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An Experimental Investigation of the Impact of Body Image on Subjective Sexual Arousal Among Sexually Dysfunctional Women

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An Experimental Investigation of the Impact of Body Image on Subjective Sexual Arousal Among Sexually Dysfunctional Women

by

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An Experimental Investigation of the Impact of Body Image on Subjective Sexual Arousal Among Sexually Dysfunctional Women

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The impact of self awareness during sexual activity has been widely discussed. However, research has been largely focused on the effects of performance anxiety in male erectile functioning. Based on research linking sexual difficulties to lower levels of body image, it has been suggested that physical appearance concerns may have a similar influence on sexual functioning in women as does men's self-awareness about erectile functioning. On the other hand, research has also shown that in some cases self awareness can improve sexual functioning among women. The role that physical appearance or awareness of one's body specifically may play in female sexual response has received little empirical attention. The aim of the current study was to examine the impact of body image on sexual arousal response to erotica among 48 women with

Female Sexual Arousal Disorder (FSAD). Women were randomized to one of two Body Image conditions: Positive Body Image or Negative Body Image. Each woman participated in two sessions: Experimental and Control. In the experimental sessions, participants were asked to adopt and attend to their positive or negative body parts, and a full-length mirror was placed in front of them. Self-reported mental arousal, perceptions of physical arousal, body awareness, body image, anxiety, and cognitive distraction were assessed. Results showed that in the negative and positive experimental sessions, women experienced increased mental and perceptions of physical sexual arousal compared to the control session. Findings were mainly accounted for by levels of body image and body awareness. There were no differences in anxiety or cognitive distraction. Findings suggest that body image and body awareness, whether positive or negative, can result in increased subjective sexual arousal response.

Table of Contents

Chapter 1: Introduction

Female sexual dysfunction (FSD) is among the most prevalent of psychological disorders (Spector & Carey, 1990). Results from a recent national probability sample suggest that approximately 43% of women experience sexual difficulties (Laumann, Paik, & Rosen, 1999), with a substantial portion of these women reporting distress about their sexuality (Bancroft, Loftus, & Long, 2003) and wanting to receive help for their difficulties (Dunn, Croft, & Hackett, 1998). According to the DSM-IV-TR (American Psychiatric Association, [APA], 2000), there are four categories of FSD, including disorders of pain, orgasm, desire, and arousal, with the latter three being highly correlated. All cause marked distress or interpersonal difficulties and are subtyped by the nature of their onset (Lifelong versus Acquired), the context in which they occur (Generalized versus Specific), and by their associated etiologic factors (Psychological versus Combined). Female sexual arousal disorder (FSAD) is characterized by difficulties with subjective and/or genital aspects of sexual arousal. Subjective FSAD was the focus of this dissertation.

FSAD is a common complaint among pre-menopausal women, with studies showing that approximately 15% of pre-menopausal women experience lack of subjective sexual arousal (e.g., Dunn et al., 1998). Despite these high rates, there is a paucity of controlled treatment trials for FSAD. In fact, to my knowledge there is no published outcome study using a randomized controlled treatment design for sexual arousal difficulties. In order to have successful treatment studies and treatment outcomes, more precise conceptualizations of sexual disorders are necessary. Several predisposing, precipitating and maintaining factors have been investigated in the study of FSAD,

including biological (e.g., Bradford & Meston, 2006; Meston et al., 2004; Rosen, Lane, & Menza, 1999), societal (e.g., Nobre & Pinto-Gouveia, 2006), cultural (e.g., Brotto, Chik, Ryder, Gorzalka, & Seal, 2005; Fugl-Meyer & Fugl-Meyer, 1999), relational (e.g., Chesney, Blankeney, & Cole, 1981; Ernst, Földényi, & Angst, 1993), affective (e.g., Bodinger et al., 2002; Kennedy, Dickens, Eisfeld, & Bagby, 1999), and cognitive factors (e.g., see Barlow, 1986; Wiegel, Scepkowski, & Barlow, 2006). Recently, several researchers have suggested that one such factor that deserves consideration in women's sexual arousal is body image (e.g., Seal, Bradford, & Meston, in press; Wiederman, 2000; Wiegel et al.). This dissertation looked into the role that body image plays in female sexual arousal. Specifically, the impact of positive or negative body image on subjective sexual arousal was investigated.

1.1 BODY IMAGE

Body image can be defined as a conception a person has of his or her body, driven by perceptions, attitudes, subjective feelings, and behaviors related to the body (Andersen and LeGrand, 1991). It is influenced by both actual physical (e.g., weight) and non-physical conditions (e.g., perceptions about body size), with the latter often being shown to account for a greater portion of body dissatisfaction among women (e.g., Cash & Hicks, 1990; Weaver & Byers, 2006; Weeden & Sabini, 2007). Body image has received a great deal of empirical and clinical attention in part because of the high prevalence of body image concerns among females of all ages in Western societies, with reports of approximately 55% of non-clinical populations of married and single women experiencing low body image or body dissatisfaction (e.g., Cash, Morrow, Hrabosky, & Perry, 2004; Cash, Winstead, & Janda, 1986; Hoyt & Kogan, 2001; Markey, Markey, &

Birch, 2004). In a nationwide survey of 30,000 individuals aged 15-74, only 7% of all women expressed little concern over their appearance (Cash et al., 1986). Despite being prevalent among women of all ages, research suggests that the focus of body concerns may differ across age groups. For instance, in an investigation of women aged 18-86, those in early to middle adulthood (18-49 years) were shown to experience more social-related body image concerns and increased likelihood of making appearance comparisons than those in later adulthood (50-86 years). It has been suggested that body concerns among women in later adulthood may be more related to health issues (e.g., Crose, 2002).

Much of the research on body image has focused primarily on middle-class, Caucasian groups of women. Of the few studies that have documented group differences, results suggest that body image concerns may differ across social status, educational, racial, and/or cultural groups. For instance, results from one study in which women were divided into Black or non-Black racial categories showed that non-Black women had higher rates of body image dissatisfaction than Black women (Cash et al., 2004). Differences have also been found across educational and/or socioeconomic status (SES). For instance, higher SES and more advanced levels of education have been related to more open attitudes about and greater comfort with one's body (Fooken, 1994) and to decreased discrepancy between actual and ideal body image (Jackson, 2007). Recently published data from a longitudinal study shows that higher SES at time one is a predictor of less body dissatisfaction 5 years later (e.g., Paxton, Eisenberg, & Neumark-Sztainer, 2006).

Research suggests that the media's portrayal of the ultra slender body as the ideal image of beauty may be one factor related to body dissatisfaction among women (e.g., Levine & Smolak, 1996). Research has shown that, despite often being at a normal weight (e.g., Birtchnell, Dolan, Lacey, & Phil, 1987), women feel pressure to be thin from real-world interactions with others, including those close to them (e.g., Irving, 1990; Krones, Stice, Batres, & Orjada, 2005). A recent meta-analysis of 222 studies from over the past 50 years suggests that body image dissatisfaction is constant across the lifespan and has become more prevalent in Western society over time (Feingold & Mazzella, 1998; Hoyt & Kogan, 2002).

1.2 PREVIOUS RESEARCH ON BODY IMAGE DISTURBANCE AND SEXUALITY

1.2.1 Sexual experience

Results from several studies show that body image and attractiveness may be modestly related to sexual experience (e.g., Faith & Schare, 1993; Trapnell, Meston, & Gorzalka, 1997; Weeden & Sabini, 2007; Wiederman & Hurst, 1998). For instance, results from a questionnaire study of 238 young, undergraduate university women showed that among dating women, lower self- and other-rated attractiveness were related to a lower number of intercourse and non-intercourse sexual partners within the past three years (r = .24 – 45), with relationships being shown above and beyond the effects of actual body size (Weeden & Sabini). In an attempt to explain this connection, it has been suggested that women with body image concerns may have less social opportunity to acquire sexual experiences (e.g., Weeden & Sabini). This has been supported by research showing that women who are self-consciousness about their bodies may avoid

both general social and sexual activities, even after controlling for effects of general sexual anxiety and well-being (Wiederman, 2000). However, links between body image and sexual experience have also been found in samples of women who were involved in long-term relationships. For instance, in a slightly older sample of 140 women who were not specifically selected based on relationship status, negative body image was related to lower frequency of a spectrum of sexual experiences (r = .26) (e.g., breast petting, various forms of sexual intercourse), even after controlling for sexual attitudes, sexual knowledge, and psychological distress (Faith & Schare). In another survey of women aged 14 to 74, those who reported being more satisfied with their body image reported more sexual initiation, activity, and experimentation than those who were dissatisfied (Ackard, Kearney-Cooke, & Peterson, 2000). These results suggest that a link between body image and sexual inexperience may be related to variables other than partner availability, such as a tendency for women with low body image to disengage from or avoid sexual opportunities within their relationships (Faith & Schare).

1.2.2 Sexual esteem

Sexual esteem involves the tendency to evaluate oneself positively as a sexual partner (e.g., Wiederman, 2000). In a series of correlational studies on non-clinical samples of undergraduate women, Wiederman and colleagues found sexual esteem to be positively related to self-rated facial (r = .47) and bodily attractiveness (r = .35), and negatively related to self-consciousness about one's body image during sexual activity with a partner (r = -.26), even after controlling for general sexual anxiety, general well being, affect, sexual desire, general self-focus, and sexual attitudes (Dove & Wiederman, 2000; Wiederman, 2000; Wiederman & Hurst, 1998; Wiederman & Hurst, 1997). The

authors speculated that relationships between body image and sexual esteem may be due to enhanced esteem or confidence in social situations in general, although this was not assessed. On the other hand, the authors suggested that if women experience high levels of attention from a sexual partner, then they might develop a greater sense of sexual self, which in turn may lead to increased positive body image perceptions (Wiederman & Hurst, 1998). However, because of the correlational nature of the data, such causal relationships could not be inferred. Interestingly, women relatively high in sexual esteem were not objectively thinner or rated as more attractive. As noted by the authors, results point towards the importance of considering women's self-perceptions of their bodies, rather than their actual body sizes, in understanding women's sexuality.

1.2.3 Sexual satisfaction

Indirect evidence linking body image and sexual satisfaction can be found in research on clinical samples of women with eating disorders, among whom both body image disturbance (APA, 2000) and sexual dissatisfaction are reported (e.g., Wiederman & Pryor, 1997). To my knowledge, there have been only three studies directly examining the link between body image and sexual satisfaction. In their questionnaire study of a non-clinical sample of 187 female college students, Hoyt and Kogan (2001) found that women who were dissatisfied with their sex lives and/or their dating lives experienced more body image dissatisfaction compared to women who reported being satisfied with their sex lives. The authors suggested that the findings may be due to a discomfort in intimate situations involving the woman's naked body (e.g., being undressed by one's sexual partner) among women with low body image, although this was not tested. In a more recent study of body image and psychological, social, and sexual functioning

among women aged 18-86, Davison and McCabe (2005) also found a negative relationship between body image and sexual dissatisfaction. However, results were non-significant after general self-esteem was controlled for. The authors stated that due to limitations in sample sizes, results for women of different age groups could not be examined, and suggested that conclusions must be made tentatively. The authors also pointed towards the importance of examining more specific age groups in future studies. In the third study, Koch, Mansfield, Thurau, and Carey (2005) examined data from the 1993 time period of the Midlife Women's Health Survey, a 10-year long investigation of women's midlife health. Three-hundred and seven women aged 39-56 and in varying menopausal statuses responded to questions about body image and sexual satisfaction. Among women who had sexual partners, a correlational analysis revealed no significant relationship between perceptions of their own attractiveness as they aged and their current sexual satisfaction (r = .07). However, results may have been limited due to a low range of sexual satisfaction scores, with 72% of participants reporting being physically and emotionally satisfied in their sexual relationships, and 71% reporting general sexual satisfaction. The authors also suggested that among these older women, sexual satisfaction might be influenced more by contextual than by bodily factors.

1.2.4 Sexual functioning

Data from the 1993 portion of Midlife Women's Health Survey (Koch et al., 2005, § 1.4.3) investigated specific indices of sexual functioning, including sexual desire, orgasm, enjoyment, and frequency of sexual activity. Results showed that over two thirds of the 307 women studied reported experiencing one or more changes in their sexual response over the past 10 years, with approximately 57% reporting that they desire sex

less often, 58% reporting that they engage in sex less often, 40% reporting decreased enjoyment of sex, and 32% reporting more difficulty with orgasms. Several *t*-tests were conducted to examine relationships with these sexual changes and women's body image. Results showed that the more a woman perceived herself to be less attractive than she was 10 years ago, the more likely she was to report a decline in sexual response or activity over the past 10 years. Conversely, the more a woman perceived herself as being attractive, the more likely she was to report an increase in sexual response or activity over the past 10 years. Data also included open-ended responses in which women could discuss their sexuality. Of 87 responses, 35 (40%) mentioned body image; 74% of which were negative remarks about their bodies (e.g., feeling overweight). Furthermore, three-quarters of women with these concerns also discussed having sexual concerns (e.g., *During the past three months I feel out of control…have gained almost 20 pounds. This is beginning to affect my sexuality in a negative way*), and each of the nine comments in which women expressed a positive body image was accompanied by positive comments about sexuality as well (Koch et al.).

Only a handful of studies have related body image disturbance to sexuality among women with sexual difficulties. In a series of studies comparing women diagnosed with malignant or benign breast disease to healthy control women, Andersen and LeGrand (1991) investigated these relationships among sixty six women with breast disease and 57 healthy controls, 37% of whom met DSM-III criteria for sexual dysfunction, including difficulty with desire, excitement, orgasm, or pain (APA, 1980). Assessment of sexual difficulties was conducted on the entire sample of women, and included number of symptoms and perceived difficulty with orgasm, desire, excitement, resolution, and pain.

Results showed that women with unfavorable evaluations of their bodies reported more symptoms and perceived difficulties with the phases of sexual desire, arousal, and resolution than women who reported favorable body evaluations. Sexual pain and body image were unrelated.

In an investigation examining characteristics of men and women with sexual dysfunction and their partners, 21 women who met DSM-III (APA, 1980) criteria for hypoactive sexual desire disorder (HSDD) reported significantly diminished body image compared to the sexually healthy female partners of male study participants with sexual dysfunction (Schiavi, Karstaedt, Schreiner-Engel, & Mandeli, 1992). This is consistent with reports that women scoring in the sexually dysfunctional range of scores on the Derogatis Sexual Functioning Inventory had significantly lower self-reported body image scores compared to non-dysfunctional control women (Derogatis & Melisaratos, 1979). Differences did not appear to be related to sexual experiences, attitudes, or general levels of affect.

In a more recent study of 21 women diagnosed with DSM-IV criteria of sexual dysfunction (including arousal, desire, and orgasm difficulties) (APA, 2000), Seal and Meston (2007) investigated links between self-reported sexual functioning, as assessed by the Female Sexual Function Index (FSFI), and several subscales of body image, including weight concern, sexual attractiveness, and physical condition. Results revealed significant positive relationships between the sexual attractiveness subscale and FSFI total (r = .62), sexual arousal (r = .67), lubrication (r = .43), and orgasm scores (r = .44). The weight concern subscale was positively related to the FSFI total (r = .50), arousal (r = .44) and lubrication (r = .47) scores. As noted by the authors, results suggested that

among sexually dysfunctional women, the better one feels about her body parts that can be physically altered (i.e., weight concern; e.g., thighs, appearance of stomach, weight) and about her physical features of appearance that cannot be changed easily through exercise (i.e., sexual attractiveness; e.g., face, chest, breasts), the higher her overall sexual functioning. Interestingly, the physical condition subscale, consisting of body parts and functions that are not generally under public scrutiny (e.g., physical stamina; energy level) was not related to sexual functioning. This was the first study to link different aspects of body image to sexual functioning among sexually dysfunctional women using validated measures of sexual functioning.

1.2.5 Sexual response to erotic videos

To my knowledge, only four studies have examined the link between body image variables and women's subjective sexual responses to erotic stimuli in a laboratory setting. The first two studies focused on specific medical populations. In an investigation of women with breast cancer, Gerard found that those who underwent breast reconstruction surgery following mastectomy rated themselves as more sexually attractive, more satisfied with their current sexual response, and more highly sexually aroused by various sexual stimuli compared to women who did not have breast reconstruction following mastectomy. Moreover, this latter group of women reported feeling more sexually turned off by the stimuli (Gerard, 1982). However, the sample was limited to 13 women only. In the second study, in which four groups of women who had undergone either hysterectomy and/or hysterectomy and oophorectomy with various hormonal treatments were compared to a control group, the authors reported no group differences in subjective arousal responses to erotica, despite differences in findings

regarding women's experiences of body image. The authors suggested that results may have been influenced by differences among women who chose to participate in the erotic arousal session (54% of the sample) versus those who did not, and who might have experienced low sexual arousal prior to deciding whether or not to participate in the arousal phase of the study (Bellerose & Binik, 1993). The third and fourth studies were recently conducted in our laboratory with non-clinical samples of undergraduate women. In total, one-hundred and eighty-six sexually functional women completed questionnaire measures of body image and subjective sexual arousal assessment to erotica in a laboratory setting. Results showed that while all women experienced sexual arousal to the erotic material, there was a significant relationship between level of arousal and desire responses and body image, such that women with higher body image experienced higher arousal and desire (r = .15 - .35) (Seal, Bradford, & Meston, 2006; Seal et al., in press).

Results from a recent study by Kuffel and Heiman (2006) also suggest a link between body image and sexual response to erotic stimuli, although sexual self-image was the specific focus of this study, rather than body image specifically. Fifty-six women who reported no sexual difficulties or who reported low sexual desire related to low mood participated in a sexual self-image condition, in which they were instructed to adopt beliefs and ideas about themselves, *including* body image beliefs (e.g., "You like your sexuality a lot…You like how your body feels when you are aroused…"). Results showed that when women were instructed to adopt a positive sexual self-image, they experienced enhanced sexual arousal compared to a control condition.

1.2.6 Limitations of research on body image and sexuality

From the review above, it appears that body image contributes to women's experience of sexuality. However, several limitations in the existing research must be considered. For instance, almost all of the research has employed correlational designs, thus limiting the ability to infer causal relationships. Also, for the most part, samples have been limited to young, non-clinical samples of college women (e.g., Dove & Wiederman, 2000; Faith & Schare, 1993; Kuffel & Heiman, 2006; Seal et al., 2006; Seal et al., in press; Trapnell et al., 1997; Weeden & Sabini, 2007; Wiederman & Hurst, 1998) or to women from specialized populations such as those experiencing gynecological disease (Andersen & LeGrand, 1991; Bellerose & Binik, 1993), cancer (Fobair, Stewart, & Chang, 2006), eating disorders (Wiederman, 1996), or who have undergone mastectomy (Gerard, 1982). While these studies have proved valuable in the establishment of connections between body image and sexuality, conclusions cannot necessarily be generalized to other groups of women, including those who experience sexual dysfunction. To our knowledge, there has been no experimental investigation directly examining body image and sexual response among sexually dysfunctional women.

1.3 THE MECHANISMS BY WHICH BODY IMAGE MAY IMPACT SEXUAL FUNCTIONING

1.3.1 Distracting effects of appearance concerns

Barlow's model of sexual functioning (Barlow, 1986) provides a useful way to conceptualize the role of body image in the cause and maintenance of sexual difficulties. Barlow's model suggests that sexual dysfunction results from a narrowing of attentional

focus towards distracting, task-irrelevant information, and away from rewarding properties of sexual arousal, such as erotic and sensory aspects of the sexual experience. Although Barlow's original model focused on the distracting effects of "performance anxiety" in men (i.e., concerns about erectile function), it is likely that body image concerns may have an analogous distracting influence on sexual function in women (e.g., Wiederman, 2001).

Research shows that women experience distracting appearance-based concerns during sexual activity (Dove & Wiederman, 2000; Meana & Nunnink, 2006; Seal & Meston, 2005), with the level of such concerns predicting self-reported sexual functioning and satisfaction (Dove & Wiederman, 2000). Results from four experimental studies also support the notion that distraction impairs sexual functioning. Przybyla and Byrne (1984) investigated relationships between cognitive distraction and subjective sexual responses to an erotic stimulus among a non-clinical sample of 154 female undergraduate students. Women were exposed to different levels of distraction while either watching or listening to erotica, including simply noticing numbers presented, adding pairs of digits presented, or adding pairs of digits and classifying them as being either above or below the number 50, and as being either odd or even. Results showed that for both visual and auditory erotica, females experienced less subjective arousal with increasing task complexity. Results are consistent with those from a study on 24 sexually functional college-aged females, in which both subjective and physiological sexual arousal to erotica were measured. When exposed to a visually-presented addition task during erotic audiotapes, women experienced decreased subjective and physiological sexual arousal compared to a no-distraction control condition. In exploratory analyses,

the authors found that the result varied as a function of sexual difficulties, with women who were infrequently orgasmic being more distracted from external stimuli and less accurate in gauging their sexual responses compared to women who reported being frequently orgasmic (Adams, Haynes, & Brayer, 1985). With the aim of expanding previous research, Elliott and O'Donohue (1997) conducted a third study on a non-clinical sample of slightly older women aged 18-35 to investigate the influence of varying levels of distraction on subjective and physiological sexual arousal response to audio-presented erotica. Women were asked to perform, in a randomly assigned order, three increasingly complex cognitive operations, including a no distraction trial, a low distraction trial during which they were asked to attend to and repeat 13 sentences that were read aloud to them, and a high distraction trial, during which they were asked to attend to and repeat 13 sentences aloud twice, including once in reverse order (e.g., I'm going to get groceries – groceries get to going I'm). Results showed that both subjective and physiological sexual arousal varied directly as a function of distraction level, with women experiencing higher levels of arousal in the no-distraction condition compared to the high distraction condition. However, no differences were found between the no and low-distraction conditions or between the low and high-distraction conditions, indicating that sexual response may be impaired only under high distraction conditions. Finally, in an investigation of sexually functional and dysfunctional women, Salemink and van Lankveld (2006) examined the effects of a distracter task on physiological and subjective sexual arousal in response to erotic videos. In this study, subjective arousal was measured both retrospectively (i.e., following exposure to an erotic video) and in real time (i.e., throughout exposure to an erotic video). The distraction task included different

verbal instructions on how to deal with digit pairs. Results showed that for both functional and dysfunctional women, this neutral distraction task led to decreased physiological and retrospective measures of subjective sexual response.

1.3.2 Anxiety

Barlow (1986) has postulated that performance cues activate sexual anxiety. It is also likely, based on Barlow's model, that appearance cues may activate anxiety among women. Again, this may work through a shift in attention from reward-motivating cues of arousal to threat-motivating cues of anxiety, leading to impaired functioning. High levels of anxiety have been reported among sexually dysfunctional women (see Norton & Jehu, 1984 for a review), and high levels of sexual difficulties have been reported among women with anxiety disorders (e.g., Bodinger et al., 2002). Findings on anxiety and sexual response in laboratory settings suggest that anxiety may impact physiological arousal (vaginal pulse amplitude) in a curvilinear fashion. For instance, results from a recent study in a non-clinical sample of women show that moderate levels of state anxiety facilitated, and high levels of state anxiety impaired vaginal arousal when women were exposed to an erotic video (Bradford & Meston, 2006). Regarding subjective sexual arousal, women with a variety of sexual dysfunctions and non-dysfunctional control women have been found to experience decreased sexual arousal to an erotic video when it was preceded by an anxiety-provoking video compared to a neutral video (Palace & Gorzalka, 1990). Bradford and Meston suggested that the impact of anxiety on subjective sexual arousal may depend on the definition of anxiety being used. These authors found that when examined as a multidimensional construct, state anxiety (an acute emotional response that can be easily manipulated), but not trait anxiety (a relatively stable measure

that reflects one's dispositional tendency to experience state anxiety), was negatively linked to subjective sexual arousal in response to erotic stimuli.

