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Weight Status as a Moderator of Low Self-Esteem and  
Poor Sexual Functioning

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A thesis  
presented to  
the faculty of the Department of Psychology  
East Tennessee State University

In partial fulfillment  
of the requirements for the degree  
Master of Arts in Psychology

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by  
Madison Marie Hinkle

May 2020

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Keywords: Women, Self-Esteem, BMI, Weight Status, Female Sexual Functioning

## ABSTRACT

Weight Status as a Moderator of Low Self-Esteem and

Poor Sexual Functioning

by

Madison Marie Hinkle

Researchers have found that self-esteem and weight status can impact numerous aspects of an individual's life, including reproductive health issues. However, there has been limited research specifically examining how self-esteem may affect female sexual functioning. The current study aims to examine whether self-esteem is a significant predictor of sexual functioning, and whether this relationship may change as a function of women's weight status. Participants consisted of 730 women ranging from 18 to 49 years of age, who were recruited through an online questionnaire. Results indicate that higher levels of self-esteem predict better sexual functioning and weight status was found to be a significant moderator of this relationship; specifically, self-esteem was only found to predict sexual functioning for individuals at average or below-average weight status, and not for individuals who were of higher-than-average weight status. Findings have potential implications for physical and mental health professionals working with individuals trying to improve their sexual functioning.

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## CHAPTER 1

### INTRODUCTION

Self-esteem has been shown to affect multiple domains within an individual's life, including overall well-being and success (Orth & Robbins, 2014). In fact, literature indicates that low levels of self-esteem are associated with mental disorders, social problems, health problems, and women's reproductive health issues (Mann, Hosman, Schaalma, & De Vries, 2004; Neggers, Goldenberg, Cliver, & Hauth, 2006; Stinson et al., 2008). Therefore, research examining the consequences of low self-esteem is of crucial importance. One area that may be important to examine in relation to self-esteem is that of sexual functioning. Up until the 21<sup>st</sup> century, research on female sexual dysfunction was limited (McCool, Theurich, & Apfelbacher, 2014); even as this field gains momentum, there are still many constructs in need of further exploration. By examining how low levels of self-esteem and other factors may negatively impact an individual's sexual functioning, researchers and clinicians would be able to better understand female sexual functioning.

Obesity is another factor shown to affect one's overall quality of life by potentially reducing physical and psychological well-being (Kolotkin et al., 2006). Research indicates that body mass index (BMI), a ratio calculated using an individual's height and weight and often used as a proxy for overweight status, is negatively correlated with self-esteem (Kiviruusu et al., 2016) and may predict lower sexual functioning in women (Kolotkin et al., 2006). Therefore, the current study aims to examine whether self-esteem is a significant predictor of sexual functioning, and further, whether weight status influences the relationship between self-esteem and sexual functioning.

## **Self-Esteem**

Self-esteem has been defined as an individual's subjective assessment of their own worth; or, an individual's evaluation of how adequate they think they are (Harter, 1999; Helwig & Ruprecht, 2017; Orth & Robins, 2014). To date, it is one of the most extensively studied psychological concepts, resulting in over 35,000 publications on self-esteem alone (Bleidorn et al., 2016).

### **Gender Differences in Self-Esteem**

On average, men report higher levels of self-esteem than women, a finding that has been demonstrated in both Western and non-Western countries (Bleidorn et al., 2016) as well as in internationally diverse samples (Helwig & Ruprecht, 2017). Researchers hypothesize that this difference in self-esteem among men and women may be due to widespread social factors that are found in many nations across the globe (Bleidorn et al., 2016). This gender difference in self-esteem appears to start in adolescence and continues through early and middle adulthood (Bleidorn et al., 2016; Helwig & Ruprecht, 2017). Across cultures, women also appear to demonstrate higher variability in self-esteem during adolescence relative to men (Helwig & Ruprecht, 2017). As one ages, however, gender differences in self-esteem between men and women become less evident (Bleidorn et al., 2016). The consistency of finding lower levels of self-esteem in women suggests that this construct and its associated consequences may be particularly important to study in women.

### **Functions and Theories of Self-Esteem**

Research regarding self-esteem has been based on two main theoretical approaches. The first approach is described as the intrapersonal perspective (Soest, Wichstrøm, & Kvalem, 2016). This approach is based on James' (1890) model, which states that one's accomplishments are the

origin of an individual's self-worth (Harter, 1999). In other words, self-esteem depends on an individual's personal perception of how successful they are in an area in which they feel that success is necessary (Soest et al., 2016). The second approach is the interpersonal approach, which is based on Cooley's (1902) theory (Soest et al., 2016). Cooley's original theory suggests that the self is portrayed through a perceived internalized belief of what we think others believe about us (Cooley, 1902; Harter, 1999). This approach highlights the social aspect of self-esteem and deems self-esteem as the effect of an individual's perception of other's impressions and judgements of their own actions and behaviors (Soest et al., 2016).

Other modern theories, such as Baumeister and Leary's (1995) "need to belong," have also contributed to our understanding of self-esteem. This theory states that we gain our self-approval from others due to the quality of the relationship that we have with that individual (Baumeister & Leary, 1995). This theory is similar to James's theory with the exception that James emphasizes one's achievements, while Baumeister and Leary emphasize the quality of relationships (Zuckerman, Li, & Hall, 2016). These various theories and ideas help us understand what determines self-esteem and may also be used to help us understand the possible effects of self-esteem.

### **Correlates of Self-Esteem**

Research suggests that having high self-esteem predicts beneficial outcomes and well-being in various domains, such as health, work, and relationships (Orth & Robins, 2014). With regard to health, available literature suggests that those with higher self-esteem report better physical health outcomes (Benyamini, Leventhal, & Leventhal, 2004), whereas individuals who have lower self-esteem in adolescence are more likely to have increased physical health problems by the age of 25 (Trzesniewski et al., 2006). In terms of psychological health, those

with lower self-esteem tend to have poorer psychological outcomes (Crocker & Park, 2004). For example, low self-esteem is a risk factor for depression and anxiety (Sowislo & Orth, 2013) and has been shown to be longitudinally associated with depressive symptoms throughout the lifespan (Orth, Robbins, Trzesniewski, Maes, & Schmitt, 2009). Other studies have shown that higher self-esteem is correlated with positive affect and adjustment, and in adverse circumstances can be a protective factor (Kling, Hyde, Showers, & Buswell, 1999).

One subsection of the self-esteem literature has examined the role of self-esteem in interpersonal relationships. In terms of social support, those with higher self-esteem may have an increased level of social support and report greater well-being in relationships (Marshall, Parker, Ciarrochi, & Heaven, 2014). Similarly, when examining romantic relationships specifically, self-esteem has been shown to be positively associated with relationship satisfaction (Shackelford, 2001) and, in turn, healthy, satisfying, relationships may increase one's perceived personal worth (Leary & Baumeister, 2000). For example, women who are close to their significant other often exhibit increases in their self-esteem in the following years of their relationship (Andrews & Brown, 1995). This indicates that close intimate relationships may not only impact current self-esteem levels, but may continue to influence levels of self-esteem throughout one's lifespan. Because of the close connection between self-esteem and relationship functioning, it is possible that self-esteem may affect aspects of one's intimate relationships such as sexual functioning.

### **Sexual Functioning**

Sexual dysfunction is defined as the disruption of one's sexual desire and/or the psychophysiological processes that are related to an individual's sexual experiences (Laumann, Paik, & Rosen, 1999). According to the Diagnostic and Statistical Manual of Mental Disorders, 5<sup>th</sup> Edition (DSM-5), sexual dysfunctions are defined as substantial disturbances in an

individual's capability to react to or experience sexual pleasure (American Psychiatric Association, 2013). Overall, sexual dysfunction is a widespread problem that occurs in both men and women, with community samples approximating prevalence rates that range from 10% to 52% in men and 25% to 63% in women (Heiman, 2002; Laumann et al., 1999). Corroborating research indicates that 43% of women and 31% of men report sexual dysfunction (Laumann et al., 1999). Therefore, sexual dysfunction appears to be somewhat more prevalent in women than men.

### **Female Sexual Functioning**

Female sexual dysfunction is an overarching term that covers a variety of sexual problems in women that include disorders associated with sexual desire, sexual arousal, orgasm, and sexual pain (Harris, Cherkas, Kato, Heiman, & Spector, 2008). According to Hayes and colleagues (2006), the most frequent types of sexual dysfunction in women are desire difficulty (64%), orgasm difficulty (35%), arousal difficulty (31%) and sexual pain (26%) (Hayes, Bennett, Fairley, & Dennerstein, 2006). Within the United States, in the past year, 24% of women report an inability to reach orgasm (Laumann et al., 1999), and estimates from a community sample report that 7-10% of women have an orgasmic disorder (Simons & Carey, 2001).

