

Running head: SEXUAL MINORITY IDENTITY, BODY IMAGE & PSYCHOPATHOLOGY

Sexual Minority Identity as a Moderator Between Body Image Concerns and Psychopathology

Undergraduate Research Thesis

Presented in partial fulfillment of the requirements for graduation *with research distinction* in Psychology in the undergraduate colleges of The Ohio State University

by

Lindsay Gillikin

The Ohio State University

Spring 2019

Project Advisor: Dr. Michael Vasey, Department of Psychology

Abstract

Sexual minorities experience mental illness (including anxiety and eating disorders) at higher rates than heterosexual individuals (Cochran et al., 2017; Hadland et al., 2014). However, mechanisms underlying these high rates of mental illness are poorly understood. The present research examined whether identifying as a sexual minority (vs. heterosexual) impacted the relationship between psychopathology and its known predictors, including body esteem and emotion regulation difficulties. I hypothesized that participants who identified as LGB would show a stronger relationship between body esteem and anxiety and eating disorder symptoms and a stronger relationship between emotion regulation difficulties and anxiety and eating disorder symptoms than heterosexual participants. I recruited 195 LGB and 194 heterosexual adults online via MTurk. Participants completed a series of online questionnaires that measured body esteem, emotion regulation, and symptoms of eating disorders, social anxiety, and generalized anxiety. Independent samples t-tests were used to compare sexual minority and heterosexual scores on each measure. The Hayes PROCESS macro was utilized to examine the hypothesized moderation effects. As predicted, LGB participants experienced significantly higher worry, difficulties with emotion regulation, and symptoms of disordered eating, social anxiety, and generalized anxiety compared to heterosexuals; they also experienced lower body esteem than heterosexuals. Sexual minority identity moderated the relationships between several body esteem subscales and social anxiety, as well as between body esteem and dieting behaviors. Identity moderated the relationship between maladaptive emotion regulation and social anxiety, but not generalized anxiety. These findings highlight the important role of sexual orientation in understanding mechanisms underlying an individual's psychopathology, and thus have critical implications for the provision of targeted, effective interventions.

Introduction

Sexual minorities experience mental illness at higher rates than heterosexual individuals (Cochran et al., 2017). Indeed, a study comparing the rates of Generalized Anxiety Disorder (GAD) in sexual minority and heterosexual adults found that 26.1% of sexual minority men and women met the criteria for diagnosis compared to only 11.5% of heterosexual men and women (Cohen et al., 2016). Additionally, several studies have indicated that LGB individuals experience significantly higher levels of social anxiety compared to heterosexual individuals (Kay, 2014, Pachankis & Goldfried, 2006, Safren, 2006). Further, in data collected from youth between 2003 and 2009, higher rates of weight control behaviors (which are associated with eating pathology) were found in sexual minority men and women, with weight control behavior being found in 32% of sexual minority men (vs. 9.4% of heterosexual men) and 34% of sexual minority women (vs. 18.8% of heterosexual women) (Hadland et al., 2014). Importantly, in the general population, over half of individuals diagnosed with eating disorders also meet the criteria for anxiety disorders (Meng, 2015), so understanding the mechanisms driving the high prevalence of each type of disorders (as well as their overlap) in the LGB population represents a critical public health problem.

At present, our understanding of mechanisms underlying anxiety disorders in LGB individuals centers around Meyer's (2003) minority stress model, which states that proximal and distal stressors specific to sexual minorities interact with coping capacity (including social support and intrapersonal resources like emotion regulation) to predict an individual's likelihood of developing a mental illness. Distal stressors refer to external stressors such as prejudice and discrimination; proximal stressors refer to internal processes, such as fear of rejection or internalized homophobia. More specific to anxiety disorders, the experience of being a part of a

sexual minority group has been related to higher rates of rejection sensitivity (a proximal minority stressor), contributing to the development of internalizing psychopathology like social anxiety, generalized anxiety, and posttraumatic stress disorder (Cohen et al., 2016). According to Pachankis (2007)'s model of concealing a stigmatized identity, the experience of concealing one's sexual orientation results in cognitive, affective, and behavioral effects that are related to anxiety disorder symptoms. For example, those who are concerned with concealing their sexual orientation may experience greater difficulty to achieve social acceptance, contributing to preoccupation with concealing one's sexual orientation and monitoring of one's own behaviors in social situations. Perseveration over these increased stressors is likely to contribute to increased anxiety symptoms, social avoidance, and isolation.

A similar story can be told about the etiology of eating disorders in LGB individuals. There is evidence that the increased prevalence of eating disorders in sexual minorities may be associated with poor self-esteem, exposure to stigma, and discrimination from others (Watson et al., 2017). The research in this area has largely been separated by gender, given the historical view that eating disorders are tied up in notions of femininity and societal expectations surrounding women's bodies (Cella et al., 2013). Previous findings have indicated that lesbian women are protected from the desire to fit the thin ideal, the notion that being thin is more desirable due to media portrayal and sociocultural attitudes about appearance, by virtue of being less influenced by pressures of the "male gaze" (Siever, 1994). However, more recent research has indicated that lesbian women are not protected from disordered eating (Bankoff et al., 2016). Several recent studies have found that lesbian women experience eating disorders at higher rates than heterosexual females (Calzo et al., 2018, Jones et al., 2019). One such study found that lesbian and bisexual women had three times the odds of reporting binge eating and purging

behaviors compared to heterosexual females (Calzo et al., 2018). Additionally, a study looking at rates of eating pathology found that sexual minority adolescent girls engaged in higher rates of restrictive and weight control eating pathology compared to heterosexual adolescent girls (Jones et al., 2019).

Findings have also indicated that sexual minority men engage in disordered eating at higher rates than heterosexual men due to sexual minority stigma (Wang & Borders, 2017). A recent study found that gay and bisexual men reported binge eating at 12 times the odds compared to heterosexual men (Calzo et al., 2018). The experience of gay identity formation has also been associated with concern for thinness and dieting in both gay men and lesbian women. For gay men, a later stage of gay identity formation was related to increased concern for thinness and dieting (Wagenbauch, 1998). Additionally, a study looking at body image in gay men found that within the gay community, in regards to body image, men tend to be more concerned with muscularity rather than weight. This study also found an association between body image and self esteem was moderated by perceived acceptance in the gay community such that low body image was associated with lower self esteem for gay men with low or moderate (but not high) involvement in the gay community (Levesque & Vichesky, 2006). Finally, a qualitative study looking at the ways in which lesbian women describe their experience of eating disorders, suggests that social isolation is a key factor in the development of eating disorders for for this population (Cassidy, 2014). In summary, findings have indicated that LGB individuals, both male and female, experience eating disorders at higher rates than their heterosexual peers; while several findings have indicated that aspects of minority stress contribute to these rates of mental illness, there is little research exploring the mechanisms by which these disorders develop in the LGB community.

One potential mechanism in the development of eating and anxiety disorders is the experience of body image. Body esteem refers to the range of positive or negative feelings an individual has towards their body and has been associated with self-esteem, eating disorders, and social anxiety along with other aspects of mental health (Frost et al., 2018). Looking more generally at the literature surrounding body image, how one feels about one's body has been related to both eating disorder and anxiety symptoms. A subtype of social anxiety that looks at the degree to which individuals become anxious when others or themselves evaluate their body, led to increased body checking behaviors and increased clinical impairment associated with eating disorders (White & Warren, 2014). In addition, there is evidence that women reporting low baseline anxiety and high perceived evaluation threat exhibit a high increase in state anxiety while exercising (Focht & Hausenblas, 2004). These studies indicate that poor body image and anxiety surrounding perceived social judgment are associated with increase in anxiety and eating disorder symptoms overall.

Additionally, it's also important to look at how gender and sexual orientation impact the relationships between body image and eating and anxiety symptoms. In general, male desire places a greater focus on physical attractiveness and thinness while female desire places more attention on factors aside from appearance (Sibley et al., 2011). This is thought to contribute to greater body image dissatisfaction and eating disorder prevalence for homosexual men and heterosexual women, compared to lesbians and heterosexual men (Siever, 1994). While recent research contradicts this hypothesis with regard to eating disorder prevalence in lesbian women (Bankoff et al., 2016; Calzo et al., 2018), this theory highlights the important role of gender, attraction, and interpersonal dynamics in the study of body image disturbance. A key finding related to the experience of gay men indicated a discrepancy between the body shapes of gay

men and the shapes that they believed a partner desired compared to the shape gay men ideally wanted in a partner for themselves. This finding indicated that attracting a partner was a key factor in the development of eating disorder symptoms for gay men (Fussner et al., 2015). Additionally, negative evaluation fears, which are related to body image disturbance, have been noted as a shared vulnerability between both eating and social anxiety disorders (Levinson & Rodebaugh, 2015). Considering that sexual minorities are at higher risk for negative evaluation fears due to minority stress and desire to conceal sexual orientation, this vulnerability is likely to have a greater impact on LGB individuals however there is very little research looking at body image in the LGB community. By exploring the effects of body image on eating disorder and anxiety symptoms further, we may be able to understand the effects of body image and desirability more clearly, especially in the experience of sexual minorities.