1.3.3 Heightened body awareness

Body awareness can be defined as an active engagement in thinking about one's body. Research has shown that women who internalize body image ideals or who experience body image dissatisfaction may become prone to heightened awareness of how their body looks to others, including during sexual activity (e.g., Fredrickson & Roberts, 1997; McKinley & Hyde, 1996; Seal & Meston, 2005; Wiederman, 2001). When an individual is actively thinking about her body, she may become cognizant to her feelings, her behaviors, and to further thoughts related to her body (Fenigstein, Scheier, & Buss, 1975). It is likely that if a woman with body image concerns is actively thinking about her body during sexual activity, then her functioning may be impaired, perhaps due to an active comparison of one's current state to an ideal standard (Duval & Wicklund, 1972). On the other hand, it is possible that if a woman with a positive body image is actively thinking about her body during sexual activity, then her functioning may be enhanced (e.g., Seal & Meston, 2007). Results from research on self- and body awareness support these possibilities. Self-awareness is defined as active engagement in thinking about one or several aspects of oneself, with the body being one such possible aspect. The impact of self-awareness on sexual functioning has been widely discussed in the literature since the introduction of the concept *spectatoring* by Masters and Johnson (1970). Spectatoring refers to a cognitive self-absorption wherein individuals fixate on and carefully inspect, monitor, and evaluate themselves during sexual activity, and is thought to impede sexual functioning. While the adverse effects of self-awareness on

sexual functioning are well documented among men, there have been only a few investigations of the impact of self-awareness on female sexual response. In an investigation of sexually functional and dysfunctional women, Meston (2006) found that implicitly inducing self-awareness by having women view an erotic video on a television with a 50% reflective screen impaired vaginal arousal in response to erotic videos in sexually functional women only. There was no impact of self-awareness on subjective arousal in response to the videos for either sexually functional or dysfunctional women. However, with the television screen having been focused on the face only, the author speculated that rather than awareness of the face, it may be awareness of one's body that is important for subjective aspects of female sexual functioning. Wiederman (2000) investigated the relationship between explicit body awareness during sexual activity with a partner among a non-clinical sample of college women. Results from questionnaire data showed that body awareness during physical intimacy was problematic for women, being negatively related to sexual esteem and sexual assertiveness.

Self-awareness has also been reported to *enhance* arousal response in some cases. Laan, Everaerd, van Aanhold, and Rebel (1993) found that performance demand, induced by instructing women to attain and maintain maximum sexual arousal possible within two minutes, enhanced genital and subjective sexual arousal among sexually functional, undergraduate women. While results suggest that self-awareness in general, induced through performance demand, may enhance arousal, the impact of awareness of one's body, more specifically, was not tested. In an earlier, but related study, Korff and Geer (1983) found that women who were instructed to attend to body or genital cues during sexual stimuli had higher correlations between subjective and physiological sexual

arousal than control women. However, considering that these two studies consisted of young, sexually functional undergraduate women only, results cannot necessarily be generalized to other groups of women. In a study by Seal and Meston (2007), the impact of body awareness on sexual response was examined among women diagnosed with sexual dysfunction. Twenty-one women diagnosed with either FSAD, HSDD, and/or FOD participated in two, counterbalanced sessions (experimental body and control) during which subjective and physiological sexual arousal were assessed in response to erotica. In the experimental body condition, women used a full-length mirror to place electrodes on their naked bodies in order to prepare for a possible electro-cardiogram. Results showed that in this condition, during which women saw their naked bodies in the mirror, women experienced *increased* subjective mental and perceptions of physical sexual arousal compared to a control condition. There were no changes in physiological sexual arousal, affect, anxiety, or level of cognitive distraction across the two conditions. Several possible explanations for these findings were noted. For instance, it may have been that these women, who were sexually dysfunctional and who had relatively low body image, tended to avoid viewing themselves as being sexual. And, although speculative, having had to look at themselves being sexual, as in the body condition, their level of arousal may have been enhanced through an enhancement their participation in or their image of themselves as an actor in the erotic scenario. Findings may also have been related to the additional visual component of the body condition, in which seeing their own naked body enhanced women's subjective sexual response in a general way synonymous to viewing sexually explicit scenes which promote sexual arousal. It was also suggested that women focused on their bodily sensations more during the body

condition, thereby enhancing their arousal. Unfortunately, the specific content of women's thoughts and focus during this condition and possible changes in body image were not measured. Finally, it is also possible that results were accounted for by a decrease in women's anxiety about their bodies during the body condition. Similar to anxiety reduction experienced in the cognitive-behavioral technique of exposure, women may have habituated to negative cognitions about their bodies as a result of being exposed to the full-length mirror throughout the experimental session. While anxiety was assessed immediately prior to and immediately following exposure to erotica, it was not assessed prior to the first stages of the experimental session. The specific impact of the entire experimental procedures on anxiety is therefore unknown.

Despite many questions remaining unanswered, findings from this group of investigations suggest that self and body awareness during sexual arousal may not necessarily be detrimental to sexual response, as Barlow's model would predict. In fact, as noted by Trapnell et al. (1997), research on sensate focus, in which one is directed to focus on and enjoy one's own pleasurable sensations (Masters and Johnson, 1970), suggests that in some cases, self and body awareness can benefit sexual responding. It seems that it may be the valence of the awareness, as opposed to the presence or absence of self and body awareness that impacts sexual functioning (Trapnell et al.). In other words, it may be both *where* one's attention is directed and how one evaluates the content upon which one's attention is directed that are important, with attention directed upon erotic sensations and pleasurable thoughts and feelings helping, and attention directed away from erotic thoughts or towards negative thoughts impairing sexual functioning. In terms of body image, it may be the case that awareness of or focus on

negative aspects of body image impair while awareness of or focus on positive aspects of body image enhance arousal. These possibilities have not yet been adequately assessed in previous research.

1.4 THE ROLE OF BODY IMAGE IN SEXUALITY: TREATMENT IMPLICATIONS

1.4.1 Minimizing body image concerns

If women are impacted during sexual activity by concerns with the way they look, it seems that techniques aimed at minimizing their concerns, such as systematic desensitization or cognitive restructuring would be warranted. Systematic desensitization involves deep relaxation exercises that enable women to replace fear responses. A succession of anxiety-provoking stimuli is developed by the woman and the therapist to represent increasingly threatening sexual situations. For example, a hierarchy can be developed ranging from the least anxiety-provoking stimuli of laying naked next to one's partner to the most anxiety-provoking stimuli of experiencing an orgasm following a partner's request. The woman's task is to approach each task on her hierarchy, experience fearful to relaxed responses, resulting in a net decrease of anxiety. She moves up her hierarchy gradually, tackling items of increasing intensity over time. After the woman can successfully imagine each anxiety-provoking or uncomfortable item from her hierarchy without anxiety, she engages in the actual activities of each item on her hierarchy until her anxiety is decreased. Outcome studies for systematic desensitization show that these techniques can improve some aspects of sexual functioning, with the most reliable improvement being a decrease in sexual anxiety (see Meston et al., 2004). Among women with body image concerns, desensitization to being seen nude or to

anxiety about or discomfort with one's body, for example, may help women re-direct their focus towards pleasurable sexual sensations, rather than on concerning body thoughts, resulting in increased sexual arousal. Cognitive techniques aimed at body image concerns and/or education about body image might also be used to dispel distorted beliefs and negative concepts of one's body.

1.4.2 Shifting attention

As suggested by the reviewed material above, in some cases body image may enhance sexual response. For instance, sexually dysfunctional women exposed to a condition in which a full-length mirror was present experienced increased subjective sexual arousal in response to erotica (Seal & Meston, 2007). Increases in sexual arousal have also been found among some women undergoing treatment for sexual dysfunction with sensate focus, a technique which consists of having women learn to focus on pleasurable sensations that are brought about by touching (Masters and Johnson, 1970). These findings are consistent with Kuffel and Heiman's recent study (2006), in which a non-clinical sample of 56 women participated in sexual self-image induction conditions. Results showed that when women were instructed to adopt a positive sexual self-image, including a perception of being sexual, enjoying sexual feelings, and enjoying one's body, they experienced enhanced sexual arousal compared to control conditions. It may be that in some cases, sexually dysfunctional women with body image concerns could shift their focus away from body concerns and towards positive self or body views.

1.4.3 Treatment studies linking changes in body image and sexual functioning

Results from three studies provide support for the notion that changing one's body-related thoughts might be effective in improving sexual difficulties. In one

investigation, 31 college-aged women with body dissatisfaction were randomized to either a CBT program or a wait-list control. CBT included systematic desensitization to a personalized hierarchy of body parts, identification, challenging, and restructuring of automatic thoughts and irrational beliefs, and completion of homework assignments. Results showed that compared to the wait-list control, women in the CBT condition experienced increased body image and weakened maladaptive body image cognitions. In addition, women reported experiencing enhanced sexual interest and sexual feelings compared to non-CBT controls. Women in the wait-list control condition experienced similar enhancing effects for body image and sexuality following a CBT treatment intervention after posttest (Butters & Cash, 1987).

In a second study, 32 clinically obese females who underwent a weight-loss treatment intervention for an average of 31 weeks experienced significant improvements in body image, sexual drive, and frequency of sexual activity. Moreover, when women were questioned about what attributed to their increased sexual functioning, 72% reported that changes were due to feeling better about their bodies (Werlinger, King, Clark, Pera, & Wincze, 1997). In a related study, anorexic female patients who completed a weight restoration program experienced increased weight, increased body mass index, and increased sexual fantasy (Morgan, Lacey, & Reid, 1999). While results from these two latter studies are limited by lack of treatment control groups and possible influences of other variables (e.g., overall increased health, in-hospital stays), they provide evidence that changes in body image may be related to changes in sexual functioning (Morgan et al.).

Chapter 2: The Present Study

The primary aim of this research was to further our understanding of the influence of body image on subjective sexual response. Women with FSAD, subjective or combined subtype, were the focus of this study, as body image has been linked primarily to deficits in subjective sexual arousal (e.g., Andersen & LeGrand, 1991; Butters & Cash, 1987; Gerard, 1982; Seal et al., 2006; Seal & Meston, 2007). Considering the close association between subjective sexual arousal and desire, women with concurrent hypoactive sexual desire disorder (HSDD) were also included. Results from studies investigating relationships between body image and pain and orgasm difficulties, on the other hand, have been mixed or have shown null effects. Women with these primary diagnoses were therefore not included. FSAD, subjective or combined subtype, was also chosen because of the ability to operationalize sexual arousal response in a laboratory setting.

An abundance of research connecting physical appearance or body image concerns to impaired sexual arousal suggests that negative body image may have a negative influence on sexual arousal in women. On the other hand, research also suggests that positive body image may have an enhancing impact on sexual arousal. The current study investigated the impact of positive versus negative body image on subjective sexual arousal in response to erotic videos in a laboratory setting. Forty-eight women with FSAD, subjective or combined subtypes, were randomized to participate in one of two conditions (Positive Body Image or Negative Body Image), during which they were directed towards adopting either a positive or negative body image. This was done by having women fill out a checklist of body parts and functions to indicate which parts or

functions they felt positively or negatively about (during the Positive and Negative Body Image conditions, respectively). They were then asked to provide a written response indicating what makes each body part positive or negative to them, and how that body part adds to or detracts from their experience of being sexual with a partner. After completion of this checklist and question, they were asked to focus on their bodies and to think about how their bodies influence their sexuality. It was my expectation that with this manipulation, women would be able to adopt a positive or negative body image in the experimental session, and would spend more time thinking about a positive or negative body image in the experimental compared to the control session. The effectiveness of placing a mirror in the room to induce self awareness has been shown in several studies (e.g., Carver, Peterson, & Follansbee, 1983; Carver & Scheier, 1978; Scheier & Carver, 1980). Following this manipulation, participants watched an erotic video and had their sexual arousal measured. Each condition consisted of two counterbalanced sessions (Body Image and Control).

Predictions based on the rationale provided in the introduction were as follows:

Prediction 1: Based on previous research showing positive relationships between good body image and sexuality variables, including sexual response to erotic videos (e.g., Seal et al., in press), and on research showing that women experience increased arousal when they are focused on positive aspects of their self image and body (e.g., Kuffel & Heiman, 2006; McCabe, 2001), I predicted that in the Positive Body Image condition women would experience enhanced subjective sexual arousal in response to the erotic video compared to in the control condition.

Prediction 2: Based on literature suggesting that body image concerns are linked

to decreased sexual functioning, including lower levels of sexual response to erotic videos (e.g., Andersen & LeGrand, 1991; Koch et al., 2005; Seal et al., in press), and given that women have been shown to experience decreased sexual response with increased self and body awareness (e.g., Wiederman, 2000), I predicted that in the Negative Body Image condition these sexually dysfunctional women would experience decreased subjective sexual arousal in response to an erotic video compared to in the control condition.

Prediction 3: Assessment of *positive body awareness* was used to determine the intensity at which women were focused on their positive body image in the Positive Body Image condition. Given research suggesting that women experience increased arousal when they are more intensely focused on their bodies in a positive way (e.g., Brotto, Basson, and Luria, 2008; McCabe, 2001), it was expected that women would be more intensely focused on their positive body image during the videos in the experimental session, and the intensity at which women focused on their positive body image would be related to level of sexual arousal. Given that positive body image is related to positive body thoughts and awareness (e.g., see Wilhelm, 2006; Wilson & Fairburn, 1993), it was also expected that women in the Positive Body Image experimental condition would experience increased body image over the course of the session. Considering that in the experimental session women were asked to take their clothes off prior to exposure to the erotic video, it was expected that women would experience decreased anxiety in the Positive Body Image condition. This was expected to occur related to a possible habituation effect, with women habituating to anxiety related to their naked bodies over the course of the session. This is supported by a large body of

research showing decreased anxiety with habituation related to exposure (e.g., Butler, Fennel, Robson, & Gelder, 1991).

Prediction 4: Assessment of negative body awareness was used to determine the intensity at which women were focused on their negative body image in the Negative Body Image condition. Given research showing that activation of body image concerns or negative body image can have robust and lasting effects (e.g., Posavac, Posavac, & Posavac, 1998), and given research showing a shift in focus towards appearance concerns when one's body is negatively objectified (Levine & Smolak, 1996), it was expected that in the Negative Body Image condition, women would be more intensely focused on their negative body image during the videos in the experimental session, and that the intensity at which women focused on their negative body image would be related to level of sexual arousal. As in the Positive Body Image condition, women in the experimental session of the Negative Body Image condition also took their clothes off prior to exposure to the erotic video. It was expected that women would experience increased anxiety and decreased body image, related to a focus on the negative aspects of their naked bodies and a possible comparison of themselves to an ideal standard (e.g., Duval & Wicklund, 1972; Groesz, Levine, & Murnen, 2002). Finally, it was expected that distraction would be increased, as women's thoughts would be taken away from sexual variables such as pleasurable sensations (Masters & Johnson, 1970).

Prediction 5: It was expected that in the Positive Body Image condition, any variables from Prediction 3 that were observed to have differed across the experimental and the control conditions (i.e., positive body awareness, body image, and/or anxiety) would explain significant amounts of variance in arousal scores, such that increased

positive body awareness, increased body image, and decreased anxiety would be related to increased subjective sexual arousal.

Prediction 6: It was expected that in the Negative Body Image condition, any variables from Prediction 4 that were observed to have differed across the experimental and the control conditions (i.e., cognitive distraction, anxiety, negative body awareness, and/or body image) would explain significant amounts of variance in arousal scores, such that increased distraction, increased negative body awareness, increased anxiety, and decreased body image would be related to decreased subjective sexual arousal.

Chapter 3: Method

3.1 EXPERIMENTAL DESIGN

The proposed study used a mixed model design, with between- (Positive Body Image versus Negative Body Image) and within-subjects (repeated subjective assessments, Body Image versus Control) measures. Forty-eight women with FSAD, subjective or combined subtype, were invited to participate in two one-hour visits (Experimental Body Image and Control) at the Female Sexual Psychophysiology Laboratory. Women were randomized to complete one of two experimental conditions in which their body image was manipulated: Positive Body Image or Negative Body Image. In these experimental sessions, women adopted a positive or negative body image (in the Positive and Negative Body Image conditions, respectively), based on body parts that they felt either positive or negative about.

The main outcome measure was participants' subjective sexual arousal, which was assessed prior to and immediately following exposure to erotic videotapes during both experimental and control conditions. As reviewed earlier, there are several factors by which body image may influence sexual arousal. Theories have postulated that cognitive distraction, anxiety, intensity of focus on positive or negative body image (i.e., body awareness), and body image may be involved in sexual arousal. As such, questionnaires assessing each of these factors were also given (for study outline, see Appendix A).

3.2 PARTICIPANTS

Participants were 48 women diagnosed with FSAD, subtype, recruited from the Austin community using advertisements posted online (e.g.,

craigslist) and throughout the community over the course of one year. Twenty-one of the women (43.75%) reported FSAD, subjective subtype, and 27 of the women (56.25%) reported FSAD, combined subtype. Thirty-three women (68.75%) also reported HSDD and 3 (6.25%) reported difficulty with orgasm secondary to their arousal complaints.

Inclusion criteria for the study were as follows:

1) Premenopausal women between the ages of 18-50. This criterion was based on research showing that women in later life tend to have different body concerns (e.g., with a focus on health aspects rather than on sexual attractiveness aspects of one's body) than younger women (e.g., Crose, 2002; Davison & McCabe, 2005). This criterion also limited variability due to sexual function changes commonly associated with age and the menopausal transition (e.g., Dennerstein, Alexander, & Kotz, 2003).

2) Heterosexual. Limiting the study to women who identified as exclusively or predominantly heterosexual limited variability due to sexual orientation, potential sexual difficulties related to cultural and internalized attitudes toward same-sex relationships, different responses to male-female erotica (e.g., Chivers, Rieger, Latty, & Bailey, 2004), and different experiences with body image across sexual orientations (e.g., Herzog, Newman, Yeh, & Warshaw, 1992). In addition, the sexual functioning measure used in this study was normed on a sample of predominantly heterosexual women.

3) Currently experiencing FSAD, subjective or combined subtype. FSAD was the specific focus of this dissertation. According to the DSM-IV-TR, FSAD is a persistent or recurrent inability to attain or to maintain until completion of sexual

activity an adequate lubrication swelling response of sexual excitement that causes marked distress or interpersonal difficulty (APA, 2000, pp. 543-544). However, a panel of 13 experts in female sexual dysfunction selected from 5 countries was recently convened to review the existing definitions of women's sexual dysfunction. With regard to women's arousal concerns, the committee criticized the DSM-IV-TR definition in that it was exclusively based on a physical response. An underlying assumption of this definition is that physical and subjective experiences of sexual arousal are synchronous in women when, in fact, research indicates these two components of arousal in women are often desynchronous. In the publication that resulted from this conference, the committee suggested that the following three subtypes of FSAD better describe women's sexual arousal concerns than do existing definitions (Basson et al., 2003):

i. Subjective Sexual Arousal Disorder, which refers to the absence of or markedly diminished feelings of sexual arousal (e.g., sexual excitement and sexual pleasure) from sexual stimulation. Vaginal lubrication or other signs of physical response still occur**.**

ii. Genital Sexual Arousal Disorder, which refers to the absence or impairment of genital sexual arousal (e.g., minimal vulval swelling or vaginal lubrication from any type of sexual stimulation and reduced sexual sensations from caressing

genitalia). Subjective sexual excitement still occurs from non-genital sexual stimuli.

iii. Combined Genital and Subjective Arousal Disorder which is the most common clinical presentation, and is usually comorbid with lack of sexual desire.

For the current study, FSAD was defined based on both DSM-IV-TR (APA, 2000) definitions and the Basson and colleague committee suggestions (Basson et al., 2003; Rellini, McCall, & Meston, 2004). FSAD was assessed with a semi-structured interview (Appendix B; Rellini et al.). Limiting the study to women who experience FSAD subjective or combined subtype helped to limit variability, as women with other sexual complaints often represent distinct groups. Moreover, previous research on body image showing connections between body image and sexuality has been primarily focused on sexual arousal. Finally, FSAD, subjective or combined subtype, was chosen because of the ability to operationalize subjective sexual arousal response in a laboratory setting.

4) Fluent in English. Participants had to be fluent in English in order to be enrolled in the study because most of the instruments that were used have not been translated and validated in Spanish, and there are no appropriate alternative instruments that meet this criterion. Prior cross-lingual and cross-cultural validation of all study instruments is crucial to conducting a study with Spanish-speaking participants.

Exclusion criteria for the study were as follows:

1) Met DSM-IV-TR (APA, 2000) criteria for a primary sexual dysfunction of female orgasmic disorder, a sexual pain disorder, or sexual aversion disorder. Women who did not experience FSAD, subjective or combined subtype, may have represented different etiological groups regarding sexual response and body image, and would have likely increased variability and rendered results less interpretable.

2) Self-report of an untreated or unstable mental disorder, including: organic mental syndromes and disorders, delusional or psychotic disorders, eating disorders, panic disorder, a history of significant substance abuse within six months before the start of the study. During participant screening, potential participants were questioned as to whether they had been diagnosed with a psychological illness other than sexual dysfunction. This criterion was used to increase the homogeneity of the sample and because it is unclear to what degree the presence of these disorders may influence a woman's sexual response and body image in this type of study. Any potential participants with such self-reported disorders were referred to area mental health providers.

3) Experienced relatively high body image. This exclusion was made because research has shown that women with high body image have different sexual experiences than women with average or low body image, and are likely to respond to manipulations of body image and sexual functioning differently (e.g., Trapnell et al., 1997). Women were asked the following question to assess for high body image: *In general, when I am with a sexual partner, I: a) have strong*

negative feelings about the way my body looks b) have moderate negative feelings about the way my body looks c) have no feeling one way or the other d) have moderate positive feelings about the way my body looks e) have strong positive feelings about the way my body looks. Women who provided a response of *e*, indicating *strong positive feelings*, were excluded from the study.

4) Pregnant. This criterion was used because women's cognitions about their bodies and their experiences of sexuality are expected to change during pregnancy, and would possibly therefore also have changed over the course of participation in the study (e.g., Elliott & Watson, 1985).

5) Experienced distress from a history of sexual abuse (self-defined). This exclusion criterion was made because research has shown that childhood sexual abuse can have profound and pervasive effects on a person's body image and sexual response. Women with a history of sexual abuse may have different cognitions about their bodies than women with no history of sexual abuse (Wenninger & Heiman, 1998). During participant screening, potential participants were questioned as to whether they had a history of sexual abuse that was causing them interpersonal distress. Any potential participants with such self-reported difficulty were referred to area mental health providers.