In addition to relationship factors, there may be underlying individual factors that influence the likelihood of developing sexual problems. For example, certain personality features, such as introversion, emotional instability, and being closed off to new experiences are significantly associated with irregular orgasm (Harris et al., 2008). Personality traits such as these may be indirectly affecting the reported rates of sexual dysfunction by influencing a woman's capability to discuss her sexual desires with a partner (Leeners, Hengartner, Rössler, Ajdacic, & Angst, 2014). If a woman feels comfortable talking to her partner, and/or has

personality traits that allow her to do so, sexual functioning may be improved (Leeners et al., 2014). Therefore, certain facets of personality may be a factor that contributes to female sexual dysfunction (Leeners et al., 2014).

Women who have had issues with sexual functioning and sexual arousal also exhibit heightened rates of psychological, social, and physical problems (Dunn, Croft, & Hackett, 1999). For women specifically, sexual dysfunction is highly correlated with psychological and social problems such as marital difficulties, anxiety, and depression (Dunn et al., 1999). Anxiety, in general, can negatively impact sexual arousal (Barlow, 1986) and individuals with anxiety disorders such as social phobia and panic disorder are at risk for higher rates of sexual dysfunction relative to the general population (Bodinger et al., 2002; van Minnen & Kampman, 2000). Furthermore, a history of trauma could also impact sexual functioning. Childhood sexual abuse often influences sexual functioning, performance, and satisfaction (Loeb et al., 2002) and is also associated with sexual dysfunctions in adulthood (Leonard & Follette, 2002). In terms of physical problems, women who describe their health as good, fair, or poor have a greater chance of having sexual dysfunctions when compared to women who describe their health as excellent (Lewis et al., 2010). Comparably, women who exercise more frequently are more likely to report increased sexual desire, while women who do not engage in physical activity or exercise have a greater chance of reporting issues with orgasm (Lewis et al., 2010). Therefore, sexual dysfunction may affect many areas of a women's life that can impact her mental, social, and physical health, though these findings are likely bidirectional.

### **Self-Esteem and Sexual Functioning**

Within the current literature, there is limited research regarding the relationship between self-esteem and sexual functioning. Much of the extant research has been within the cancer

literature, examining sexual functioning among cancer survivors, and therefore may not generalize to the broader population. Research regarding this population suggests that many cancer survivors with negative self-schemas are at a greater risk for sexual dysfunctions (Andersen, Woods, & Copeland, 1997). However, other literature indicates that, even though there may be decreases in sexual functioning for women with cancer, self-esteem levels may not differ (Safarinejad, Shafiei, & Safarinejad, 2013). Therefore, there appears to be conflicting findings regarding the relationship between sexual functioning and self-esteem in the cancer literature. In non-cancer research, men and women suffering from sexual dysfunctions report lower levels of self-esteem, though directionality of this relationship is not clear (Glowacka, Bergeron, Dubé, & Rosen, 2018). Specifically, college women who report high levels of self-esteem also report high levels of sexual functioning compared to those who have lower levels of self-esteem (Rehbein-Narvaez, García-Vázquez, & Madson, 2006).

### **Obesity's Relationship to Self-Esteem and Sexual Functioning**

Obesity is associated with detrimental health effects that impact one's overall quality of life (Kolotkin et al., 2006), while also potentially reducing psychological and physical well-being (Kolotkin et al., 2006). Body mass index (BMI) has been shown to be negatively correlated with self-esteem, especially for individuals with a higher BMI (Kiviruusu et al., 2016), and this relationship may be stronger for those who perceive themselves as overweight (Miller & Downey, 1999).

Additionally, a higher BMI has been shown to be correlated with poorer sexual functioning, with greater sexual difficulties for women with BMIs that fall within the obese range (Kolotkin et al., 2006). Obese females often experience greater sexual issues than females within a normal weight range (Erbay et al., 2017) and also tend to report worse sexual

functioning than obese men, suggesting that obesity may not affect men and women's sexual functioning equally (Kolotkin, Zunker, & Østbye, 2012).

Likewise, women who have low body satisfaction tend to have reduced pleasure, sexual satisfaction, and orgasm as well as decreases in one's desire and arousal (Woertman & Van den Brink, 2012). Therefore, a woman's perception of her own body appears to play a major role in the connection between a woman's sexuality and body image (Woertman & Van den Brink, 2012). In the 1960s, Masters and Johnson (1966, 1970) proposed the idea of "spectatoring" – meaning that during a sexual encounter, instead of focusing on the sexual experience, an individual mentally removes their self from the sexual experience and inspects their own performance with their partner. This idea of "spectatoring", or cognitive distraction, may play a role in sexual dysfunction and may lead to difficulties in arousal or desire, in part by inducing anxiety during this observatory process (Purdon & Holdaway, 2006). Literature indicates that women with higher levels of cognitive distraction throughout the sexual experience are more likely to have decreased levels of sexual self-esteem, sexual satisfaction, and less frequent orgasms (Dove & Wiederman, 2000); in fact, women tend to have more of these cognitive distractions during sex than men (Meana & Nunnink, 2006). On average, women report both appearance-based distractions and performance-based distractions, while men tend to report more performance-based distractions (Meana & Nunnink, 2006). This increase in frequency of cognitive distractions among women during sex is due to the presence of negative body image and psychological distress (Meana & Nunnink, 2006). Further, the more frequently these thoughts occur, the greater likelihood that one's anxiety will increase and, as a result, their thoughts will be correlated with decreased sexual satisfaction (Purdon & Holdaway, 2006). This pattern of cognitive distraction is especially important when considering the role of weight and

body image in spectating. For example, there is an association between obesity and poor body image (Schwartz & Brownell, 2004), and higher levels of body image and body esteem have been linked to sexual satisfaction in women (Pujols, Meston, & Seal, 2010). Therefore, women with higher BMIs may be more self-conscious about their bodies, and could be more likely to engage in spectating, resulting in poorer sexual functioning. Overall, it appears as though both weight status and cognitive-emotional factors such as self-esteem may influence sexual dysfunction in women and therefore deserve further research.

### **Statement of the Problem**

Self-esteem predicts a wide array of health problems in both physical and mental domains. Yet, the relationship between self-esteem and sexual functioning in particular is understudied and may benefit from further exploration. In addition, weight status has also demonstrated a wide variety of physical and mental health implications. Consistently within the empirical literature, being overweight and/or obese is related to a vast assortment of health problems, including sexual functioning. However, research investigating how weight status may affect the relationship between self-esteem and female sexual functioning is lacking. The proposed study aims to fill this gap.

### **Hypotheses**

1. Self-esteem and sexual functioning will be significantly positively correlated.
2. BMI will significantly moderate the relationship between self-esteem and sexual functioning, such that a higher BMI will result in a stronger relationship between low self-esteem and poorer sexual functioning.

## CHAPTER 2

### METHODS

#### **Procedures and Participants**

The current study sample was drawn from a larger international sample from a project that focused on women's reproductive health outcomes and stressful life experiences.

Participants from the larger study consisted of 1233 women between the ages of 18 and 49 years old. Due to the importance of weight in the calculation of an individual's BMI, participants who indicated that they were currently pregnant were excluded from the analyses. Consequently, 138 women were excluded for pregnancy status, and 365 women were excluded due to failing to complete either the self-esteem, sexual functioning, or BMI items. Therefore, the proposed study utilized a subsample containing 730 non-pregnant women from the original study who completed all relevant and necessary measures.

After approval from the East Tennessee State University Campus IRB, the survey was created by means of the secure survey platform REDCap. Participants were recruited from Reddit, a social media website that facilitates discussion among users on a particular topic. The online survey was posted to "subreddits," which are online communities found within the Reddit website that allow individuals to discuss topics of interest like certain hobbies or life experiences, and to post and comment on content related to these topics. To ensure that surveys posted were relevant to the topic area of a subreddit, "moderators" of subreddits, who are able to approve or disapprove content posted within a subreddit, were contacted and the researchers requested permission to post a link to the survey. After approval from the moderator, IRB-approved advertisements of the survey including a link were posted among relevant subreddits. Subreddits contacted included those dedicated to topics of health, science, women's issues,

trauma, trying to conceive/infertility, pregnancy, and parenting. Participants were given unlimited time and access to the survey; therefore, if a participant was not able to complete the survey in one setting, they could log back in with a unique code that was provided by the REDCap software. After completion of the survey, participants were invited to submit their email address to be entered into a drawing to win a \$75.00 Amazon gift card. To protect the confidentiality of their information, participants who chose to be entered into the drawing submitted their emails into a separate REDCap survey to ensure that their email could not be linked with their survey answers. Participants were asked to fill out an assortment of self-report surveys containing questionnaires concerning self-esteem, female sexual functioning, and height/weight status, among other measures relevant to the broader study.

