.37]</b>	<b>7.25</b>
Sexual Identity	0.97	[0.67, 1.39]	0.03	1.01	[0.71, 1.44]	0.00	<b>1.57</b>	<b>[1.07, 2.31]</b>	<b>5.25</b>
$\chi^2$	40.45 ( $p < .001$ )			40.15 ( $p < .001$ )			35.99 ( $p < .001$ )		
$R^2$ <sup>a</sup>	.06			.06			.06		
<b>Step 2: Minority Stress and Community Involvement</b>									
Minority Stressor	<b>1.91</b>	<b>[1.55, 2.34]</b>	<b>37.64</b>	<b>1.59</b>	<b>[1.30, 1.96]</b>	<b>19.65</b>	<b>3.47</b>	<b>[2.73, 4.41]</b>	<b>102.95</b>
Community Involvement	<b>1.15</b>	<b>[1.11, 1.19]</b>	<b>69.02</b>	<b>1.13</b>	<b>[1.08, 1.18]</b>	<b>28.16</b>	<b>1.08</b>	<b>[1.04, 1.12]</b>	<b>14.17</b>
Minority Stressor <sup>2</sup>	n/a			<b>0.76</b>	<b>[0.63, 0.91]</b>	<b>8.66</b>	<b>0.68</b>	<b>[0.58, 0.80]</b>	<b>21.63</b>
Community Involvement <sup>2</sup>	<b>1.00</b>	<b>[0.99, 1.00]</b>	<b>5.26</b>	1.00	[0.99, 1.00]	3.44	n/a		
Step $\chi^2$	228.26 ( $p < .001$ )			193.84 ( $p < .001$ )			267.95 ( $p < .001$ )		
Model $\chi^2$	268.71 ( $p < .001$ )			233.99 ( $p < .001$ )			303.94 ( $p < .001$ )		
$R^2$ <sup>a</sup>	.35			.31			.40		
<b>Step 3: Interaction</b>									
Minority Stressor $\times$ Community Involvement	1.03	[1.00, 1.06]	3.32	1.01	[0.97, 1.05]	0.27	1.00	[0.97, 1.04]	0.05
Minority Stressor $\times$ Community Involvement <sup>2</sup>	1.00	[1.00, 1.00]	0.13	1.00	[1.00, 1.01]	0.71	n/a		
Minority Stressor <sup>2</sup> $\times$ Community Involvement	n/a			1.03	[0.99, 1.06]	1.98	1.01	[0.99, 1.03]	1.17
Minority Stressor <sup>2</sup> $\times$ Community Involvement <sup>2</sup>	n/a			1.00	[1.00, 1.00]	0.05	n/a		
Step $\chi^2$	5.42 ( $p = .067$ )			11.40 ( $p = .022$ )			3.13 ( $p = .209$ )		
Model $\chi^2$	274.13 ( $p < .001$ )			245.40 ( $p < .001$ )			307.08 ( $p < .001$ )		
$R^2$ <sup>a</sup>	.35			.32			.41		

Note. OR = odds ratio; CI = confidence interval. Race was coded as 0 for white and 1 for other. Ethnicity was coded as 0 for not Hispanic/Latino and 1 for Hispanic/Latino. Gender was coded as 0 for women and 1 for men. Sexual Identity was coded as 0 for gay/lesbian and 1 for other. Boldface are significant effects after comparing to Benjamini-Hochberg adjustment  $p$  value. <sup>2</sup> indicates a quadratic term.

<sup>a</sup> Nagelkerke  $R^2$  is reported.

nation and community involvement as well as the quadratic term of heterosexist discrimination and community involvement was entered. Greater community involvement ( $p < .001$ ) was associated with higher odds of APED misuse. Both the linear ( $p < .001$ ) and quadratic ( $p < .001$ ) terms of heterosexist discrimination were associated with odds of APED misuse. That is, the odds of APED misuse increased from the discrimination's minimum value of 1 (1.05 SD below mean) to 3.85 (1.35 SD above mean), and then the odds of APED misuse decreased from 3.83 to the scale's maximum value of 6 (3.16 SD above mean; see supplemental information for figure). There were no significant interaction terms in Step 3.

### 3.4. Summary

In all models, community involvement and minority stress were associated with greater disordered body image behaviors and concerns. This effect was sometimes qualified by a significant quadratic effect, such that once an individual reached a certain level of a minority stressor or community involvement, greater minority stress or community involvement was not associated with greater disordered body image behaviors and concerns. There were no interaction terms that were significant after a Benjamini-Hochberg adjustment, indicating that there was neither a buffering effect nor an accelerant effect of community involvement on minority stress.

