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Sexual Minority Bariatric Patients: Examination of Eating Behaviors, Anxiety, and Depression

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Abstract

Background: Disparities in obesity care and bariatric surgery persist among patients of diverse identities. However, little is known about sexual minority (SM) bariatric patients.

Objectives: This study sought to describe, in a preliminary fashion, sexual orientation variables of outness, self-esteem, and perceived discrimination among a sample of SM patients pursuing bariatric surgery. The study also sought to compare SM and heterosexual bariatric candidates on measures of eating behaviors, anxiety, and depression.

Setting: Academic medical center in the United States.

Methods: Data were collected as part of a standard psychological evaluation for surgical clearance between May 1st, 2018 and December 31st, 2019. Data included demographics, sexual orientation variables, eating behaviors, anxiety, and depression. Descriptive statistics were included to present findings among SM patients. One-way analyses of covariance (ANCOVAs) were conducted to assess differences between SM and heterosexual patients.

Results: A total of 633 patients were evaluated (38 SM and 595 heterosexual). SM patients had high outness scores with high self-esteem and minimal perceived discrimination. SM patients endorsed lower cognitive restraint, higher disinhibition and increased hunger compared to heterosexual patients ($p < 0.05$). SM patients also reported significantly more symptoms of anxiety and depression compared to heterosexual patients ($p < 0.05$).

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Conclusions: Findings provide preliminary evidence toward the importance of assessing for sexual orientation among bariatric patients. Future research is warranted to assess the unique role of sexual orientation, as well as explore causal links between sexual orientation, eating behaviors, and mental health among bariatric patients pre- and post-surgery.

Keywords

Sexual minorities; sexual and gender minorities; LGBT; bariatric surgery; obesity

1. Introduction

Sexual and gender minority (SGM¹) health has come under scrutiny in the last decade as healthcare disparities continue to be a major theme in the United States [1]. As the obesity epidemic continues, affecting 42.4% of the adult population in the United States, identifying factors that limit patient access to obesity care has become a pertinent issue [2]. Although obesity impacts many diverse Americans, there is little published research on the SGM bariatric population.

Furthermore, it is important for medical providers to distinguish between sexual minority (SM) patients compared to transgender minority patients. Although both groups face similar challenges [3,4] and resilience factors [5], both also exist as distinct sociocultural identity groups. In the field of bariatric surgery, two academic articles have been published discussing care for transgender bariatric patients [6,7], but none to the authors' knowledge exclusively for SM bariatric patients.

SM health disparities have been explained by minority stress. As described by Meyer [3], minority stress is comprised of unique stressors faced by SM individuals, including distal or external stressors (e.g., "coming out," discrimination) and proximal or internal stressors (e.g., lack of self-esteem). These stressors collectively contribute to greater physical and mental SM health concerns, as well as ultimately impacting access to care [3,8,9].

With regard to obesity, previous literature suggests that lesbian, gay, and bisexual individuals are unique subgroups with different predictors of overweight and obesity. Lesbian and bisexual women are more likely to be overweight or obese compared to heterosexual peers, while gay men have lower rates of obesity than heterosexual men [10–13]. Food related health issues that occur within the SM community include disordered eating, body images issues, and compulsive eating [14,15]. Among SM women specifically, at least one study has found different results, suggesting that lesbian and bisexual women report higher levels of better diet quality compared to heterosexual women [16]. However, in general, a majority of research has suggested higher rates of disordered eating behaviors among SM women compared to heterosexual women [17,18]. As such, there is a need for obesity research in order to better tailor prevention and intervention efforts for this population [1].

¹SGM is as an umbrella term that includes sexual minorities (SM), including lesbian, gay, bisexual, and queer/questioning (LGBQ) persons, as well as individuals who identify as gender diverse minorities, including transgender or gender non-conforming, and non-binary gender persons. The present study was exclusively focused on the experience of SM pre-surgical bariatric patients.

Although bariatric surgery is the most effective intervention for morbid obesity, including resolution of obesity-related comorbidities, there exist significant disparities in patient access [19]. As most bariatric programs do not screen for sexual orientation, it is difficult to determine what percentage of SM patients pursue bariatric surgery and what unique healthcare needs may be present. The importance of better identifying and understanding the bariatric SM population can be inferred from oncologic studies, which have demonstrated that SM patients self-report better health when feeling that they can disclose their sexual identity, as well as having an identified social support network [20]. It is important for bariatric providers to be aware of differences, such as related to eating behaviors and mental health among SM patients in order to provide appropriate care. Certainly, various similarities would be expected between SM and heterosexual bariatric patients. For example, weight bias has been recognized as a significant psychosocial contributor to the lives of individuals with obesity [21], which one could expect to impact persons with obesity regardless of sexual identity. However, it is currently unknown to what extent disparities in areas related to eating behaviors and mental health may exist between SM and heterosexual bariatric patients.