## **Measures**

### **Self-esteem**

In order to determine perceived level of self-esteem, participants were asked to respond to the following statement regarding how true it was for them: “I have high self-esteem.” Participants then rated their self-esteem level on a 5-point Likert scale with 1 being “not very true of me,” to 5 being “very true of me.” Research has shown that a one-item measure of self-esteem has high convergent validity to the Rosenberg Self-esteem scale (Robins, Hendin, & Trzesniewski, 2001). In addition, this one item measure of self-esteem has indistinguishable correlations to a number of criterion variables, such as physical and psychological health, when compared to the Rosenberg Self-Esteem Scale (Robins et al., 2001). Robins and colleagues (2001) examined four studies that compared two types of self-esteem measures and found that researchers who are using a single item measure of self-esteem will find results similar to those using the Rosenberg Self-Esteem Scale. Therefore, this one-item measure may be a more useful

alternative to the longer, more time consuming, Rosenberg Self-Esteem Scale (Robins et al., 2001).

### **Female Sexual Functioning**

The Female Sexual Functioning Index (FSFI) was developed in order to assess female sexual functioning in a relatively brief, self-report measure (Rosen et al., 2000). In the original validation study of the FSFI, an expert panel identified 30 questions that were to be sampled from each domain related to female sexual arousal disorder (Rosen et al., 2000). After composing the initial survey, a principal components analysis was performed to examine the factor structure of this questionnaire. Based on this, a 19-item questionnaire was developed that mapped onto 6 domains: desire, subjective arousal, lubrication, orgasm, satisfaction, and pain (Rosen et al., 2000). This scale has demonstrated good internal consistency, with a Cronbach's alpha of 0.82 or higher, and satisfactory test-retest reliability for all domains ( $r = 0.79 - 0.86$ ) and for the total scale ( $r = 0.88$ ). To confirm measurement reliability in the current study, Cronbach's alpha was calculated for the FSFI ( $\alpha = .98$ ). The FSFI was shown to have good discriminant validity through comparing the mean responses of the control group with individuals who have female sexual arousal disorder ( $p < .001$ ). Lastly, the FSFI has been shown to have moderate divergent validity when comparing scores of the FSFI to the Locke-Wallace Marital Adjustment Test scores ( $r = 0.41$ ) (Rosen et al., 2000).

The FSFI contains 19 items that can be answered using a five-point Likert scale ranging from 1 (almost never or never) to 5 (almost always for always) (Rosen et al., 2000). Instructions direct participants to answer the following questions while thinking about their sexual feelings and responses within the past 4 weeks (e.g., "Over the past four weeks, how often did you feel sexual desire or interest?") (Rosen et al., 2000). After completion, scores are calculated based on

each of the six domains and then summed to obtain the total scale score. Total scores can range from 1.2 to 36, with higher scores indicating better functioning. A total score less than or equal to 26.55 is indicative of female sexual dysfunction (Rosen et al., 2000).

### **Weight Status**

Participants' body mass index (BMI) was determined by asking participants to provide their weight in pounds and height in inches. In order to determine BMI, the following formula was used:  $\text{weight (lb)} / [\text{height (in)}]^2 \times 703$  (Centers for Disease Control and Prevention, 2017). The literature has shown that BMI can be an effective tool to predict one's quality of life in terms of physical and mental well-being (Kolotkin et al., 2006), and research has confirmed that self-reported BMI can be an accurate measurement (Lassale et al., 2013; Pursey, Burrows, Stanwell, & Collins, 2014). Numerous studies have found that individuals, especially women in the United States (Craig & Adams, 2009), accurately report their height and weight, when compared to their objective physical measurements (Burton, Brown, & Dobson, 2010; Lipsky et al., 2019). Thus, BMI continues to be an effective tool used to screen for weight classifications that may lead to health problems (Centers for Disease Control and Prevention, 2017).

### **Covariates**

To fully examine the relationship between self-esteem, sexual functioning, and BMI, it is necessary to consider covariates that may impact these variables in order to enable accurate conclusions to be drawn from these models. Covariates that will be included in the analyses are age, race, and socioeconomic status. Previous research has indicated that as age increases, sexual dysfunction also increases (Camacho & Reyes-Ortiz, 2005) and that women's sexual responsivity is negatively affected by aging (Dennerstein, Dudley, & Burger, 2001). In addition, women exhibit age-related increases in self-esteem from late adolescence to middle adulthood

(Bleidorn et al., 2016) yet experience a decrease in self-esteem during their latter years (Orth, Robins, & Widaman, 2012). Therefore, age will be an important covariate to control for in this study. Additionally, race will be included as a covariate due to the impact it may have on self-esteem. Literature suggests that self-esteem differs widely among various racial groups (Twenge & Crocker, 2002). Specifically, African American individuals tend to report higher self-esteem than White individuals (Gray-Little & Hafdahl, 2000; Sprecher, Brooks, & Avogo, 2013; Twenge & Crocker, 2002). Yet, other ethnic minorities, such as Hispanic, Asian, and American Indian individuals, tend to report lower levels of self-esteem (Twenge & Crocker, 2002). Similarly, research has shown differences in body image among these groups. Literature indicates that Caucasian and Hispanic American individuals have higher levels of body dissatisfaction than African American and Asian American individuals (Akan & Grilo, 1995; Altabe, 1998). Lastly, socioeconomic status demonstrates a significant positive relationship with self-esteem, meaning that individuals of lower socioeconomic status tend to have lower levels of self-esteem (Twenge & Campbell, 2002). To determine one's perceived level of SES, participants were asked rate themselves on a scale of 1 to 10, with 10 being an individual with the best job, the most money, and most education, where 1 is an individual with the least respected job, the least money, and the least education. Thus, the current study will include socioeconomic status as a covariate. We opted not to include US residency status as a covariate in the model, despite the possible differences in self-esteem, perceptions of weight, and sexual functioning across cultures. This choice was made for several reasons. For one, the sample was primarily (76.1%) US residents, so the variability was low. For another, most of the non-US participants were from Canada or the UK. There was very little representation from non-Western

countries, where the factors of interest might be expected to vary more greatly. Thus, we did not perceive US residency status to be a likely significant covariate.

## CHAPTER 3

### RESULTS

#### **Descriptive Statistics**

Demographic variables that were evaluated included age, race and socioeconomic status. Overall, women in this sample had a mean age of 30. Of the participants who indicated their race, 88.5% were Caucasian, 3.3% were Asian or Pacific Islander, 2.7% were Latino/a or Latin American, 0.7% were Black or African American, 0.4% were Caribbean Islander, 0.2% were Native American/Alaskan Native, 3.7% were Multi-ethnic and 0.5% were designated as “other.” The majority of participants perceived themselves as having a high, or above average socioeconomic status, or SES ( $M = 6.72$ ,  $SD = 1.53$ ). In addition, the sample was relatively well educated; 79.6% of the women had obtained their Bachelor’s degree or higher, 37.5% of women indicated that their household income was between 100,000 and 200,000 U.S. dollars, 74.8% of women indicated that they were married, 78% of women identified as heterosexual/straight, and 49.8% of women were raised in a suburban area.

Overall, participants from this sample can be classified as having high levels of sexual dysfunction. Clinical cutoff scores indicate that a total score less than or equal to 26.55 is indicative of female sexual dysfunction (Rosen et al., 2000) and the mean response on the FSFI in this sample was 24.73 ( $SD = 9.36$ ), thus indicating high levels of sexual dysfunction. Additionally, participants indicated average levels of self-esteem ( $M = 3.00$ ,  $SD = 1.17$ ) and most participants had a body mass index in the overweight range ( $M = 26.48$ ,  $SD = 6.83$ ). A BMI below 18.5 is classified as underweight, a BMI ranging between 18.5 – 24.9 is classified as normal weight, a BMI ranging between 25.0 – 29.9 is classified as overweight, and a BMI of 30.0 and above is classified as obese (Centers for Disease Control and Prevention, 2017).

Table 1

<i>Descriptive Statistics</i>		
	<i>M</i>	<i>SD</i>
Age	30.26	4.81
SES	6.72	1.53
BMI	26.48	6.83
Sexual Functioning	24.73	9.36
Self-esteem	3.00	1.17

*Note.* *M* = Mean; *SD* = Standard Deviation.