3.3 MEASURES (See Appendix C)

3.3.1 Manipulation Check for Positive or Negative Body Image

A manipulation check was administered in order to determine if the positive and negative body image manipulations were successful in having women adopt a positive or negative body image in the experimental sessions. The manipulation check included: 1)

Assessment of the *endorsement* of positive or negative aspects of the body to determine whether women considered any of their body parts as being positive or negative. Immediately prior to the erotic video in the experimental sessions, women completed a checklist indicating which of 35 body parts they tended to feel positive or negative about, in the Positive and Negative Body Image conditions, respectively. It was expected that each women would endorse at least one positive or negative body part. 2) Assessment of the *adoption* of a positive or negative body image, including how *easy* it was for women to adopt a positive or negative body image in the experimental session, and time spent thinking about their positive or negative body image in the experimental compared to the control session. Following exposure to the erotic videos in the experimental sessions, participants provided a Yes/No answer to the face valid question of whether or not they had adopted a positive body image or a negative body image. They also rated how easy it was for them to do so on a scale from 0 to 100, where 0 = *not at all easy* and 100 = *very easy*. To compare adoption of a positive or negative body image across the experimental and control sessions, following exposure to the erotic videos in both the experimental and control conditions women were asked to indicate what percentage of the time *during* the erotic video they had been thinking about their positive or negative body image (see Appendix D). It was expected that women would report that they thought about their positive or negative body images significantly more in the experimental than in the control sessions.

3.3.2 Primary outcome measure

Subjective sexual arousal, the primary outcome measure, was assessed immediately prior to the body image manipulation and immediately following exposure

to the erotic videotapes using a self-report rating scale, adapted from Heiman and Rowland (1983) (See Appendix E). Participants rated each item, depending on the degree to which they experienced the sensation, on a 7-point Likert Scale, from 1 = "*Not at all*" to 7 = "*Intensely*." Subscales included perceptions of physical sexual arousal (5 items: *warmth in genitals, genital wetness or lubrication, genital pulsing or throbbing, genital tenseness or tightness, physical sexual arousal*) and subjective mental sexual arousal (5 items: *sexually aroused*, *sexual desire*, *mental sexual arousal*, *easy to arouse*, and the reverse score of *sexually turned off*). Reponses for each subscale were averaged (See Appendix E).

3.3.3 Factors theorized to be related to changes in sexual arousal

Anxiety: Subjective Units of Distress Scale (SUDS; Wolpe, 1969).

Given that high levels of anxiety have been reported among sexually dysfunctional women (see Norton & Jehu, 1984 for a review) and that, based on Barlow's model of sexual functioning (1986), appearance cues may activate anxiety during sexual response, anxiety was assessed immediately prior to the body image manipulation or equivalent control, and immediately following exposure to the erotic videos using a self-report rating scale. The SUDS was used to monitor changes in anxiety levels during the application of desensitization to anxiety-provoking stimuli (Wople, 1969). SUDS was obtained by asking participants to imagine a scale from 0 to 100, where 0 represents a state of absolute calm and relaxation and 100 represents the greatest level of anxiety an individual has even experienced. The SUDS has been shown to be sensitive to small changes in anxiety over a short period of time, and is widely used in clinical and research applications (for a review see Kazdin & Wilcoxin, 1976) and in the

assessment of career indecisiveness, anxiety treatment studies, posttraumatic stress disorder, and other mental illnesses. The validity of the SUDS score has been supported by a large body of research (e.g., Kaplan, Smith, & Coons, 1995). (See Appendix F).

Body Awareness.

The intensity with which women were focused on their positive or negative body image over the course of the experimental and control sessions was assessed with a measure of positive or negative body awareness. Body awareness was assessed immediately prior to the body image manipulation or equivalent control and immediately following exposure to the erotic videos. It was expected that women would be focused on their positive or negative body image more intensely in the experimental compared to the control sessions. This level of intensity was expected to be related to level of sexual arousal. Participants rated five items for the positive body awareness (e.g., *During the video, I was thinking about positive parts or functions of my body*) and five items for negative body-awareness (e.g., *During the video, I was thinking about negative parts or functions of my body*). Each item was rated, depending on the degree to which participants were thinking about the item, on a 7-point Likert Scale, from 1 = "Not at all" to 7 = "Intensely," and responses were averaged (See Appendix G).

Body Image: The Body Esteem Scale (BES; Franzio & Sheilds, 1984).

Consistent with previous research, body image was expected to be relatively low among this group of sexually dysfunctional women. Nonetheless, to assess whether body image changed with exposure to the erotic videos, it was assessed immediately prior to the body image manipulation or equivalent control, and immediately following exposure to the erotic videos using a self-report rating scale. The BES is a 35-item, three factor,

self-report measure of body image. Participants were asked to rate how they felt about a variety of parts and functions of their own bodies on a scale of 1 to 5, where 1 is *"I have strong negative feelings"* and 5 is *"I have strong positive feelings."* A principal components factor analysis using oblique rotation indicates three factors for women's body esteem, including Sexual attractiveness, Weight concern, and Physical condition (Franzoi & Sheilds, 1984). The Sexual attractiveness subscale (13 items) includes items or functions of the body that are associated with physical attractiveness and that cannot be changed through exercise (e.g., "body scent, sex organs, face"). The Weight concern subscale (10 items) includes physical appearance of body parts that can be altered through exercise (e.g., "appearance of stomach; thighs; weight"). The Physical condition subscale (9 items) includes qualities that are generally not under public scrutiny (e.g., "physical stamina; energy level; physical coordination"). For all three subscales, higher scores indicate higher body image. The BES has been shown to have acceptable levels of internal consistency (α = .78 for the attractiveness factor, .87 for the weight concern factor, and .82 for the physical condition factor), and high test-retest reliability (r = .81 for the attractiveness factor, .87 for the weight concern, and .75 for the physical condition) over a 3-month period (Franzio, 1994). The weight concern subscale has been shown to reliably discriminate between anorexic females from non-anorexic females (Franzio & Sheilds). For the purpose of this study, we were interested in generating an overall body image score and therefore calculated a BES total score by taking the mean of items in all three subscales (Goldenberg, McCoy, Pyszczynski, Greenberg, & Solomon, 2000). (See Appendix H).

Cognitive Distraction.

Given research suggesting that appearance concerns may be distracting during sexual activity (e.g., Dove & Wiederman, 2000; Meana & Nunnink, 2006), and that distraction away from sexual activity may be linked to impaired sexual response (e.g., Salemink & van Lankveld; 2006), cognitive distraction was measured in the Negative Body Image and the corresponding control sessions. Following the subjective sexual arousal assessment at the end of the videos, participants were given 7 questions to assess their attention to the content of the videos (e.g., *What did he whisper into her ear as they entered her apartment?*). Each question had three multiple choice responses, from which participants were instructed to choose the best answer. These multiple choice questions were previously used to assess for level of distraction during exposure to tapes in a laboratory setting (Seal & Meston, 2007). (See Appendix I).

3.3.4 Participant characteristics

The Female Sexual Functioning Index (FSFI; Rosen et al., 2000).

The FSFI was administered to confirm the diagnosis of FSAD and to get a better demographic picture of the participant population. Women completed this scale prior to coming into the laboratory. The FSFI is a 19-item self-report measure of female sexual function that provides scores on six domains of sexual function as well as a total score (Rosen et al., 2000). The domains assessed have been confirmed using factor analyses and include: desire (2 items), arousal (4 items), lubrication (4 times), orgasm (3 items), satisfaction (3 items), and pain (3 items). The FSFI was developed on a female sample of 131 controls (age range, 21-68) and 128 age-matched subjects (age range, 21-69) who

met DSM-IV criteria for FSAD. The FSFI has been shown to reliably discriminate FSAD and control patients on each of the six domains of sexual function as well as the Full Scale score (Rosen et al.), and to reliably discriminate between sexually functional women and women with FOD and/or HSDD (Meston, 2003) and women with FSAD (Rosen et al.). Cronbach's alpha levels of internal consistency range between 0.82 and 0.98 (Wiegle, Meston, & Rosen, 2005), and test-retest reliabilities using a 4-week interval range between $r = 0.79$ and 0.86 (Rosen et al). (See Appendix J).

The Derogatis Sexual Functioning Inventory (DSFI; Derogatis & Melisarato, 1979).

As previously discussed (§ 1.4.1), past research has shown a link between sexual experience and body image. The Frequency and Experience subscales of the DSFI were included in the current study to get a better demographic picture of the participant population. Women completed this measure prior to coming into the laboratory. The Frequency subscale is made up of 4 questions assessing frequency with which individuals typically engage in intercourse, masturbation, kissing and petting, and sexual fantasies. Items are assessed on a 9-point scale from *Not at all* to *4 or More Times/Day.* The Experience subscale of the DSFI has participants indicate which of a list of 24 sexual experiences they have ever experienced by checking either "yes" or "no". They are further prompted to indicate whether they have engaged in each activity within the past 60 days. The list of 24 sexual behaviors that comprise the Experience subscale range from very basic (e.g., breast petting) to various forms of intercourse and oral-genital behaviors (e.g., anal intercourse; intercourse – vaginal entry from the rear), providing a reasonable spectrum of experiences (Derogatis & Melisaratos, 1979). The DSFI has been shown to have good psychometric characteristics (Derogatis & Melisaratos, 1979). Its

overall inter-rater reliability is high, at .91, and the test-retest reliabilities of the individual subscales range from .80 to .90. It has been shown to have good predictive validity and is capable of discriminating between groups at levels significantly above chance. (See Appendix K).

Waist to Hip Ratio (WHR).

Research suggests that actual body size may partially account for body image dissatisfaction as well as sexual response variables (e.g., Cash & Hicks, 1990; Weaver & Byers, 2006; Weeden & Sabini, 2007). As such, I obtained several objective measures of participants' bodies. A substantial body of literature suggests that WHR is an indicator of attributes such as health, youth, and fertility in potential mates (e.g., Singh, 1993; Streeter & McBurney, 2003), and influences female attractiveness and ideal shape (e.g., Singh, 1994). A healthy range of WHR for premenopausal Caucasian women is 0.67 to 0.80 (Lanska, Lansak, Hartz, & Rimm, 1985; Marti et al., 1991), and the female figure with a WHR of 0.70 in the normal weight range is judged as the most attractive (e.g., Singh, 1994; Streeter & McBurney, 2003). WHR ratio was measured by the researcher following completion of the second session.

Body Mass Index (BMI).

We computed each participant's BMI using the formula *weight (lb)/[height (in)]*^{2} *x* 703 (U.S. Department of Health and Human Services, Centers for Disease Control and Prevention), using participants' self-reported height and weight. Research has shown that self-reported body weight and height are reliable (e.g., Larsen, Ouwens, Engels, Eisinga, & van Strien, 2008).

The Figure Rating Scale (adapted version by Stunkard, Sorenson, & Schulsinger, 1983).

The Figure Rating Scale consists of nine female silhouettes whose dimensions range from very thin to very obese in incremental steps. Participants indicated on a 9-point scale which figure they perceived to best match the way they look, and which figure corresponded to the way that they would prefer to look. I also obtained an objective measure of participants' figure rating by providing a researcher-rating of each participant's figure on the same scale. The individual silhouettes correspond to well-established ranges of actual body dimensions (see Williamson, Davis, & Bennett, 1989). This measure has been widely used in studies of body image and eating disorders and is deemed an appropriate tool to identify body image disturbance. Research on a non-clinical sample of university women aged 18 to 43 shows a mean current body shape of 4.5 (SD = 1.3) and ideal body shape of 3.2 (SD = 0.8) (Duncan, Dodd, & Al-Nakeeb, 2005). The Figure Rating Scale has been shown to have good reliability and adequate validity (Thompson & Altabe, 1990). (See Appendix L).

Self, Perceived Partner, and Researcher-Rated Attractiveness (Wiederman & Hurst, 1998).

Self-rated and perceived partner-rated attractiveness of participants were assessed by asking women to indicate their own as well as their partners' likely ratings of their facial, body, and overall attractiveness on a scale from 1 to 7, where 1 = "*Well below average*" and 7 = "*Well above average*." Researcher ratings of attractiveness were also obtained following each woman's first session, using the same scale (See Appendix M).

3.4 PROCEDURE (See Appendix A)

Potential participants contacted the Female Sexual Psychophysiological Laboratory at the University of Texas by phone in response to advertisements posted in the Austin community. A researcher spoke with all participants on the phone to tell them about the study procedures and to determine if they were eligible to participate in the study. When participants were eligible, and if they were interested in participating, the first of their two counterbalanced in-laboratory visits was scheduled. Participants were randomly assigned to the Negative or Positive Body Image condition. To ensure that varying levels of body image were equally represented in the two conditions, random assignment to condition was done based on a matching system, in which initial body image scores were matched across the two conditions. For example, for every two participants reporting a body image of 3 (from § 3.2, exclusion criteria #3), one was placed into the Positive Body Image condition and one was placed in the Negative Body Image condition. Prior to coming into the laboratory for their first visit, participants completed an at-home questionnaire package which was mailed to them. This package included an information sheet, a demographics form, the FSFI (Appendix J), the DSFI (Appendix K), the Figure Rating Scale (Appendix L), and the Self-Rated Attractiveness Scale (Appendix M). Their first session was scheduled to ensure that they have adequate time (e.g., one week) to complete this package. Participants brought their completed questionnaire package into the laboratory when they came in for their first session. Participants completed 2 counterbalanced (Experimental Body Image and Control), one-hour sessions at the Female Sexual Psychophysiological Laboratory in the SEAY

building at the University of Texas at Austin. In accordance with previous research of this nature (e.g., Seal & Meston, 2007), sessions occurred approximately 7 days apart.

All in-laboratory procedures took place in a private, internally locked participant room. All participants were tested individually. An intercom system between the participant and the experimenter rooms allowed for communication with participants at all times. In the first in-laboratory session, the researcher explained the experimental procedures and showed the participant the laboratory. Participants then read and signed the consent form, and were given a chance to ask any questions. The experimenter then left the room and only communicated with the participant via the intercom system from then on.

Participants went through two counterbalanced sessions, including either a Positive Body Image or a Negative Body Image session, and a Control session:

Positive Body Image: After the experimenter left the room, the participant was asked to fill out a subjective rating scale package that was given two times over the course of the session (immediately prior to the manipulation and immediately following the erotic video). The questionnaire package included: the sexual arousal assessment (Appendix E), the anxiety assessment (SUDS; Appendix F), the body awareness assessment (Appendix G), the body image assessment (BES; Appendix H), and the manipulation check (Appendix D).

After completion of the subjective scales, participants were asked to undress, be seated in a recliner chair, and fill out a checklist of body parts and functions to indicate which parts or functions they felt positively about and they felt can help to add to their experience of being sexual when with a sexual partner (See Appendix N, section A).

They were then asked to provide a written response indicating what makes each body part (from the checklist in Section A) positive to them, and how that body part adds to their experience of being sexual with a partner (See Appendix N, section B). After completion of this checklist and question, they were asked to press play on a tape recorder in the room, and follow instructions from a female voice. The instructions directed the women to stand up and look at themselves in a full-length mirror that was positioned across the room from them, directly in front of their chair, allowing for a full self-view. They were directed to focus on their bodies and to think about how their bodies influence their sexuality (See Appendix N, section C). The effectiveness of placing a mirror in the room to induce self awareness has been shown in several studies (e.g., Carver et al., 1983; Carver & Scheier, 1978; Scheier & Carver, 1980).

Following this manipulation, participants were asked to sit in the recliner. They then watched one of two 10-minute video sequences, which consisted of a "relax" segment (1 min) followed by an erotic story segment (9 min). Prior to the video they were instructed to imagine that they were going through the erotic scenes in the video with their own partner, or a partner of their choice. The erotic segments were taken from videos produced specifically for female viewers, and depicted a male and female couple engaging in foreplay and intercourse. The erotic segments were matched on number and type of sexual activities, and have been previously shown to be sexually arousing to women (e.g., Meston, 2006; Seal & Meston, 2005). Immediately after the erotic video, participants filled out a second subjective rating package.

Negative Body Image:

Participants in the Negative Body Image condition went through identical procedures to those described above for the Positive Body Image condition, except for the following: After undressing, they were asked to fill out a checklist of body parts and functions to indicate which parts or functions they felt negatively about and that they felt detract from their experience of being sexual when with a sexual partner (See Appendix O, section A). They were then asked to provide a written answer indicating what makes each body part (from the checklist in Section A) negative to them, and how that body part detracts from their experience of being sexual with a partner (See Appendix O, section B). After filling out the second subjective rating package, they also completed a multiple choice test of their memory for the content of the information presented in the videotapes (see Appendix I). This assessment helped in comparing level of attention or distraction across experimental and control conditions.

Control: The control session was identical to the Body Image sessions (i.e., participants filled out self-report ratings, underwent a manipulation, were exposed to an erotic video, and filled out a second set of self-report ratings), except for the following: After completion of the initial self-report rating package, participants were asked to be seated in a recliner chair, and to fill out a checklist of daily activities to indicate what activities they would do in a typical day (see Appendix P, section A). They were then asked to answer a question about what activities they did the previous day (see Appendix P, section B). This type of condition has been used in prior studies as a control (e.g., Sloan & Marx, 2004). Participants remained dressed throughout this session, and the

mirror was turned backwards, facing away from the participant. No reference was made to the mirror.

Chapter 4: Statistical Analyses

4.1 DATA REDUCTION

Participants' sexual responses to the erotic video, anxiety, positive and negative body awareness, and body image within each session were determined using difference scores, with ratings at baseline (pre-erotic video) being subtracted from post-erotic video ratings, as follows:

Experimental Condition Score = (Post-erotic score – Baseline score); Control Condition Score = (Post-erotic score – Baseline score).

4.2 PROPOSED ANALYSES

Predictions 1 and 2: It was predicted that in the Positive Body Image condition, women would experience enhanced subjective sexual arousal in response to the erotic video compared to in the control condition. It was also predicted that in the Negative Body Image condition, women would experience decreased subjective sexual arousal in response to erotic videos compared to in the control condition. To test these sexual responses, 2x2, (session x condition) mixed model ANOVAs were conducted, with Control versus Experimental sexual response scores being compared as within-subject measures (session), and Positive versus Negative conditions being compared as between-subject measures (condition).

Prediction 3: It was predicted that in the Positive Body Image condition, positive body awareness and body image would increase, and anxiety would decrease compared to the control condition. Changes in positive body awareness, body image, and anxiety were assessed using 2x2 (time x condition) repeated-measures ANOVAs, in which

baseline scores and post-erotic video scores (time) were compared, and experimental and control (condition) scores were compared.

Prediction 4: It was predicted that in the Negative Body Image condition, negative body awareness, anxiety, and cognitive distraction would be increased, and body image would be decreased compared to in the control condition. Changes in negative body awareness, anxiety, and body image were assessed using 2x2 (time x condition) repeated-measures ANOVAs, in which baseline scores and post-erotic video scores (time) were compared, and experimental and control (condition) scores were compared. Change in cognitive distraction was assessed using a paired-samples *t*-test, in which post-erotic video scores were compared across the experimental and control conditions.

Prediction 5: It was predicted that in the Positive Body Image condition, positive body awareness, body image, and anxiety would explain significant amounts of variance in arousal scores. This prediction was tested with hierarchical linear regression, where *Positive Experimental Condition Sexual Response Scores* were regressed onto all variables that were related to sexual response. These variables were entered into the regression equation in steps according to the strength of their relationships with sexual response, based on findings from Prediction 3 and the best fit regression model, or the model that accounts for the most amount of variance using the least amount of predictor variables, was determined.

Prediction 6: It was predicted that in the Negative Body Image condition, levels of negative body awareness, anxiety, cognitive distraction, and body image would each explain significant amounts of variance in arousal scores. This prediction was tested with

hierarchical linear regression, where *Negative Experimental Condition Sexual Response Scores* were regressed onto all variables that were related to sexual response. These variables were to be entered into the regression equation in steps according to the strength of their relationships with sexual response, based on findings from Prediction 4 and the best fit regression model, or the model that accounts for the most amount of variance using the least amount of predictor variables, was determined.

Chapter 5: Results

5.1 PARTICIPANT CHARACTERISTICS

Participants ranged in age from 18 to 41 years old (mean = 26.90, SD = 5.76), and averaged 15.92 years of education (i.e., 3-4 years of postsecondary education). The sample was composed of 27 women identifying as Caucasian (56.3%), 11 Hispanics (22.9%), 6 Asians (12.5%), 3 African Americans (6.3%), and 1 Persian (2.1%). Twenty-nine women reported being single (60.4%), 14 married (29.2%), 2 engaged (4.2%), 2 divorced (4.2%), and 1 common-law (2.1%). Thirty-eight (79.2%) of the women reported currently being in a steady relationship, with length of relationship ranging from 3 months to 18 years (mean = 41.56 months, SD = 3.50 years), and 46 (95.8%) of the women reported being currently sexually active (i.e., had engaged in sexual activity within the four weeks prior to study participation). FSFI full scale scores were similar to those previously found among women with FSAD (Rosen et al., 2000). Participants in the current study scored within one SD of the mean of FSAD patients and of patients with multiple sexual diagnoses for all subscale scores (see Table 1).

Table 1: Participant Characteristics

	Mean (SD)
Age	26.9 (5.8)
Education	15.9 (1.7)
Female Sexual Function Index	
Full Scale Score	20.5 (5.2)
Desire[a]	2.8 (1.3)
Arousal[a]	3.0 (1.1)
Lubrication[a]	4.0 (1.3)
Orgasm[a]	3.3 (1.7)
Satisfaction[a]	3.1 (1.2)
Pain (lack of)[a]	4.3 (1.9)
Derogatis Sexual Functioning Inventory	
DSFI Frequency[b]	12.3 (5.7)
DSFI Experience[c]	21.0 (2.9)
	N (%)
Ethnicity	
Caucasian	27 (56.3)
Hispanic/Latina	11 (22.9)
Asian	6 (12.5)
Black/African American	3 (6.3)
Persian	1 (2.1)
Currently in a steady relationship?	
Yes	38 (79.2)
Sexually active over past four weeks?	
Yes	46 (95.8)

Note. $N = 46 – 48$

[a] Domain scores for women currently engaging in sexual activity ($N = 46$); items summed and multiplied by domain factor for each subscale

[b] Possible range from 0 – 32, with higher scores indicating higher frequency of sexual activity

[c] Possible range from 0 – 24, with higher scores indicating more sexual experience

Participants' BMIs ranged from 16.97 to 37.76 (mean = 23.74, SD = 4.57). According to the World Health Organization BMI classification (Seidell & Flegal, 1997), 3 women fell into an underweight category of BMI (BMI < 18.5), 29 women fell into a normal category (BMI = 18.5 to 24.9), 9 women fell into an overweight category (BMI = 25 to 29.9), and 4 women fell into the obese range (BMI $\geq$ 30). Data was not available for three women. Hip-to-waist ratios ranged from 0.68 to 0.99 (mean = 0.78, SD = 0.07). Participants' body image scores fell within one SD below the mean for nonanorexic females for all subscales, and the BES subscales were significantly correlated with one another to a mild to moderate degree (r = .29, .47, .55) suggesting that, while they were related, they also each contributed to overall body image score uniquely. Sexual Attractiveness, Physical Condition, and Weight Concern subscale scores of the BES were at the 20th, 36th, and 18th percentiles, respectively, indicating that on average, women in the current study experienced relatively low body image (see Table 2).