## 4. Discussion

Overall, disordered body image behaviors and concerns were high in this sample. Positive screens for an eating disorder in SM men (29.7%) were higher than previously reported with the same instrument in presumed majority heterosexual men (12.9%; Douglas, Kwan, Minnich, & Gordon, 2019; 26.3%; Mehak & Racine, 2019); positive screens for SM women (35.2%) were also higher than those found in prior studies with presumed majority hetero-

sexual women (26.5%; Douglas et al., 2019; 30.5%; Mehak & Racine, 2019). Similarly, 50.8% of the sample screened positive for BDD, a rate much higher than prior studies in presumed majority heterosexual individuals using the same cut score (7.1%; Schieber, Kollei, de Zwaan, & Martin, 2018). The current study bolsters previous research noting high rates of disordered body image behaviors and concerns among SM individuals (Calzo et al., 2017).

A potentially complex finding is that 30.6% of the current sample endorsed misusing APEDs in the past year. Prior research in SM adolescent boys has found lifetime prevalence rates of AAS misuse of 9.3–25.3% as compared to 2.6–3.1% lifetime prevalence in heterosexual adolescent boys (Blashill & Safren, 2014; Blashill et al., 2017) and a prevalence of 5.2% in adult SM men (Griffiths, Murray, Dunn, & Blashill, 2017). Comparable studies in presumably primarily heterosexual young adults of lifetime AAS misuse (1.1–1.7%; Pope et al., 2014) and lifetime APED misuse generally (18.3%; Lazuras et al., 2017) have found much lower rates. As noted by Griffiths et al. (2017), estimates for AAS may be inflated if individuals are unfamiliar with medical terminology and therefore may endorse AAS misuse while thinking of non-AAS substances (e.g., corticosteroids). The current study did not provide examples of specific types of commonly used AAS, but did specify anabolic/injectable steroids without a doctor's prescription. Therefore, our estimates may be slightly inflated, but we do not believe this to be a significant limitation. Furthermore, the current study examined APED use which includes AAS usage, but also includes DHEA and growth hormone. Therefore, it is not surprising that we found higher prevalence rates when including more substances. Still, the high endorsement of APED misuse in the past year as compared to lifetime prevalence rates is notable. Prior research on APED use has emphasized the importance of body concerns as central in determining problematic use (Hildebrandt et al., 2011). Given research indicating the high level of body concerns in SM individuals (e.g., Calzo et al., 2017), this population may resort to APED misuse as a method of alleviating these concerns.

In all models, behavioral community involvement and minority stressors explained significant variance in outcomes, indicating that both behavioral community involvement and minority stressors explain increased disordered body image behaviors and concerns among SM individuals. The finding that minority stressors are associated with increased body image behaviors and concerns is not surprising in light of previous research (e.g., Bayer et al., 2017; Brewster et al., 2017; Oshana et al., 2020) and is line with minority stress theory which attributes the greater psychological concerns of SM individuals to existing in a heterosexist society (Meyer, 2003). Of note, although minority stressors in the current sample were fairly low, a strong association with body image behaviors and concerns was still observed, indicating that even fairly low levels of minority stress are associated with poorer outcomes. However, the lack of a buffering effect of community involvement on minority stress is in direct contrast to minority stress theory, which hypothesizes that community cohesiveness serves to protect against adverse mental health effects by promoting group-level coping. Indeed, numerous studies have found that involvement in the SM community lessens the impact of minority stressors on mental health concerns (e.g., Griffin et al., 2018; Lambe et al., 2017; Puckett et al., 2015). However, community involvement does not appear to alleviate body image concerns.