Therefore, the goal of the present study was to evaluate, in a preliminary and exploratory fashion, a sample of pre-surgical SM bariatric surgery patients from a large MBSAQIP-accredited academic medical center in order to increase the awareness of this underserved population. The study also included screening measures to assess gender minority individuals; however, all patients identified as cisgender men or women. The first aim of the present study was to examine aspects of sexual orientation (i.e., outness of one's sexual identity, self-esteem, and perceived discrimination). The second aim was to assess differences in eating behaviors, anxiety, and depression between heterosexual and SM patients seeking bariatric surgery.

2. Method

Six hundred-thirty three adults between the ages of 19- and 70-years-old (*Mean (M)* = 43.00; *Standard Deviation (SD)* = 11.09) presenting for bariatric surgery at a large MBSAQIP-accredited academic medical center in Appalachia between May 1st, 2018 and December 31st, 2019 were retrospectively reviewed with prospectively collected data. The full sample was predominantly White (95.6%) and consisted of patients identifying as either cisgender women (80.1%) or men (19.9%; i.e., no patients identified as transgender, non-binary gender, or another gender identity). Body mass index (BMI) was calculated as kg/m² based on self-reported height and weight and ranged from 31.62 to 85.04 (*M* = 48.50, *SD* = 7.64). Subjects were predominantly heterosexual (94.0%), and the remainder reported an SM identity (6.0%). The following SM identities were represented: lesbian (*n* = 10), gay (*n* = 6), bisexual (*n* = 12), questioning ("not sure" and "don't know;" *n* = 5), or another sexual identity (e.g., "pansexual;" *n* = 5). A total of 9 patients chose "prefer not to disclose" for their sexual orientation. As such, these patients were not included in the study.

2.1. Measures

All subjects, as part of a standard preoperative psychological evaluation, received the following validated surveys in an initial assessment. See Supplemental Materials for more information about each measure. The prospectively collected data was reviewed retrospectively for all subjects.

2.1.1. Binge Eating Scale (BES).—The BES [22] is a 16-item measure of binge eating symptoms with different response options ranging in severity for each item. The BES has been used among pre-surgical bariatric patients [23] and has yielded strong reliability and factorial validity [24].

2.1.2. Three-Factor Eating Questionnaire (TFEQ).—The TFEQ [25] is comprised of 51 items: 36 items consist of yes/no questions, 14 items are based on a 1 to 4 response scale, and one item is based on a 1 to 6 response scale. The TFEQ assesses three dimensions of eating behavior: cognitive restraint, disinhibition, and hunger. The TFEQ has been used and demonstrated internal consistency among patients with obesity [23,26].

2.1.3. NIH PROMIS Anxiety Short Form (SF).—The National Institute of Health (NIH) Patient-Reported Outcomes Measurement Information System (PROMIS) Anxiety SF [27] is a 7-item self-report questionnaire assessing symptoms of anxiety. The NIH PROMIS Anxiety SF has been previously administered among a sample of bariatric patients and has been found to have good psychometric properties [28].

2.1.4. NIH PROMIS Depression Short Form (SF).—The NIH PROMIS Depression SF [27] consists of 8 items that assess symptoms of depression. Previous research has administered the NIH PROMIS Depression SF to a sample of bariatric patients and found the measure to be reliable and valid [28].

2.1.5. Beck Anxiety Inventory (BAI).—The BAI [29] is a 21-item measure of anxiety symptoms in the past week with scores ranging from 0 (*not at all*) to 3 (*severely*). The BAI has previously been used to among bariatric patients [28,30].

2.1.6. Beck Depression Inventory-II (BDI-II).—The BDI-II [31] consists of 21 items assessing symptoms of depression in the past two weeks based 0 to 3 response scales. The BDI-II has been administered among bariatric patients and has yielded strong psychometric properties [23,28,32].