Table 2. Participant Body Characteristics

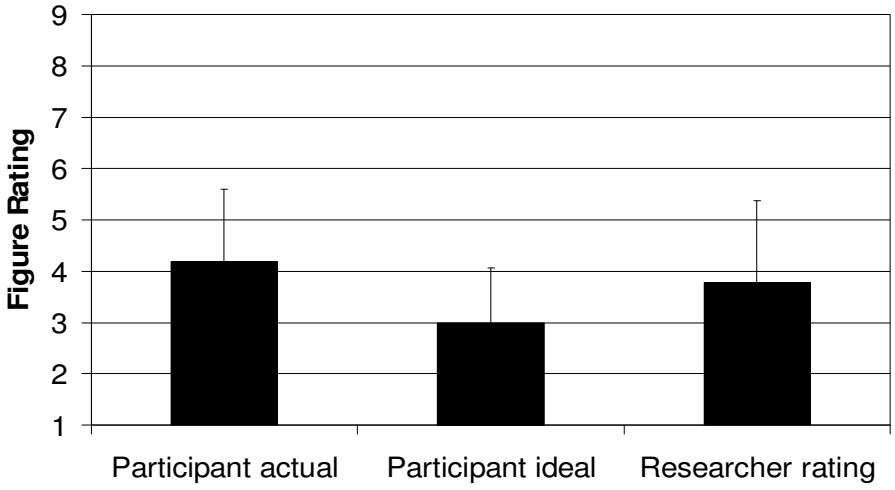
	Mean (SD)
Body Image	
Sexual Attractiveness Subscale[a]	40.4 (6.2)
Weight Concern Subscale[b]	26.5 (7.7)
Physical Condition Subscale[c]	26.6 (5.9)
Total	93.5 (15.7)
Hip-to-Waist Ratio	0.78 (0.1)
	N (%)
Body mass index category	
Underweight (BMI < 18.5)	3 (6.7)
Normal weight (BMI 18.5 – 24.9)	29 (64.4)
Overweight (BMI 25 – 29.9)	9 (20.0)
Obese (BMI ≥ 30)	4 (8.9)

Note. $N = 46 – 48$
[a] Possible range from 13 – 65, with higher scores indicating more esteem
[b] Possible range from 10 – 50, with higher scores indicating more esteem
[c] Possible range from 8 – 40, with higher scores indicating more esteem

Participants' own figure ratings ranged from 2 to 9 (mean = 4.19, SD = 1.41), while their ideal figure ratings ranged from 2 to 8 (mean = 3.0, SD = 1.07). The mean difference between participants' actual versus ideal figure ratings ranged from -6 (with the negative indicating that actual figure size is larger than ideal figure size) to 2 (with the positive number indicating that actual figure size is smaller than ideal figure size). On average, women's ideal figure size was approximately one figure smaller (out of nine total figures) than their perceived size, $t(47) = 6.04$, $p < .001$. The researcher's ratings of the participants' figures ranged from 2 to 7 (mean = 3.78, SD = 1.60). On average, the researcher's figure ratings were approximately half a point lower than the participants'

self figure ratings, indicating that the researcher rated the participants' figures as slightly smaller than the participants had rated themselves, t (46) = 2.14, $p < .05$ (see Figure 1).

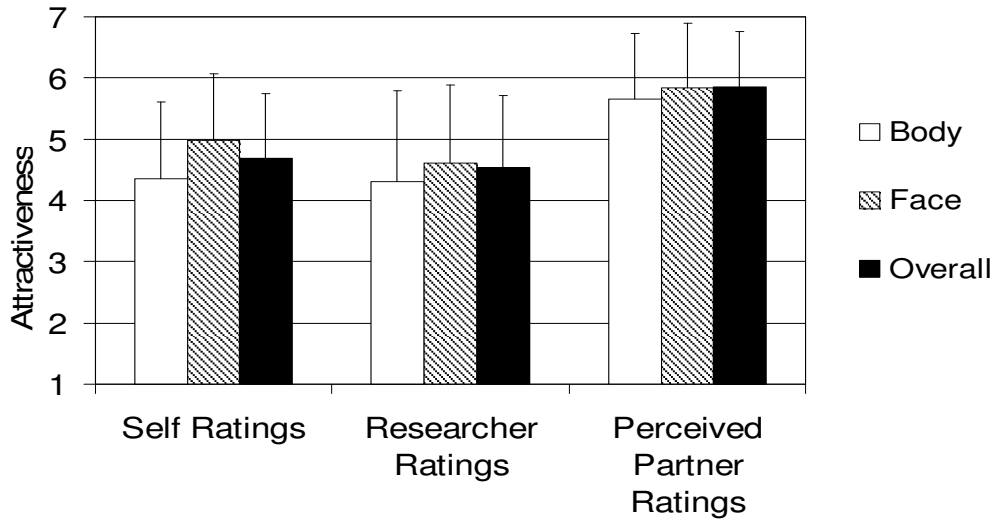
Figure 1: Figure Ratings



Self-ratings of attractiveness ranged from 1 to 6 for the body (mean = 4.35, SD = 1.26), 2 to 7 for the face (mean = 4.98, SD = 1.08), and 2 to 7 for overall (mean = 4.69, SD = 1.06). The researcher's ratings of attractiveness ranged from 1 to 7 for the body (mean = 4.30, SD = 1.49), 2 to 7 for the face (mean = 4.61, SD = 1.27), and 2 to 7 for overall (mean = 4.54, SD = 1.17). On average, the researcher's ratings were less than one-point different from the participants' self-ratings for body, facial, and overall levels of attractiveness. These differences were not statistically significant, t (45) = 0.21, $p >$ .05 (body), t (45) = 1.64, $p > .05$ (face), t (45) = 0.91, $p > .05$ (overall), indicating that women's ratings of body, facial, and overall attractiveness were similar to those perceived by the researcher. Perceived partners' ratings of self-attractiveness ranged

from 3 to 7 for the body (mean = 5.65, SD = 1.08), 4 to 7 for the face (mean = 5.83, SD = 1.06), and 4 to 7 for overall (mean = 5.85, SD = 0.90). Differences between perceived partner's ratings and participants' self-ratings were statistically significant, t (47) = 7.23, $p < .001$ (body), t (47) = 6.26, $p < .001$ (face), t (47) = 8.69, $p < .001$ (overall), indicating that women thought that their partners perceived their bodies, faces, and overall levels of attractiveness to be greater than they perceived themselves to be (see Figure 2).

Figure 2: Attractiveness Ratings



5.1.1 Relationships between Objective and Subjective Measurements of Body

Correlations were conducted to determine whether objective ratings of shape, weight, and attractiveness were related to participants' self-ratings. Results showed correlations ranging from 0.29 to 0.68, indicating that objective measurements accounted for between 8 to 46% of the variance of participants' subjective ratings (see Table 3).

Table 3. Correlations between Objective and Subjective Ratings of Weight, Shape, and Attractiveness

	Self Figure Rating	Self Body Attractiveness	Self Facial Attractiveness	Self Overall Attractiveness	Body Esteem Scale
Researcher's Figure Rating	0.68***	-0.42**	-0.05	-0.29*	-0.21
Researcher's Body Attractiveness	-0.56***	0.49***	0.24	0.44**	0.30*
Researcher's Facial Attractiveness	-0.45**	0.32*	0.17	0.40**	0.26†
Researcher's Overall Attractiveness	-0.65***	0.48***	0.20	0.47***	0.38**
Partner's Body Attractiveness	-0.44**	0.45***	0.30*	0.31*	0.23
Partner's Facial Attractiveness	-0.38**	0.57***	0.61***	0.62***	0.31*
Partner's Overall Attractiveness	-0.40**	0.59***	0.46***	0.56***	0.31*
Body Mass Index	0.65***	-0.527***	-0.10	-0.37*	-0.26†
Waist/Hip Ratio	0.31*	-0.26†	-0.33*	-0.36*	-0.07

Note. *** $p \leq .001$; ** $p < .01$; * $p < .05$; † $p < .10$

5.2 ANALYSIS OF GROUP DIFFERENCES AT BASELINE

The Positive Body Image group did not significantly differ from the Negative Body Image group in any participant variables at baseline, including age, $t(46) = 0.38$, $p > 0.05$, level of education, $t(46) = -1.20$, $p > 0.05$, length of relationship, $t(34) = 0.43$, $p > 0.05$, sexual experience, $t(45) = -0.36$, $p > 0.05$, frequency of sexual activity, $t(44) = -0.36$, $p > 0.05$, sexual functioning, $t(44) = -1.89$, $p > 0.05$, body image, $t(46) = -0.27$, $p > 0.05$, waist-to-hip ratio, $t(44) = -0.98$ $p > 0.05$, and BMI, $t(46) = -1.53$, $p > 0.05$ (see Table 4).

Table 4: Group Differences at Baseline

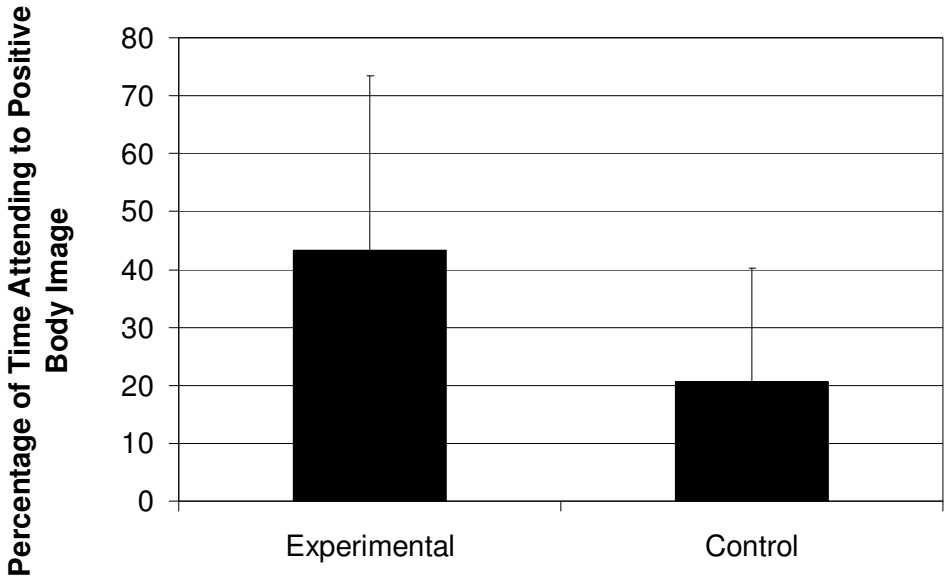
Measure	Positive Body Image Mean (SD)	Negative Body Image Mean (SD)
Age	26.6 (4.9)	27.2 (6.5)
Education	16.2 (1.4)	15.7 (1.9)
Length of Relationship (months)	37.9 (27.7)	44.1 (50.3)
Sexual Experience (DSFI)	21.2 (3.0)	20.9 (2.9)
Frequency of Sexual Activity (DSFI)	17.5 (5.7)	16.8 (7.0)
Sexual Functioning Total Score (FSFI)	22.1 (4.6)	19.2 (5.4)
Body Image Total Score (BES)	94.2 (15.3)	93.0 (16.3)
Waist-to-Hip Ratio	0.80 (0.07)	0.77 (0.07)
Body Mass Index	24.3 (4.0)	21.4 (7.9)

5.3 MANIPULATION CHECKS

5.3.1 Positive Body Image Condition

In the Positive Body Image experimental session, all women endorsed positive aspects of their bodies during the manipulation, with an average of 11.18 out of 35 items endorsed (range = 4 -35, SD = 6.82). All but one woman reported being able to adopt a positive body image following the manipulation, and reported that, on a scale of 0 to 100, where 0 = *not at all easy* and 100 = *very easy,* it was easy to do so (mean = 72.62, SD = 29.73). Women reported that they attended to the positive aspects of their body image significantly more during the experimental session (mean = 43.27% of the time) than they did during the control session (mean = 20.64% of the time), t (22) = 4.79, $p < .001$ (see Figure 3).

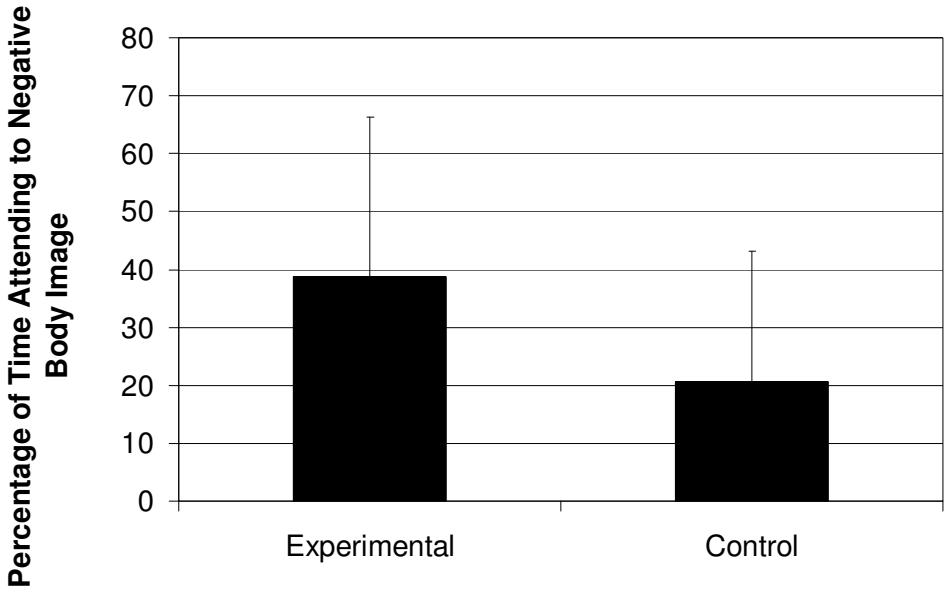
Figure 3: Percentage of Time Spent Attending to Positive Body Image



5.3.2 Negative Body Image Condition

In the Negative Body Image experimental session, all women endorsed negative aspects of their bodies during the manipulation, with an average of 11.42 out of 35 items endorsed (range = 2-21, SD = 6.08). This did not differ from the number of items endorsed in the Positive Body Image condition, t (46) = 0.13, $p > .05$. All women reported being able to adopt a negative body image following the manipulation, and they reported that, on a scale of 0 to 100, where 0 = *not at all easy* and 100 = *very easy,* it was very easy to do so (mean = 90.50, SD = 11.63). Women reported that they attended to the negative aspects of their body image significantly more during the experimental session (mean = 38.65% of the time) than they did during the control session (mean = 20.58% of the time), t (22) = 4.79, $p < .001$ (see Figure 4).

Figure 4: Percentage of Time Spent Attending to Negative Body Image



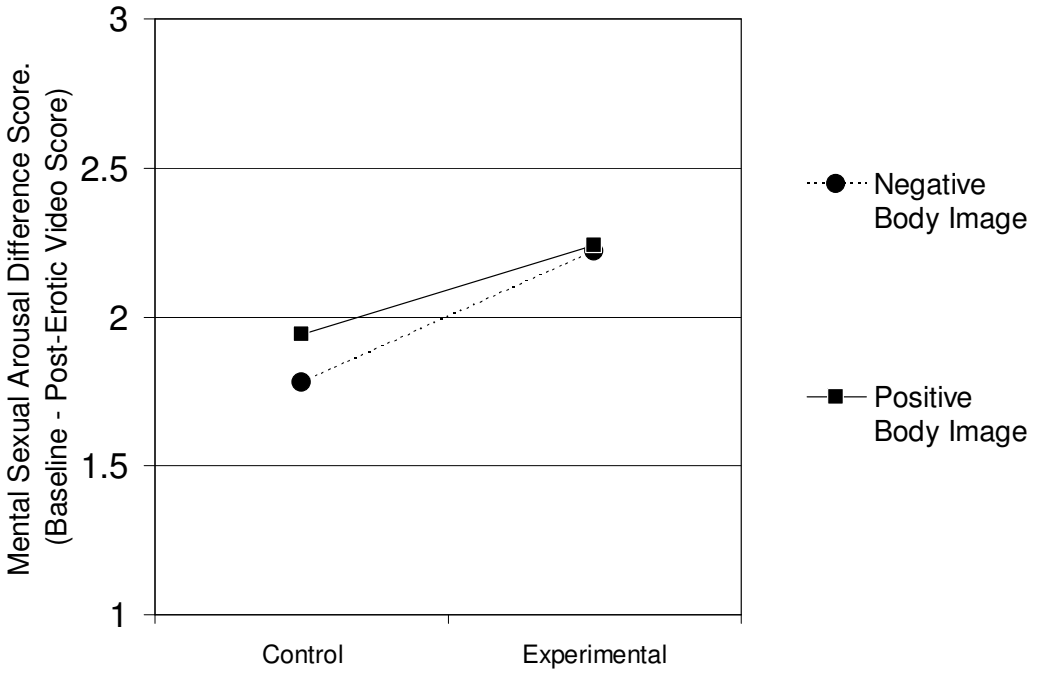
5.4 EFFECTS OF BODY IMAGE MANIPULATION ON AROUSAL

To determine whether there were differences in arousal between experimental and control sessions, I first generated difference scores for each participant (see § 4.1) by subtracting ratings at baseline (pre-erotic videos) from ratings given immediately following exposure to the erotic video (post-erotic video). Two-by-two (session by condition) mixed model ANOVAs were then conducted, with control versus experimental sexual response scores as within-subject measures (session), and Positive versus Negative conditions being compared as between-subject measures (condition).

5.4.1 Subjective Mental Sexual Arousal

As stated in Predictions 1 and 2, a significant interaction was expected, such that women in the Positive Body Image condition would experience enhanced subjective mental sexual arousal in response to the erotic video compared to in the control condition, whereas women in the Negative Body Image would experience decreased subjective mental sexual arousal in response to erotic videos compared to in the control condition. Results for subjective mental sexual arousal showed that the main effect for session was significant, with subjective mental sexual arousal being significantly greater in the experimental than in the control session for all women, F (1, 46) = 4.93, $p < .05$. The interaction between session and condition was not significant, F (1, 46) = 0.13, $p > .05$, indicating that women in the Negative and Positive Body Image groups experienced equal increases in subjective mental arousal in the experimental compared to the control session (see Figure 5).

Figure 5: Effects of Body Image on Mental Sexual Arousal by Condition



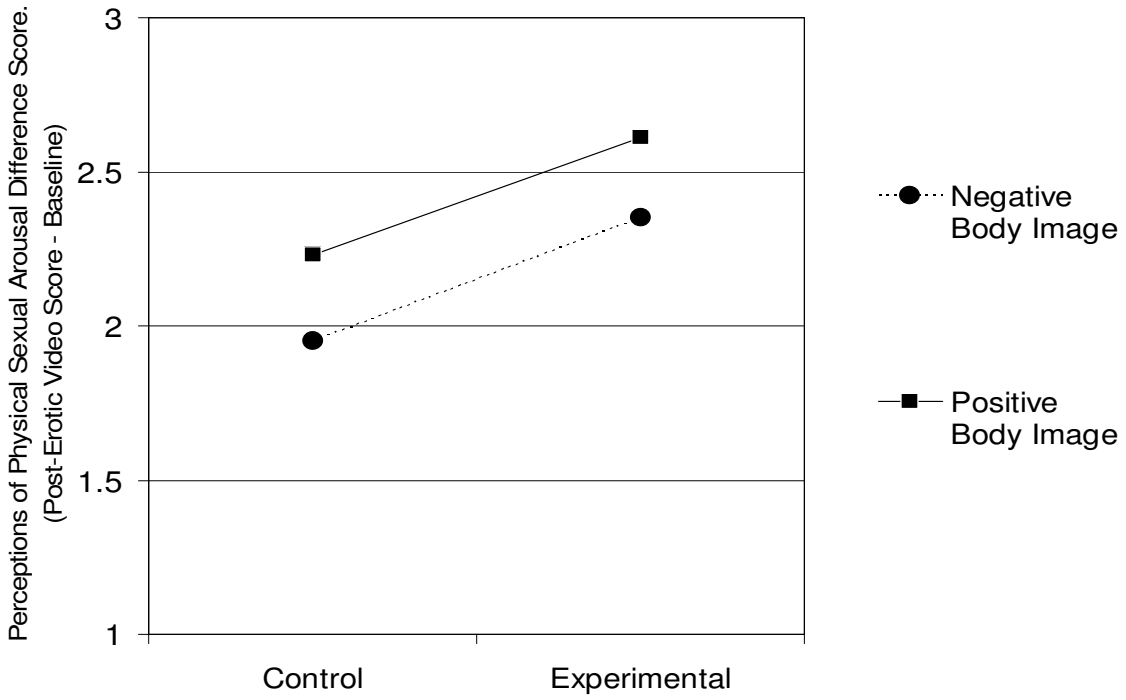
Note. Difference scores are based on (*post-erotic video score – baseline score)*, with a range from 0 to 7, where 0 = no change from baseline to post-erotic video and 7 indicates the highest change possible from baseline to post-erotic video.

5.4.2 Perceptions of Physical Sexual Arousal

As stated in Predictions 1 and 2, a significant interaction was predicted, such that women in the Positive Body Image condition would experience enhanced perceptions of physical sexual arousal in response to the erotic video compared to in the control condition, whereas women in the Negative Body Image would experience decreased perceptions of physical sexual arousal in response to erotic videos compared to in the control condition. Results for perceptions of physical sexual arousal showed that the main effect for session was significant, with perceptions of physical sexual arousal being significantly greater in the experimental than in the control session for all women, F (1,

46) = 4.06, $p < .05$. The interaction between session and condition was not significant, F (1, 46) = 0.00, $p > .05$, indicating that women in the Negative and Positive Body Image groups experienced equal increases in perceptions of physical sexual arousal in the experimental compared to the control session (see Figure 6).