The ways in which individuals regulate emotions is another area that could provide clarity on the development of psychopathology symptoms. Emotion regulation (ER) encapsulates the processes by which individuals modify the emotions they have and when they have them (Gross, 2003). For example, worry is often thought of as a maladaptive emotion regulation strategy; it refers to repetitive thinking about negative events that may occur in the future. Research has indicated a strong correlation between emotion regulation difficulties like worry and the development of various types of psychopathology, including anxiety and eating disorders (Aldao et al., 2010). Worry, a maladaptive emotion regulation strategy, has been found as a precursor to drive for thinness, a predictor of eating disorder symptoms (Sala & Levinson, 2016). Bulimic symptoms have been associated with greater use of avoidance, a type of maladaptive emotion regulation, and less positive rational acceptance, an adaptive type of emotion regulation (Hughes et al., 2011). There is also a relationship between emotion regulation deficits and the

maintenance of anorexia nervosa symptoms over time (Racine et al., 2015). In addition, research has indicated that emotion regulation may be a beneficial transdiagnostic treatment for anxiety and eating disorders. According to a meta-analysis looking at the change in ER deficits post-treatment, decreases in maladaptive ER strategies (i.e. rumination, avoidance, and suppression) have contributed to parallel decreases in anxiety and eating disorder symptoms, along with several other closely related disorders (Sloan et al., 2017). Overall, these findings indicate that maladaptive emotion regulation has been associated with the development of psychopathology symptoms.

Considering the increased rates of psychopathology for sexual minorities, focusing on emotion regulation may provide clarity on means of reducing the mental health burden in this population. Focusing on LGB individuals, sexual minority adolescents display greater rates of emotion dysregulation than their heterosexual peers; these ER difficulties (specifically rumination and poor emotional awareness) appear to mediate the relationship between sexual minority status and symptoms of anxiety and depression (Hatzenbuehler et al., 2008). In contrast, adaptive emotion regulation strategies have been discussed as a means of diminishing negative affect for sexual minorities in heterosexist situations (i.e. situations where individuals face anti-gay discrimination in employment, housing, and legal protections; Hill et al., 2015). More research is needed in order to pinpoint the mechanisms by which emotion dysregulation impacts sexual minorities experiencing anxiety and eating disorder symptoms.

While it is clear that sexual minorities are at greater vulnerability for developing anxiety or eating disorder symptoms, it is less clear how sexual minority and heterosexual participants differ in risk factors for developing these disorders. Given the immense mental health burden carried by this population, it is critical that we increase our understanding of the mechanisms

underlying these disorders so that we can develop and deliver more targeted evidence-based treatments to these individuals.

The purpose of this correlational study was to examine whether sexual orientation serves as a moderator between body esteem and psychopathology symptoms and between emotion regulation and psychopathology. To answer this question, I first examined whether sexual minority and heterosexual adults differ in their rates of emotion regulation difficulties, anxiety, and eating disorder symptoms. Second, I will tested whether sexual orientation moderates the relationships between body esteem and psychopathology and between emotion regulation difficulties and psychopathology. I hypothesized that participants who identify as LGB will show a stronger relationship between body esteem and anxiety and eating disorder symptoms compared to heterosexual participants. Similarly, my second hypothesis was that there would be a stronger relationship between emotion regulation difficulties and anxiety and eating disorder symptoms in sexual minority participants compared to heterosexual participants.

Method

Recruitment and Prescreen

Participants were recruited using Amazon's Mechanical Turk (mTurk), and participants completed all study procedures online via Qualtrics. Adults ages 18 and older who resided in the United States and spoke English fluently were invited to complete the prescreen survey, titled "Demographics Survey." The prescreen survey included an informed consent form and questions regarding sexual orientation and other demographic variables (i.e. race, gender, age, etc.). An "attention question" was included to deter participants from selecting random responses.

Attention questions have been used successfully in prior psychology studies to increase data

integrity in online surveys (e.g., Oppenheimer, Meyvis, & Davidenko, 2009). The survey was approximately two minutes in length and participants were compensated \$0.10 for participation.

Approximately 2700 participants completed the prescreen. All participants who missed the attention question were excluded from invitation to the study. Two sexual orientation questions were used to assign groups. A self-report question asked participants if they identify as straight/heterosexual, lesbian/gay, bisexual, or other (text box included and participant asked to specify). The Kinsey Scale (Kinsey et al., 1948) was also used to characterize participants' sexual orientation dimensionally (i.e. from 0= "Exclusively Heterosexual" to 6= "Exclusively homosexual"). Participants were included in the LGB group if they indicated their sexual orientation as being lesbian/gay, bisexual, or other and scored 2 or higher on the Kinsey Scale. Participants were included in the heterosexual group if they indicated their sexual orientation as being straight/heterosexual and scored 1 or lower on the Kinsey Scale. Participants who responded significantly differently on both scales (i.e. heterosexual/straight and KS=6) were not assigned to a group or identified as eligible. All LGB participants who answered the attention question correctly were identified as eligible and invited to complete the study. Heterosexual participants who answered the attention question correctly were identified as eligible. However, since there were significantly more heterosexual participants who completed the prescreen than LGB participants, only a subset of the heterosexual group were invited to participate in the final survey.

Demographics

195 LGB participants (34% male, 66% female; mean age 33, sd: 9.69) and 194 Heterosexual participants (40% male, 60% female; mean age 38, sd: 11.97) completed the study. Overall, 77% of the sample were White/Caucasian, 11% were Black/African American, 8% were

Asian, 2% were American Indian/Alaskan Native/First Nations, 1% was Native Hawaiian/Other Pacific Islander, and 2% indicated Other. Demographics of each group are described in Table 1.

Table 1. Demographic characteristics of the sample

	Sexual minority group	Heterosexual group
N	195	194
Age	33 (9.69)	38 (11.97)
Sex	66% Female 34% Male	60% Female 40% Male
Sexual orientation	28% Gay/Lesbian 67% Bisexual 6% Other	
Kinsey Scale	0% (0) 3% (1) 29% (2) 30% (3) 6% (4) 10% (5) 28% (6)	86% (0) 13% (1) 1% (2)
Race	90% White/Caucasian 5% Black/African American 3% Asian 1% American Indian/Alaskan Native/First Nations 1% Other	64% White/Caucasian 16% Black/African American 13% Asian 2% American Indian/Alaskan Native/First Nations 4% Other
Ethnicity	9% Hispanic or Latino 91% Not Hispanic or Latino	13% Hispanic or Latino 87% Not Hispanic or Latino

Procedure

Participants invited to the study were sent a recruitment message on MTurk. As with the prescreen, participants were invited to complete a survey on Qualtrics. After signing the consent form, participants were asked demographics questions to assure that the responses provided for the sexual orientation question and Kinsey Scale in the prescreen were reliable. Participants who responded differently to the sexual orientation questions, indicating that they no longer identified with the group they had been assigned, were redirected to a page explaining that they were

ineligible for the study. The demographics questions were followed by a battery of self-report questionnaires (described below). A debriefing form was included at the end of the survey that included resources for counseling and psychological services. Data was excluded from analyses if participants missed three or more “attention questions,” completed the survey more than once, or failed to complete the survey.

Materials

Psychopathology.

GAD-7. The GAD-7 is a seven-item, self-report inventory that assesses for symptoms of Generalized Anxiety Disorder (GAD). Participants were asked to rate how often they felt bothered by symptoms of generalized anxiety (i.e. “Feeling nervous, anxious, or on edge”) over the course of the last 2 weeks on a scale of 0 (“Not at all sure”) to 3 (“Nearly every day”). Total scores were determined by summing the values for each participant (Spitzer et al., 2006). In the present study, Cronbach’s alpha was .92 for this measure.

Social Interaction Anxiety Scale (SIAS). The SIAS is a 20-item self-report inventory that assesses symptoms of social anxiety disorder, particularly anxiety experienced in dyads or groups. Participants were asked to rate characteristics of social anxiety disorder (i.e. “I get nervous if I have to speak with someone in authority (teacher, boss, etc.)”) on a scale of 0 (“Not at all”) to 4 (“Extremely”). Items were summed to determine total scores (Mattick & Clarke, 1998). In the present study, Cronbach’s alpha was .90 for this measure.

Eating Attitudes Test (EAT-26). Eating disorder symptoms were assessed using the EAT-26, a 26-item self-report measure of abnormal eating concerns. Two subscales from this measure were utilized: Dieting (EAT-DIET) subscale and Bulimia and Food Preoccupation (DIET-BUL) subscale. Participants were asked to rate how often they experienced various

cognitions (i.e. “Am terrified of being overweight”) and the frequency they engage in behaviors (i.e. “Gone on eating binges where you feel that you may not be able to stop”) that related to eating disorder symptoms. Items for both of the subscales were summed according the following scale: Always = 3, Usually = 2, Often = 1, Sometimes = 0, Rarely = 0, Never = 0. According to the scoring instructions, item 26 was reverse scored: Always = 0, Usually = 0, Often = 0, Sometimes = 1, Rarely = 2, Never = 3 (Garner et al., 1982). In the present study, Cronbach’s alphas were .82 for the Dieting subscale and .79 for the Bulimia and Food Preoccupation subscale.

Body Image.

Body Esteem Scale (BES). The BES is a 35-item questionnaire that intends to measure male and female body esteem. Individuals are asked to rate 35 body parts on a 5-point Likert scale. Men and women are measured on two different sets of subscales. For women, the subscales measure perceived sexual attractiveness (BES-SA) (items included: body scent, nose, lips, chin, chest or breasts, appearance of eyes, cheeks/cheekbones, sex drive, sex organs, sex activities, body hair, face), weight concern (BES-WC)(items included: weight, appearance of stomach, figure or physique, legs, buttocks, thighs, waist, appetite), and physical condition (BES-PCF)(items included: physical stamina, reflexes, muscular strength, energy level, biceps, agility). For men the subscales consisted of physical attractiveness (BES-PA)(items included: nose, lips, ears, chin, buttocks, appearance of eyes, cheeks/cheekbones, hips, face), upper body strength (BES-UBS)(items included: sex drive, figure or physique, chest or breasts, arms, width of shoulders, physical coordination, body build, biceps, muscular strength), and physical condition (BES-PCM)(items included: physical stamina, reflexes, waist, energy level, thighs, physical coordination, agility, figure or physique, appearance of stomach, health, physical

condition, weight). Items were summed for each subscale. High levels of body esteem indicate that an individual has positive feelings about their body, while low levels indicate negative feelings (Franzoi, 1994). In the present study, Cronbach's alphas were .89 for BES-PA, .91 for BES-UBS, .94 for BES-PCM, .864 for BES-SA, .94 for BES-WC, and .91 for BES-PCF.