### Statistical Analyses

Before investigating the two hypotheses, a G Power analysis was conducted to verify the appropriate number of participants that are needed to detect an effect size in the proposed statistical analysis (Faul, Erdfelder, Buchner, & Lang, 2009). The results of this test demonstrated that a total of 146 participants are necessary to detect medium effect sizes of 0.15 with an alpha error probability of 0.05 and adequate power of 0.95. All statistical analyses were conducted using SPSS, version 25. To examine the relationship between each variable, bivariate correlations were performed using Pearson's correlation coefficient,  $r$ . Any variables with correlations greater than .80 were excluded to reduce the risk of multicollinearity. Correlations between study variables can be found in Table 2. The moderation analysis was performed utilizing model 1 from Hayes PROCESS Macro with bootstrapping (5000 iterations) to examine the potential moderating effect of BMI between the relationship of self-esteem and sexual functioning.

Table 2

*Correlations of Study Variables*

Variables	1	2	3	4	5	6
1. Self-esteem	-					
2. Sexual Functioning	.146**	-				
3. BMI	-.141**	.055	-			
4. Race	.042	-.013	-.039	-		
5. Age	.085*	-.064	.086*	.014	-	
6. SES	.264**	.001	-.146**	-.069*	.204**	-

Note. \* $p < 0.05$ ; \*\* $p < 0.01$

### Tests of Hypotheses

H1: “Self-esteem and sexual functioning will be significantly positively correlated.”

As hypothesized, there was a significant positive relationship,  $r(771) = 0.146$ ,  $p < 0.01$ , between participant’s levels of self-esteem and scores on the FSFI, with an  $R^2$  value of 0.02, indicating that higher levels of self-esteem were significantly associated with higher levels of sexual functioning.

H2: “BMI will significantly moderate the relationship between self-esteem and sexual functioning, such that a higher BMI will result in a stronger relationship between low self-esteem and poorer sexual functioning.”

As hypothesized, BMI did significantly moderate the relationship between self-esteem and sexual functioning and the overall model was significant,  $F(6, 723) = 4.53$ ,  $p < 0.01$ ,  $R^2 = 0.04$ . After adding the interaction term between self-esteem and BMI to the model, there was a significant increase in the variance explaining sexual functioning,  $\Delta R^2 = .01$ ,  $F(1, 723) = 6.00$ ,  $p = 0.01$ . After probing the interaction at the mean, one standard deviation above the mean, and one standard deviation below the mean, self-esteem was only found to predict sexual functioning at average or low levels of BMI, not above-average levels of BMI (see Table 3). This indicates

that for women with a high BMI classification, self-esteem is a not a significant predictor of sexual functioning.

### **Additional Analyses**

In order to examine the potential effects of covariates on the variable of interest, additional post hoc analyses were conducted to examine BMI across variables. Specifically, these analyses were conducted to examine if the covariates in this study, race, SES, and age, were equally distributed across BMI group. First, it was found that race was not equally distributed across BMI. There was a statistically significant difference between one's race and their body mass index, as determined by a one-way ANOVA ( $F(7,798) = 2.99, p = .004$ ). A Tukey post hoc test revealed that participants who identified as Asian or Pacific Islander had a statistically significant lower BMI ( $22.35 \pm 2.9, p = .016$ ) than participants who identified as Black or African American ( $33.73 \pm 7.0, p = .016$ ). However, it's important to note the small sample size of both groups, which may warrant researchers to interpret the results with caution: African American women ( $n = 5$ ) and Asian or Pacific Islander women ( $n = 23$ ).

In addition to race significantly differing by BMI group, there was also a statistically significant difference between one's perceived level of socioeconomic status and their BMI, which was determined by a one-way ANOVA ( $F(9,788) = 3.99, p = .000$ ). A Tukey post hoc test revealed that participants who identified themselves as having a lower SES had a statistically significant higher BMI ( $30.24 \pm 10.41, p = .005$ ) than participants who identified as having a higher SES ( $24.54 \pm 5.30, p = .001$ ).

Lastly, an additional post hoc analysis revealed a statistically significant difference between one's age and their BMI, which was determined by a one-way ANOVA ( $F(3, 802) = 2.99, p = .030$ ). A Tukey post hoc test revealed that participants who identified themselves as

being between the ages of 34 and 49 had a statistically significant higher BMI ( $27.57 \pm 6.58$ ,  $p = .026$ ) than participants who identified themselves as being between the ages of 18 and 27 ( $25.67 \pm 7.09$ ,  $p = .026$ ). These various results indicate that the covariates of interest do differ across BMI group.

Table 3

<i>Conditional Effects of Self-esteem on Sexual Functioning</i>			
BMI	b (SE)	<i>p</i>	95% CI
19.60*	1.85 (.42)	.00	1.02, 2.68
26.52*	1.15 (.31)	.00	.54, 1.74
33.43	0.44 (.42)	.29	-.38, 1.25

Note. \*  $p < 0.05$

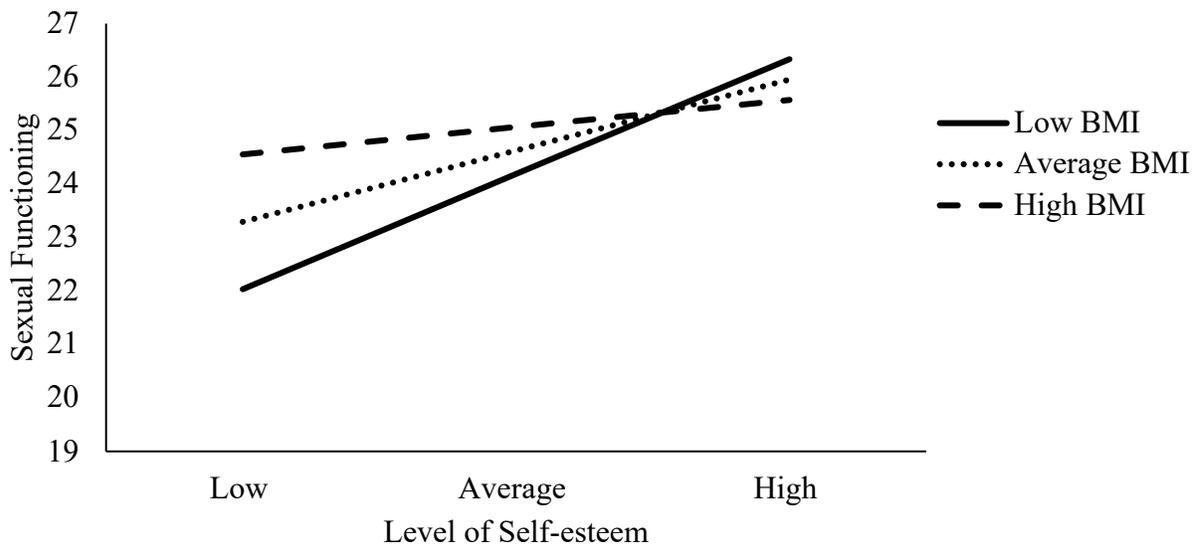


Figure 1. Weight Status as a Moderator Between Self-esteem and Sexual Functioning.

## CHAPTER 4

### DISCUSSION

As previously noted, research has indicated that self-esteem can impact a variety of outcomes in one's life, including one's mental and physical health (Orth & Robins, 2014). In addition to increased risk for anxiety, depression, and other mental health issues (Sowislo & Orth, 2013), women with low self-esteem may also be at greater risk for sexual dysfunctions (Glowacka et al., 2018; Rehbein-Narvaez et al., 2006), which can subsequently produce multiple negative psychosocial effects, such as marital difficulties, anxiety, and depression (Dunn et al., 1999). Therefore, research into constructs affecting the relationship between self-esteem and sexual functioning is indicated. The purpose of this study was to examine the relationship between self-esteem, sexual functioning, and the moderating effect of BMI. The two main findings within this study are clear: first, self-esteem impacts sexual functioning in women; and secondly, BMI influences the relationship between self-esteem and sexual functioning.

#### **Discussion of Findings**

The first finding, in congruence with prior literature, indicates that self-esteem is correlated with sexual functioning. As hypothesized, if a woman has a higher level of self-esteem she is likely to similarly report a higher level of sexual functioning. This indicates that a woman's perception of herself is crucial to sexual functioning. Specifically, previous literature has shown that low self-esteem is associated with physical and mental health problems (Benyamini, Leventhal, & Leventhal, 2004; Crocker & Park, 2004; Sowislo & Orth, 2013; Trzesniewski et al., 2006). Thus, having a higher level of self-esteem may buffer against these issues and, in turn, may positively impact other domains within an individual's life, such as sexual functioning. This association between self-esteem and sexual functioning was found in a

population of women who were not exclusively in college, nor exclusively experiencing cancer, which is where much of the previous literature on this topic has been conducted (Andersen et al., 1997; Rehbein-Narvaez et al., 2006; Safarinejad et al., 2013). Thus, this finding extends the literature and confirms the importance of a woman's self-esteem in relation to sexual functioning.