Figure 6: Effects of Body Image on Physical Sexual Arousal by Condition



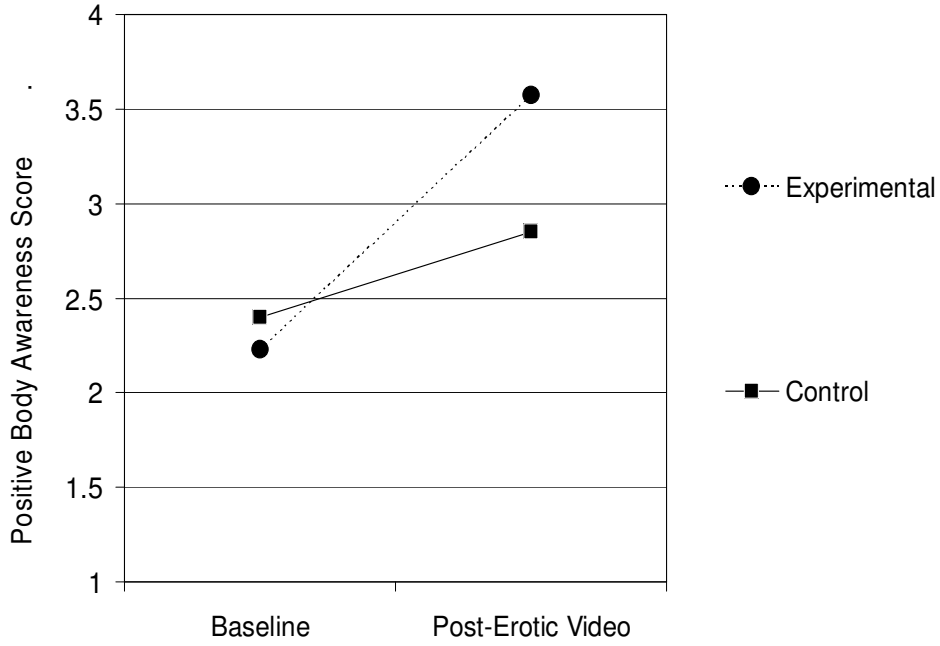
Note. Difference scores are based on (*post-erotic video score – baseline score)*, with a range from 0 to 7, where 0 = no change from baseline to post-erotic video and 7 indicates the highest change possible from baseline to post-erotic video.

5.5 FACTORS THEORIZED TO BE RELATED TO CHANGES IN SEXUAL AROUSAL

5.5.1 Positive Body Image Condition

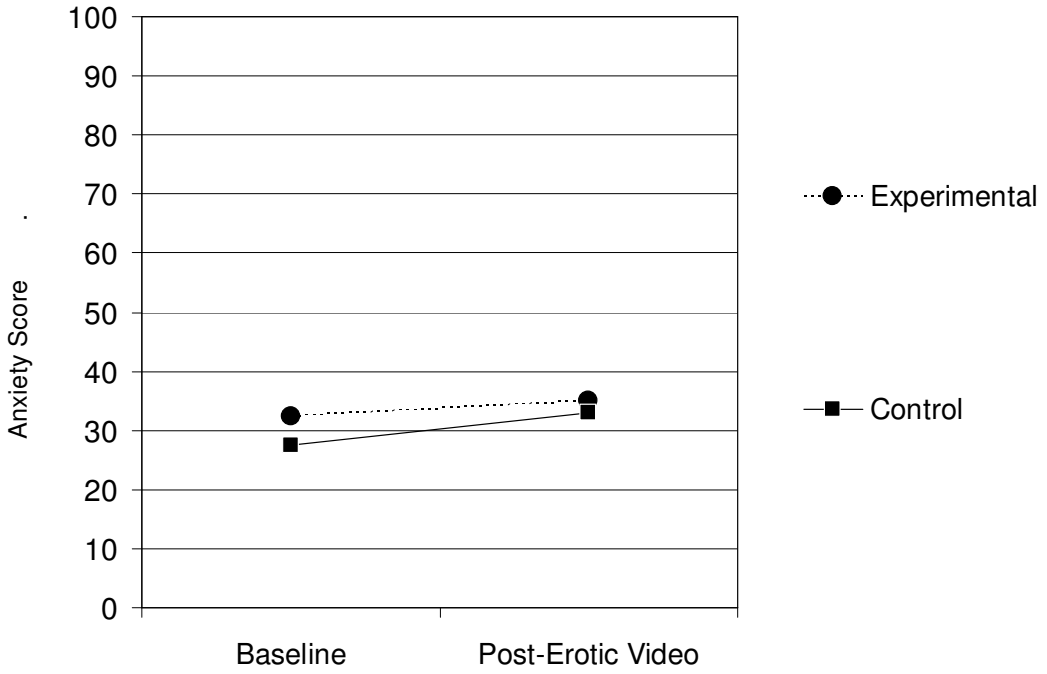
As stated in Prediction 3, it was expected that in the Positive Body Image condition, positive body awareness and body image would increase and anxiety would decrease compared to in the control condition. To determine whether there were differences in positive body awareness, body image, and anxiety between experimental and control sessions, 2x2 (time x condition) repeated-measures ANOVAs were conducted for each of the factors. Results showed that, for positive body awareness, the main effect for time was significant, with an increase in positive body awareness from baseline to post-erotic video, F (1, 21) = 15.13, p = .001. The main effect for condition was not significant, F (1, 21) = 1.29, $p > .05$, suggesting no effect of body awareness on condition. However, the interaction between time and condition was significant, F (1, 21) = 9.59, $p < .01$, indicating that positive body awareness changed from baseline to post-erotic video significantly more in the experimental compared to the control condition (see Figure 7).

Figure 7: Positive Body Awareness Scores in the Positive Body Image Condition



Results for anxiety showed that neither the main effect for time nor for condition was significant, indicating that there was no change in anxiety from baseline to post-erotic video (time), F (1, 21) = 1.98, $p > .05$, or across experimental and control sessions (condition), F (1, 21) = 0.73, $p > .05$ (see Figure 8).

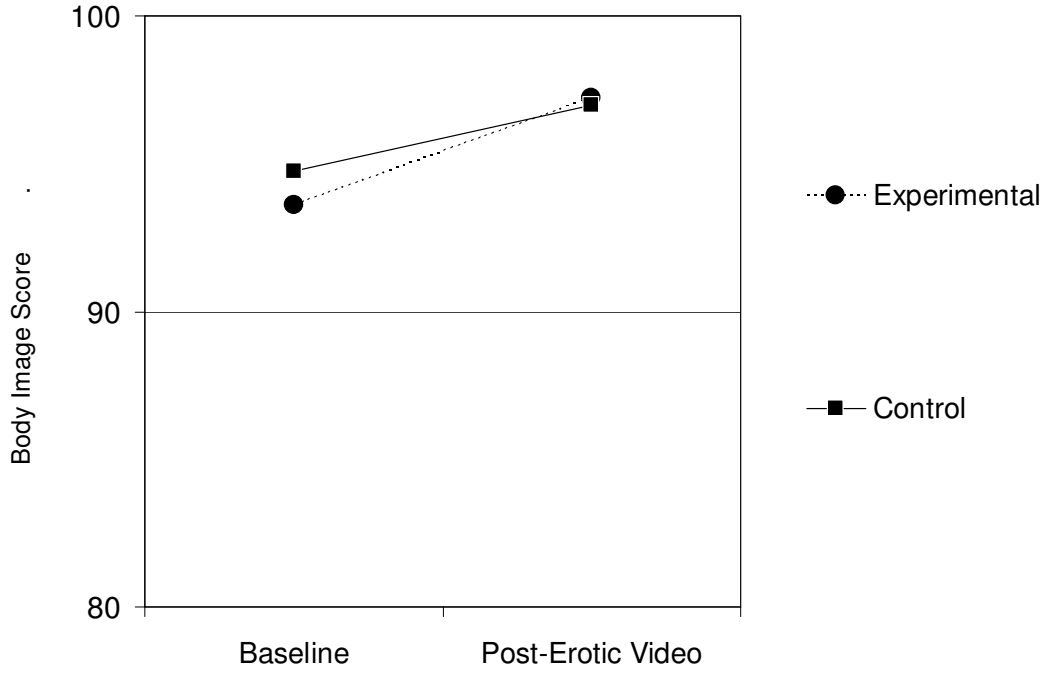
Figure 8: Anxiety Scores in the Positive Body Image Condition



Results for body image showed a significant main effect of time, such that body image was higher at post-erotic video compared to baseline, F (1, 20) = 4.77, $p < .05$. The main effect for condition was not significant, indicating that body image was equal across the control and experimental conditions, F (1, 20) = 0.08, $p > .05$. The interaction between time and condition was not significant, F (1, 20) = 0.69, $p > .05$, indicating that

the increase in body image from baseline to post-erotic video did not differ across condition (see Figure 9).

Figure 9: Body Image Scores for Positive Body Image Condition

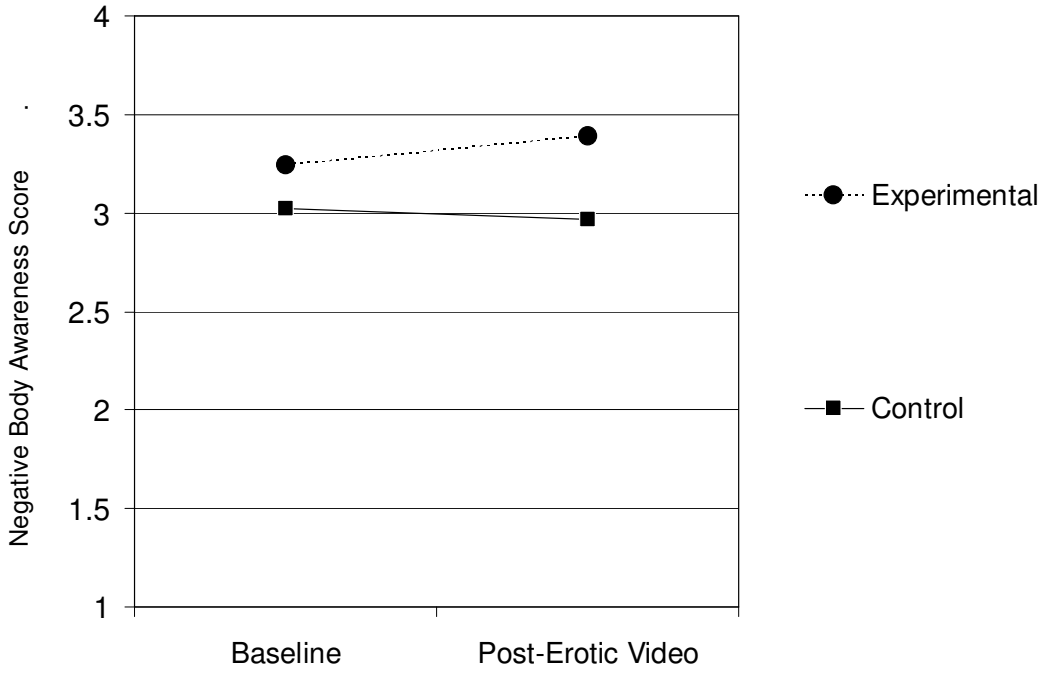


5.5.2 Negative Body Image Condition

As stated in Prediction 4, it was expected that in the Negative Body Image condition, negative body awareness, anxiety, and cognitive distraction would be increased, and body image would be decreased compared to in the control condition. To determine whether there were differences in negative body awareness, anxiety, and body image between experimental and control sessions, 2x2 (time x condition) repeated-measures ANOVAs were conducted for each of the factors. Results showed that, for

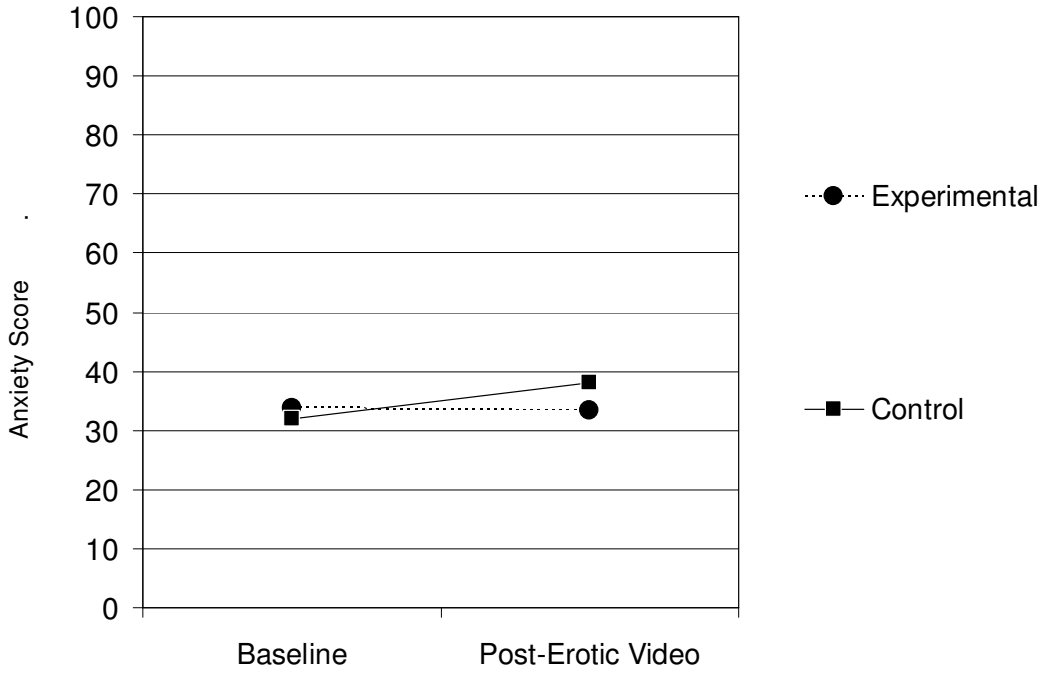
negative body awareness, the main effect for time was not significant, indicating that altogether, there was no change from baseline to post-erotic video scores in negative body awareness, F (1, 25) = 0.05, $p > .05$. There was a trend towards significance for the main effect of condition, with negative body awareness being higher in the experimental compared to the control condition, F (1, 25) = 3.64, $p = .07$. The interaction between time and condition was not significant, F (1, 25) = 0.29, $p > .05$, indicating that negative body awareness did not significantly change from baseline to post-erotic video differentially across conditions (see Figure 10).

Figure 10: Negative Body Awareness Scores in the Negative Body Image Condition



Results for anxiety showed that neither the main effect for time nor for condition was significant, indicating that there was no change in anxiety from baseline to post-erotic video (time), F (1, 25) = 0.29, $p > .05$, or across experimental and control sessions (condition), F (1, 25) = 0.84, $p > .05$ (see Figure11).

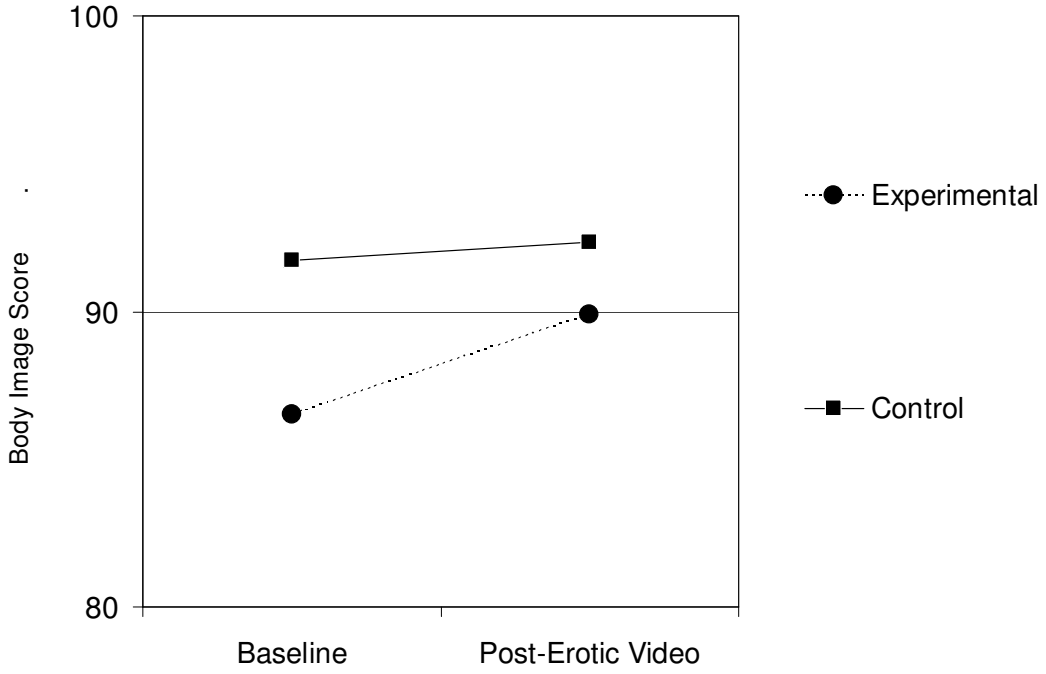
Figure 11: Anxiety Scores in the Negative Body Image Condition



Results for body image showed a trend towards significance for the main effect of time, such that body image was higher at post-erotic video compared to baseline, F (1, 23) = 2.55, $p = .12$. The main effect for condition was significant, with body image being higher in the control condition compared to the experimental condition, F (1, 23) = 10.74, $p < .01$. The interaction between time and condition was significant, such that the

change from baseline to post-erotic video was greater for the experimental condition, F (1, 23) = 3.98, p = .05 (see Figure 12).

Figure 12: Body Image Scores for Negative Body Image Condition



To determine if there were differences between the experimental and control sessions for cognitive distraction, post-erotic video scores of cognitive distraction were compared using a paired-samples t-test. Results showed that level of cognitive distraction did not significantly differ across sessions, t (25) = 0.59, $p > .05$.

5.6 REGRESSION ANALYSES

5.6.1 Positive Body Image Condition

As stated in Prediction 5, it was expected that in the Positive Body Image condition, levels of positive body awareness, body image, and anxiety would each

explain significant amounts of variance in arousal scores in the experimental condition. Given that anxiety and body image were not significantly different across the experimental and control sessions, they were not entered into the regression models. Hierarchical linear regressions were used, where *Positive Experimental Condition Sexual Response Scores* were regressed onto positive body awareness scores. Results show that, for subjective mental sexual arousal, positive body awareness ($\beta = .53$, $t = 2.8$, $p = .01$) accounted for 25% of the variance in subjective mental sexual arousal score (Adjusted $R^2 = .25$), $F\ (1, 20) = 7.91$, $p = .01$. Results showed that, for perceptions of physical sexual arousal, there was a trend, such that positive body awareness ($\beta = .35$, $t = 1.7$, $p = .11$) accounted for 8% of the variance in perceptions of physical sexual arousal (Adjusted $R^2 = .08$), $F\ (1, 21) = 2.85$, $p = .11$.

5.6.2 Negative Body Image Condition

As stated in Prediction 6, it was expected that in the Negative Body Image condition, levels of negative body awareness, anxiety, cognitive distraction, and body image would each explain significant amounts of variance in arousal scores in the experimental condition. Given that cognitive distraction and anxiety were not significantly different across experimental and control sessions, they were not entered into the regression models. Hierarchical linear regression was used, where *Negative Experimental Condition Sexual Response Scores* were regressed onto negative body awareness and body image scores. Body image scores were entered into the regression equation first, followed by negative body awareness scores. Results showed a trend such that, for subjective mental sexual arousal, body image and negative body awareness accounted for 15% of the variance in subjective mental sexual arousal scores, $F\ (2, 25) =$

3.22, p = .06. However, the addition of negative body awareness to the model did not result in a significant change in the prediction of arousal, F Δ (1, 23) = .07, p > .05, and was therefore taken out of the equation. The best fitting model for subjective mental sexual arousal in the experimental session (i.e., the model that accounted for the most amount of variation with the least amount of variables) included body image alone (β = .47, t = 2.60, p < .05), accounting for 18% of the variance of subjective mental sexual arousal (Adjusted R^2 = .18), F (1, 25) = 6.63, p < .05. Results showed that, for perceptions of physical sexual arousal, there was a trend, such that body image and negative body awareness accounted for 11% of the variance in perceptions of physical sexual arousal, F (1, 25) = 2.53, p = .10. However, again, the addition of negative body awareness to the model did not result in a significant change in the prediction of arousal, F Δ (1, 23) = 0.00, p > .05. For perceptions of physical sexual arousal, the best fitting model included body image alone (β = .43, t = 2.30, p < .05), accounting for 15% of the variance of perceptions of physical sexual arousal (Adjusted R^2 = .15), F (1, 25) = 5.28, p < .05 .

Chapter 6: Discussion

The aim of the present study was to examine the effects of positive and negative body image on subjective mental sexual arousal and perceptions of physical sexual arousal in response to erotic videos among women with FSAD. Women participated in two in-laboratory assessments of sexual arousal: experimental, in which positive or negative body image was induced, and control. Variables expected to change with adoption of positive or negative body image were also measured, including anxiety, cognitive distraction, body image score, and positive or negative body awareness. Several differences emerged between experimental and control sessions. Below is a summary of the main findings. This is followed by discussions of findings for the Positive and the Negative Body Image conditions separately, followed by general conclusions and implications. Finally, study limitations and directions for future research are presented. To my knowledge, this is the first experimental study to examine the effects of body image on female sexual response among women with FSAD.

6.1 SUMMARY OF THE MAIN FINDINGS

The main findings are summarized as follows, and are expanded upon in later sections. Consistent with expectations, the Positive Body Image manipulation resulted in increased levels of subjective mental sexual arousal and perceptions of physical sexual arousal in response to erotic videos compared to the control session. Anxiety did not change across the experimental and control sessions. Overall level of body image was significantly greater post-erotic video, but did not change more in the experimental session compared to the control session. This may be because body image was not able to acutely increase further for these women, who tended to have low body image to start.

However, level of positive body awareness was significantly increased in the experimental compared to the control condition, and it was this attendance towards the positive aspects of women's bodies that best predicted sexual arousal. Regression analyses showed that the best fit model for subjective mental sexual arousal in the Positive Body Image group included positive body awareness only, accounting for 25% of the variance of subjective mental sexual arousal scores. The best fit regression model for perceptions of physical sexual arousal also included positive body awareness only, and showed a trend such that positive body awareness accounted for 8% of the variance in perceptions of physical sexual arousal scores. Altogether, findings suggest that positive body image *is* related to increases in mental and perceptions of sexual arousal, and that increased *awareness* of the positive body image is relevant for and best predicts sexual arousal.

Inconsistent with predictions, the Negative Body Image group manipulation also resulted in increased levels of subjective mental sexual arousal and perceptions of physical sexual arousal in response to erotic videos compared to the control session. Anxiety and cognitive distraction did not change across the experimental and control sessions, and there was a trend such that negative body awareness was greater in the experimental compared to the control session. Consistent with the manipulation of having women adopt and attend to negative body image, the overall level of body image was lower in the experimental session. However, body image was shown to increase significantly more over the course of the experimental session compared to in the control session. It is speculated that this increase occurred because of the *exposure* to the negative aspects of women's bodies over the course of the experimental session. That is,

when women were faced with a mirror, they may have realized that their negative body image wasn't accurate, and were able to challenge any distortions of their overly negative view, and focus more on their positive body image. The increase in body image was related to increased arousal. In fact, regression analyses showed that this increase in body image was the best predictor of increased sexual arousal for this group. That is, the best fit model for the prediction of subjective mental sexual arousal in the Negative Body Image group included the overall level of body image, which accounted for 18% of the variance of subjective mental sexual arousal scores. The best fit model for the prediction of perceptions of physical sexual arousal in the Negative Body Image group also consisted of increased body image, accounting for 15% of the variance of perceptions of physical sexual arousal scores. Altogether, findings suggest that negative body image may also be related to increases in mental and perceptions of sexual arousal, and that increased levels of body image and awareness of the negative body image are relevant for sexual arousal. In total, results from this study suggest that body image is related to sexual response among women with sexual dysfunction. Factors that may be related to this change in sexual response include body image score and body awareness.