Emotion Regulation.

Penn State Worry Questionnaire (PSWQ). Worry, a form of maladaptive emotion regulation, was assessed with the PSWQ, a 16-item self-report measure of pathological worry. Participants were asked to rate items (i.e. "My worries overwhelm me.") on a scale of 1 ("Not at all typical of me") to 5 ("Very typical of me"). Items were assigned values depending on whether the item was worded positively or negatively. Since several items were worded positively (1, 3, 8, 10, 11) those items were reverse scored; the remaining items maintained the values initially assigned. All items were then summed to determine total scores on the measure (Meyer, Miller, Metzger, & Borkovec 1990). In the present study, Cronbach's alpha was .96 for this measure.

Difficulties with Emotion Regulation Scale (DERS). Emotion regulation difficulties were assessed using the DERS, a 36-item self-report measure that assesses habitual difficulties regulating emotions in a number of dimensions, including nonacceptance of emotional responses, difficulties engaging in goal directed behavior, impulse control difficulties, lack of emotional awareness, limited access to emotion regulation strategies, and lack of emotional clarity. Participants were asked to rate statements that gave examples of various maladaptive emotion regulation strategies (i.e. "I experience my emotions as overwhelming and out of control") on a scale of 1 ("Almost never") to 5 ("Almost always"). For the purposes of this study, only a total DERS score was used, due to the lack of existing literature upon which to base specific predictions about the DERS subscales. To score this measure, the subscales were first

scored by summing items and the reverse score of items that utilized positive wording for each subscale. Then the subscales were summed to determine the DERS total score (Gratz & Roemer, 2004). In the present study, Cronbach's alpha for this measure was .95.

Data analytic plan

First, I examined the questionnaire data to ensure that it meets assumptions of normality. Subsequently, I calculated the internal reliability and descriptive statistics (e.g., mean, median). Next, I used independent samples t-tests to test the hypothesis that LGB participants will exhibit higher rates of psychopathology, emotion regulation deficits, and body image difficulties than heterosexual participants. Then, I used Hayes' PROCESS macro in SPSS to run moderation analyses to test the hypothesis that sexual orientation moderates the relationship between body image concerns and psychopathology (anxiety, eating concerns), and the relationship between emotion regulation deficits and psychopathology.

Results

T-Tests

Table 2. Independent samples t-tests of the sample

Scale		N	Mean (SD)	p-value
BES-Sexual Attractiveness (female)	sexual minority	128	39.01 (7.80)	.02
	heterosexual	115	41.52 (9.29)	.02
BES- Upper Body Strength (male)	sexual minority	67	25.9 (7.52)	.00
	heterosexual	78	29.78 (34.39)	.00
BES- Physical Attractiveness (male)	sexual minority	67	34.39 (6.92)	.02
	heterosexual	78	37.31 (7.81)	.02
BES- Weight Concern (female)	sexual minority	128	23.43 (9.13)	.02
	heterosexual	115	26.37 (9.93)	.02
BES- Physical Concern (female)	sexual minority	128	23.9 (7.43)	.00
	heterosexual	115	26.71 (7.72)	.00

BES- Physical Concern (male)	sexual minority	67	36.63 (11.24)	.05
	heterosexual	78	40.33 (11.53)	.05
PSWQ total score	sexual minority	195	57.04 (15.31)	.01
	heterosexual	193	52.84 (16.96)	.01
SIAS	sexual minority	195	37.96 (19.08)	.00
	heterosexual	193	32.01 (10.24)	.00
GAD-7	sexual minority	195	7.93 (5.8)	.00
	heterosexual	193	5.66 (5.38)	.00
EAT-Dieting	sexual minority	195	6.49 (6.63)	.1
	heterosexual	193	5.44 (5.77)	.1
EAT- Bulimia and Food Preoccupation	sexual minority	195	2.25 (3.44)	.02
	heterosexual	193	1.32 (2.43)	.02

Body Image

Independent-samples t-tests were conducted to compare mean levels of body esteem (BES) in the sexual minority group and the heterosexual group. The independent samples t-tests are depicted above in Table 2.

In females, there was a significant difference in the sexual attractiveness scores (BES-SA) for sexual minority participants ($M = 39.01$, $SD = 7.80$) and heterosexual participants ($M = 41.52$, $SD = 9.29$); $t(241) = -2.29$, $p = .02$, suggesting that sexual minority participants tended to have lower sexual attractiveness esteem compared to heterosexual participants. There was also a significant in difference in weight concern esteem scores (BES-WC) for sexual minority participants ($M = 23.43$, $SD = 9.13$) and heterosexual participants ($M = 26.37$, $SD = 9.93$); $t(241) = -2.40$, $p = .02$, such that sexual minority participants had lower weight concern esteem compared to heterosexual participants. There was also a significant difference in the physical condition (BES-PCF) scores for sexual minority participants ($M = 23.90$, $SD = 7.43$) and heterosexual participants ($M = 26.71$, $SD = 7.72$); $t(241) = -2.90$, $p < .01$, such that sexual

minority participants tended to have lower physical condition esteem compared to heterosexual participants.

In males, there was a significant difference in the physical attractiveness esteem scores (BES-PA) for sexual minority participants ($M = 34.39$, $SD = 6.92$) and heterosexual participants ($M = 37.31$, $SD = 7.81$); $t(143) = -2.36$, $p = .02$, suggesting that the sexual minority participants tended to have lower physical attractiveness esteem compared to heterosexual participants. There was also a significant difference in the upper body strength esteem scores (BES-UBS) for sexual minority participants ($M = 25.90$, $SD = 7.52$) and heterosexual participants ($M = 29.78$, $SD = 7.52$); $t(143) = -3.10$, $p < .01$, suggesting that the sexual minority participants tend to have lower upper body strength esteem compared to heterosexual participants. There was not a significant difference in the physical condition scores (BES-PCM) for sexual minority participants and heterosexual participants, $p > .05$.

Emotion Regulation

Independent-samples t-tests were conducted to compare mean levels of maladaptive emotion regulation (PSWQ, DERS) in the sexual minority group and the heterosexual group. The independent samples t-tests are depicted above in Table 2.

There was a significant difference in the worry scores (PSWQ) for sexual minority participants ($M = 57.04$, $SD = 15.31$) and heterosexual participants ($M = 52.84$, $SD = 16.96$); $t(386) = 2.56$, $p = .01$, such that sexual minority participants reported higher levels of worry compared to heterosexual participants. There was a significant difference in the difficulties with emotion regulation scores (DERS) for sexual minority participants ($M = 92.00$, $SD = 27.12$) and heterosexual participants ($M = 79.50$, $SD = 22.47$); $t(386) = 2.56$, $p = .01$, suggesting that the

sexual minority participants reported higher levels of difficulties with emotion regulation compared to heterosexual participants.

Psychopathology

Independent-samples t-tests were conducted to compare mean levels of psychopathology (SIAS, GAD-7, EAT-26) in the sexual minority group and the heterosexual group. The independent samples t-tests are depicted above in Table 2.

There was a significant difference in the social anxiety scores (SIAS) for sexual minority participants ($M=37.96$, $SD=19.08$) and heterosexual participants ($M = 32.01$, $SD = 10.24$); $t(386) = 3.82$, $p < .01$, suggesting that the sexual minority participants report higher levels of social anxiety symptoms compared to heterosexual participants. There was a significant difference in the generalized anxiety scores (GAD-7) for sexual minority participants ($M = 7.93$, $SD = 5.80$) and heterosexual participants ($M = 5.66$, $SD = 5.38$); $t(386) = 4.01$, $p < .01$, suggesting that the sexual minority participants report higher levels of generalized anxiety symptoms compared to heterosexual participants. There was a significant difference in the bulimia and food preoccupation scores (EAT-BUL) for sexual minority participants ($M = 2.24$, $SD = 3.44$) and heterosexual participants ($M = 1.32$, $SD = 2.43$); $t(386) = 3.05$, $p < .01$, suggesting that the sexual minority participants report higher levels of bulimia and food preoccupation compared to heterosexual participants. There was not a significant difference in dieting (EAT-DIET) scores for sexual minority participants and heterosexual participants, $p > .05$.

Moderation Analyses

Predicting Generalized Anxiety from Body Esteem

I found no significant interactions or main effects when predicting generalized anxiety (GAD-7) using various body image scales (BES-PA, BES-SA, BES-UBS, BES-PCF, BES-PCM, BES-WC) and sexual orientation, all $ps > .05$.

Predicting Social Anxiety from Body Esteem

Female only scales.

As depicted in Figure 1, when predicting social anxiety (SIAS) from sexual attractiveness esteem (BES-SA) and sexual orientation, I found that the model was significant, $F(3, 239) = 41$, $p < .01$, $R^2 = .34$. There was a significant main effect of sexual orientation, $b = -44.28$, $p < .01$, such that LGB participants had more social anxiety. There was a significant main effect of sexual attractiveness esteem, $b = -2.40$, $p < .01$, such that low sexual attractiveness esteem was associated with high social anxiety. These main effects were qualified by a significant interaction between sexual attractiveness and sexual orientation, $b = .98$, $p < .01$, such that among individuals with low (mean – 1SD) sexual attractiveness esteem, LGB individuals had higher social anxiety symptoms than heterosexuals. Conversely, among individuals with high (mean + 1SD) sexual attractiveness esteem, heterosexual participants had marginally more social anxiety than LGB individuals.