The second finding supports the prediction that BMI influences the relationship between self-esteem and sexual functioning. However, contrary to our second hypothesis, self-esteem only predicted sexual functioning at average or below-average levels of BMI. When a woman had an above-average BMI, self-esteem no longer significantly predicted sexual functioning. Thus, for women with a higher BMI, self-esteem seems to not be a suitable predictor of sexual functioning. This novel finding may indicate that for women with above-average BMIs, there may be other factors than self-esteem that are more important in understanding their sexual functioning. One speculation is that overweight women may be dealing with medical issues and, as a result, may not be prioritizing sex. For example, literature has shown that obesity is associated with a vast array of medical problems such as cardiovascular disease, diabetes, kidney disease, cancer, and musculoskeletal disorders (GBD 2015 Obesity Collaborators, 2017); consequently, these medical issues may be taking precedence over having sex, or may be negatively affecting the quality of sex that women are having. In congruence with this proposal, obesity has also been shown to be associated with pain (Okifuji & Hare, 2015) and somatic symptoms (Fergus, Limbers, Griggs, & Kelley, 2018) such as fatigue and trouble sleeping (Vgontzas, Bixler, & Chrousos, 2006). Therefore, overweight individuals may be experiencing pain or other somatic symptoms that may be contributing to poor sex, or individuals may be too tired and/or in pain to be interested in pursuing sexual activity.

In addition to other factors that may explain why this relationship is not significant for individuals with higher BMIs, it is also important to note that, in this sample, BMI and self-esteem were negatively and significantly correlated. It may be that lower self-esteem is more common for women with higher BMIs and the current study simply lacked the variability in self-esteem to achieve significant findings at high levels of BMI. In other words, if women with above-average BMIs have nearly universally low levels of self-esteem, then one would not expect to see self-esteem emerge as a statistically significant predictor of sexual functioning.

Lastly, another explanation of the current findings may be due to the study's covariates differing by BMI group. In this study, race, SES, and age were not equally distributed across BMI. For example, individuals who belonged to a particular race had a differing BMI than those who classified themselves as another race. Specifically, results indicated that participants who identified as Asian or Pacific Islander had a lower BMI than participants who identified as Black or African American. However, there was not a statistically significant difference between individuals who identified as another race. This indicates that BMI is not equally distributed across race and, because of this, the relationship between self-esteem and sexual functioning may differ among racial groups. Thus for African American women, who on average had a higher level of BMI in this study, self-esteem may not impact sexual functioning as it does for women who belong to other races (e.g. Asian or Pacific Islander). On a similar note, BMI also varied among individuals who had differing levels of SES. For example, women who identified as having a lower SES had a higher BMI than women who identified as having a higher SES. This indicates that BMI is not equally distributed across SES and the relationship between self-esteem and sexual functioning differs among women belonging to various levels of SES. Thus, for women who identified as having a lower SES, who on average had a higher level of BMI, self-

esteem may not be a factor that impacts sexual functioning when compared to women with a higher SES. Lastly, age was also found to not be equally distributed across BMI. Results indicated that individuals who were between the ages of 18 and 27 had differing BMIs than individuals who were between the ages of 34 and 49, suggesting that younger participants in this study had a lower BMI than older participants. Therefore, for older women in this study, who on average had a higher level of BMI, self-esteem may not have the same impact on sexual functioning as it may for younger women in this study. This further demonstrates that BMI is not equally distributed across age and the relationship between self-esteem and sexual functioning may fluctuate among age groups. These diverse findings indicate that there may be more salient factors, other than self-esteem, that predict and impact sexual functioning among individuals with a higher weight status. Future research should be conducted to explore these relationships to better understand why a high BMI does not affect the relationship between self-esteem and sexual functioning, especially for women who identify as African American, have a lower socioeconomic status, and who are of an older age.

### **Limitations**

The current study is not without limitations. First, this study used an online self-report method. While online survey methods promote anonymity, they also possess the risk of potential bias or misreported data. This limitation may be particularly salient when dealing with sensitive issues such as sexual functioning and weight status, where participants may feel compelled to report what they perceive to be socially desirable responses. Additionally, participants were able to decline to answer questions within the survey and therefore, measures were at risk for incompleteness. Secondly, the overall, larger, study targeted reproductive health issues in women and its purpose was to examine the effects of infertility, childbirth, and pregnancy. Because of

this focus, pregnant women were excluded due to the importance of weight in the calculation of an individual's BMI. However, there was still a significant percentage of women in the sample who were currently trying to conceive. It is possible that trying to conceive could affect sexual functioning and thus, results may not be generalizable to the general population. Furthermore, diversity in this sample was very limited. As a whole, women in this sample were predominately highly-educated, heterosexual, Caucasian residents of the United States, who classified themselves as having a high socioeconomic status. Thus, results of this study may not be generalizable to a broader population. Lastly, while self-reported BMI has been shown to be an adequate measure of weight status (Lassale et al., 2013; Pursey et al., 2014), in-person measurements would have been a more precise measure, resulting in a potential limitation of this study.

### **Implications**

Despite these various limitations, the current study highlights the impact that self-esteem can have on one's sexual functioning. Results indicate that women, at average or low levels of BMI struggling with sexual functioning, may be able to ease a portion of their dysfunction by targeting their self-esteem. Mental and physical health providers should be aware of this association and be prepared to help individuals identify their own sense of self-worth. One way to accomplish this may be through a technique called mindfulness, which is a state of consciousness when an individual is aware of the present moment (Brown & Ryan, 2003). Research has shown that mindfulness is often associated with psychological well-being and positive emotional states (Brown & Ryan, 2003), and could help promote higher levels of self-esteem (Bajaj, Robins, & Pande, 2016). Mindfulness is also frequently used to help promote sexual functioning (Brotto & Basson, 2014; Silverstein, Brown, Roth, & Britton, 2011); thus,

providers using this technique may now have enhanced insight regarding the specific mechanisms that are improving sexual functioning outcomes for women. However, the question still remains as to why self-esteem no longer significantly predicts sexual functioning in women at higher levels of BMI. Therefore, it is crucial that future research explore the implications of higher weight status and examine factors, other than self-esteem, that are predicting sexual functioning.

### **Conclusion**

Overall, findings demonstrate the positive association between a woman's self-esteem and her sexual functioning, and results further suggest that a woman's BMI influences this relationship. This study is an important step to better our understanding of female sexual functioning and the mechanisms that affect it in various ways. These findings highlight the importance of recognizing varying levels of one's self-esteem in addition to one's BMI, and may be a starting point to inform mental health professionals about the effects of low self-esteem, providing a basis for future interventions treating sexual dysfunctions in women.

## REFERENCES

- Akan, G. E., & Grilo, C. M. (1995). Sociocultural influences on eating attitudes and behaviors, body image, and psychological functioning: A comparison of African-American, Asian-American, and Caucasian college women. *International Journal of Eating Disorders*, *18*, 181–187. doi:10.1002/1098-108X(199509)18:2<181::AID-EAT2260180211>3.0.CO;2-M
- Altabe, M. (1998). Ethnicity and body image: Quantitative and qualitative analysis. *International Journal of Eating Disorders*, *23*(2), 153-159. [https://doi.org/10.1002/\(SICI\)1098-108X\(199803\)23:2%3C153::AID-EAT5%3E3.0.CO;2-J](https://doi.org/10.1002/(SICI)1098-108X(199803)23:2%3C153::AID-EAT5%3E3.0.CO;2-J)
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.
- Andersen, B. L., Woods, X. A., & Copeland, L. J. (1997). Sexual self-schema and sexual morbidity among gynecologic cancer survivors. *Journal of Consulting and Clinical Psychology*, *65*(2), 221. <https://psycnet.apa.org/doi/10.1037/0022-006X.65.2.221>
- Andrews, B., & Brown, G. (1995). Stability and change in low self-esteem: The role of psychosocial factors. *Psychological Medicine*, *25*(1), 23-31.  
doi:10.1017/S0033291700028051
- Bajaj, B., Robins, R. W., & Pande, N. (2016). Mediating role of self-esteem on the relationship between mindfulness, anxiety, and depression. *Personality and Individual Differences*, *96*, 127-131. <https://doi.org/10.1016/j.paid.2016.02.085>
- Barlow, D. H. (1986). Causes of sexual dysfunction: The role of anxiety and cognitive interference. *Journal of Consulting and Clinical Psychology*, *54*(2), 140–148.  
<https://doi.org/10.1037/0022-006X.54.2.140>

- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, *117*, 497–529. <https://doi.org/10.1037/0033-2909.117.3.497>
- Benyamini, Y., Leventhal, H., & Leventhal, E. A. (2004). Self-rated oral health as an independent predictor of self-rated general health, self-esteem and life satisfaction. *Social Science & Medicine*, *59*(5), 1109–1116. doi:10.1016/j.socscimed.2003.12.021
- Bleidorn, W., Arslan, R. C., Denissen, J. J. A., Rentfrow, P. J., Gebauer, J. E., Potter, J., & Gosling, S. D. (2016). Age and gender differences in self-esteem—A cross-cultural window. *Journal of Personality and Social Psychology*, *111*(3), 396–410. <https://psycnet.apa.org/doi/10.1037/pspp0000078>
- Bodinger, L., Hermesh, H., Aizenberg, D., Valevski, A., Marom, S., Shiloh, R., ... & Weizman, A. (2002). Sexual function and behavior in social phobia. *The Journal of Clinical Psychiatry*, *63*, 874-879. <https://psycnet.apa.org/doi/10.4088/JCP.v63n1004>
- Brotto, L. A., & Basson, R. (2014). Group mindfulness-based therapy significantly improves sexual desire in women. *Behaviour Research and Therapy*, *57*, 43-54. <https://doi.org/10.1016/j.brat.2014.04.001>
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, *84*(4), 822.
- Burton, N. W., Brown, W., & Dobson, A. (2010). Accuracy of body mass index estimated from self-reported height and weight in mid-aged Australian women. *Australian and New Zealand Journal of Public Health*, *34*(6), 620-623. <https://doi.org/10.1111/j.1753-6405.2010.00618.x>

- Camacho, M. E., & Reyes-Ortiz, C. A. (2005). Sexual dysfunction in the elderly: Age or disease? *International Journal of Impotence Research*, 17(S1), S52.  
<https://doi.org/10.1038/sj.ijir.3901429>
- Centers for Disease Control and Prevention. (2017). Assessing your weight. Retrieved from <https://www.cdc.gov/healthyweight/assessing/index.html>
- Centers for Disease Control and Prevention. (2017). Prevalence of self-reported obesity among U.S. adults by state and territory, BRFSS, 2017. Retrieved from <https://www.cdc.gov/obesity/data/prevalence-maps.html>
- Cooley, C. H. (1902). *Human Nature and the Social Order*. New York: Schribners's.
- Craig, B. M., & Adams, A. K. (2009). Accuracy of body mass index categories based on self-reported height and weight among women in the United States. *Maternal and Child Health Journal*, 13(4), 489-496. doi:10.1007/s10995-008-0384-7.
- Crocker, J., & Park, L. E. (2004). The costly pursuit of self-esteem. *Psychological Bulletin*, 130(3), 392–414. doi:10.1037/0033-2909.130.3.392
- Dennerstein, L., Dudley, E., & Burger, H. (2001). Are changes in sexual functioning during midlife due to aging or menopause? *Fertility and Sterility*, 76(3), 456-460.  
[https://doi.org/10.1016/S0015-0282\(01\)01978-1](https://doi.org/10.1016/S0015-0282(01)01978-1)
- Dove, N. L., & Wiederman, M. W. (2000). Cognitive distraction and women's sexual functioning. *Journal of Sex & Marital Therapy*, 26(1), 67–78.  
doi:10.1080/009262300278650
- Dunn, K. M., Croft, P. R., & Hackett, G. I. (1999). Association of sexual problems with social, psychological, and physical problems in men and women: A cross sectional population

- survey. *Journal of Epidemiology & Community Health*, 53(3), 144-148.  
<http://dx.doi.org/10.1136/jech.53.3.144>
- Erbay, L. G., Ozlu, M., Sahin, I., Evren, B., Kayaalp, C., & Karlidag, R. (2017). The effect of body mass index on the sexual functions of morbidly obese female patients. *Dusunen Adam The Journal of Psychiatry and Neurological Sciences*, 30(4), 338-343.  
doi:10.5350/DAJPN2017300408
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G\*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41(4), 1149-1160. <https://doi.org/10.3758/BRM.41.4.1149>
- Fergus, T. A., Limbers, C. A., Griggs, J. O., & Kelley, L. P. (2018). Somatic symptom severity among primary care patients who are obese: Examining the unique contributions of anxiety sensitivity, discomfort intolerance, and health anxiety. *Journal of Behavioral Medicine*, 41(1), 43-51. <https://doi.org/10.1007/s10865-017-9873-8>
- GBD 2015 Obesity Collaborators. (2017). Health effects of overweight and obesity in 195 countries over 25 years. *New England Journal of Medicine*, 377(1), 13-27.  
doi:10.1056/NEJMoa1614362
- Glowacka, M., Bergeron, S., Dubé, J., & Rosen, N. O. (2018). When self-worth is tied to one's sexual and romantic relationship: Associations with well-being in couples coping with genito-pelvic pain. *Archives of Sexual Behavior*, 47(6), 1649-1661.  
<https://doi.org/10.1007/s10508-017-1126-y>
- Gray-Little, B., & Hafdahl, A. R. (2000). Factors influencing racial comparisons of self-esteem: A quantitative review. *Psychological Bulletin*, 126(1), 26.  
<https://psycnet.apa.org/doi/10.1037/0033-2909.126.1.26>

- Harris, J. M., Cherkas, L. F., Kato, B. S., Heiman, J. R., & Spector, T. D. (2008). Normal variations in personality are associated with coital orgasmic infrequency in heterosexual women: A population-based study. *The Journal of Sexual Medicine*, 5(5), 1177-1183. doi:10.1111/j.1743-6109.2008.00800.x
- Harter, S. (1999). *The construction of the self: A developmental perspective*. New York, NY: Guilford Press.
- Hayes, R. D., Bennett, C. M., Fairley, C. K., & Dennerstein, L. (2006). Epidemiology: What can prevalence studies tell us about female sexual difficulty and dysfunction? *The Journal of Sexual Medicine*, 3(4), 589-595. <https://doi.org/10.1111/j.1743-6109.2006.00241.x>
- Heiman, J. R. (2002). Sexual dysfunction: Overview of prevalence, etiological factors, and treatments. *Journal of Sex Research*, 39(1), 73–78. doi:10.1080/00224490209552124
- Helwig, N. E., & Ruprecht, M. R. (2017). Age, gender, and self-esteem: A sociocultural look through a nonparametric lens. *Archives of Scientific Psychology*, 5(1), 19–31. <http://dx.doi.org/10.1037/arc0000032>
- James, W. (1890). *The principles of psychology* (Vol. 1) New York: Holt.
- Kiviruusu, O., Konttinen, H., Huurre, T., Aro, H., Marttunen, M., & Haukkala, A. (2016). Self-esteem and body mass index from adolescence to mid-adulthood A 26-year follow-up. *International Journal of Behavioral Medicine*, 23(3), 355–363. doi:10.1007/s12529015-9529-4
- Kling, K. C., Hyde, J. S., Showers, C. J., & Buswell, B. N. (1999). Gender differences in self-esteem: A meta-analysis. *Psychological Bulletin*, 125(4), 470.

- Kolotkin, R. L., Binks, M., Crosby, R. D., Østbye, T., Gress, R. E., & Adams, T. D. (2006). Obesity and sexual quality of life. *Obesity, 14*(3), 472–479.  
<https://doi.org/10.1038/oby.2006.62>
- Kolotkin, R., Zunker, C., & Østbye, T. (2012). Sexual functioning and obesity: A review. *Obesity, 20*(12), 2325–2333. <https://doi.org/10.1038/oby.2012.104>
- Lassale, C., Péneau, S., Touvier, M., Julia, C., Galan, P., Hercberg, S., & Kesse-Guyot, E. (2013). Validity of web-based self-reported weight and height: Results of the Nutrinet-Santé Study. *Journal of Medical Internet Research, 15*(8), e152. doi:[10.2196/jmir.2575](https://doi.org/10.2196/jmir.2575)
- Laumann, E. O., Paik, A., & Rosen, R. C. (1999). Sexual dysfunction in the United States: Prevalence and predictors. *JAMA: Journal of the American Medical Association, 281*(6), 537–544. doi:10.1001/jama.281.6.537
- Leary, M. R., & Baumeister, R. F. (2000). The nature and function of self-esteem: Sociometer theory. *Advances in Experimental Social Psychology, 32*, 1–62. Academic Press.  
[https://doi.org/10.1016/S0065-2601\(00\)80003-9](https://doi.org/10.1016/S0065-2601(00)80003-9)
- Leeners, B., Hengartner, M. P., Rössler, W., Ajdacic, G. V., & Angst, J. (2014). The role of psychopathological and personality covariates in orgasmic difficulties: A prospective longitudinal evaluation in a cohort of women from age 30 to 50. *Journal of Sexual Medicine, 11*(12), 2928–2937. doi:10.1111/jsm.12709
- Leonard, L. M., & Follette, V. M. (2002). Sexual functioning in women reporting a history of child sexual abuse: Review of the empirical literature and clinical implications. *Annual Review of Sex Research, 13*(1), 346–388.
- Lewis, R. W., Fugl-Meyer, K. S., Corona, G., Hayes, R. D., Laumann, E. O., Moreira Jr, E. D., ... & Segraves, T. (2010). Definitions/epidemiology/risk factors for sexual

dysfunction. *The Journal of Sexual Medicine*, 7, 1598-1607.

