The Association Between Sexual Satisfaction and Body Image in Women

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DOI: 10.1111/j.1743-6109.2009.01604.x

ABSTRACT

Introduction. Although sexual functioning has been linked to sexual satisfaction, it only partially explains the degree to which women report being sexually satisfied. Other factors include quality of life, relational variables, and individual factors such as body image. Of the few studies that have investigated the link between body image and sexual satisfaction, most have considered body image to be a single construct and have shown mixed results.
Aim. The present study assessed multiple body image variables in order to better understand which aspects of body image influence multiple domains of sexual satisfaction, including sexual communication, compatibility, contentment, personal concern, and relational concern in a community sample of women.
Methods. Women between the ages of 18 and 49 years in sexual relationships (N = 154) participated in an Internet survey that assessed sexual functioning, five domains of sexual satisfaction, and several body image variables.
Main Outcome Measures. Body image variables included the sexual attractiveness, weight concern, and physical condition subscales of the Body Esteem Scale, the appearance-based subscale of the Cognitive Distractions During Sexual Activity Scale, and body mass index. Total score of the Sexual Satisfaction Scale for Women was the main outcome measure. Sexual functioning was measured by a modified Female Sexual Function Index.
Results. Consistent with expectations, correlations indicated significant positive relationships between sexual functioning, sexual satisfaction, and all body image variables. A multiple regression analysis revealed that sexual satisfaction was predicted by high body esteem and low frequency of appearance-based distracting thoughts during sexual activity, even after controlling for sexual functioning status.
Conclusion. Several aspects of body image, including weight concern, physical condition, sexual attractiveness, and thoughts about the body during sexual activity predict sexual satisfaction in women. The findings suggest that women who experience low sexual satisfaction may benefit from treatments that target these specific aspects of body image. **Pujols Y, Meston CM, and Seal BN. The association between sexual satisfaction and body image in women. J Sex Med 2010;7:905–916.**

Key Words. Sexual Satisfaction; Body Image; Sexual Functioning; Body Dissatisfaction; Body Esteem; Cognitive Distractions; Online Questionnaire; Sexual Communication; Sexual Contentment; Sexual Compatibility; Sexual Distress; Self-Focus; Sexual Dysfunction

The prevalence of sexual satisfaction among women in the United States is relatively high (85%) compared with other countries (42%) [1,2]. Despite the high prevalence of sexual satisfaction in the United States, a considerable portion of American women (43%) experience sexual difficulties including low sexual desire, difficulties with lubrication or orgasm, and painful or unpleasurable sex [3]. Taken together, these findings suggest that sexual dissatisfaction and sexual difficulties do not always go hand-in-hand. Two recent studies highlight the distinction between sexual satisfaction and sexual difficulties. Ferenidou and colleagues found that half of the 81% of women seeking general medical services that reported sexual satisfaction also reported at least one sexual problem [4]. In the same study, not surprisingly, all of the women who reported sexual dissatisfaction reported sexual difficulties. Distress or concern with sexual problems, rather than experiencing a

sexual problem, appears to be a crucial factor in sexual dissatisfaction. In a study conducted on women recruited from primary care offices, King and colleagues found that women who reported greater distress over a sexual problem also reported greater sexual dissatisfaction [5]. Interestingly, there was also a subsample of women who did not meet the International Classification of Diseases-10 diagnostic criteria for a sexual disorder and reported an absence of sexual problems yet still felt sexually unsatisfied. As noted by the authors, it is possible that these women may be reporting dissatisfaction as a result of their partner's complaints or misattributing emotional problems as sexual difficulties.

Given the data mentioned earlier, sexual functioning is an important contributor but is clearly not the only factor contributing to sexual satisfaction in women. To date, numerous studies in the medical literature have examined the influence of intrapersonal or individual variables on sexual satisfaction among women with a variety of medical conditions such as breast cancer [6–8], cervical cancer [9], HIV infection [10], incontinence caused by vesicovaginal fistulas, or other urological issues [11,12]. Among nonclinical populations, significant links have been noted between women's sexual satisfaction and numerous quality-of-life factors, including age [13], physical health [14], and general well-being and happiness [15–17]. Several relationship variables have also been linked to sexual satisfaction, including marital satisfaction [18], commitment [19], relationship stability [19,20], and communication [21,22]. A small body of literature among nonclinical populations suggests that one such factor that also deserves consideration is body image [23–29].

Women's body image is multifaceted and has been operationalized as body part satisfaction (i.e., satisfaction with stomach, arms, thighs), concern with body size or weight, and comfort with one's body in front of a partner or others [23,24]. These feelings or perceptions about one's body are often influenced by sociocultural and intrapersonal views and can impact both sexual experiences and satisfaction with those experiences. Changes in body image are particularly evident among women affected by major health issues [10,30–32]. For example, one quality-of-life study followed women who had undergone various surgical treatments for breast cancer. Although body image decreased immediately after surgery, the women returned to presurgery levels of body image after 2 years regardless of whether or not breast reconstruction was part of the treatment [32]. Body image issues have also been associated with medical conditions such as sex chromosome abnormalities that result in intersex conditions [33,34]. Given these conditions affect sexual organs, it is impossible to parse apart the unique impact of body image on sexual functioning and satisfaction.