A potential explanation for the lack of a buffering effect found in the current study draws on intraminority stress theory (Pachankis et al., 2020), which would propose that stressors within the community, a construct that may correlate with behavioral involvement in the community, is deleterious with certain outcomes. While not explored in the current study, there are notable intracommunity stressors that are theoretically relevant for disordered body image concerns and behaviors. For instance, SM men explicitly endorse strong physical attractiveness pressures within the community and attractiveness as part of determining in-group status (Pachankis et al., 2020). Prior research has identified SM-centric media as sources of pressure for SM men (Jankowski, Fawker, Slater, & Tiggemann, 2014). This type of pressure to conform to the body ideal, consistent with the tripartite influence model of eating pathology (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999), may be theorized to lead to greater body concerns and engagement in behavior to improve appearance. Another potential intracommunity stressor is sexual objectification experiences among SM men. Sexual objectification, or the experience of being treated as a sexual body that is valued for its use by others, is a key mechanism in objectification theory (Fredrickson & Roberts, 1997; see Wiseman & Moradi, 2010 for a test in gay men) that promotes eating disorder symptoms and body concerns. Previous cross-sectional research has found an indirect effect of community involvement on body dissatisfaction through sexual objectification experiences among gay men (Davids, Watson, Nilsson, & Marszalek, 2015), a risk factor for the development of eating pathology (Stice & Shaw, 2002). Thus, sexual objectification experiences may serve as an intracommunity stressor to which SM men are exposed, elevating risk for disordered body image concerns and change behaviors. To avoid perpetuating myths around gay men being universally obsessed with appearance (Kane, 2010), the above hypotheses do not suggest that the community is responsible for creating disordered body image concerns and behaviors. Rather, intraminority stress theory specifically emphasizes that the status concerns within the SM community may be a reaction to stigmatizing stereotypes of gay men being weak or feminine. Therefore, a further investigation of the processes within the community specifically as they are relevant to minority stress, felt stigma, and disordered body image concerns and behaviors would be important for explicating how heterosexism may influence community culture.

To what extent the same intracommunity stressors are relevant for SM women is unclear. Previous qualitative research has found

that SM women are more accepting of diverse body types and place less emphasis on physical appearance (Henrichs-Beck, Szymanski, Feltman, & Batchelor, 2015; Siever, 1994). However, other qualitative research found that lesbian and bisexual women universally identified feeling the strongest pressure towards thinness from the mainstream media, but differed in their perspective on the SM community where some found it protective, others denied feeling protected from mainstream pressures, and still others found pressure from within the community to look thinner (Huxley, Clarke, & Halliwell, 2014). Since the majority of the current sample of women identified as bisexual, our results may be influenced by this representation. Specifically, bisexual women may be in relationships with men and therefore, under the tenets of objectification theory (Fredrickson & Roberts, 1997), more directly subjected to the male gaze, which leads to objectification and self-objectification. Indeed, qualitative work among bisexual women has found that women often endorse feeling greater objectification while in relationships with men as compared to women (Chmielewski & Yost, 2013). While previous research has validated objectification theory with modifications to include SM stressors (Brewster et al., 2014; Watson et al., 2015), it is unclear what role the community may play in perpetuating or protecting against sexual objectification experiences and how objectification may operate differently between SM women based on sexual identity. Therefore, community involvement has been relatively understudied with regard to disordered body image concerns and behaviors among SM women.

Given that community involvement was associated with greater odds of disordered body image concerns and behaviors, it is important that future investigations of body image within the SM population include community involvement. Of note, prior researchers have differentiated community involvement into two parts: *community connectedness*, representing cognitive identification with the community and a sense of belonging, and *community participation*, representing behavioral participation in the community (Frost & Meyer, 2012). Since the current study defined community involvement as concrete behaviors such as participating in social events, future researchers may consider examining how the current findings might differ if community connectedness was utilized as a potential moderator. Furthermore, the items in the current study reflected a wide range of diverse experiences related to the SM community that may be more or less greatly associated with body concerns. Theoretically, there are more body-salient social interactions that can exist within the SM community (e.g., going to clubs may be more associated with sexual objectification experiences as opposed to donating money). Although an exploratory factor analysis indicated that the current items were best represented as a unitary construct, a more comprehensive assessment of behavioral interactions within the community with a wider range of experiences may exhibit a different structure and lead to varied associations with body image concerns based on type of experience. Future research should examine both of these perspectives on community involvement and body image concerns.