2.1.7. LGB Outness Scale.—The LGB Outness Scale [33,34] is a 7-item self-report questionnaire assessing to what extent a SM has disclosed their sexual identity to others. Scores range from 1 (*none*) to 5 (*all*). An additional eighth item was included in order to assess if individuals were out to their healthcare providers, and if not, reasons for not disclosing their sexual orientation were asked.

2.1.8. LGB Self-Esteem Scale.—The LGB Self-Esteem Scale [33,34] is a 9-item self-report questionnaire measuring the level of confidence and self-worth specifically related to their sexual identity. Scores range from 1 (*strongly agree*) to 5 (*strongly disagree*). The LGB

Self-Esteem Scale yields a total score by reverse-scoring four of the items and then summing all items.

2.1.9. Perceived Sexual Orientation Discrimination Scale.—The Perceived Sexual Orientation Discrimination Scale [33,34] consists of 7-items assessing the extent to which SM individuals have experienced acts of discrimination against them in the past year. Each item is based on a 5-point scale, where 1 is *never* and 5 is *very often*. An additional question was included in regard to whether patients have experienced any perceived discrimination based on their sexual orientation in the past year.

2.2 Data Collection

The study had local Institutional Review Board (IRB) approval. Data were collected in a REDCap (Research Electronic Data Capture, Vanderbilt University, Tennessee), HIPAA-compliant database between May 1st, 2018 and December 31st, 2019. Data were downloaded from REDCap to SPSS (IBM, New York) version 25.0 for statistical analysis.

3. Results

3.1. Preliminary Analyses

Effects of demographic variables, including gender, BMI, and age, on study variables were assessed. Differences in gender were assessed via a set of *t*-tests. For each test, homogeneity of variance was assessed, and if unequal variances were present, Welch's *t*-statistic was assessed to determine statistical significance. For gender in the full sample, a statistical difference was found for TFEQ Cognitive Restraint, $t(171.96) = 4.59, p < .001$, with women reporting greater levels ($M = 13.84, SD = 3.82$) compared to men ($M = 11.83, SD = 4.52$), and PROMIS Anxiety SF, $t(631) = 2.22, p = .03$, with women reporting greater levels ($M = 14.39, SD = 6.01$) compared to men ($M = 13.06, SD = 6.11$). For gender among only the SM patients, no statistical differences were found on any of the study variables.

Pearson correlations were assessed with BMI and all study variables in the full and SM sample. Statistically significant correlations with BMI in the full sample were found for TFEQ Cognitive Restraint ($r = .09, p = .03$) and BDI-II ($r = .09, p = .03$); however, both correlations indicated relationships of small strengths. No significant correlations were found between BMI and any of the study variables in the SM sample.

Age was treated as a covariate based on significant correlations with the BES ($r = .11, p < .01$), TFEQ Cognitive Restraint ($r = -.12, p < .01$), TFEQ Disinhibition ($r = .14, p < .001$), and TFEQ Hunger ($r = .08, p = .04$), as well as a significant difference in age between SM and heterosexual patients ($t(631) = 3.62, p < .001$). See Supplemental Materials for partial correlations controlling for age of all study variables for heterosexual and SM patients.

One-way analyses of covariance (ANCOVAs) were conducted to analyze differences between heterosexual and SM patients on eating behaviors, anxiety, and depression controlling for age. Based on the unequal sample sizes between SM and heterosexual patients, the least square mean differences (i.e., estimated marginal means [EMMs]) were

assessed. Effect sizes were assessed via the eta-squared statistic and considered strong if η^2 was .14, moderate if around .06, and small if around .01 [35].

3.2. Sexual Orientation Variables among SM Bariatric Patients

Among the 38 SM patients, 27 completed all sexual orientation questionnaires. SM patients presented with high levels of outness to individuals in their life ($M = 29.59$, $SD = 7.42$). The main reason for not being out to healthcare providers was “*my sexual orientation has no bearing on my health*” and “*if they are unaware it is because it has never come up*.” Patients presented with a high level of sexual identity self-esteem ($M = 14.04$, $SD = 5.56$) and few experiences of perceived sexual identity discrimination ($M = 9.07$, $SD = 3.25$). See Table 1 for items on all sexual orientation measures and percentages of patients for each response.