<https://doi.org/10.1111/j.1743-6109.2010.01778.x>

Lipsky, L. M., Haynie, D. L., Hill, C., Nansel, T. R., Li, K., Liu, D., ... & Simons-Morton, B.

(2019). Accuracy of self-reported height, weight, and BMI over time in emerging adults. *American Journal of Preventive Medicine*, 56(6), 860-868.

<https://doi.org/10.1016/j.amepre.2019.01.004>

Loeb, T. B., Rivkin, I., Williams, J. K., Wyatt, G. E., Carmona, J. V., & Chin, D. (2002). Child sexual abuse: Associations with the sexual functioning of adolescents and adults. *Annual Review of Sex Research*, 13(1), 307-345.

Mann, M. M., Hosman, C. M., Schaalma, H. P., & De Vries, N. K. (2004). Self-esteem in a broad-spectrum approach for mental health promotion. *Health Education Research*, 19(4), 357-372.

Marshall, S. L., Parker, P. D., Ciarrochi, J., & Heaven, P. C. L. (2014). Is self-esteem a cause or consequence of social support? A 4-year longitudinal study. *Child Development*, 85(3), 1275–1291. <https://doi.org/10.1111/cdev.12176>

Masters, W. H., & Johnson, V. E. (1966). *Human sexual response*. Boston: Little Brown and Company.

Masters, W. H., & Johnson, V. E. (1970). *Human sexual inadequacy*. Boston: Little Brown and Company.

McCool, M. E., Theurich, M. A., & Apfelbacher, C. (2014). Prevalence and predictors of female sexual dysfunction: A protocol for a systematic review. *Systematic Reviews*, 3, 75.

doi:10.1186/2046-4053-3-75

- Meana, M., & Nunnink, S. E. (2006). Gender differences in the content of cognitive distraction during sex. *Journal of Sex Research, 43*(1), 59–67.  
<https://doi.org/10.1080/00224490609552299>
- Miller, C. T., & Downey, K. T. (1999). A meta-analysis of heavyweight and self-esteem. *Personality and Social Psychology Review, 3*(1), 68-84.  
[https://doi.org/10.1207%2Fs15327957pspr0301\\_4](https://doi.org/10.1207%2Fs15327957pspr0301_4)
- Neggers, Y., Goldenberg, R., Cliver, S., & Hauth, J. (2006). The relationship between psychosocial profile, health practices, and pregnancy outcomes. *Acta Obstetrica et Gynecologica Scandinavica, 85*(3), 277-285.
- Okifuji, A., & Hare, B. D. (2015). The association between chronic pain and obesity. *Journal of Pain Research, 8*, 399.
- Orth, U., & Robins, R. W. (2014). The development of self-esteem. *Current Directions in Psychological Science, 23*(5), 381-387. doi:10.1177/0963721414547414
- Orth, U., Robins, R. W., & Widaman, K. F. (2012). Life-span development of self-esteem and its effects on important life outcomes. *Journal of Personality and Social Psychology, 102*(6), 1271–1288. doi:10.1037/a0025558
- Orth, U., Robins, R. W., Trzesniewski, K. H., Maes, J., & Schmitt, M. (2009). Low self-esteem is a risk factor for depressive symptoms from young adulthood to old age. *Journal of Abnormal Psychology, 118*(3), 472–478. doi:10.1037/a0015922
- Pujols, Y., Meston, C. M., & Seal, B. N. (2010). The association between sexual satisfaction and body image in women. *The Journal of Sexual Medicine, 7*(2), 905-916.  
doi:10.1111/j.1743-6109.2009.01604.x.

- Purdon, C., & Holdaway, L. (2006). Non-Erotic Thoughts: Content and relation to sexual functioning and sexual satisfaction. *Journal of Sex Research, 43*(2), 154–162.  
<https://doi.org/10.1080/00224490609552310>
- Purseley, K., Burrows, T. L., Stanwell, P., & Collins, C. E. (2014). How accurate is web-based self-reported height, weight, and body mass index in young adults? *Journal of Medical Internet Research, 16*(1), e4. doi:10.2196/jmir.2909
- Rehbein-Narvaez, R., García-Vázquez, E., & Madson, L. (2006). The relation between self-esteem and sexual functioning in collegiate women. *Journal of Social Psychology, 146*(2), 250–252. doi:10.3200/SOCP.146.2.250-252.
- Robins, R. W., Hendin, H. M., & Trzesniewski, K. H. (2001). Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg Self-Esteem Scale. *Personality and Social Psychology Bulletin, 27*(2), 151-161.  
<https://doi.org/10.1177/0146167201272002>
- Rosen, C. Brown, J. Heiman, S. Leiblum, C. Meston, R. Shabsigh, D. Ferguson, R. D'Agostino, R. (2000). The Female Sexual Function Index (FSFI): A multidimensional self-report instrument for the assessment of female sexual function. *Journal of Sex & Marital Therapy, 26*(2), 191-208. doi:10.1080/009262300278597
- Safarinejad, M. R., Shafiei, N., & Safarinejad, S. (2013). Quality of life and sexual functioning in young women with early-stage breast cancer 1 year after lumpectomy. *Psycho-Oncology, 22*(6), 1242-1248. <https://doi.org/10.1002/pon.3130>
- Schwartz, M. B., & Brownell, K. D. (2004). Obesity and body image. *Body Image, 1*(1), 43-56.  
[https://doi.org/10.1016/S1740-1445\(03\)00007-X](https://doi.org/10.1016/S1740-1445(03)00007-X)

- Shackelford, T. K. (2001). Self-esteem in marriage. *Personality and Individual Differences, 30*(3), 371-390.
- Silverstein, R. G., Brown, A. C. H., Roth, H. D., & Britton, W. B. (2011). Effects of mindfulness training on body awareness to sexual stimuli: Implications for female sexual dysfunction. *Psychosomatic Medicine, 73*(9), 817.  
<https://dx.doi.org/10.1097%2FPSY.0b013e318234e628>
- Simons, J. S., & Carey, M. P. (2001). Prevalence of sexual dysfunctions: Results from a decade of research. *Archives of Sexual Behavior, 30*(2), 177-219.
- Sowislo, J. F., & Orth, U. (2013). Does low self-esteem predict depression and anxiety? A meta-analysis of longitudinal studies. *Psychological Bulletin, 139*(1), 213–240.  
doi:10.1037/a0028931
- Soest, T., Wichstrøm, L., & Kvaalem, I. L. (2016). The development of global and domain-specific self-esteem from age 13 to 31. *Journal of Personality and Social Psychology, 110*(4), 592–608. doi:10.1037/pspp0000060
- Sprecher, S., Brooks, J. E., & Avogo, W. (2013). Self-esteem among young adults: Differences and similarities based on gender, race, and cohort (1990–2012). *Sex Roles, 69*(5-6), 264-275. <https://doi.org/10.1007/s11199-013-0295-y>
- Stinson, D. A., Logel, C., Zanna, M. P., Holmes, J. G., Cameron, J. J., Wood, J. V., & Spencer, S. J. (2008). The cost of lower self-esteem: Testing a self-and social-bonds model of health. *Journal of Personality and Social Psychology, 94*(3), 412.
- Trzesniewski, K. H., Donnellan, M. B., Moffitt, T. E., Robins, R. W., Poulton, R., & Caspi, A. (2006). Low self-esteem during adolescence predicts poor health, criminal behavior, and

- limited economic prospects during adulthood. *Developmental Psychology*, 42(2), 381.  
doi:10.1037/0012-1649.42.2.381
- Twenge, J. M., & Campbell, W. K. (2002). Self-esteem and socioeconomic status: A meta-analytic review. *Personality and Social Psychology Review*, 6(1), 59-71.
- Twenge, J. M., & Crocker, J. (2002). Race and self-esteem: Meta-analyses comparing Whites, Blacks, Hispanics, Asians, and American Indians and comment on Gray-Little and Hafdahl (2000). *Psychological Bulletin*, 128(3), 371–408. <https://doi.org/10.1037/0033-2909.128.3.371>
- van Minnen, A., & Kampman, M. (2000). The interaction between anxiety and sexual functioning: A controlled study of sexual functioning in women with anxiety disorders. *Sexual and Relationship Therapy*, 15(1), 47-57.
- Vgontzas, A. N., Bixler, E. O., & Chrousos, G. P. (2006). Obesity-related sleepiness and fatigue: The role of the stress system and cytokines. *Annals of the New York Academy of Sciences*, 1083(1), 329-344. <https://doi.org/10.1196/annals.1367.023>
- Woertman, L., & Van den Brink, F. (2012). Body image and female sexual functioning and behavior: A review. *Journal of Sex Research*, 49(2-3), 184-211.  
doi:10.1080/00224499.2012.658586
- Zuckerman, M., Li, C., & Hall, J. A. (2016). When men and women differ in self-esteem and when they don't: A meta-analysis. *Journal of Research in Personality*, 64, 34–51.  
<http://dx.doi.org/10.1016/j.jrp.2016.07.007>

## APPENDIX

### Female Sexual Function Index (FSFI)

These questions ask about your sexual feelings and responses during the past 4 weeks. We know that these questions are very personal. We hope that the confidentiality of this survey helps you feel more comfortable completing them honestly. As always, you are welcome to decline to answer any questions with which you are not comfortable. Please answer the following questions as honestly and clearly as possible.