6.2 SEXUAL AROUSAL IN THE POSITIVE BODY IMAGE MANIPULATION

Based on previous research showing positive relationships between body image and sexuality variables, including sexual response to erotic videos (e.g., Seal et al., in press), and on research showing that women experience increased arousal when they are focused on positive aspects of their self image and body (e.g., Kuffel & Heiman, 2006; McCabe, 2001), it was predicted that in the Positive Body Image condition women would experience enhanced sexual arousal in response to the erotic video compared to in

the control condition. Findings were consistent with this prediction, showing that both subjective mental sexual arousal and perceptions of physical sexual arousal were higher in the experimental session. That is, when women adopted and attended to a positive body image, their sexual arousal was enhanced. To my knowledge, this is the first study to show a direct connection between experimentally-induced body image and changes in sexual arousal among women with sexual dysfunction. As previously mentioned, most studies connecting body image and sexuality have been correlational (e.g., Faith & Schare, 1993; Wiederman & Hurst, 1998) or retrospective in nature (e.g., Koch et al., 2005). Also, much of the research has been limited to include non-clinical samples of young college women (e.g., Dove & Wiederman, 2000; Faith & Schare, 1993) or women from medical populations (e.g., Andersen & LeGrand, 1991; Fobair et al., 2006). Of three studies that show changes in measures of sexuality following changes in body image, all were focused on populations of women whose primary concerns were related to their body or weight (Butters & Cash, 1987; Morgan et al., 1999; Werlinger et al., 1997). Not one assessed sexual arousal specifically, and not one used in-laboratory assessments of acute sexual response. The current study provides an extension of previous research on body image and sexuality to acute sexual response in a laboratory setting among women with sexual dysfunction. These findings reinforce the importance of considering body image in the conceptualization of women's sexuality. Findings also suggest that with a short-term manipulation, sexual arousal can be enhanced among women with sexual dysfunction. This leads one to question whether a longer-term intervention of body image would result in enhancement of arousal among women with FSAD.

6.3 THE ROLES OF POSITIVE BODY AWARENESS, BODY IMAGE, AND ANXIETY IN THE POSITIVE BODY IMAGE CONDITION

In order to better understand why increases in sexual arousal occurred during the Positive Body Image manipulation, several variables that were expected to be associated with increases in arousal were assessed, including positive body awareness, overall body image score, and anxiety. It was expected that, given an increase in sexual arousal, positive body awareness and overall levels of body image would increase, and anxiety would decrease.

6.3.1 Positive Body Awareness

Given research showing that positive body image is related to positive body thoughts and awareness (e.g., see Wilhelm, 2006; Wilson & Fairburn, 1993), it was speculated that if positive body image resulted in increased arousal, this may be related to an increase in the awareness of the body over the course of the experimental session. Consistent with expectations, the increase in positive body awareness was significantly greater in the experimental session compared to the control session, suggesting a link between increased body awareness and increased arousal. Results are consistent with previous research suggesting that in some cases, self or body awareness can improve sexual response among women, including among those with and without sexual difficulties (e.g., Korff & Geer, 1983; Kuffel & Heiman, 2006; Laan et al., 1993; Seal & Meston, 2007). On the other hand, findings from the current study are inconsistent with longstanding speculation that self or body awareness impairs sexual response (e.g., Barlow, 1986; Masters & Johnson, 1970). However, this speculation, that spectatoring or inspecting, monitoring, and evaluating oneself during sexual activity impedes sexual

functioning (Masters & Johnson, 1970), has been largely based on research conducted on males. Results from the current study, along with results from previous studies looking at self awareness and sexual response (e.g., Seal & Meston, 2007), suggest that in fact, females may present differently, with self awareness, or spectatoring, actually enhancing arousal. It is possible that the valence of self or body awareness is of primary importance for sexual functioning (Sakheim, Barlow, Beck, & Abrahamson, 1984; Trapnell et al., 1997). That is, it may be where one's attention is directed *and/or* how one evaluates the content upon which one's attention is directed that are important for sexual response. When women are aware of positive aspects of their bodies, their sexual arousal increases.

It may be that the increase in positive body awareness in the experimental condition of the current study helped women to re-direct their attention away from extraneous distracting thoughts that often occur during sexual activity (i.e., stress-related thoughts), and towards the present moment in a way synonymous to *mindfulness*. Mindfulness is awareness that emerges through paying attention on purpose, in the present moment (Kabat-Zinn, 2003). The construct of mindfulness originated in Buddhist tradition (Buchheld, Grossman, & Walach, 2002, as cited in Grossman, Niemann, Schmidt, & Walach, 2004). Underlying the concept of mindfulness are the assumptions that humans are ordinarily unaware or under-aware of their moment-to-moment experiences, but are capable of developing the ability to sustain attention to the present moment (Grossman et al., 2004). Research on mindfulness shows that directing one's attention to the present moment, moment-by-moment, can have benefits for several populations, including clinical populations of persons with chronic pain, depression, and anxiety, as well as nonclinical populations, such as persons experiencing typical daily

stress (for a review see Grossman et al., 2004). It is possible that in the current study, mindfulness, or attention to the present moment, was induced with the instructions of the Positive Body Image condition, and/or with the presence of a full-length mirror facing participants during the Positive Body Image condition. This is supported by research showing that self-awareness and mindfulness are correlated (e.g., Walach, Buchheld, Buttenmuller, Kleinknecht, & Schmidt, 2006), and that attempts to be more mindful of oneself can increase self-awareness (e.g., Proulx, 2008). As would be suggested through mindfulness, perhaps women in the current study experienced increased sexual arousal because they were able to direct themselves away from other distracting thoughts, become more aware of sexual feelings and thoughts occurring in the moment (e.g., while exposed to erotic material), and possibly have a more accurate perception of external and internal stimuli, as additional and more accurate information about their bodies and themselves being sexual was gathered (Grossman et al., 2004). Unfortunately the extent to which women were mindful was not assessed.

Results from the current study suggest that a one-time manipulation of increased awareness, with the use of a mirror or a simple set of instructions, may result in improvements in sexual functioning, and could have clinical as well as research applications. Future studies may investigate awareness of the present moment during sexual arousal (i.e., with specific instructions or with a mirror, as in the current study). The extent to which results are related to the instruction set or the full-length mirror is unclear. Results from previous studies show that arousal increases following instruction sets in the absence of a mirror (e.g., Korff & Geer, 1983; Laan et al., 1993), supporting the possibility that increases in arousal may be, at least in part, related to the instruction

set. However, previous research has also shown that the presence of a full-length mirror, with no specific request to focus on the body, results in increased arousal compared to a no-mirror condition (Seal & Meston, 2007).

6.3.2 Body Image

It was expected that in the Positive Body Image condition, women would experience increased body image over the course of the experimental session as they were adopting and attending to their positive body parts. Results showed that body image was increased from baseline with the erotic video across both the experimental and control conditions, suggesting a link between increased sexual arousal and increased body image. However, the increase in body image was not significantly higher in the experimental session compared to the control session. Given that in the experimental session, women reported being able to adopt a positive body image and reported that they were able to attend more frequently to the positive aspects of their bodies, it was expected that they would have enhanced body image over the course of the session. However, this suggests that adopting and attending to a positive body image in an acute manipulation does not necessarily translate into an overall change in body image score, and that variables other than actual body image score may be accounting for the increase in arousal.

It may be the case that there was an upper limit on body image scores for these women, especially given that they tended to have relatively low body image to start, and given the acute nature of the manipulation. This limit may have been reached with the manipulation or, as in the control session, related to the erotic video only. This leads one to question what the effects of a longer-termed focus on positive body image might be.

For instance, if women underwent longer-termed procedures in which their low body image was increased, such as receiving psychological treatment related to low body image, taking part in an exercise program targeting body parts with which women are dissatisfied, or undergoing body-altering surgeries, then perhaps their overall body image would be increased to a greater extent and would be more directly related to an increase in sexual arousal.

6.3.3 Anxiety

It was expected that anxiety would decrease in the Positive Body Image condition, in a way similar to decreases of anxiety typically seen during exposures to anxiety-provoking stimuli in exposure therapy (e.g., Wolpe, 1969). This was not supported by the results. Women reported equal amounts of anxiety across the experimental and control sessions, and there were no changes in anxiety from baseline to post-erotic video scores. Lack of change in anxiety may be related to the fact that, for all women, anxiety levels were relatively low to start, ranging from 27.5 to 35.1 out of a possible 100. It may be that women experienced lower levels of anxiety in the laboratory setting than is typical, given that they were alone in a private room in the absence of a sexual partner. It may also be that, while women reported some anxiety in the current study (i.e., 27.5 to 35.1), their anxiety was not related to their bodies. If this were the case, then it would make sense that anxiety did not significantly change across conditions of varying levels of body image. Unfortunately, the specific content of women's anxiety-related thoughts was not assessed. On the other hand, it is also feasible that women *did* experience anxiety related to their bodies, but the specific measure of anxiety used in the current study, the SUDS scale, did not adequately tap into body-related anxiety. Indeed,

instructions on the SUDS scale did not indicate that participants should rate their levels of anxiety specific to their bodies. Future studies may consider including a measure aimed at investigating the specific impact of body-related anxiety on sexual arousal to better understand the relationships between body image, anxiety, and sexual response. Future studies may also consider the relationships between anxiety and sexual arousal among women who experience particularly high levels of anxiety (e.g., those with anxiety disorders), and/or in real-life sexual situations (i.e., where the partner is present).

6.3.4 Best Fit Model for Positive Body Image Manipulation

It was expected that in the Positive Body Image condition, any variables that were observed to have differed across the experimental and the control conditions (i.e., positive body awareness, body image, and/or anxiety) would explain significant amounts of variance in arousal scores. Given that body awareness was the only variable to significantly differ across the experimental and control sessions, regression analyses included body awareness only. Results from the regression analysis of subjective mental sexual arousal showed that the increases in arousal were significantly related to the increased positive body awareness. In fact, positive body awareness accounted for 25% of the variance of subjective mental sexual arousal, suggesting that body awareness is an important variable for mental sexual arousal response for women with sexual dysfunction. Results for perceptions of physical sexual arousal showed a trend ($p = .11$), such that positive body awareness accounted for 8% of the variance of physical arousal. It is possible that the lack of significance was due to a small sample size, and it is expected that with a larger sample size, body awareness would significantly predict

perceptions of physical sexual arousal. Results support a role of self-awareness in female sexual functioning.

6.4 SEXUAL AROUSAL IN THE NEGATIVE BODY IMAGE MANIPULATION

Based on previous research suggesting that body image concerns are linked to decreased sexual functioning, including decreased sexual response to erotic videos (e.g., Andersen & LeGrand, 1991; Koch et al., 2005; Seal et al., in press), and given that women have been shown to experience decreased sexual response with increased self and body awareness (e.g., Wiederman, 2000), it was predicted that in the Negative Body Image condition these sexually dysfunctional women would experience decreased subjective sexual arousal in response to an erotic video compared to in the control condition. Inconsistent with findings, both subjective mental sexual arousal and perceptions of physical sexual arousal were significantly *higher* in the experimental session compared to the control session. That is, when women adopted and attended to a negative body image, their sexual arousal was enhanced. This is inconsistent with an abundance of research suggesting a negative association between negative body image and sexual response (e.g., Seal et al., in press). This is also inconsistent with suggestions that the valence of self-focused attention impacts the direction of sexual response (e.g., Trapnell et al., 1997).

There are several possible explanations for why, in the Negative Body Image condition, women did not experience a decrease in sexual arousal. It may be that, for these sexually dysfunctional women, sexual arousal levels were at a low level to start such that further decreases were unlikely. Findings may also be related to the fact that women's baseline levels of body image were relatively low. Perhaps these women

typically tend to think about the negative aspects of their bodies, and the negative body image manipulation did not have a novel impact on them, was not particularly distressing for them, and thus did not negatively influence their arousal. That is, while they were able to adopt and attend to their negative body parts, as was shown with the manipulation, and while they did experience increased awareness of their negative body parts, they were not impacted by this because they were accustomed to a negative body image. It may also be that the level of negative body image was not strong enough to have an impact on sexual arousal. Perhaps a specific level of negative body image is required to exert negative effects on sexual arousal, and women in the current study did not reach that level. It would be interesting, in future research, to look at the impact of a negative body image manipulation on groups of women, such as women with eating disorders, who may be more prone to the impact of a negative body image manipulation, or who may experience a more intense reaction to a negative body image manipulation. Another explanation for the lack of an expected decrease in arousal in the Negative Body Image condition is related to the absence of a sexual partner in the laboratory setting. Perhaps women are impacted negatively sexually only when they focus on negative body image in the presence of their partner; negative body image may exert less of an impact on arousal when women are alone. As suggested below, results showing that sexual arousal actually increased, rather than decreased as expected, may be related to a combination of factors.

6.5 THE ROLES OF NEGATIVE BODY AWARENESS, BODY IMAGE, ANXIETY, AND COGNITIVE DISTRACTION IN THE NEGATIVE BODY IMAGE CONDITION

In order to understand why increases in sexual arousal occurred during the Negative Body Image manipulation, variables that were expected to be related to changes in sexual arousal, including negative body awareness, body image, anxiety, and cognitive distraction, were examined.

6.5.1 Negative Body Awareness

Given research showing that activation of body image concerns or negative body image can have robust and lasting effects (e.g., Posavac, Posavac, & Posavac, 1998), and given research showing a shift in focus towards appearance concerns when one's body is negatively objectified (Levine & Smolak, 1996), it was expected that in the Negative Body Image condition, women would experience increased negative body awareness in the experimental sessions. As was expected with the negative body image manipulation, overall negative body awareness was higher in the experimental compared to the control session (when baseline and post-erotic video scores were considered). However, there was no increase over the course of either the experimental or the control session in negative body awareness. That is, intensity of focus did not increase over the course of the videos in either session. Moreover, the interaction was non-significant, indicating that there were no differences in negative body awareness over the course of the experimental versus the control sessions.

Given that negative body awareness was higher in the experimental condition, it was surprising that there was an *increase* in sexual arousal in this condition. It may be

that the increase in sexual arousal was unrelated to the negative body awareness, or was related to variables other than the negative body awareness. It may be that something else about the Negative Body Image experimental session was impacting arousal. For example, perhaps the increase in self awareness in general, regardless of the valence of the awareness, resulted in enhanced sexual arousal in the experimental condition. This is consistent with findings from previous research in which different instruction sets (attending to genital or non-genital body signals, or positive or negative self schemas) resulted in similar responses compared to a control condition (e.g., Korff & Geer, 1983; Kuffel & Heiman, 2006). This is also consistent with previous research in which women experienced increased sexual arousal when looking at their bodies, despite having low body image (Seal & Meston, 2007). However, this is inconsistent with previous suggestions that the valence of self awareness, rather than the presence or absence of self awareness, may be important for sexual arousal (e.g., Sakheim et al., 1984; Trapnell et al., 1997). Discrepancies may be due to the possibility that in some cases, the valence of the self awareness is important, while in other cases, it is not. As suggested for women in the Positive Body Image condition, perhaps women in the current study experienced an increase in sexual arousal related to being focused on the present moment in a way synonymous to mindfulness, or awareness that emerges through paying attention on purpose in the present moment (Kabat-Zinn, 2003). It may be, however, that attempts to be mindful do not have to be related to positive thoughts, as suggested above. Rather, they can be focused on positive or negative thoughts, but it is the focus in the moment that is important.

6.5.2 Body Image

It was expected that in the Negative Body Image condition, overall levels of body image would decrease over the course of the experimental session as women were adopting and attending to their negative body parts. Consistent with this, a significant main effect for condition showed that body image was lower in the experimental session compared to the control session. However, inconsistent with expectations, results showed a trend such that body image was *increased* from baseline with the erotic video across both the experimental and control sessions. This increase was significantly higher in the experimental session than in the control session, suggesting that overall level of body image was related to the erotic video and to increased arousal in the experimental session. This was not expected, given that in the experimental session, women reported being able to adopt a negative body image and reported that they were able to attend more frequently to the negative aspects of their bodies.

Emotional processing theory may help to explain why women in the experimental session experienced increased negative body awareness overall, as well as increased body image over the course of the session. According to Foa and Kozak (1986), emotional processing theory posits that when individuals confront a specific stimulus that they have previously connected to certain emotions (e.g., distress), those emotions are activated along with unreasonable or faulty cognitions about the stimulus (in the case of the current study, negative body image). However, as more time passes with the presence of the stimulus (as occurred in the current study over the course of the experimental session with the presence of the body in the mirror), habituation and/or threat disconfirmation occur as the individual is presented with information that is inconsistent

with the cognitions. As a result, new associations are formed in memory. Avoidance works against this process, as individuals are not able to fully process the emotions and threat disconfirmation are not able to occur (Foa & Kozak, 1986). It may be that the women in the current study, who reported relatively low body esteem and perceptions of their bodies that are inconsistent with objective ratings, typically tend to avoid viewing their bodies. Perhaps, when having to face their bodies in a full-length mirror in privacy over the course of the experimental session, their emotions related to negative body image habituated over the course of time (e.g., Butler et al., 1991), and/or they were presented with evidence that disconfirmed their faulty cognitions about their bodies (e.g., my body is actually *not* unattractive). In other words, negative thoughts about their bodies may have had an opportunity to be challenged, in a way synonymous to that which is done in cognitive therapy. This would help to explain why women in the current study experienced increased body image related to increased awareness of negative body image.

It may also be that body image increased due to other variables. For instance, body image may have increased simply with the passage of time over the course of the session. Or perhaps women felt more attractive with exposure to the erotic video in the experimental session, as they saw themselves in the mirror and/or thought of themselves as being active participants in a sexual scenario, despite also being aware of the negative aspects of their bodies. Or, although speculative, it is possible that these women, who may have a tendency to avoid looking at their bodies in a mirror given their relatively low body esteem scores, shifted their focus towards positive aspects of their bodies because these aspects were more novel.

6.5.3 Anxiety

Results for anxiety suggested no change in anxiety from baseline to post-erotic video or across the experimental and control sessions. This was inconsistent with expectations of an increase in anxiety in the Negative Body Image condition. However, women reported equal amounts of anxiety across the experimental and control sessions, and there were no changes in anxiety from baseline to post-erotic video scores. As in the Positive Body Image condition, lack of a change in anxiety may be related to the fact that, for all women, anxiety levels were relatively low to start, ranging from 32.0 to 38.0 out of a possible 100. Again, it may be that women experienced lower levels of anxiety in the laboratory setting than is typical, given the absence of a sexual partner. It may also be that women's anxiety was not related to their bodies, as it was expected to be. On the other hand, it is also feasible that the specific measure of anxiety used in the current study, the SUDS scale, did not adequately tap into anxiety related to the body. As previously mentioned, instructions on the SUDS scale did not indicate that participants should rate their levels of anxiety specific to their bodies. It is also possible that women did not experience more anxiety during the experimental session because the induction of a negative body image was not novel to these women, who tended to have relatively low body image to start. Perhaps, given their pre-existing low body image, the manipulation of low body image did not strike them as particularly distressing or anxiety-provoking compared to in the control session. Or, perhaps their anxiety level fluctuated over the course of the session, increasing with the manipulation and decreasing with the erotic video, but the timing of our anxiety measure did not allow us to pick up on these

changes. Given that anxiety can be sensitive to small changes and can often fluctuate, future studies may consider assessing anxiety continuously over the course of a session.

6.5.4 Cognitive Distraction

It was expected that distraction would be increased in the Negative Body Image condition, as women's thoughts would be taken away from sexual variables such as pleasurable sensations (Masters & Johnson, 1970) and focused towards distracting thoughts related to their negative body image. However, inconsistent with expectations, results indicate no change in cognitive distraction. Findings are consistent with results from Seal and Meston (2007), in which cognitive distraction did not change in an experimental manipulation in which women were exposed to their bodies with a full-length mirror. As was previously suggested, it may be that thoughts about body image were not distracting because they were not found to be particularly distressing, as women were used to such thoughts. Given the abundance of research pointing towards the impairing effects of distraction on women's sexual response, it seems important to distinguish between which types of information may be distracting for which women during sexual activity. In addition to content, the meaning of potentially distracting information also seems relevant. It is possible that body image may only distract from arousal for women who regard physical attractiveness as being highly important. Unfortunately, the extent to which women regarded physical attractiveness as being important was not measured in the current study. Or perhaps, as suggested by results from Elliot and O'Donohue's experimental study on distraction and sexual arousal (1997), in which distraction was shown to vary as a function of the level of distraction, distraction by the body only impacts arousal when the distraction is at an extremely high

level, such as among women with high levels of body dissatisfaction. For women in the current study, body image may not have been low enough to be distracting. Although body image fell relatively low between the 18th and 36th percentiles for non-eating disordered women, it was still within one standard deviation of those scores previously reported for non-eating disordered women by Franzoi and Sheilds (1984). It may also be that body image was not distracting in the absence of a sexual partner. It is quite possible that results regarding anxiety and distraction could differ with one's sexual partner in the room. It would be valuable to extend this research by investigating sexual response with women's partners present to better determine the effects of focusing on one's appearance in real-life sexual situations.

Given the absence of distraction, increased sexual arousal is not unexpected. According to emotional processing theory (Foa & Kozak, 1986), in the absence of distraction, which can be seen as a type of avoidance, emotional material (e.g., distress associated with seeing one's naked body) may have been more fully processed, and may have allowed for women to challenge negative views about their bodies over the course of the session. Related, and as previously mentioned, it may be the case that focusing on the body *helped* women to re-direct their attention *towards* the present moment, as is done in mindfulness. Perhaps women in the current study did not experience a change in level of distraction because they were *less* distracted, or more fully aware of all aspects of the present moment. Unfortunately my distraction task may have not been particularly sensitive to increased attention. Again, the extent to which increased attention is connected to sexual response an area for future research.

6.5.5 Best Fit Model for Negative Body Image Manipulation

It was expected that in the Negative Body Image condition, any variables that were observed to have differed across the experimental and the control conditions (i.e., positive body awareness, body image, distraction and/or anxiety) would explain significant amounts of variance in arousal scores. Given that body image and negative body awareness were the only variables to differ across the experimental and control sessions, regression analyses included these variables only. The best fit models for subjective mental sexual arousal and perceptions of physical sexual arousal, or the models that accounted for the greatest amount of variance in sexual arousal scores using the least number of variables, included body image alone. Results showed that body image accounted for 18% of the variance of subjective mental sexual arousal, and 15% of the variance in perceptions of physical sexual arousal. This supports the role of level of body image in female sexual functioning.