As depicted in Figure 2, when predicting social anxiety (SIAS) using physical condition esteem (BES-PCF) and sexual orientation, I found a significant model, $F(3, 239) = 25.72$, $p < .01$, $R^2 = .24$. There was a significant main effect of sexual orientation, $b = -28.63$, $p < .01$, such that LGB participants had more social anxiety. There was a significant main effect of physical condition esteem, $b = -2.19$, $p < .01$, such that low physical condition was associated with high social anxiety. These main effects were qualified by a significant interaction between physical condition esteem and sexual orientation, $b = .94$, $p < .01$, such that among individuals with low

(mean – 1SD) physical condition esteem, LGB individuals had higher social anxiety symptoms than heterosexuals. Conversely, among individuals with high (mean + 1SD) physical condition esteem, heterosexual participants had marginally more social anxiety than LGB individuals.

As depicted in Figure 3, when predicting social anxiety (SIAS) using weight concern esteem (BES-WC) and sexual orientation, I found that the model was significant, $F(3, 239) = 19.15, p < .01, R^2 = .19$. There was a significant main effect of sexual orientation, $b = -5.90, p = .01$, such that LGB participants had more social anxiety. There was a significant main effect of weight concern, $b = -.62, p < .01$, such that low weight concern esteem was associated with high social anxiety. These main effects were qualified by a significant interaction between weight concern esteem and sexual orientation, $b = .22, p = .01$, such that among individuals with low (mean – 1SD) weight concern esteem, LGB individuals had higher social anxiety symptoms than heterosexuals. Conversely, among individuals with high (mean + 1SD) weight concern esteem, heterosexual participants had marginally more social anxiety than LGB individuals.

Male only scales.

As depicted in Figure 4, when predicting social anxiety (SIAS) from physical attractiveness esteem (BES-PA) and sexual orientation, I found that the model was significant, $F(3, 141) = 13.78, p < .01, R^2 = .23$. There was a significant main effect of sexual orientation, $b = -28.82, p = .01$, such that LGB participants had greater social anxiety symptoms. There was a significant main effect of physical attractiveness esteem, $b = -2.11, p < .01$, such that low physical attractiveness esteem was associated with high social anxiety. These main effects were qualified by a significant interaction between physical attractiveness esteem and sexual orientation, $b = .78, p = .01$, such that among individuals with low (mean – 1SD) physical attractiveness esteem, LGB individuals had higher social anxiety symptoms than heterosexuals.

Conversely, among individuals with high (mean + 1SD) physical attractiveness esteem, heterosexual participants had marginally more social anxiety than LGB individuals.

As depicted in Figure 5, when predicting social anxiety (SIAS) using upper body strength esteem (BES-UBS) and sexual orientation, I found that the model was significant, $F(3, 141) = 13.78$, $p < .01$, $R^2 = .24$. There was a significant main effect of sexual orientation, $b = -20.94$, $p < .01$, such that LGB participants had more social anxiety. There was a significant main effect of upper body strength esteem, $b = -2.03$, $p < .01$, such that low upper body strength esteem was associated with high social anxiety. These main effects were qualified by a significant interaction between upper body strength esteem and sexual orientation, $b = .78$, $p = .01$, such that among individuals with low (mean – 1SD) upper body strength esteem, LGB individuals had higher social anxiety symptoms than heterosexuals. Conversely, among individuals with high (mean + 1SD) upper body strength esteem, heterosexual participants had marginally more social anxiety than LGB individuals.

When predicting social anxiety (SIAS) using physical esteem (BES-PCM) and sexual orientation, I found no significant main effects or interactions between physical condition esteem and sexual orientation, $p > .05$.

Predicting Eating Disorders from Body Esteem

Female only scales.

As depicted in Figure 6, when predicting dieting (EAT-DIET) using sexual attractiveness esteem (BES-SA) and sexual orientation, I found that the model was significant, $F(3, 239) = 4.59$, $p < .01$, $R^2 = .05$. There was a significant main effect of sexual orientation, $b = -9.21$, $p = .03$, such that LGB participants had more dieting. There was a significant main effect of sexual attractiveness esteem, $b = -.46$, $p = .01$, such that low sexual attractiveness was associated with

high dieting. These main effects were qualified by a significant interaction between sexual attractiveness esteem and sexual orientation, $b = .21, p = .04$, such that among individuals with low (mean – 1SD) sexual attractiveness esteem, LGB individuals had higher levels of dieting than heterosexuals. Conversely, among individuals with high (mean + 1SD) sexual attractiveness esteem, heterosexual participants had marginally higher levels of dieting than LGB individuals.

As depicted in Figure 7, when predicting dieting (EAT-DIET) using weight concern (BES-WC) and sexual orientation, I found that the model was significant, $F(3, 239) = 19.15, p < .01, R^2 = .19$. There was a significant main effect of sexual orientation, $b = -5.90, p = .01$, such that LGB participants had more dieting. There was a significant main effect of weight concern, $b = -.62, p < .01$, such that low weight concern was associated with high dieting. These main effects were qualified by a significant interaction between weight concern and sexual orientation, $b = .22, p = .01$, such that among individuals with low (mean – 1SD) weight concern esteem, LGB individuals had higher levels of dieting than heterosexuals. Conversely, among individuals with high (mean + 1SD) weight concern esteem, heterosexual participants had marginally higher levels of dieting than LGB individuals.

When predicting dieting (EAT-DIET) using physical condition (BES-PCF) and sexual orientation, the model was not significant, $p > .05$.

As depicted in Figure 8, when predicting bulimia symptoms (EAT-BUL) using weight concern (BES-WC) and sexual orientation, I found that the model was significant, $F(3, 239) = 26.25, p < .01, R^2 = .25$. There was a significant main effect of sexual orientation, $b = -2.58, p = .02$, such that LGB participants had more bulimia symptoms. There was a significant main effect of weight concern, $b = -.28, p < .01$, such that among individuals with low (mean – 1SD) weight concern esteem, LGB individuals had higher levels of bulimia symptoms than heterosexuals.

Conversely, among individuals with high (mean + 1SD) weight concern esteem, heterosexual participants had marginally more bulimia symptoms than LGB individuals.

When predicting bulimia symptoms (EAT-BUL) using sexual attractiveness esteem (BES-SA) and sexual orientation, the interaction was not significant, $p > .05$. Additionally, when predicting bulimia symptoms (EAT-BUL) using physical control for females (BES-PCF) and sexual orientation, the interaction was not significant, $p > .05$.

Male only scales.

When predicting dieting (EAT-DIET) using physical attractiveness esteem (BES-PA) and sexual orientation, the interaction between physical attractiveness esteem and sexual orientation was not significant, $p > .05$. When predicting dieting (EAT-DIET) using upper body strength esteem (BES-UBS) and sexual orientation, the interaction was not significant, $p > .05$. When predicting dieting (EAT-DIET) using physical condition esteem (BES-PCM) and sexual orientation, the interaction was not significant, $p > .05$.

When predicting bulimia symptoms (EAT-BUL) using physical attractiveness esteem (BES-PA) and sexual orientation, the interaction between physical attractiveness and sexual orientation was not significant, $p > .05$. When predicting bulimia symptoms (EAT-BUL) using upper body strength esteem (BES-UBS) and sexual orientation, the interaction between upper body strength esteem and sexual orientation was not significant, $p > .05$. I also found that when predicting bulimia symptoms (EAT-BUL) using physical condition esteem (BES-PCM) and sexual orientation, the interaction was not significant, $p > .05$.

Predicting Psychopathology from Emotion Regulation

When predicting generalized anxiety (GAD-7) using worry (PSWQ) and sexual orientation, the interactions were not statistically significant, $p > .05$. Similarly, when predicting

generalized anxiety (GAD-7) using difficulties with emotion regulation (DERS) and sexual orientation, the interaction was also not statistically significant, $p > .05$.

As depicted in Figure 9, when predicting social anxiety (SIAS) using worry (PSWQ) and sexual orientation, I found that the model was significant, $F(3, 384) = 63.66$, $p < .01$, $R^2 = .33$. There was a significant main effect of sexual orientation, $b = 19.06$, $p < .01$, such that LGB participants had more social anxiety than heterosexuals. There was a significant main effect of worry, $b = 1.13$, $p < .01$, such that among individuals with high (mean + 1SD) worry, LGB individuals had higher levels of social anxiety than heterosexuals. Conversely, among individuals with low (mean - 1SD) worry, heterosexual participants had marginally higher social anxiety than LGB individuals.

As depicted in Figure 10, when predicting social anxiety (SIAS) using difficulties with emotion regulation (DERS_TOT) and sexual orientation, I found that the model was significant, $F(3, 384) = 71.76$, $p < .01$, $R^2 = .36$. There was a significant main effect of sexual orientation, $b = 15.11$, $p < .01$, such that LGB participants had more social anxiety. There was a significant main effect of difficulties with emotion regulation, $b = .62$, $p < .01$, such that high difficulties with emotion regulation was associated with high social anxiety. These main effects were qualified by a significant interaction between difficulties with emotion regulation and sexual orientation, $b = .62$, $p < .01$, such that among individuals with high (mean + 1SD) difficulties with emotion regulation, LGB individuals had higher levels of social anxiety than heterosexuals. Conversely, among individuals with low (mean - 1SD) difficulties with emotion regulation, heterosexual participants had marginally higher social anxiety than LGB individuals.