Several limitations should be considered when interpreting these results. Analyses were conducted using data from a single time point; therefore, no assertions can be made about temporal ordering within the associations between minority stressors, community involvement, and disordered body image behaviors and concerns. Research utilizing longitudinal designs will allow for temporal inferences about these associations and may offer clearer intervention targets for disordered body image concern and behavior prevention. Additionally, further research needs to be conducted to examine the association between community involvement and disordered body image concerns and behaviors among SM women. As previously noted, our sample largely consisted of bisexual women, and prior research suggests that community involvement may have a differential effect on body



image concerns among bisexual as compared to other SM women (Hazzard et al., 2019; Henrichs-Beck et al., 2015; Huxley et al., 2014; Siever, 1994). Therefore, a broader sample that allows for comparisons among SM women could help clarify the differential associations of community involvement among these populations. In general, little research to date has examined the effect of community involvement and minority stress on health outcomes among SM women; thus, the inclusion of these populations in future research efforts is critical. In addition, because the current study limited participation to cisgender SM individuals findings cannot be generalized to gender minority SM individuals. Finally, the current study limited participation to individuals between the ages of 18–30, given that most research identifies this as a particularly salient time for the development of body image disorders (Bjornsson et al., 2013; Hudson, Hiripi, Pope, & Kessler, 2007); however, the findings are therefore limited to young SM individuals and cannot be generalized beyond this population.

These findings suggest that body-image related concerns and behaviors were notably high among SM populations. This may be largely attributed to minority stress, which was associated with increased disordered body image behaviors and concerns universally, highlighting the importance of including such stressors in body image models among SM individuals. SM community involvement does not appear to buffer the association minority stress with these outcomes. In fact, community involvement may actually contribute a small effect to worsen disordered body image outcomes. Given this preliminary evidence, future research should seek to elaborate on the specific mechanisms within the SM community that may be differentially protective (e.g., body acceptance), harmful (e.g., intraminority stress), or simply not enough to mitigate the oppressive hegemonic standards of appearance. Furthermore, an important future direction would be to establish whether the negative mental health effects of intraminority stress extend to disordered body image concerns and behaviors. Identifying specific intracommunity mechanisms of action would allow a better understanding of the etiology of disordered body image concerns and behaviors among SM populations. Qualitative methods may also aid in understanding how minority stress, intraminority stress, and hegemonic standards of appearance intersect to construct body image for individuals in the SM community.

Furthermore, these results may impart some clinical implications for both body concern prevention and treatment. A better understanding of the association between intracommunity minority stressors and body concerns can allow clinicians to provide culturally-competent care and inform potential treatment targets for SM clients. Additionally, the sheer pervasiveness of body concerns among SM individuals suggests a need for broader prevention efforts at the community level. A peer-led intervention could target intracommunity minority stressors maintaining body concerns at multiple levels (individual, interpersonal, and community) and may also be more palatable, as the message of body acceptance is delivered from someone who understands the SM community and the role it can play in one's body image. The PRIDE Body Project is a two session, peer-led eating disorder prevention project that was designed to target body concerns in a brief, feasible intervention for community implementation. In this dissonance-based program, SM men are asked to engage in activities that require them to verbally counter the body ideal and resist pressure to obtain the body ideal individually and through community action (Brown & Keel, 2015). It was derived from the Body Project, an eating disorder prevention program for female youth and young adults (Stice, Rohde, & Shaw, 2013), to specifically address the needs of SM men. The results of the pilot study were promising (Brown & Keel, 2015), such that those in the active condition experienced significant reductions in body dissatisfaction, drive for muscularity, dietary restraint, and bulimic symptoms at posttreatment and four week follow-up. The PRIDE

Body Project is currently being further evaluated in a large randomized control trial. Should the RCT establish further empirical support for the program, it would bolster arguments to implement this intervention throughout SM communities.

## 5. Conclusions

The results of this study demonstrate the pervasiveness of dysmorphic concerns, eating pathology, and APED misuse among SM individuals, and highlight the salience of minority stressors in disordered body image concerns and behaviors. Further research into the association between community involvement and disordered body image behaviors and concerns could lead to important insights into how to improve body image concern prevention and treatment within this population. SM community involvement plays a complex role in the lives of SM individuals, and better understanding its association with these elevated rates of disordered body image concerns and behaviors, may allow for a subsequent reduction in the burden that these concerns and behaviors place on this population.

## Funding

This work was supported by the National Institutes of Health [grant number 5R25GM058906].

## CRedit authorship contribution statement

**Alexandra D. Convertino:** Conceptualization, Methodology, Formal analysis, Writing - original draft, Writing - review & editing. **John P. Brady:** Writing - original draft, Writing - review & editing. **Christopher A. Albright:** Writing - original draft, Writing - review & editing. **Manuel Gonzales:** Funding acquisition, Investigation, Data curation, Writing - original draft, Writing - review & editing. **Aaron J. Blashill:** Funding acquisition, Conceptualization, Methodology, Investigation, Writing - review & editing, Supervision.

## Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:<https://doi.org/10.1016/j.bodyim.2020.10.006>.

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