6.6 OBJECTIVE AND SUBJECTIVE MEASURES OF BODY IMAGE

In an effort to understand the extent to which women's body image may accurately represent their actual body shape and size versus being based on inaccurate perceptions, several additional measures of shape, size, and attractiveness were taken. Results show that BMI ranged from 16.97 to 37.76. According to BMI categorizations from the World Health Organization (2005), 3 women (6.25%) fell into an underweight category, 27 women (56.25%) fell into a normal category, 11 women (22.92 %) fell into an overweight category, and 4 women (8.33%) fell into an obese category. Three women (6.25%) did not provide the required information to calculate BMI. Hip/waist ratios ranged from 0.68 to 0.99, with the average being 0.78 (SD = 0.07). The figure rating

scale provided participants' perceptions of how they currently looked and what their ideal figure was, on a 9-point scale. In an attempt to get a more objective figure rating, the researcher also rated each participant's figure on the same scale. Results showed that participants rated themselves as being significantly larger than their ideal rating, and significantly larger than the researcher's rating. This suggests that women's perceptions of their body shape were distorted in that they tended to rate themselves as being larger than they were objectively rated. This also suggests that women's self-ratings are not entirely due to actual body size. Consistent with previous findings (e.g., Weaver & Byers, 2006), and further supporting the importance of one's body perception, correlations between objective and subjective ratings of the body fell between 0.29 and 0.68, indicating that objective measures accounted for between 8 to 46% of the variance in participants' subjective ratings. Thus, between 54 and 98% of subjective ratings was not directly related to actual body size. This confirms the possible existence of faulty cognitions about the body, and supports the use techniques aimed at changing subjective views of the body for improvements in body image and sexual arousal. In terms of ratings of attractiveness, participants rated their facial, body, and overall levels of attractiveness to be approximately the same as researchers rated them. This suggests that participants' ratings of attractiveness may be somewhat accurate. On the other hand, participants reported that their partners considered them to be significantly more attractive than they consider themselves to be, suggesting that women think that their own subjective ratings are slightly off from others' ratings. These findings point towards the importance of *self-view* or *perceptions* of one's body. And although greater body mass may increase susceptibility to body image concerns (e.g., Wiederman, 2000), our

findings suggest that *body image* is an important component in understanding sexual function.

6.7 GENERAL CONCLUSIONS AND TREATMENT IMPLICATIONS

Overall, results showed that women with FSAD, subjective or combined subtype, experienced increased sexual arousal in experimental conditions during which they adopted a negative or positive body image. In one group of women (Positive Body Image), increases in sexual arousal were best accounted for by body awareness. In the second group of women (Negative Body Image), for whom body image was lower in general during the experimental session, it was the increase in body image over the course of the session that best accounted for the change in arousal. It is speculated that the increased body awareness during the experimental session in this group may be related to the increased arousal such that it allowed for women to challenge faulty cognitions about the body with prolonged exposure. Results for the measurement of anxiety did not support this, although the extent to which the anxiety measure tapped into anxiety related to the body is unknown.

Results highlighted the extent to which body image and body awareness play a role in sexual arousal, with body awareness predicting up to 25% of the variance and body image predicting up to 18% of the variance in women's acute sexual response to erotic videos. Results from both the Positive and Negative Body Image groups suggest that, overall, increased time spent attending to the body and increased intensity of thoughts about the body are related to increased arousal. These results point towards the importance of considering self-awareness as a factor that facilitates sexual arousal. Results also point towards the importance of considering body image in the sexual

response of women with sexual difficulties. This is the first study to show a connection between changes in acute levels of body image and acute sexual arousal response.

Findings from the current study have several important treatment implications. They suggest a conceptualization of FSAD, subjective or combined subtype, that is significantly cognitive in nature. The significance of cognitive factors in the conceptualization of women's sexual difficulties might help to explain why several studies investigating the effects of pharmacological treatments for FSAD have found little to no benefit, and why there is currently no medication approved by the US Food and Drug Administration for the treatment of FSAD despite an abundance of research in the area. Psychologically-based treatments have also had limited success. For instance, a recent study reported that only 44.4 % of all women undergoing therapy for a mixture of difficulties, including FSAD, experienced success (McCabe, 2001). A more thorough understanding of factors that cause and maintain sexual dysfunction is critical in increasing treatment success rates.

Results demonstrate that women with FSAD may view themselves somewhat negatively, wishing that they had smaller or slimmer-shaped bodies and reporting relatively low esteem about their bodies. When exposed to their negative body image, as in the Negative Body Image condition, they may have an opportunity to increase their positive body thoughts and enhance their arousal. If it is the case that women do tend to avoid looking at their bodies or thinking about their bodies when being sexual, techniques aimed at eliminating this avoidance and allowing for emotions related to the body to be processed may be helpful. For instance, techniques aimed at minimizing distraction or avoidance, changing faulty cognitions about the body, and encouraging

emotional processing, such as in vivo exposure, systematic desensitization, and cognitive restructuring, would be appropriate. In vivo exposure allows for fear or emotional responses to be activated, rather than avoided. Systematic desensitization is a component of in vivo exposure, which involves developing a succession of anxiety-provoking stimuli to represent increasingly threatening sexual situations. Outcome studies for systematic desensitization show that these techniques can improve some aspects of sexual functioning (see Meston et al., 2004). Among women with body image concerns, desensitization to being seen nude or to discomfort with one's body, for example, may help women re-direct their focus towards pleasurable sexual sensations, rather than on concerning or distracting thoughts, resulting in increased sexual arousal. Cognitive techniques aimed at body image concerns and/or education about body image might also be used to dispel distorted beliefs and negative concepts of one's body.

If self or body awareness is highly related to sexual arousal for sexually dysfunctional women, as results from the current study and from previous studies suggest, then techniques aimed at increasing body awareness could be beneficial. Sensate focus, a method commonly used in the treatment of female sexual dysfunction, consists of having women learn to focus on pleasurable sensations that are brought about by touching (Masters and Johnson, 1970). The mechanism by which sensate focus may help arousal has not been clearly established. It may be that shifting attention away from distracting thoughts, and redirecting it towards thoughts that are productive for sexual arousal (such as body thoughts, thoughts about body sensations) results in increased arousal. In a similar way, it may also be that a more general awareness of the present moment, as if found in mindfulness, is important for arousal.

Results from the current study point towards the importance of considering male and female sexual function and dysfunction separately. There has been much speculation about the role of self awareness in female sexual arousal, based largely on research conducted on male sexual functioning. Self awareness has been shown to result in decreased sexual functioning for some males (e.g., van Lankveld, van den Hout, & Schouten, 2004); however for women, the most recent body of research points towards an enhancing effect of self awareness among women with sexual difficulties (e.g., Korff & Geer 1983; Laan et al., 1993; Seal & Meston, 2007). Differences may be accounted for by more anxiety about performance demand (i.e., erectile functioning) and less concern about appearances during sexual activity for males compared to females. This is supported by research showing that, compared to women, men experience less appearance-based concerns in both sexual and non-sexual situations (Sanchez & Kiefer, 2007), and fewer appearance-based distracting thoughts during sexual activity (Meana & Nunnink, 2006). And while body image concerns have been related to sexuality concerns and sexual behaviour for men (e.g., Faith & Schare, 1993; Holmes, Chamberline, & Young, 1994), it appears that relationships may be smaller for men (e.g., Haavio-Mannila & Purhonen, 2001), and that fewer men than women report body image concerns in general. Research has shown that men tend to be more satisfied with their bodies than women (Hoyt & Kogan, 2001; Lowery et al., 2005), and results from meta-analyses suggest that this gender gap has increased over the past several years (Cash et al., 2004; Feingold & Mazzella, 1998). The extent to which these gender differences are evoluationary or social/cultural has been debated (e.g., Feingold, 1996). In one study attempting to understand the range of sources of body-related messages for boys and

girls, McCabe, Ricciardelli, and Ridge (2006) found that, while adolescent girls reported more positive and more negative messages than boys, boys reported receiving virtually no negative messages. The origin of such concerns is an area for future research.

6.8 LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

There were several limitations to the current study worth noting. First, this study focused primarily on the contribution of body image to sexual dysfunction, and we did not measure other important variables that might be involved, such as relationship satisfaction. Second, the study was conducted in the contrived setting of the laboratory. It may be that women's responses would differ in their real-life sexual situations, such as when their partners were present. The degree to which the laboratory-based findings translate into women's real-world experiences is unclear. Research in which women's sexual partners are available may offer a more clear understanding of the impact of body image or body awareness on sexual response. If findings from the current study were replicated in women's real-life sexual situations (e.g., with the sexual partner present), then an acute manipulation of body image would be a simple adjunct to current sexual therapies, and could be easily and quickly implemented in women's sexual lives. Third, our study may have been limited by expectancy effects of the participants. Given that women came into the female sexuality laboratory knowingly participating in a study on sexual difficulties, it may be the case that they did not expect to undergo a manipulation that would result in *decreased* arousal; rather, they may have held expectations that they would experience enhanced arousal. This may account for the findings of increased arousal in both experimental conditions. In an attempt to better understand expectancy effects, all participants were asked whether they had any guesses about the specific

hypotheses of the studies at the end of the study, to which they responded no. However, some women acknowledged that body image appeared to be a major piece of the research, given the questionnaires assessing body image and the focus on the body during the manipulation. The degree to which expectancies about the different conditions may have influenced findings should be a consideration for future research.

Another study limitation is related to our sample, which consisted of women who were from the community, but not specifically those who would be seeking out treatment for sexual response, such as those who present at clinics. Although all participants met criteria for FSAD, whether or not they would have sought out treatment for their difficulties was not assessed. Research suggests that while up to 43% of women may experience sexual difficulties (e.g., Laumann et al., 1999), a much smaller percentage of women actually seek out treatment. Hence, results from the current study may not be generalizable to the specific population of women who seek treatment for sexual dysfunction. Related to this, our sample was limited to women with FSAD, subjective or combined type, despite research suggesting that other aspects of sexual functioning may also be related to body image. The generalizability of the current findings may also be limited to women who feel comfortable enough to volunteer in a study on sexuality (Wolchik, Spencer, & Lisi, 1983) or to those who have more positive or liberal attitudes towards sexuality (Strassberg & Lowe, 1995). Although not necessarily a limitation, one issue that deserves comment is the lack of a non-dysfunctional control group of women. This makes it impossible to determine whether changes in arousal with body image are specific to women with sexual dysfunction or could perhaps be generalized to other groups of women, including women with no sexual dysfunction, women experiencing

different types of sexual dysfunction, or women experiencing other psychopathology such as eating disorders. If body image symptoms were to remit (e.g., with treatment of eating disorders), it may be that sexual functioning would also improve. A more thorough understanding of the roles of body image and sexual response among a broader range of women would be helpful in understanding causal and maintaining factors of sexual dysfunction.

The findings of the current study generated questions that should be subjected to future research. First, future research is needed to understand the long-term implications of a body image manipulation. Considering that in the current study, there was no follow-up assessment of sexual response to erotic videos, it is unclear if our acute manipulation had a meaningful or lasting impact on sexual arousal. Findings also lead one to question whether a longer-term intervention of body image would result in enhancement of arousal among women with FSAD. Second, the impact of such a manipulation in real-life sexual scenarios (e.g., with a sexual partner) should be investigated. It may be that a manipulation of increased body image or increased body awareness with the partner present would be helpful for women with relatively low body images. Research should also continue to examine the effects of anxiety on sexual arousal. Although the findings in the current study did not show that anxiety changed across conditions, it is possible that the measure of anxiety used did not tap into the specific type of anxiety that women in the study were experiencing (i.e., anxiety related to their bodies). If anxiety were linked to body image and sexual arousal, this would provide a clearer understanding of the impact that techniques such as exposure and systematic desensitization may have on sexual difficulties. Future research should further investigate the role of self-awareness in

female sexual functioning. A growing body of literature is suggesting that in some cases, self awareness may enhance arousal. As previously suggested, it may be that the increase in sexual arousal in the experimental sessions of both the Positive and Negative conditions was related to the re-direction of women's towards the present moment in a way synonymous to *mindfulness*. It may be that providing a specific focus during sexual activity promotes sexual arousal. Given research suggesting that treatments for female sexual difficulties tend to be limited in their effectiveness, future research on factors that impact and enhance female sexual arousal is critical.

Appendix A: Study Outline

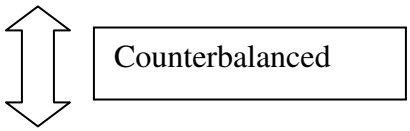
At-home questionnaire

↓

Randomized to Positive or Negative Body Image for 2 counterbalanced in-laboratory sessions

↓

Positive Body Image → **Experimental** (adopt and attend to positive body parts with mirror)



→ **Control** (daily activities and mirror facing backwards)

→ Both sessions:
Baseline: Fill out subjective measures of sexual arousal, anxiety, body awareness, body image

↓

Manipulation or Control

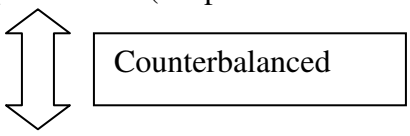
↓

Erotic video

↓

Post-erotic video assessment: Repeat subjective measures

Negative Body Image → **Experimental** (adopt and attend to negative body parts with mirror)



→ **Control** (daily activities and mirror facing backwards)

→ Both sessions:
Baseline: Fill out subjective measures of sexual arousal, anxiety, body awareness, body image

↓

Manipulation or Control

↓

Erotic video

↓

Post-erotic video assessment: Repeat subjective measures

↓

Tests of attention and cognitive distraction

Appendix B: Sexual Functioning Standardized Interview (SFSI)
(Rellini, McCall, & Meston, 2004)

Are you currently in a relationship?

How long have you been together?

How satisfied are you with your relationship?

GENERAL

First I am going to ask you some very broad general questions about your current sexual satisfaction, and then we will get into more details about exactly what your experience is.

Can you describe your current overall satisfaction with your sexual life?

1. Satisfaction:

Extremely unsatisfied ***(1)***
Somewhat unsatisfied ***(2)***
Neither satisfied nor unsatisfied ***(3)***
Somewhat satisfied ***(4)***
Very satisfied ***(5)***

If 4 or 5 go to DESIRE

2. If we had the power to change your sex life, would you change anything?:

Would like to change everything or almost ***(1)***
Would like to change most things ***(2)***
Would like to change some things ***(3)***
Would like to change few things ***(4)***
Would like things to continue the way they are ***(5)***

3. These major things that you would like to change are about:

Current Relationship & Sexuality ***(1)***
Sexuality with partners in general ***(2)***
Self ***(3)***

4. When talking about her sexuality, participant expressed:

Distress with no need for prompt
Distress but she was tentative in saying she had problems
Distress but interviewer needed to prompt participant
No distress

5. When describing the magnitude of the distress the participant identified:

Impact on numerous major aspects of life (2 or more of the following: relationship, self-view, relations with others, feeling down, etc) ***(1)***
Impact on only one major aspect of her life ***(2)***

Impact on minor aspects of life and relationship (patient must express minor distress with few aspects of relationship, not relationship as a whole, or few parts of personal life, not feeling "less of a woman" but perhaps feeling she could be better if things were different ***(3)***
No impact at all ***(4)***

DESIRE

Now I would like to ask you more specific questions about your sexuality. One aspects of sexuality is desire. For desire I mean *the longing for sexual contact or sexual activities (not necessarily with a partner). At times women describe desire as their sexual thoughts, fantasies, sex drive, libido or their inclination to respond to sexual cues initiated by a partner.* Are you familiar with the feelings I am describing?

ASK to describe them to ensure that she is using the same definition that you gave her.

If you think of your level of sexual desire, without comparing it to the desire of your partner, other women, or what you may have heard from friends or the media, how would you describe your satisfaction with your level of sexual desire?

1. Satisfaction with levels of desire:
Extremely unsatisfied ***(1)***
Somewhat unsatisfied ***(2)***
Neither satisfied nor unsatisfied ***(3)***
Somewhat satisfied ***(4)***
Very satisfied ***(5)***

If 4 or 5 go to AROUSAL

2. If unsatisfied:
desire is too much ***(a)***
or too little ***(b)***

3. Satisfaction with desire is creating problems:
in the relationship ***(1)***
for her self ***(2)***
both for the relationship and her sense of well being ***(3)***

4. Changes in levels of desire have happened:
Suddenly ***(1)***
Gradually ***(2)***
No change ***(3)***

5. How big of a change (according to participant):
*Large **(1)***
*Small **(2)***

6. Problems started:
*A specific event **(1)***
*No particular event **(2)***
7. Problems attributed by participant to:
*medical **(a),***
*medication **(b)**,*
*relationship **(c),***
*psychological **(d),***
*social **(e)***

8. Do you think that if you were more satisfied with (1, 2, or 3)____ your desire would be higher?:

Orgasm (1)	***Y N***
Arousal (2)	***Y N***
Intimacy (3)	***Y N***

AROUSAL

Another aspect of sexuality is sexual arousal. For arousal I mean the sensation of being "turned on" when you are receiving sexual stimulations that is pleasant to you. Feelings of being turned on can be specific to your body (greater heart beat, increased breathing, blood flushing to your cheeks, genital throbbing or genital sensations) to your mind (a general sense of feeling sexually aroused), or it can be a combined sensation.
Have you ever experienced these types of sensations during sexual activities either alone or with a partner?

Thinking about the sensation of sexual arousal that you have during a typical sexual experience <u>when you are receiving the appropriate amount and type of stimulation</u>, how would you describe your levels of satisfaction with your levels of sexual arousal?

1. Satisfaction with levels of arousal:
*Extremely unsatisfied **(1)***
*Somewhat unsatisfied **(2)***
*Neither satisfied nor unsatisfied **(3)***
*Somewhat satisfied **(4)***
*Very satisfied **(5)***

If 4 or 5 stop

2. Out of 10 sexual activities with yourself, how often do you become aroused?:
All the times or nearly all the times (90-100%) ***(1)***
Most of the times but not all (70-89%) ***(2)***
Approximately half of the times (40-66%) ***(3)***
A few times, less than half of the times (20-39%) ***(4)***
Almost never or never (0-19%) ***(5)***

3. Out of 10 sexual activities with a partner, how often do you become aroused?:
All the times or nearly all the times (90-100%) ***(1)***
Most of the times but not all (70-89%) ***(2)***
Approximately half of the times (40-66%) ***(3)***
A few times, less than half of the times (20-39%) ***(4)***
Almost never or never (0-19%) ***(5)***

4. Is the lack of satisfaction associated with:
Mental sexual arousal ***(1)***
Physiological sexual arousal ***(2)***
Both ***(3)***

5. Is the lack of satisfaction due to:
Too much work to become aroused but able to become aroused ***(1)***
Low intensity of arousal ***(2)***
No arousal at all ***(3)***

6. Satisfaction with arousal is creating problems:
in the relationship ***(1)***
for her self ***(2)***
both for the relationship and her sense of well being ***(3)***

7. How much is this affecting your relationship?:
Highly ***(1)***
Moderately ***(2)***
Mildly ***(3)***
None ***(4)***

8. How much is this affecting your self?:
Highly (afraid partner will leave) ***(1)***
Moderately (creating problems but not afraid it will ruin relationship) ***(2)***
Mildly (would be better if things were diff but relationship not at risk) ***(3)***
None (not affecting relationship) ***(4)***

9. Changes in arousal have happened:
*Suddenly **(1)***
*Gradually **(2)***
*No change **(3)***

10. How big of a change:
*Large **(1)***
*Small **(2)***

11. Problems associated with:
*A specific event **(1)***
*No particular event **(2)***

12. Problems due to:
*medical **(1),***
*medication **(2)**,*
*relationship **(3),***
*psychological **(4)***
*social **(5)***

Appendix C: Schedule of Measures

At home questionnaires:

Participant characteristics:

-Demographics
-Female Sexual Function Index
-Derogatis Sexual Functioning Inventory, Experience and Frequency Subscales
-Figure Rating Scale
-Self-Rated Attractiveness

In-laboratory assessments, prior to manipulation and following erotic video:

Main outcome measure:

-Subjective Sexual Arousal Assessment (Appendix E)

Factors Theorized to be Related to Changes in Sexual Arousal:

-Anxiety: SUDS (Appendix F)
-Body Awareness Assessment (Appendix G)
-Body Image: BES (Appendix H)

In-laboratory assessments, given following erotic video for the Negative Body Image Condition only:

Factors Theorized to be Related to Changes in Sexual Arousal:

-Cognitive Distraction (Appendix I)

In-laboratory assessment, given following erotic video:

Manipulation Check (Appendix D)

Appendix D: Manipulation Checks

For Positive Body Image sessions:

1. When you were asked to look at your body and think about positive parts of your body, did you find that you were able to do that?

YES NO

2. How easy was it for you to do that?

0 10 20 30 40 50 60 70 80 90 100
Not at all easy Very easy

3. What percent of the time while you were watching the video were you thinking about your body in a positive way during the session?

0 10 20 30 40 50 60 70 80 90 100

For Negative Body Image sessions:

1. When you were asked to look at your body and think about negative parts of your body, did you find that you were able to do that?

YES NO

2. How easy was it for you to do that?

0 10 20 30 40 50 60 70 80 90 100
Not at all easy Very easy

3. What percent of the time while you were watching the video were you thinking about your body in a negative way during the session?

0 10 20 30 40 50 60 70 80 90 100

Appendix E: Subjective Sexual Arousal Measure
Heiman and Rowland (1983)

Please use the following scale to evaluate how you feel now (before watching the video/how you felt during the video). Please answer honestly and carefully. On the scale, circle the number which best describes how you feel now (how you feel before watching the video/how you felt during the video), from 1 (not at all) to 7 (intensely).

(Before the video/During the video), I feel:

1.Warmth in genitals_____

2.Genital wetness or lubrication_____

3.Genital pulsing or throbbing_____

4.Genital tenseness or tightness_____

5.Any genital feeling_____

6.Sexually aroused_____

7.Sexual desire_____

8.Mental sexual arousal_____

9.Easy to arouse_____

10.Sexually turned off_____

Appendix F: Subjective Units of Distress Scale (SUDS)
(Wolpe, 1969)

We would like you to indicate the amount of anxiety you are experiencing right now. To do this we will use the SUDS score. The SUDS score provides a way to communicate how comfortable you are feeling. First, think of a time (or times) in your life when you are the most nervous and anxious or uptight. Assign this the number 100. Now think of the time (or times) in your life when you are perfectly calm and relaxed – free from all anxiety and tension. Call this 0. Now you have a scale from 0 to 100 on which you can rate how anxious or relaxed you are at any time. High ratings (such as 92) on this scale indicate relatively greater anxiety or tension. Low ratings (such as 13) indicate relatively more feelings of relaxation. On this scale please write in your 0-100 SUDS score for how you feel at this moment _____.

Appendix G: Body Awareness Measures

Positive Body Awareness Baseline

The following questions are asking about whether or not you are currently having certain thoughts. If you are not currently thinking about the thoughts listed, you can circle 1, or *Not at all* to indicate that this type of thought is not on your mind right now. If you are currently thinking about the thoughts listed, you can circle anywhere up to 7, or *Intensely,* to indicate that this type of thought is a primary thought in your mind right now.

I am currently thinking about or aware of…

1. positive parts or functions of my body_____
2. how I am pleased with my body _____
3. how my body can add to or increase my sexuality _____
4. how my body is sexy _____
5. ways in which I like my body _____

Positive Body Awareness Post-Erotic

The following questions are asking about whether or not you are currently having certain thoughts. If you are not currently thinking about the thoughts listed, you can circle 1, or *Not at all* to indicate that this type of thought is not on your mind right now. If you are currently thinking about the thoughts listed, you can circle anywhere up to 7, or *Intensely,* to indicate that this type of thought is a primary thought in your mind right now.

During the video I was thinking about or was aware of…

1. positive parts or functions of my body_____
2. how I am pleased with my body_____
3. how my body can add to or increase my sexuality _____
4. how my body is sexy _____
5. ways in which I like my body _____

Negative Body Awareness Baseline

The following questions are asking about whether or not you are currently having certain thoughts. If you are not currently thinking about the thoughts listed, you can circle 1, or *Not at all* to indicate that this type of thought is not on your mind right now. If you are currently thinking about the thoughts listed, you can circle anywhere up to 7, or *Intensely,* to indicate that this type of thought is a primary thought in your mind right now.