When looking at whether eating disorder symptoms (EAT-DIET, EAT-BUL) were predicted using worry (PSWQ) and sexual orientation, none of the interactions between eating

disorder symptoms and worry were statistically significant, $p > .05$. Additionally, when predicting eating disorder symptoms (EAT-DIET, EAT-BUL) with difficulties with emotion regulation (DERS) and sexual orientation, the interactions were also not significant, $p > .05$.

Discussion

This study sought to gain a greater understanding of the impact of sexual minority identity on the relationship between body image and psychopathology, and the link between difficulties with emotion regulation and psychopathology. I found that sexual minorities experienced higher levels of psychopathology, body image difficulties, and emotion regulation difficulties compared to heterosexual participants. Sexual minorities experienced higher levels of social anxiety, generalized anxiety, bulimia and food preoccupation symptoms compared to heterosexuals. Additionally, sexual minorities experienced much higher levels of difficulties with emotion regulation and worry compared to the heterosexual group. Finally, both male and female sexual minorities scored lower on body esteem in nearly every subscale (female only scales: sexual attractiveness esteem, weight concern esteem, physical condition esteem; male only scales: physical attractiveness esteem, upper body strength esteem) compared to the heterosexual group, indicating that the sexual minority group tended to have more negative appraisals of their body in various dimensions. Overall, these findings provide support for minority stress theory (Meyer, 2003), indicating that sexual minority identity is associated with higher levels of anxiety, bulimia and food preoccupation symptoms, difficulties with emotion regulation, worry, and lower body esteem when comparing sexual minority and heterosexual groups.

My findings also indicated several significant moderation relationships that aligned with my initial hypothesis that sexual orientation would moderate the relationship between body image and psychopathology. Analyses indicated that sexual orientation moderated the

relationships between several types of body esteem (female only scales: sexual attractiveness, weight concern, physical condition; male only scales: physical attractiveness, upper body strength) and social anxiety. As hypothesized, these results indicate that sexual minority identity strengthens the relationship between body image and social anxiety symptoms, with sexual minorities experiencing higher levels of social anxiety compared to heterosexual participants when body esteem is low. Additionally, in regards to dieting, analyses indicated that sexual minority identity moderated the relationships between two types of body esteem, sexual attractiveness and weight concern, and dieting. While there was not a significant difference in average levels of dieting in the sexual minority and heterosexual participants groups, sexual orientation moderated the relationships between weight concern and dieting along with sexual attractiveness esteem and dieting, with sexual minorities experiencing increased dieting compared to heterosexual participants when sexual attractiveness esteem or weight concern esteem were low. In regards to bulimia and food preoccupation, moderation analyses indicated that sexual minority identity moderated the relationship between weight concern esteem and bulimia and food preoccupation symptoms, with sexual minorities who experienced low body esteem in regards to weight concern experiencing higher levels of bulimia and food preoccupation symptoms compared to heterosexual participants.

I found several significant moderation relationships that supported the prediction that sexual minority identity would moderate the relationship between maladaptive emotion regulation and psychopathology. With regard to social anxiety, sexual minority identity moderated the relationships between worry and social anxiety along with difficulties with emotion regulation and social anxiety. These findings indicated that the sexual minority group experienced increased social anxiety symptoms compared to the heterosexual group high (mean

+ 1SD) levels of worry and difficulties with emotion regulation. These results indicate that there is a significant relationship between maladaptive emotion regulation and social anxiety and that sexual minority identity strengthens this relationship when emotion regulation difficulties and levels of worry are at mean or high (mean + 1SD) levels.

Interestingly, while independent samples t-tests indicated that sexual minority participants experienced generalized anxiety at higher rates than heterosexual participants, all moderation relationships looking at the relationships between body image or emotion regulation on generalized anxiety were not moderated by sexual minority identity. This indicates that while social anxiety and eating disorders were related to body image and emotion regulation, the same was not true for generalized anxiety. These findings indicate that generalized anxiety may not be as closely related to body image and emotion regulation as I initially predicted and perhaps social anxiety and eating disorders are more closely related to these factors than generalized anxiety.

Overall, my findings were consistent with the literature that sexual minorities experienced higher levels of emotion regulation difficulties, social anxiety, generalized anxiety, and bulimia symptoms compared to heterosexuals (Hatzenbuehler et al., 2008, Cohen et al., 2016, Hadland et al., 2014). My findings in regards to bulimia and food preoccupation fall in line with the current research indicating that sexual minorities experience binge eating and bulimia at higher rates than their heterosexual peers (Calzo et al., 2018). While I did not find significant group differences in regards to dieting, I did find several significant moderation effects of sexual orientation on the relationship between body esteem and dieting. Interestingly, the experience of dieting in the sexual minority group was related to low levels of weight concern esteem and sexual attractiveness esteem. While there was not a significant difference in the means for

dieting in the sexual minority group and heterosexual group, the moderation effects were consistent with the hypothesis when looking specifically at weight concern and sexual attractiveness esteem. These findings may indicate that low levels of body esteem in regards to sexual attractiveness and weight concern are related to increased dieting for sexual minorities compared to heterosexuals. Additionally, our findings indicated strong relationships between social anxiety and body image along with social anxiety and emotion regulation difficulties; these findings support the prior research that has indicated that body image and emotion regulation difficulties are associated with increased anxiety (White & Warren, 2014, Aldao et al., 2010).

A key limitation of this work is the cross-sectional nature of this study. While I found significant relationships between variables, it is not possible to infer causality in a study of this kind. As such, future research should consider longitudinal designs and experimental methods that allow for causal claims. Additionally, while several checks were put in place to ensure data integrity (i.e. “attention questions”), participants did not complete the surveys in the lab so I cannot be certain that participants responded accurately to the self-report measures. While my self-report measures were empirically supported, future studies might consider using clinician-administered interviews in order to acquire a more accurate assessment of psychological symptoms. That said, I found that administering the study online allowed for a much larger number of participants and more diverse sample than would have likely been possible if the study had been administered in person. Additionally, there is stigma associated with sexual minority identity and mental illness, and thus administering a study of this kind online may have allowed for more accurate responses and willingness to participate in the study due to the sensitive nature of the topics addressed. Finally, another limitation of this research is the length

of the survey participants completed. Additional scales were included in the larger study and this may have led to decreased attention as participants completed the scales.

Overall, this research indicates that sexual minorities experience body image difficulties, anxiety, bulimia symptoms, and difficulties with emotion regulation at higher rates than their heterosexual peers. Future research should explore the specific mechanisms by which body image impacts mental health for sexual minorities utilizing experimental methods and interventions. It may be useful to look at the impact of specific social stressors on body image difficulties in sexual minority populations to better understand factors that contribute to lower body image in sexual minority populations compared to heterosexual populations. The significance of my findings regarding body esteem in LGB participants and the lack of prior research looking at potential explanations indicate that it is also important to look at within community factors (i.e. hierarchical social structures within club culture) in addition to external factors (i.e. body shape and size deemed desirable in mainstream culture). Future work should also look at intersections between gender and sexual identity, exploring how these identities impact conceptions of body image. Additionally, these findings indicate the importance of assessing body image concerns when administering treatment to LGB individuals and the value of eating disorder treatment providers incorporating LGB affirming groups into treatment programs. This increased mental health burden emphasizes the importance of access to behavioral healthcare for sexual minorities and the possible utility of focusing on the relationships between body image and emotion regulation on the experience of social anxiety, bulimia, and dieting in these populations.

This study provided new evidence of a critical role for sexual orientation in moderating the relationship between psychopathology (specifically anxiety and eating disorders) and its

documented predictors like body image disturbance and difficulties in emotion regulation. Given the significant differences between sexual minorities and heterosexuals in both average levels of symptoms and the relationships between predictors and psychopathology, it is clear that researchers and clinicians alike would be remiss to continue largely ignoring sexual orientation of their participants and patients. Indeed, if we are to alleviate the immense mental health burden faced by the LGB community, it is critical that future research and clinical practice targets the unique needs of this community.

References

- Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review, 30*(2), 217-237.
- Bankoff, S. M., Marks, A. K., Swenson, L. P., & Pantalone, D. W. (2016). Examining associations of sexual attraction and attitudes on women's disordered eating behavior. *Journal of Clinical Psychology, 72*(4), 350–364.
- Calzo, J. P., Austin, S. B., & Micali, N. (2018). Sexual orientation disparities in eating disorder symptoms among adolescent boys and girls in the UK. *European Child & Adolescent Psychiatry*.
- Cassidy, N. (2014). Social support and eating disorders among lesbian women: A qualitative study. Dissertation Abstracts International: Section B: The Sciences and Engineering. ProQuest Information & Learning.
- Cella, S., Iannaccone, M., & Cotrufo, P. (2013). Influence of gender role orientation (masculinity versus femininity) on body satisfaction and eating attitudes in homosexuals, heterosexuals and transsexuals. *Eating and Weight Disorders, 18*(2), 115–124.