In answering these questions the following definitions apply:

Sexual activity can include caressing, foreplay, masturbation, and vaginal intercourse.

Sexual intercourse is defined as penile penetration (entry) of the vagina.

Sexual stimulation includes situations like foreplay with a partner, self-stimulation (masturbation), or sexual fantasy.

Sexual desire or interest is a feeling that includes wanting to have a sexual experience, feeling receptive to a partner's sexual initiation, and thinking or fantasizing about having sex.

1. Over the past 4 weeks, how often did you feel sexual desire or interest?  
5-Almost always or always  
4-Most times (more than half the time)  
3-Sometimes (about half the time)  
2-A few times (less than half the time)  
1-Almost never or never  
99-Decline to answer
  
2. Over the past 4 weeks, how would you rate your level (degree) of sexual desire or interest?  
5-Very high  
4-High  
3-Moderate  
2-Low  
1-Very low or none at all  
99-Decline to answer

Sexual arousal is a feeling that includes both physical and mental aspects of sexual excitement. It may include feelings of warmth or tingling in the genitals, lubrication (wetness), or muscle contractions.

3. Over the past 4 weeks, how often did you feel sexually aroused ("turned on") during sexual activity or intercourse?  
0-No sexual activity in past 4 weeks  
5-Almost always or always  
4-Most times (more than half the time)

- 3-Sometimes (about half the time)
- 2-A few times (less than half the time)
- 1-Almost never or never
- 99-Decline to answer

4. Over the past 4 weeks, how would you rate your level of sexual arousal (“turn on”) during sexual activity or intercourse?

- 0-No sexual activity in past 4 weeks
- 5-Very high
- 4-High
- 3-Moderate
- 2-Low
- 1-Very low or none at all
- 99-Decline to answer

5. Over the past 4 weeks, how confident were you about becoming sexually aroused during sexual activity or intercourse?

- 0-No sexual activity in past 4 weeks
- 5-Very high confidence
- 4-High confidence
- 3-Moderate confidence
- 2-Low confidence
- 1-Very low or no confidence
- 99-Decline to answer

6. Over the past 4 weeks, how often have you been satisfied with your arousal (excitement) during sexual activity or intercourse?

- 0-No sexual activity in past 4 weeks
- 5-Almost always or always
- 4-Most times (more than half the time)
- 3-Sometimes (about half the time)
- 2-A few times (less than half the time)
- 1-Almost never or never
- 99-Decline to answer

7. Over the past 4 weeks, how often did you become lubricated (“wet”) during sexual activity or intercourse?

- 0-No sexual activity in past 4 weeks
- 5-Almost always or always
- 4-Most times (more than half the time)
- 3-Sometimes (about half the time)
- 2-A few times (less than half the time)
- 1-Almost never or never
- 99-Decline to answer

8. Over the past 4 weeks, how difficult was it to become lubricated (“wet”) during sexual activity or intercourse?  
0-No sexual activity in past 4 weeks  
1-Extremely difficult or impossible  
2-Very difficult  
3-Difficult  
4-Slightly difficult  
5-Not difficult  
99-Decline to answer
9. Over the past 4 weeks, how often did you maintain your lubrication (“wetness”) until completion of sexual activity or intercourse?  
0-No sexual activity in past 4 weeks  
5-Almost always or always  
4-Most times (more than half the time)  
3-Sometimes (about half the time)  
2-A few times (less than half the time)  
1-Almost never or never  
99-Decline to answer
10. Over the past 4 weeks, how difficult was it to maintain your lubrication (“wetness”) until completion of sexual activity or intercourse?  
0-No sexual activity in past 4 weeks  
1-Extremely difficult or impossible  
2-Very difficult  
3-Difficult  
4-Slightly difficult  
5-Not difficult  
99-Decline to answer
11. Over the past 4 weeks, when you had sexual stimulation or intercourse, how often did you reach orgasm (climax)?  
0-No sexual activity in past 4 weeks  
5-Almost always or always  
4-Most times (more than half the time)  
3-Sometimes (about half the time)  
2-A few times (less than half the time)  
1-Almost never or never  
99-Decline to answer
12. Over the past 4 weeks, when you had sexual stimulation or intercourse, how difficult was it for you to reach orgasm (climax)?  
0-No sexual activity in past 4 weeks  
1-Extremely difficult or impossible  
2-Very difficult  
3-Difficult

- 4-Slightly difficult
- 5-Not difficult
- 99-Decline to answer

13. Over the past 4 weeks, how satisfied were you with your ability to reach orgasm (climax) during sexual activity or intercourse?

- 0-No sexual activity in past 4 weeks
- 5-Very satisfied
- 4-Moderately satisfied
- 3-About equally satisfied and dissatisfied
- 2-Moderately dissatisfied
- 1-Very dissatisfied
- 99-Decline to answer

14. Over the past 4 weeks, how satisfied have you been with the amount of emotional closeness during sexual activity between you and your partner?

- 0-Not applicable or No sexual activity in past 4 weeks
- 5-Very satisfied
- 4-Moderately satisfied
- 3-About equally satisfied and dissatisfied
- 2-Moderately dissatisfied
- 1-Very dissatisfied
- 99-Decline to answer

15. Over the past 4 weeks, how satisfied have you been with your sexual relationship with your partner?

- 0- Not applicable or No sexual activity in past 4 weeks
- 5-Very satisfied
- 4-Moderately satisfied
- 3-About equally satisfied and dissatisfied
- 2-Moderately dissatisfied
- 1-Very dissatisfied
- 99-Decline to answer

16. Over the past 4 weeks, how satisfied have you been with your overall sexual life?

- 5-Very satisfied
- 4-Moderately satisfied
- 3-About equally satisfied and dissatisfied
- 2-Moderately dissatisfied
- 1-Very dissatisfied
- 99-Decline to answer

17. Over the past 4 weeks, how often did you experience discomfort or pain during vaginal penetration?

- 0-Did not attempt intercourse in past 4 weeks
- 1-Almost always or always

- 2-Most times (more than half the time)
- 3-Sometimes (about half the time)
- 4-A few times (less than half the time)
- 5-Almost never or never
- 99-Decline to answer

18. Over the past 4 weeks, how often did you experience discomfort or pain following vaginal penetration?

- 0-Did not attempt intercourse in past 4 weeks
- 1-Almost always or always
- 2-Most times (more than half the time)
- 3-Sometimes (about half the time)
- 4-A few times (less than half the time)
- 5-Almost never or never
- 99-Decline to answer

19. Over the past 4 weeks, how would you rate your level (degree) of discomfort or pain during or following vaginal penetration?

- 0-Did not attempt intercourse in past 4 weeks
- 1-Very high
- 2-High
- 3-Moderate
- 4-Low
- 5-Very low or none at all
- 99-Decline to answer

The individual domain scores and full scale score of the FSFI are derived by the computational formula outlined in the table below. Individual domain scores are obtained by adding the scores of the individual items that comprise the domain and multiplying the sum by the domain factor (see below). The full scale score is obtained by adding the six domain scores. It should be noted that within the individual domains, a domain score of zero indicates that no sexual activity was reported during the past month.

Table 4

*FSFI Scoring System*

Domain	Questions	Score Range	Factor	Minimum Score	Maximum Score
Desire	1, 2	1 – 5	0.6	1.2	6.0
Arousal	3, 4, 5, 6	0 – 5	0.3	0	6.0
Lubrication	7, 8, 9, 10	0 – 5	0.3	0	6.0
Orgasm	11, 12, 13	0 – 5	0.4	0	6.0
Satisfaction	14, 15, 16	0 (or 1) – 5	0.4	0	6.0
Pain	17, 18, 19	0 – 5	0.4	0	6.0
			Full Scale	2.0	36.0
			Range		

## VITA

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