3.3. Differences in Eating Behaviors, Anxiety, and Depression between SM and Heterosexual Bariatric Patients

Results showed statistically significant differences on the TFEQ: Cognitive Restraint ($F(1, 630) = 3.88$, $p = .049$, $\eta^2 = .01$), Disinhibition ($F(1, 630) = 5.05$, $p = .03$, $\eta^2 = .01$), and Hunger ($F(1, 630) = 8.19$, $p < .01$, $\eta^2 = .01$). Heterosexual patients exhibited greater cognitive restraint compared to SM patients. In contrast, SM patients exhibited greater disinhibition and hunger compared to heterosexual patients (see Table 2). Additional analyses indicated statistically significant differences on anxiety as measured by the PROMIS Anxiety SF ($F(1, 630) = 9.88$, $p < .01$, $\eta^2 = .02$). Significant differences were also found on depression as measured by the PROMIS Depression SF ($F(1, 630) = 5.93$, $p = .02$, $\eta^2 = .01$) and BDI-II ($F(1, 630) = 4.76$, $p = .03$, $\eta^2 = .01$). SM patients presented with more symptoms of anxiety and depression compared to heterosexual patients (see Table 2).

4. Discussion

The present study examined aspects of sexual identity among a sample of pre-surgical SM bariatric patients, as well as assessed differences in eating behaviors, anxiety, and depression between SM and heterosexual pre-surgical bariatric patients. To the authors' knowledge, this is the first study discussing the specific needs of sexual minority (SM) bariatric patients.

Overall, SM patients endorsed a high frequency of disclosing their sexual orientation, high report of self-esteem related to sexual identity, and few experiences of perceived discrimination. Based on previous theory [3], these findings indicate potentially low levels of minority stress among the study's sample of SM patients. Over 75% of SM patients endorsed having disclosed their sexual orientation to people in their lives, including family members and friends. Almost 75% endorsed having disclosed to their healthcare providers, suggesting that SM patients experienced a sense of willingness and possibly feeling of comfortableness to disclose such information. Findings also indicated high self-esteem and low perceived discrimination, which may suggest that SM patients were well adjusted in terms of their sexual identity.

In addition to quantitative measures, such as the ones administered in the present study, future research may consider collecting qualitative data (e.g., via follow-up clinical interview questions with SM patients) in order to better contextualize how SM variables

influence eating behaviors and the process of receiving bariatric surgery as an SM patient. It is also worth considering to what extent geographic location and state play a role in the sexual orientation variables assessed in this study. For example, responses among SM bariatric patients are reflective of SM individuals in the Appalachia region of the U.S., and thus, may differ from SM individuals in other areas of the country pursuing bariatric surgery.

It is notable that not all SM patients indicated high levels of outness and self-esteem. Almost one-third of the SM sample reported not completely disclosing or only sparingly disclosing their sexual orientation to unfamiliar people in their lives, potentially indicative of minority stress concerns. Furthermore, 11 SM patients chose not to complete the sexual orientation measures. Although the reasons for this are unclear, a potential explanation may be that SM patients did not feel comfortable sharing such personal information due to internal or external minority stressors. Results may be limited by sample selection bias in which individuals who may have been more distressed by minority stressors were less likely to participate.

Several differences were found in eating behaviors between SM and heterosexual patients. Previous research has found disparities between SM and heterosexual individuals in disordered eating and body image [14,15]. Such differences are notable given that these factors have great potential to contribute to post-surgical outcomes. For SM bariatric patients, minority stress may play a role in a SM patient's ability to engage in altering their diet as a means of controlling weight. Additionally, SM bariatric patients may present with greater difficulty inhibiting their response to food, potentially due to using food as a way to emotionally cope with minority stress.

Alternatively, behaviors that could be addressed in future research may also provide an explanation for the difference in eating behaviors between SM and heterosexual bariatric patients. For example, given the higher rates of alcohol and substance use among SM individuals compared to their heterosexual peers [36], perhaps these behaviors play a greater role in disinhibited eating and subjective feelings of hunger among SM bariatric patients. It may also be possible that minority stress (i.e., external acts of discrimination as well as negatively internalized feelings about one's sexual identity) serves as one of the main overarching sources responsible for higher levels of not only substance use behaviors, but also maladaptive eating behaviors among SM compared to heterosexual bariatric patients. It is important to note that despite these findings, a small effect in the difference was found, suggesting that several other variables (e.g., age, gender, and personal experiences) may explain these eating-related differences. Based on these preliminary findings, future research should explore additional variables to better understand particular factors that may drive higher levels disinhibited eating and hunger among SM bariatric patients.