- Cochran, S. D., Björkenstam, C., & Mays, V. M. (2017). Sexual orientation differences in functional limitations, disability, and mental health services use: Results from the 2013–2014 National Health Interview Survey. *Journal Of Consulting And Clinical Psychology, 85*(12), 1111-1121.
- Cohen, J. M., Blasey, C., Taylor, C. B., Weiss, B. J., & Newman, M. G. (2016). Anxiety and Related Disorders and Concealment in Sexual Minority Young Adults. *Behavior Therapy, 47*(1), 91-101.
- Cohen, J. M., Feinstein, B. A., Rodriguez-Seijas, C., Taylor, C. B., & Newman, M. G. (2016). Rejection sensitivity as a transdiagnostic risk factor for internalizing psychopathology among gay and bisexual men. *Psychology Of Sexual Orientation And Gender Diversity, 3*(3), 259-264.
- Focht, B. C., & Hausenblas, H. A. (2004). Perceived Evaluative Threat and State Anxiety During Exercise in Women with Social Physique Anxiety. *Journal Of Applied Sport Psychology, 16*(4), 361-368.
- Franzoi, S. L. (1994). Further evidence of the reliability and validity of the Body Esteem Scale. *Journal Of Clinical Psychology, 50*(2), 237-239.
- Frost, K. A., Franzoi, S. L., Oswald, D. L., & Shields, S. A. (2017). Revising the Body Esteem Scale with a U.S. College Student Sample: Evaluation, Validation, and Uses for the BES-R. *Sex Roles, 78*(1-2), 1-17.
- Fussner, L. M., & Smith, A. R. (2015). It's not me, it's you: Perceptions of partner body image preferences associated with eating disorder symptoms in gay and heterosexual men. *Journal Of Homosexuality, 62*(10), 1329-1344.

- Garner, D. M., Olmsted, M. P., Bohr, Y., & Garfinkel, P. E. (1982). The Eating Attitudes Test: Psychometric features and clinical correlates. *Psychological Medicine, 12*(4), 871-878.
- Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal Of Psychopathology And Behavioral Assessment, 26*(1), 41-54.
- Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal Of Personality And Social Psychology, 85*(2), 348-362.
- Hadland, S. E., Austin, S. B., Goodenow, C. S., & Calzo, J. P. (2014). Weight misperception and unhealthy weight control behaviors among sexual minorities in the general adolescent population. *Journal Of Adolescent Health, 54*(3), 296-303.
- Hatzenbuehler, M. L., McLaughlin, K. A., & Nolen-Hoeksema, S. (2008). Emotion regulation and internalizing symptoms in a longitudinal study of sexual minority and heterosexual adolescents. *Journal Of Child Psychology And Psychiatry, 49*(12), 1270-1278.
- Hill, C. A., & Gunderson, C. J. (2015). Resilience of lesbian, gay, and bisexual individuals in relation to social environment, personal characteristics, and emotion regulation strategies. *Psychology of Sexual Orientation and Gender Diversity, 2*(3), 232–252.
- Hughes, E. K., & Gullone, E. (2011). Emotion regulation moderates relationships between body image concerns and psychological symptomatology. *Body Image, 8*(3), 224–231.
- Jones, C. L., Fowle, J. L., Ilyumzhinova, R., Berona, J., Mbayiwa, K., Goldschmidt, A. B., ... Keenan, K. E. (2019). The relationship between body mass index, body dissatisfaction,

and eating pathology in sexual minority women. *International Journal of Eating Disorders*.

Kay, H. C. (2014). Analyzing clinical presentation, service utilization, and clinical outcome of female sexual minority college students. *Dissertation Abstracts International: Section B: The Sciences and Engineering*. ProQuest Information & Learning.

Kinsey, A. C., Pomeroy, W. B., Martin, C. E., & Sloan, S. (1948). *Sexual behavior in the human male* (Vol. 1). Philadelphia: Saunders.

Levesque, M. J., & Vichesky, D. R. (2006). Raising the bar on the body beautiful: An analysis of the body image concerns of homosexual men. *Body Image*, 3(1), 45–55.

Levinson, C. A., & Rodebaugh, T. L. (2015). Negative social-evaluative fears produce social anxiety, food intake, and body dissatisfaction: Evidence of similar mechanisms through different pathways. *Clinical Psychological Science*, 3(5), 744-757.

Mattick, R. P., & Clarke, J. C. (1998). Development and validation of measures of social phobia scrutiny fear and social interaction anxiety. *Behaviour Research and Therapy*, 36(4), 455–470.

Meng, X., & D'Arcy, C. (2015). Comorbidity between lifetime eating problems and mood and anxiety disorders: Results from the Canadian Community Health Survey of Mental Health and Well-Being. *European Eating Disorders Review*, 23(2), 156-162.

- Meyer, I. H. (2003). Minority stress and mental health in gay men. In L. D. Garnets, D. C. Kimmel, L. D. Garnets, D. C. Kimmel (Eds.) , *Psychological perspectives on lesbian, gay, and bisexual experiences*, 2nd ed (pp. 699-731). New York, NY, US: Columbia University Press.
- Meyer, T. J., Miller, M. L., Metzger, R. L., & Borkovec, T. D. (1990). Development and validation of the Penn State Worry Questionnaire. *Behaviour Research And Therapy*, 28(6), 487-495.
- Oppenheimer, D. M., Meyvis, T., & Davidenko, N. (2009). Instructional manipulation checks: Detecting satisficing to increase statistical power. *Journal of Experimental Social Psychology*, 45(4), 867–872.
- Pachankis, J. E., & Goldfried, M. R. (2006). Social anxiety in young gay men. *Journal of Anxiety Disorders*, 20(8), 996–1015.
- Racine, S. E., & Wildes, J. E. (2015). Emotion dysregulation and anorexia nervosa: An exploration of the role of childhood abuse. *International Journal of Eating Disorders*, 48(1), 55–58.
- Safren, S. A., & Pantalone, D. W. (2006). Social Anxiety and Barriers to Resilience Among Lesbian, Gay, and Bisexual Adolescents. In A. M. Omoto & H. S. Kurtzman (Eds.), *Sexual orientation and mental health: Examining identity and development in lesbian, gay, and bisexual people*. (pp. 55–71). Washington, DC: American Psychological Association.

- Sala, M., & Levinson, C. A. (2016). The longitudinal relationship between worry and disordered eating: Is worry a precursor or consequence of disordered eating?. *Eating Behaviors, 23*, 28-32.
- Sibley, C. G., & Overall, N. C. (2011). A dual process motivational model of ambivalent sexism and gender differences in romantic partner preferences. *Psychology of Women Quarterly, 35*(2), 303–317.
- Siever, M. D. (1994). Sexual orientation and gender as factors in socioculturally acquired vulnerability to body dissatisfaction and eating disorders. *Journal of consulting and clinical psychology, 62*(2), 252.
- Sloan, E., Hall, K., Moulding, R., Bryce, S., Mildred, H., & Staiger, P. K. (2017). Emotion regulation as a transdiagnostic treatment construct across anxiety, depression, substance, eating and borderline personality disorders: A systematic review. *Clinical Psychology Review, 57*, 141-163.
- Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. *Archives of Internal Medicine, 166*(10), 1092–1097.
- Wagenbach, P. M. (1998). *The relationship between body image, sexual orientation and gay identity*. Available from ProQuest Dissertations & Theses A&I.
- Wang, S. B., & Borders, A. (2017). Rumination mediates the associations between sexual minority stressors and disordered eating, particularly for men. *Eating and Weight Disorders, 22*(4), 699–706.

Watson, R. J., Adjei, J., Saewyc, E., Homma, Y., & Goodenow, C. (2017). Trends and disparities in disordered eating among heterosexual and sexual minority adolescents. *International Journal of Eating Disorders*, *50*(1), 22–31.

White, E. K., & Warren, C. S. (2014). The influence of social anxiety on the body checking behaviors of female college students. *Body Image*, *11*(4), 458-463.
doi:10.1016/j.bodyim.2014.07.008

Figure 1. Social Anxiety and Sexual Attractiveness Esteem in Sexual Minority and Heterosexual Participants

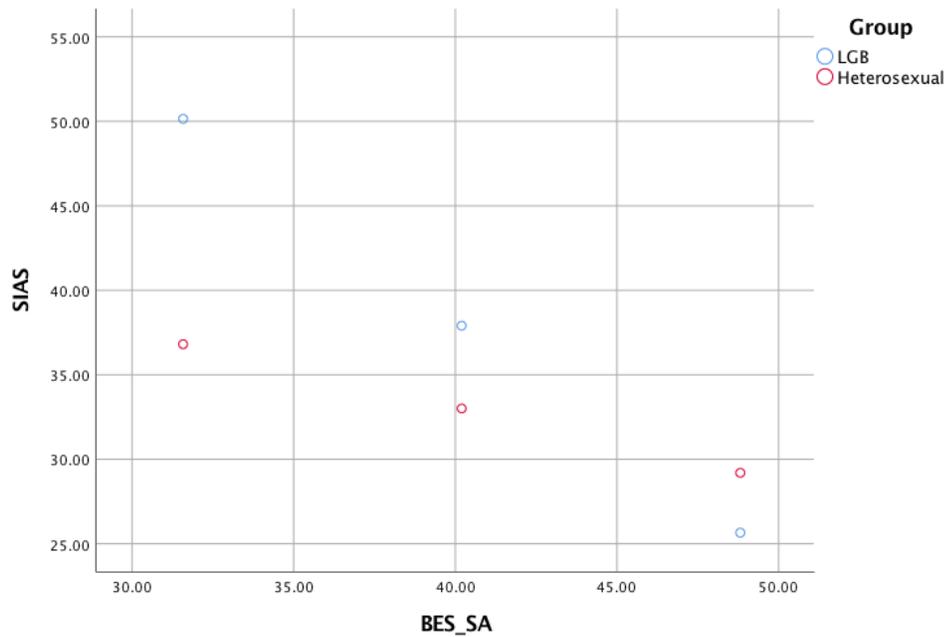


Figure 2. Social Anxiety and Weight Concern Esteem in Sexual Minorities and Heterosexual Participants