I am currently thinking about or aware of…

1. ways in which I dislike my body _____
2. negative parts or functions of my body _____
3. how I am concerned with my body_____
4. how my body can detract from my sexuality ___
5. how my body is not sexy_____

Negative Body Awareness Post-Erotic

The following questions are asking about whether or not you are currently having certain thoughts. If you are not currently thinking about the thoughts listed, you can circle 1, or *Not at all* to indicate that this type of thought is not on your mind right now. If you are currently thinking about the thoughts listed, you can circle anywhere up to 7, or *Intensely,* to indicate that this type of thought is a primary thought in your mind right now.

During the video I was thinking about or was aware of…

1. ways in which I dislike my body _____
2. negative parts or functions of my body _____
3. how I am concerned with my body_____
4. how my can detract from my sexuality_____
5. how my body is not sexy_____

Appendix H: Body Image Measure: The Body Esteem Scale (BES)
Franzio & Sheilds, 1984

Instructions: On this page are listed a number of body parts and functions. Please read each item and indicate how you feel about this part or function of your own body using the following scale: 1 = Have strong negative feelings, 2 = Have moderate negative feelings, 3 = Have no feeling one way or the other, 4 = Have moderate positive feelings, 5 = Have strong positive feelings

1. Body scent
2. Appetite
3. Nose
4. Physical stamina
5. Reflexes
6. Lips
7. Muscular strength
8. Waist
9. Energy level
10. Thighs
11. Ears
12. Biceps
13. Chin
14. Body build
15. Physical coordination
16. Buttocks
17. Agility
18. Width of shoulders
19. Arms
20. Chest/breasts
21. Appearance of eyes
22. Cheeks/cheekbones
23. Hips
24. Legs
25. Figure or physique
26. Sex drive
27. Feet
28. Sex organs
29. Appearance of stomach
30. Health
31. Sex activities
32. Body hair
33. Physical condition
34. Face
35. Weight

Appendix I: Test for Cognitive Distraction

Multiple Choice Questions to Assess Memory for Content of Videos

Video 1:

Please answer the following questions about the tape that you listened to. Please select one answer choice for each question. If you do not know the answer, please make your best attempt possible.

1. What town in Russia is considered to be the "arts" capital of Russia?
    a. Astrakham
    b. Saint Petersburg
    c. Saratov
2. In 1709, what did Peter the Great name his palace?
    a. Peter's Palace
    b. Russia's Palace
    c. The Palace of the Great
3. When is that best time of year to see the fountains at Peter the Great's estate?
    a. Winter
    b. Spring
    c. Summer
4. Besides Peter the Great's estate, another reason to visit Russia is
    a. The Russian Carnival
    b. White Nights
    c. The Festival of Ice
5. What time of the day is the best to see the silhouettes of boats float by?
    a. Morning
    b. Afternoon
    c. Evening
6. When the man walked into the room
    a. He was wearing all black and carrying a briefcase
    b. He was wearing all black and was carrying a jacket
    c. He was wearing a black jacket and light-colored pants
7. The woman took off her dress by
    a. pulling it over her head
    b. unzipping it down the middle
    c. stepping out of it
8. In one of the *first* scenes of the erotic video,
    a. the man straddled the woman, who was seated on a couch
    b. the man and woman lay down on the rug next to the fire
    c. the woman straddled and then lay over the man, who was seated on a couch
9. When the woman took the man's boots off and started to have sexual intercourse with the man,
    a. she was completely naked
    b. she was still wearing her tights
    c. she was only wearing her high heels

10. While they were having sexual intercourse in the middle of the erotic video,
    a. They were facing each other, with the man sitting on the couch and the woman moving on top of him
    b. They were facing away from each other, with the man sitting on the couch and the women moving on top of him facing towards the room
    c. They were facing each other, with the woman sitting on the couch and the man moving on top of her
11. The man
    a. talked to the woman at the end of the video only
    b. made noises and talked throughout the entire erotic video
    c. made noises throughout the entire erotic video, but did not talk
12. At the end of the video, the woman
    a. was completely naked
    b. said, "I love you" and kissed the man
    c. said, "Oh baby" and ran her fingers through the man's hair

Video 2:

Please answer the following questions about the tape that you listened to. Please select one answer choice for each question. If you do not know the answer, please make your best attempt possible.

1. The building at the art school where students are taught that the way one thinks is as important as the way one lives is named
    a. Palace of Culture
    b. The Scholar's Palace
    c. The Vladivostok School of Art
2. The Bay of Vladivostok is also called
    a. Bay of Russia
    b. Peter's Bay
    c. Golden Horn
3. One third of the 800,000 people who live in Vladivostok are
    a. Businessmen
    b. Scholars
    c. Fishermen and sailors
4. Vladivostok is also Russia's
    a. Main base for the Pacific Fleet
    b. Most populated city
    c. Oldest city
5. What type of people live in Vladivostok?
    a. Communist people
    b. Independent people
    c. Elderly people
6. The photographer was in the erotic video
    a. At the beginning only
    b. Throughout the entire video

c. At the beginning and end only

7. At the beginning of the erotic video,
    a. the woman was wearing a black bra and a pearl necklace
    b. the woman was wearing a beige bra
    c. a silver necklace
8. In the first scene of the erotic video, when the woman was mostly nude, the man
    a. was wearing his socks and a bracelet only
    b. was completely naked
    c. was wearing a suit
9. In one of the first scenes of the erotic video, when the couple was first on the chair or lounger,
    a. the man started to lick and put his fingers into the woman's vagina
    b. the woman straddled the man over the chair
    c. the woman started to lick the man's penis
10. When the couple began to have sexual intercourse (penile-vaginal intercourse),
    a. The woman was on her side in the chair and the man was standing over her with his legs spread out over the chair
    b. The woman was on her back in the chair and the man was standing over her with his legs spread out over the chair
    c. The man was laying in the chair and the woman was sitting over him, with her legs spread out over the chair
11. Throughout the erotic video
    a. The man continued to wear his watch
    b. The man was completely naked
    c. The man wore a necklace
12. The woman in the erotic video
    a. Had her pubic hair completely shaved
    b. Did not appear to have shaved any pubic hair at all
    c. Had her pubic hair partially shaved

Appendix J: Female Sexual Function Index
Rosen et al., 2000

INSTRUCTIONS: These questions ask about your sexual feelings and responses during the past 4 weeks. Please answer the following questions as honestly and clearly as possible. Your responses will be kept completely confidential. In answering these questions the following definitions apply:

****Please read carefully!****
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.

CHECK ONLY ONE BOX PER QUESTION.

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?
□ Almost always or always
□ Most times (more than half the time)
□ Sometimes (about half the time)
□ A few times (less than half the time)
□ Almost never or never

2. Over the past 4 weeks, how would you rate your **level** (degree) of sexual desire or interest?
□ Very high
□ High
□ Moderate
□ Low
□ Very low or none at all

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?
□ No sexual activity
□ Almost always or always
□ Most times (more than half the time)
□ Sometimes (about half the time)
□ A few times (less than half the time)
□ Almost never or never

4. Over the past 4 weeks, how would you rate your **level** of sexual arousal ("turn on") during sexual activity or intercourse?
□ No sexual activity
□ Very high
□ High
□ Moderate
□ Low
□ Very low or none at all

5. Over the past 4 weeks, how **confident** were you about becoming sexually aroused during sexual activity or intercourse?
□ No sexual activity
□ Very high confidence
□ High confidence
□ Moderate confidence
□ Low confidence
□ Very low or no confidence

6. Over the past 4 weeks, how **often** have you been satisfied with your arousal (excitement) during sexual activity or intercourse?
□ No sexual activity
□ Almost always or always
□ Most times (more than half the time)
□ Sometimes (about half the time)
□ A few times (less than half the time)
□ Almost never or never

7. Over the past 4 weeks, how **often** did you become lubricated ("wet") during sexual activity or intercourse?
□ No sexual activity
□ Almost always or always
□ Most times (more than half the time)
□ Sometimes (about half the time)
□ A few times (less than half the time)
□ Almost never or never

8. Over the past 4 weeks, how **difficult** was it to become lubricated ("wet") during sexual activity or intercourse?
□ No sexual activity
□ Extremely difficult or impossible
□ Very difficult
□ Difficult
□ Slightly difficult
□ Not difficult

9. Over the past 4 weeks, how often did you **maintain** your lubrication ("wetness") until completion of sexual activity or intercourse?
□ No sexual activity
□Almost always or always
□ Most times (more than half the time)
□ Sometimes (about half the time)
□ A few times (less than half the time)
□ Almost never or never

10. Over the past 4 weeks, how **difficult** was it to maintain your lubrication ("wetness") until completion of sexual activity or intercourse?
□ No sexual activity
□ Extremely difficult or impossible
□ Very difficult
□ Difficult
□ Slightly difficult
□ Not difficult

11. Over the past 4 weeks, when you had sexual stimulation or intercourse, how **often** did you reach orgasm (climax)?
□ No sexual activity
□ Almost always or always
□ Most times (more than half the time)
□ Sometimes (about half the time)
□ A few times (less than half the time)
□ Almost never or never

12. Over the past 4 weeks, when you had sexual stimulation or intercourse, how **difficult** was it for you to reach orgasm (climax)?
□ No sexual activity
□ Extremely difficult or impossible
□ Very difficult
□ Difficult
□ Slightly difficult
□ Not difficult

13. Over the past 4 weeks, how **satisfied** were you with your ability to reach orgasm (climax) during sexual activity or intercourse?
□ No sexual activity
□ Very satisfied
□ Moderately satisfied
□ About equally satisfied and dissatisfied
□ Moderately dissatisfied
□ Very dissatisfied

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?
□ No sexual activity
□ Very satisfied
□ Moderately satisfied
□ About equally satisfied and dissatisfied
□ Moderately dissatisfied
□ Very dissatisfied

15. Over the past 4 weeks, how **satisfied** have you been with your sexual relationship with your partner?
□ Very satisfied
□ Moderately satisfied
□ About equally satisfied and dissatisfied
□ Moderately dissatisfied
□ Very dissatisfied

16. Over the past 4 weeks, how **satisfied** have you been with your overall sexual life?
□ Very satisfied
□ Moderately satisfied
□ About equally satisfied and dissatisfied
□ Moderately dissatisfied
□ Very dissatisfied

17. Over the past 4 weeks, how **often** did you experience discomfort or pain during vaginal penetration?
□ Did not attempt intercourse
□ Almost always or always
□ Most times (more than half the time)
□ Sometimes (about half the time)
□ A few times (less than half the time)
□ Almost never or never

18. Over the past 4 weeks, how **often** did you experience discomfort or pain following vaginal penetration?
□ Did not attempt intercourse
□ Almost always or always
□ Most times (more than half the time)
□ Sometimes (about half the time)
□ A few times (less than half the time)
□ Almost never or never

19. Over the past 4 weeks, how would you rate your **level** (degree) of discomfort or pain during or following vaginal penetration?
□ Did not attempt intercourse
□ Very high
□ High
□ Moderate
□ Low
□ Very low or none at all

Appendix K: Derogatis Sexual Functioning Inventory – Frequency Subscale
(DSFI; Derogatis & Melisarato, 1979)

Below we would like you to indicate the frequency with which you typically engage in certain sexual activities. Please indicate how often you experience each of the sexual activities below by checking the category that is closest to your personal frequency. Categories range from "NOT AT ALL" to "4 OR MORE TIMES A DAY". Please do not skip any items.

0 = NOT AT ALL; 1 = LESS THAN 1/MONTH; 2 = 1-2 TIMES/MONTH; 3 = 1/WEEK; 4 = 2-3X/WEEK; 5 = 4-6X/WEEK; 6 = 1/DAY; 7 = 2-3X/DAY; 8 = 4 OR MORE X/DAY

1. Intercourse
2. Masturbation
3. Kissing and Petting
4. Sexual Fantasies

5. What would be your ideal frequency of sexual intercourse? [ ]/week
6. At what age did you first become interested in sexual activity? [ ]
7. At what age did you first have sexual intercourse? [ ]

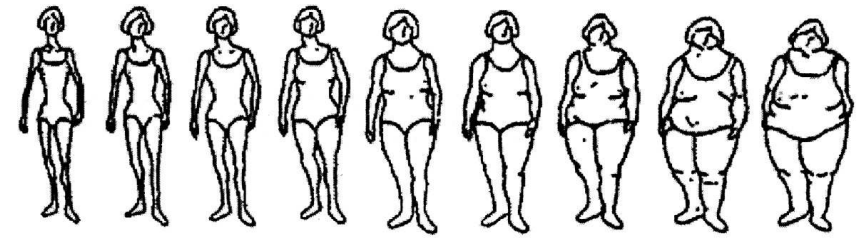
Derogtatis Sexual Functioning Inventory - Experience Subscale

Below is a list of sexual experiences that people have. We would like to know which of these sexual behaviors you have experienced. Please indicate those experiences you have personally had by placing a check under the YES column for that experience. If you have not had the experience place your check under the NO column. In addition, if you have had the experience during the past two months please place an additional check under the column marked PAST 60 DAYS. Make your marks carefully and do not skip any items.

	YES	NO
1. Male lying prone on female (clothed)	[ ]	[ ]
2. Stroking and petting your sexual partner's genitals	[ ]	[ ]
3. Erotic embrace (clothed)	[ ]	[ ]
4. Intercourse-vaginal entry from rear	[ ]	[ ]
5. Having genitals caressed by your sexual partner	[ ]	[ ]
6. Mutual oral stimulation of genitals	[ ]	[ ]
7. Oral stimulation of your partner's genitals	[ ]	[ ]
8. Intercourse side-by-side	[ ]	[ ]

9. Kissing of sensitive (non-genital) areas of the body	[ ]	[ ]
10. Intercourse – sitting position	[ ]	[ ]
11. Masturbating alone	[ ]	[ ]
12. Male kissing female's nude breasts	[ ]	[ ]
13. Having your anal area caressed	[ ]	[ ]
14. Breast petting (clothed)	[ ]	[ ]
15. Caressing your partner's anal area	[ ]	[ ]
16. Intercourse – female superior position	[ ]	[ ]
17. Mutual petting of genitals to orgasm	[ ]	[ ]
18. Having your genitals orally stimulated	[ ]	[ ]
19. Mutual undressing of each other	[ ]	[ ]
20. Deep kissing	[ ]	[ ]
21. Intercourse – male superior position	[ ]	[ ]
22. Anal intercourse	[ ]	[ ]
23. Kissing on the lips	[ ]	[ ]
24. Breast petting (nude)	[ ]	[ ]

Appendix L: The Figure Rating Scale
(Stunkard, Sorenson, & Schulsinger, 1983).



1. Indicate the number of the figure (from 1 to 9) that best corresponds to how you think you currently look __

2. Indicate the number of the figure (from 1 to 9) that corresponds to how you *would like to currently look* (your ideal figure for yourself) ___

RESEARCHER RATING:

3. Indicate the number of the figure (from 1 to 9) that best corresponds to how you think the participant currently looks __

Appendix M: The Self-, Perceived Partner-, and Researcher-Rated Attractiveness Scale (Wiederman & Hurst, 1998).

Please answer the following questions on a scale of 1 to 7, where 1 = Well below average, 4 = Average, and 7 = Well above average.

1. Overall, I would rate the attractiveness of my body as…

Well below average *Average* *Well above average*
1 2 3 4 5 6 7

2. Overall, I would rate the attractiveness of my face as…

Well below average *Average* *Well above average*
1 2 3 4 5 6 7

3. Overall, I would rate my general attractiveness as…

Well below average *Average* *Well above average*
1 2 3 4 5 6 7

4. Overall, my partner would rate the attractiveness of my body as…

Well below average *Average* *Well above average*
1 2 3 4 5 6 7

5. Overall, my partner would rate the attractiveness of my face as…

Well below average *Average* *Well above average*
1 2 3 4 5 6 7

6. Overall, my partner would rate my general attractiveness as…

Well below average *Average* *Well above average*
1 2 3 4 5 6 7

FOR RESEARCHER RATINGS ONLY:

7. Overall, I would rate the attractiveness of the participant's body as…

Well below average *Average* *Well above average*
1 2 3 4 5 6 7

8. Overall, I would rate the attractiveness of the participants' face as…

Well below average *Average* *Well above average*
1 2 3 4 5 6 7

9. Overall, I would rate the participants' general attractiveness as…

Well below average *Average* *Well above average*
1 2 3 4 5 6 7

Appendix N: Positive Body Image Experimental Condition

A)

On this page are listed a number of body parts and functions. Please read each item and place a checkmark in the space in the first column next to the items that you tend to feel **positive** about (i.e., that you have moderate positive feelings or strong positive feelings about). If you do not feel positive about any of the body parts or functions listed below, please indicate which ones you feel *the most positive about* among the list of items.

Sometimes women feel that certain body parts or functions can help add to their experience of being sexual when they are with a sexual partner. For example, some women may report that their breasts make them feel more sexual and more sexually aroused. Please *also* place a checkmark in the second column next to items that might add to your feelings of being sexual or might make you feel more sexual when you are with a sexual partner.

1. Body scent	_____	_____	19. Arms	_____	_____
2. Appetite	_____	_____	20. Chest/breasts	_____	_____
3. Nose	_____	_____	21. Appearance of eyes	_____	_____
4. Physical stamina	_____	_____	22. Cheeks/cheekbones	_____	_____
5. Reflexes	_____	_____	23. Hips	_____	_____
6. Lips	_____	_____	24. Legs	_____	_____
7. Muscular strength	_____	_____	25. Figure or physique	_____	_____
8. Waist	_____	_____	26. Sex drive	_____	_____
9. Energy level	_____	_____	27. Feet	_____	_____
10. Thighs	_____	_____	28. Sex organs	_____	_____

11. Ears	_____	_____	29. Appearance of stomach	_____	_____
12. Biceps	_____	_____	30. Health	_____	_____
13. Chin	_____	_____	31. Sex activities	_____	_____
14. Body build	_____	_____	32. Body hair	_____	_____
15. Physical coordination	_____	_____	33. Physical condition	_____	_____
16. Buttocks	_____	_____	34. Face	_____	_____
17. Agility	_____	_____	35. Weight	_____	_____
18. Width of shoulders	_____	_____			

B)

Please refer to the items above that you placed a checkmark next to. Please indicate below *what* it is about these particular body parts or functions that make you feel more **positively** about them. Please also indicate what is it about these body parts or functions that make you feel more sexual when you are with a sexual partner.

Example: *I feel that my breasts add to my experience of being sexual with my partner because they are a visual sign of my femininity, and I feel aroused when my partner sees and touches them while we are being sexual.*

_____

_____

_____

_____

_____

_____

_____

C)

When you have finished filling out the questions above, please press play on the audiocassette next to you.

Audio-taped Instructions: Please take a minute to look at yourself in the mirror. Look at and think about your body. Think about how your body influences your experiences of being sexual.

Appendix O: Negative Body Image Experimental Condition

A)

On this page are listed a number of body parts and functions. Please read each item and place a checkmark in the space next to the items that you tend to feel **negative** about (i.e., that you have moderate negative feelings or strong negative feelings about). If you do not feel negative about any of the body parts or functions listed below, please indicate which ones you feel *the most negative about* among the list of items.

Sometimes women feel that certain body parts or functions take away from their experience of being sexual when they are with a sexual partner. For example, some women may report that their breasts make them feel less sexual and less sexually aroused. Please *also* place a checkmark in the second column next to items that might take away from your feelings of being sexual, or make you feel less sexual when you are with a sexual partner.

1. Body scent	_____	_____	19. Arms	_____	_____
2. Appetite	_____	_____	20. Chest/breasts	_____	_____
3. Nose	_____	_____	21. Appearance of eyes	_____	_____
4. Physical stamina	_____	_____	22. Cheeks/cheekbones	_____	_____
5. Reflexes	_____	_____	23. Hips	_____	_____
6. Lips	_____	_____	24. Legs	_____	_____
7. Muscular strength	_____	_____	25. Figure or physique	_____	_____
8. Waist	_____	_____	26. Sex drive	_____	_____
9. Energy level	_____	_____	27. Feet	_____	_____
10. Thighs	_____	_____	28. Sex organs	_____	_____
11. Ears	_____	_____	29. Appearance of stomach	_____	_____

12. Biceps	_____	_____	30. Health	_____	_____
13. Chin	_____	_____	31. Sex activities	_____	_____
14. Body build	_____	_____	32. Body hair	_____	_____
15. Physical coordination	_____	_____	33. Physical condition	_____	_____
16. Buttocks	_____	_____	34. Face	_____	_____
17. Agility	_____	_____	35. Weight	_____	_____
18. Width of shoulders	_____	_____			

B)

Please refer to the items above that you placed a checkmark next to. Please indicate below *what* it is about these particular body parts or functions that make you feel **negatively** about them. Please also indicate what is it about these body parts or functions that make you feel less sexual when you are with a sexual partner.

Example: *I feel that my breasts take away from my experience of being sexual with my partner because I think my partner is probably noticing how small they are while we are being sexual.*

_____

_____

_____

_____

_____

_____

_____

C)

When you have finished filling out the questions above, please press play on the audiocassette next to you.

Audio-taped Instructions: Please take a minute to look at yourself in the mirror. Look at and think about your body. Think about how your body influences your experiences of being sexual.

Appendix P: Control Condition

A)

On this page are listed several activities that some people do during the day. Please read each item and place a checkmark in the space next to the items that you tend to do during a typical day. If you do not do any of the activities on a typical day, please indicate which ones you would *most likely engage in* among the list of items.

1. Go for a walk	_____	19. Read a book	_____
2. Exercise at the gym	_____	20. Write in a journal/diary/blog	_____
3. Cook dinner	_____	21. Go grocery shopping	_____
4. Drink coffee	_____	22. Surf the internet	_____
5. Do laundry	_____	23. Pay bills	_____
6. Go to work	_____	24. Listen to the radio	_____
7. Attend school	_____	25. Clean your apartment/house	_____
8. Order take-out food	_____	26. Get a haircut	_____
9. Pick up dry-cleaning	_____	27. Get hands/feet manicured	_____
10. Call family on the phone	_____	28. Have breakfast	_____
11. Call friends on the phone	_____	29. Go to a restaurant	_____
12. Take a bath	_____	30. Visit the library	_____
13. Go to happy hour w/friends	_____	31. Read a magazine	_____
14. Take a nap	_____	32. Iron clothing	_____
15. Watch a movie	_____	33. Go to church	_____
16. Watch a TV show	_____	34. Play/interact with pet	_____
17. Get a massage	_____	35. Go clothing shopping	_____
18. Wash your car	_____		_____

B)

Please refer to the items above that you placed a checkmark next to. Please indicate which of these activities you did yesterday, from the time you got up until the time you went to bed. Please also indicate *why* you did these activities.

Example: *I went grocery shopping yesterday because I needed to pick up water and coffee. I also watched my favorite television show in the evening to relax before bedtime.*

_____

_____

_____

_____

_____

_____

_____

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