The present study also indicated significant statistical differences in anxiety and depression. These findings are unsurprising given the mental health disparities between SM and heterosexual individual [3,8,9]. However, it is important to note how these statistical differences in depression and anxiety symptoms manifest in clinical presentation. Regarding anxiety, SM patients endorsed more "mild" symptoms compared to heterosexual patients who endorsed "none-to-slight" symptoms. Regarding depression, despite statistical

differences, SM and heterosexual patients both endorsed comparable symptom levels on both measures of depression. As such, although SM patients may have a greater likelihood of reporting depression and anxiety, the overall symptom ranges suggest, in general, low levels of symptoms between both populations. Additionally, the statistical differences did not result in a change in clinical category for depressive symptoms; thus, it is unclear to what extent this results in a meaningful clinical difference.

Taken together, several implications are noted from the present study. First, in terms of addressing minority stress, bariatric providers may consider openly displaying a sign in their clinics that promotes SM diversity (see Supplemental Materials). With regard to collecting information about patient sexual identity, as well as gender identity, further education is needed to help healthcare providers feel comfortable and competent providing care to SGM patients. A prior study indicated that 80% of physicians were concerned that asking such questions would offend patients; however, 97% of SGM patients were not offended and felt them to be a relevant part of their health care visit [37]. Another study found that SGM patients were more comfortable reporting their sexual and gender identities via a non-verbal method (i.e., as part of a demographic form) rather than via in-person communication with a medical provider [38]. Thus, as conducted in the authors' bariatric clinic, the following items should be included in all intake forms: sexual orientation, gender identity, affirmed pronouns, and affirmed name (see Figure 1). For transgender patients pursuing transition, it is recommended that providers also inquire about types and stages of transition (e.g., hormonal, surgical, social, legal). It is also recommended that programs consider adding similar questions as those described in this study, as such questions may help providers better understand the relationship between SM identity, eating behaviors, and mental health.

The present study is not without limitations. First and foremost, the findings from the study are limited due to the small sample size of SM bariatric patients. Furthermore, SM patients in this study were treated as a single group because of the small sample size; no between-group analyses could be performed with this limitation and larger sample sizes are needed to detect likely differences. Future studies are needed to examine specific SM groups to better understand the unique needs within each sub-population. Despite the small sample size, it is notable that the percentage of SM patients compared to heterosexual patients in the present study are comparable, if not higher, than nationally documented rates of SM persons compared to heterosexual individuals in the U.S. [36,39]. Additionally, it would be expected that the proportion of SM individuals pursuing bariatric surgery in the U.S. is even smaller. Nonetheless, given these preliminary findings, it should not be concluded that SM bariatric patients in this study are representative of SM bariatric patient in other regions of the country. Future research should continue to explore the experiences of diverse groups, such as SM individuals, who pursue bariatric surgery.

In regard to additional limitations, the present study does not expand the bariatric literature in regard to transgender and gender diverse patients. Although the present study intended to survey gender minority patients, all patients identified as cisgender men or women, which precluded any gender diverse analyses. Lastly, the present study only consisted of pre-surgical bariatric patients; therefore, future research should assess differences in eating

behavior, depression, and anxiety change from pre- to post-surgery between SM and heterosexual patients.

5. Conclusion

The SM population is a growing community that faces numerous healthcare disparities. The importance of learning more about this population in order to improve healthcare interventions is imperative. Within the realm of bariatric surgery, it is strongly encouraged that bariatric programs provide patients an opportunity to self-identify their sexual orientation, as well as their gender identity, in hopes that this may lead to improved relationships between SM patients and their bariatric healthcare team.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Highlights

- Sexual minority (SM) bariatric patients reported a high level of self-esteem
- SM bariatric patients endorsed few experiences of perceived discrimination
- Differences in eating behaviors were found between SM and heterosexual patients
- SM patients reported more anxiety and depression compared to heterosexual patients

Sexual Orientation and Gender Identity Questions

Affirmed name: _____

What is your current gender identity:

- ☐ Man
- ☐ Woman
- ☐ Transgender Man
- ☐ Transgender Woman
- ☐ Nonbinary gender
- ☐ Other _____
- ☐ Prefer not to disclose

Do you think of yourself as:

- ☐ Straight/heterosexual
- ☐ Lesbian
- ☐ Gay
- ☐ Bisexual
- ☐ Not Sure/Don't Know
- ☐ Other _____
- ☐ Prefer not to disclose

Affirmed gender pronoun:

- ☐ He/him
- ☐ She/her
- ☐ They/them
- ☐ Other _____

Figure 1.