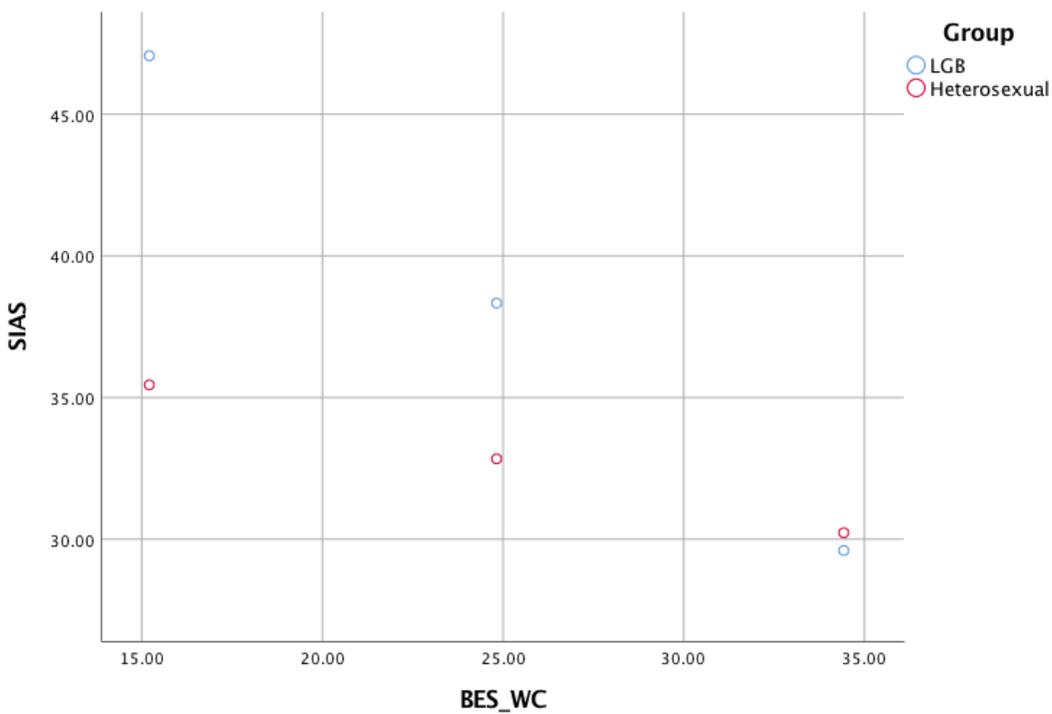


Figure 3. Social Anxiety and Physical Condition in Sexual Minorities and Heterosexual Participants

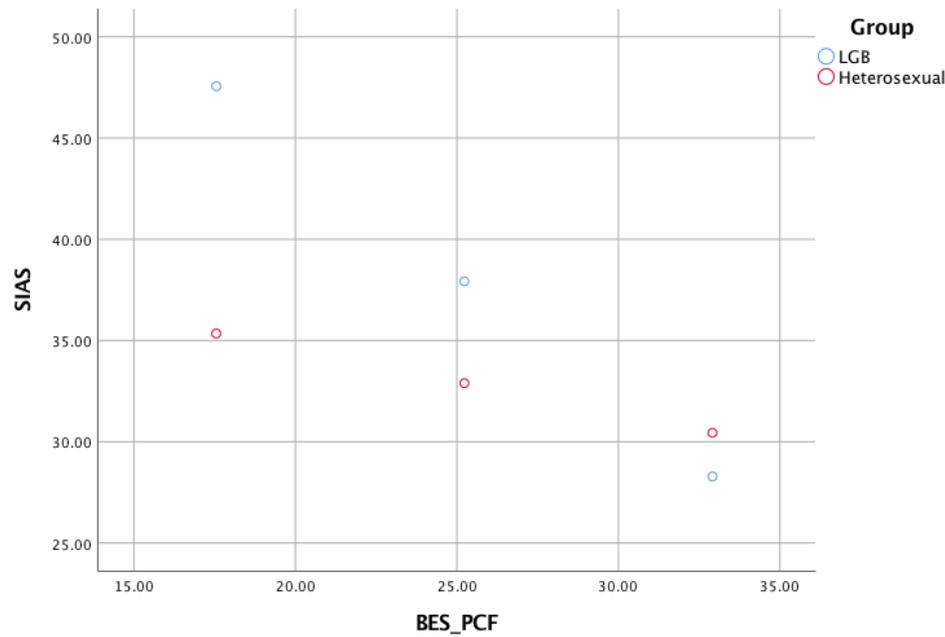


Figure 4. Social Anxiety and Physical Attractiveness Esteem in Sexual Minority and Heterosexual Participants

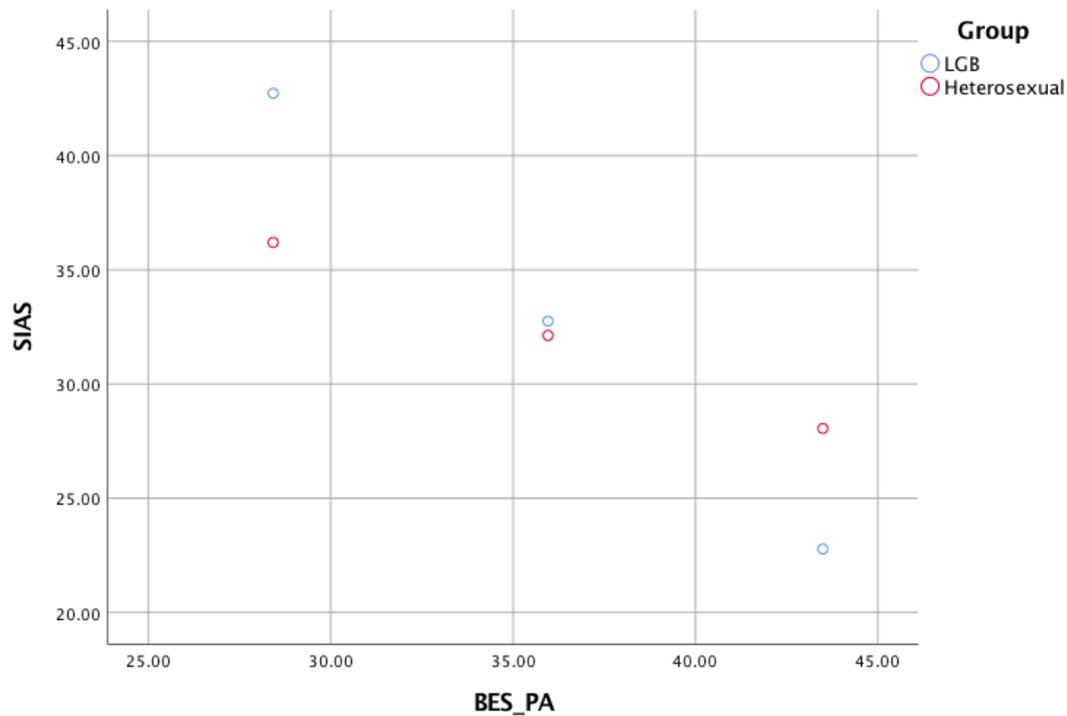


Figure 5. Social Anxiety and Upper Body Strength in Sexual Minority and Heterosexual Participants

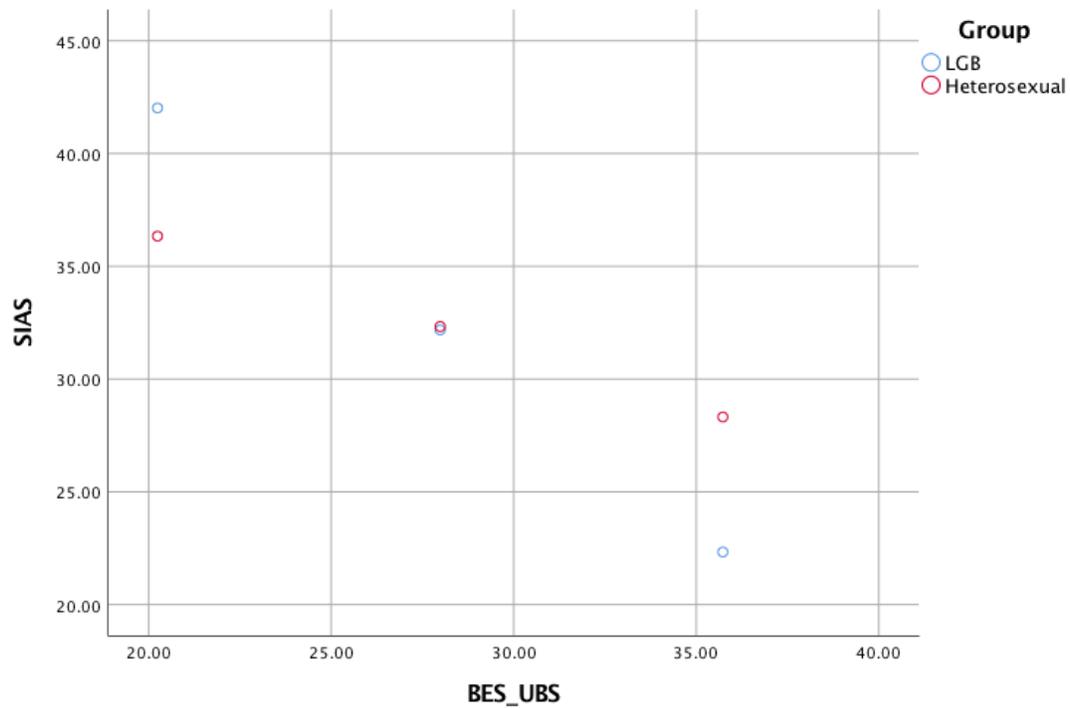


Figure 6. Dieting and Sexual Attractiveness Esteem in Sexual Minority and Heterosexual Participants

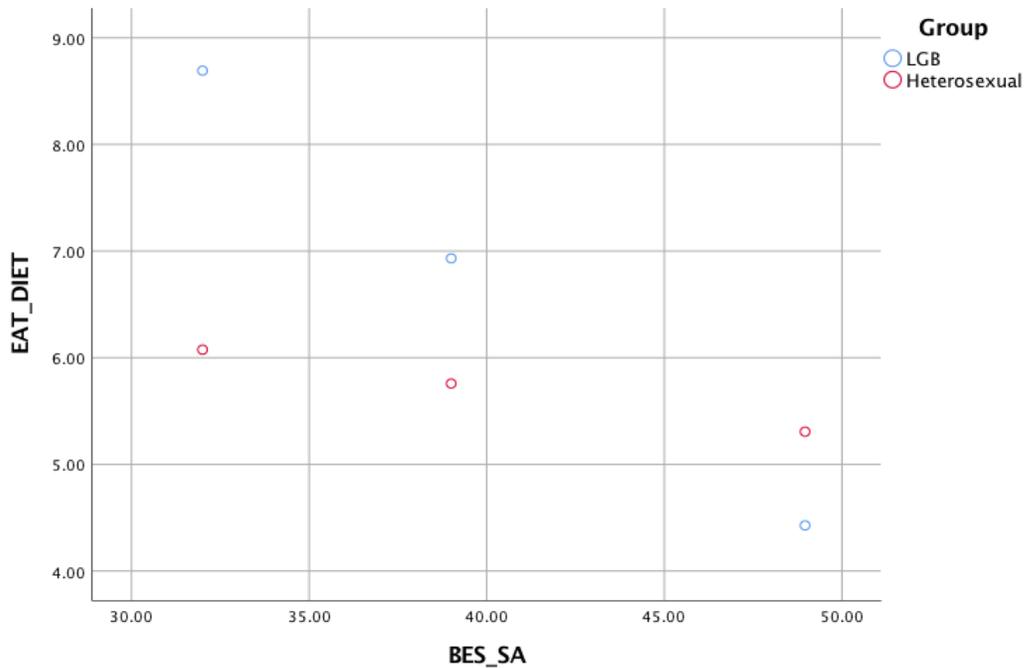


Figure 7. Dieting and Weight Concern Esteem in Sexual Minority and Heterosexual Participants

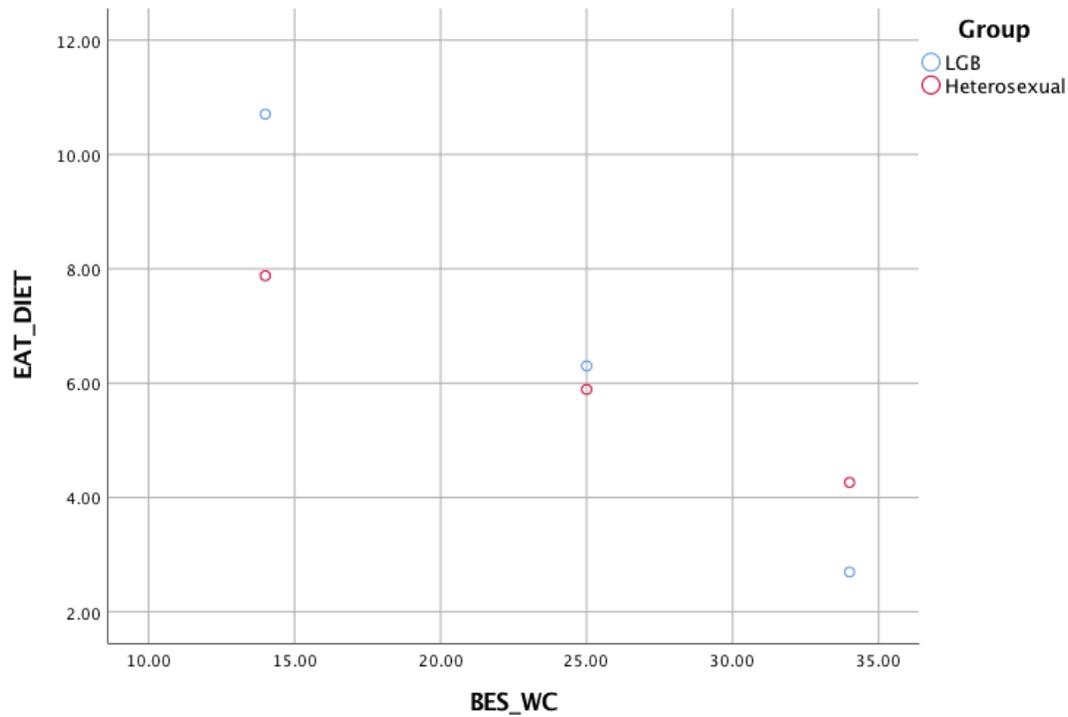


Figure 8. Bulimia Symptoms and Weight Concern in Sexual Minority and Heterosexual Participants

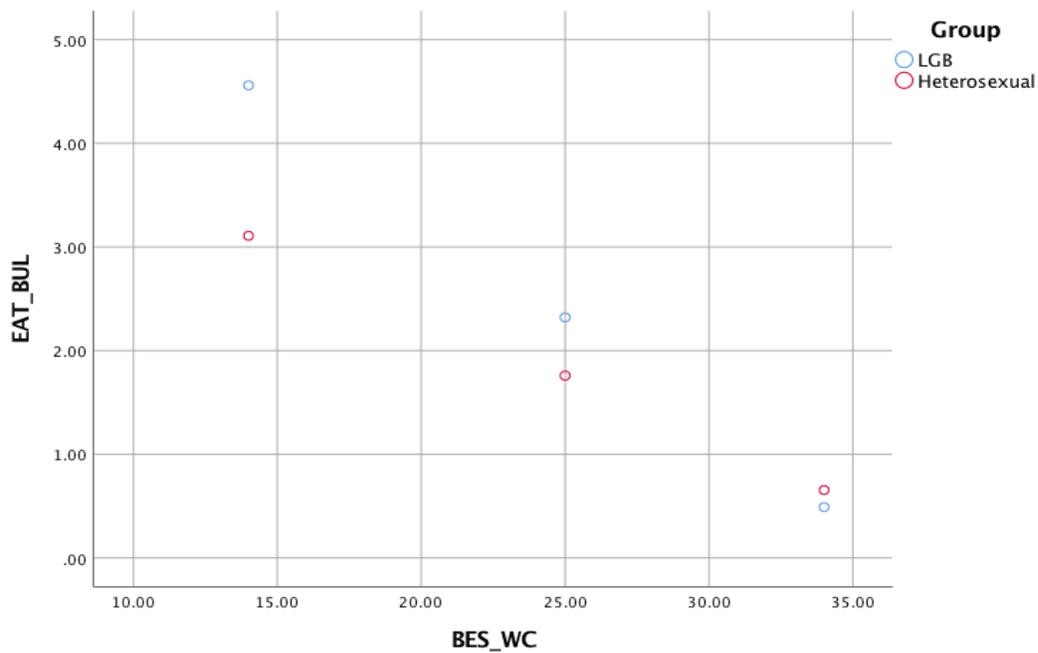


Figure 9. Social Anxiety and Worry in Sexual Minority and Heterosexual Participants

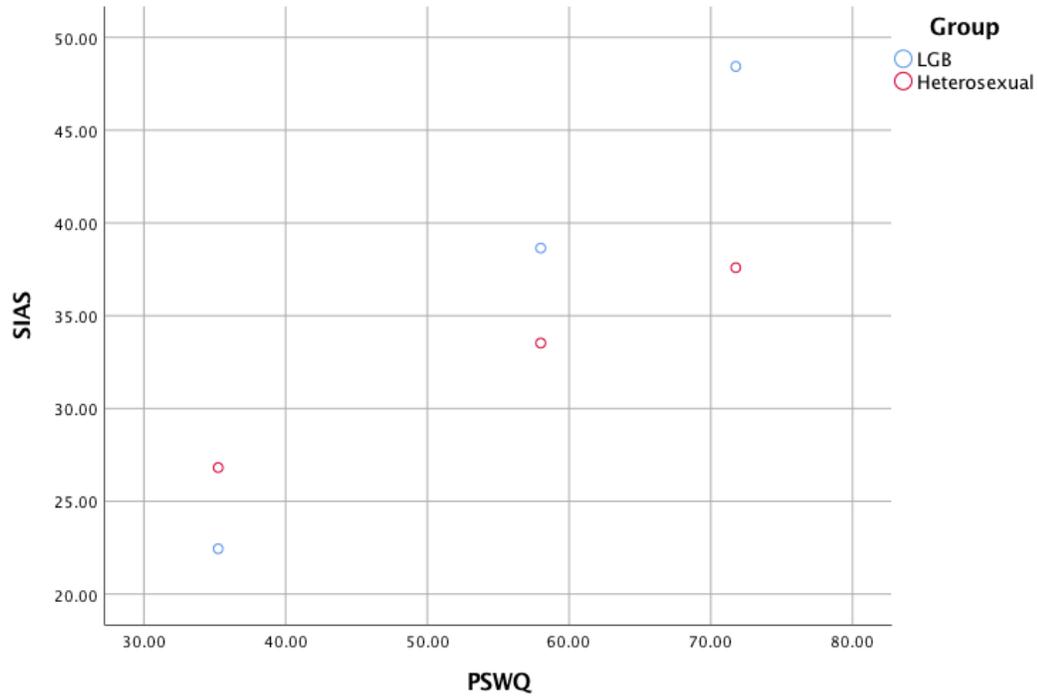


Figure 10. Social Anxiety from Difficulties with Emotion Regulation in Sexual Minority and Heterosexual Participants