Example intake form for gathering sexual orientation and gender identity information.

Figure 2.
Example of a sign to make sexual and gender minority patients feel welcomed.

Table 1.

Percentages of LGB outness, self-esteem, and perceived discrimination scales among sexual minority patients (n = 27)

Scale/Items	None	Some	Quite a bit	Almost all	All
<i>LGB Outness ("Are you out to [your]...")</i>					
1. Parents?	0.5	--	--	--	89.3
2. Siblings?	17.9	--	3.6	--	78.6
3. Family members?	10.7	3.6	--	10.7	75.0
4. Friends?	7.1	3.6	--	3.6	85.7
5. Teachers?	35.7	--	3.6	--	60.7
6. Co-workers?	14.8	7.4	7.4	3.7	66.7
7. People you don't know well?	10.7	17.9	14.3	3.6	53.6
8. Healthcare providers?	3.6	17.9	--	7.1	71.4
<i>LGB Self-Esteem</i>					
	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
1. I have a positive attitude about being LGB.	--	--	6.9	17.2	75.9
2. I feel uneasy about people who are very open in public about being LGB.	79.3	3.4	6.9	10.3	--
3. I often feel ashamed that I am LGB.	78.6	7.1	10.7	3.6	--
4. For the most part, I enjoy being LGB.	3.7	--	11.1	7.4	77.8
5. I worry a lot about what other think about my being LGB.	66.7	11.1	7.4	14.8	--
6. I feel proud that I am LGB.	3.7	--	29.6	7.4	59.3
7. I feel being LGB is a sin.	88.9	--	11.1	--	--
8. I wish I weren't to the same sex.	77.8	7.4	14.8	--	--
9. I feel being LGB is a gift.	7.4	--	70.4	7.4	14.8
<i>LGB Perceived Discrimination</i>					
	Never	Almost never	Sometimes	Fairly often	Very Often
1. Ability to obtain healthcare or health insurance?	89.7	--	3.4	--	6.9
2. In how you were treated when you got your health care?	89.7	3.4	3.4	3.4	--
3. In public, like on the street, in stores, or in restaurants?	75.9	13.8	10.3	--	--
4. Obtaining a job or on the job?	93.1	6.9	--	--	--
5. Getting admitted to a school or training program, in the courts or by the police, or obtaining housing?	96.6	3.4	--	--	--
6. Called names?	69.0	10.3	17.2	3.4	--

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Scale/Items	None	Some	Quite a bit	Almost all	All
7. Made fun of, picked on, pushed, shoved, hit, or threatened with harm?	79.3	--	17.2	3.4	--

Note. LGB = lesbian, gay, bisexual; due to rounding, columns may not equal 100%.

Table 2.

Demographics and one-way analyses of covariance results between sexual minority (n = 38) and heterosexual bariatric patients (n = 595)

Variables	Heterosexual Sample (n = 595)			Sexual Minority Sample (n = 38)			P-value
	Frequency (%)			Frequency (%)			
Gender	Men	119 (20.0%)		7 (18.4%)			--
	Women	476 (80.0%)		31 (81.6%)			--
	<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>		
Age	43.50	10.94		36.84	11.66		<.001 [*]
Body Mass Index (BMI)	48.51	7.66		48.29	7.49		.86
	<i>EMM</i>	<i>SE</i>	Qualitative Descriptor	<i>EMM</i>	<i>SE</i>	Qualitative Descriptor	
Binge Eating Scale	12.32	0.29	Minimal	14.39	1.17	Minimal	.09
TFEQ Cognitive Restraint	13.52	0.16	--	12.18	0.66	--	.049 [*]
TFEQ Disinhibition	5.59	0.13	--	7.14	0.52	--	.03 [*]
TFEQ Hunger	3.77	0.13	--	5.25	0.50	--	<.01 [*]
PROMIS Anxiety	13.98	0.25	None-toslight	17.13	0.99	Mild	<.01 [*]
PROMIS Depression	13.16	0.27	None-toslight	15.83	1.06	None-toslight	.02 [*]
Beck Anxiety Inventory	7.71	0.36	Minimal	10.53	1.45	Mild	.06
Beck Depression Inventory-II	8.45	0.35	Minimal	11.56	1.39	Minimal	.03 [*]

Note. TFEQ = Three-Factor Eating Questionnaire; M = mean; SD = standard deviation; EMM = estimated marginal mean; SE = standard error.

* Statistically significant.