Poor body image in women has been associated with numerous nonmedically related situations such as bodily damage or injury from accidents or burns, physical and/or sexual abuse, and posttrauma physical appearance [35–37]. An extreme manifestation of body dissatisfaction is often noted among women with eating disorders, where distorted body image leads to pathological eating behaviors [38].

Although it is important to understand fluctuations in body image among clinical populations of women, poor body image and body part dissatisfaction is commonplace in the United States [39]. Among nonclinical populations, several body image variables, particularly poor body image during sexual activity and body part dissatisfaction, have been linked to lower sexual efficacy, lower sexual assertiveness, and poorer sexual esteem among college-aged women [24,25]. Negative body image has also been shown to lead to sexual avoidance, whereas positive body image has been associated with greater frequency of sexual activity, adventure, optimism, and functioning [26–29]. In a survey study published in a women's health and fitness magazine, women aged 14 to 74 years reported that body image satisfaction was associated with greater comfort with one's body during sexual activity, higher frequency of sexual behavior, including increased initiation of sexual activity by the women, and increased orgasm frequency [27]. Relationships between body image variables and sexuality have been shown to exist above and beyond effects of actual body size [40,41], suggesting that a woman's perceptions and cognitions about her body size, rather than her actual body size, have a unique influence on her experiences of sexuality.

To our knowledge, there have been only three studies directly examining the link between body image and sexual satisfaction. Koch et al. examined data from the 1993 time period of the Midlife Women's Health Survey, a 10-year long investigation of women's midlife health [29]. Three-hundred and seven women aged 39–56 years and in varying menopausal statuses responded to open-ended questions about perceived changes in one's overall body image and sexual satisfaction. Among

women who had sexual partners, correlations revealed no significant relationship between perceptions of their own attractiveness as they aged and their current sexual satisfaction. However, results may have been limited by a restricted range of sexual satisfaction scores, with over 70% of women being sexually satisfied. As suggested by the authors, it may also be that for these older women, sexual satisfaction is less influenced by body image variables. In a more recent study of body image and psychological, social, and sexual functioning among women aged 18–86 years, Davison and McCabe found a negative relationship between body image and sexual dissatisfaction that disappeared after controlling for general self-esteem [42]. Among a nonclinical sample of 187 female college students, Hoyt and Kogan found that women who were dissatisfied with their sex lives and/or their dating lives experienced more body image dissatisfaction compared with women who reported being satisfied with their sex lives [43]. The authors suggested that the findings may be caused by 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. Supporting this notion are findings from Dove and Wiederman indicating that appearance-related distracting thoughts during sexual activity were related to lower levels of sexual satisfaction among sexually active college students [44].

Aim

The aim of the present study was to expand upon previous research by examining the link between sexual satisfaction and body image variables in a young, community-based sample of women using validated and multifaceted measures of body image and sexual satisfaction. It was hypothesized that body image would be a significant predictor of sexual satisfaction. Given the link between sexual function and sexual satisfaction in women [45–47], women's sexual functioning status was included as a covariate in the regression analyses.

Methods

Participants and Procedure

Women were recruited nation wide by online classified advertisements (e.g., www.craigslist.com, online newspapers) to participate in a 1-hour Internet self-report questionnaire about their body image and sexuality. Participants were excluded from participation if they were under the age of 18 or over the age of 49 years, or if they were not involved in a dating relationship. Following three months of data collection, the final sample consisted of 154 women. Participants ranged in age from 18 to 49 years old (M = 26.03, standard deviation [SD] = 6.6), and averaged 15.5 years of education (i.e., 3–4 years post-secondary education) with 16.2% completing a high school diploma/General Educational Development or less schooling, 60.4% completing an undergraduate degree, and 39.6% obtaining advanced degrees. The sample consisted of 79% identifying as white/Caucasian, 4% African Americans, 7% Asians, 6% Hispanics/Latinas, 2% other; 2% did not report on ethnicity. The median income range was between $25,001 and $50,000, with 13.0% reporting a household income of <$25,000, 30.5% between $25,001 and $50,000, 30.5% between $50,001 and $100,000, and 18.2% above $100,000. Household income was not reported by 8% of the sample (Table 1). Thirty-eight women endorsed having at least one medical condition or psychological problem. Arthritis, hypothyroidism, and asthma were the most frequently reported medical conditions. Twenty women reported having depression and anxiety problems, the two most common psychological conditions. Three women reported comorbid

Table 1 Demographic characteristics (N = 154)

	Mean (standard deviation)
Age	26.03 (6.6)
Education	
High school diploma/GED or less	16.2%
Undergraduate degree	60.4%
Advanced degree	39.6%
Ethnicity	
White/Caucasian	79%
Asian	7%
Hispanic/Latina	6%
African American	4%
Other	2%
Did not report	2%
Household income	
$25,000 or less	13%
Between $25,001 and $50,000	30.5%
Between $50,001 and $100,000	30.5%
$100,000 or more	18.2%
Did not report	8%
Reporting a medical or psychological condition	% (N)
Medical condition	42.1% (16)
Psychological condition	31.6% (12)
Medical and psychological conditions	18.4% (7)
Did not report	7.9% (3)

GED = General Educational Development.

depression and anxiety. All women were involved in a romantic relationship, with length of relationship ranging from 1 month to 37.5 years.

Women who responded to the advertisements were directed to a link leading to a secure and encrypted website that hosted the questionnaire and was specifically formatted to record responses to all of the questions. Participants first viewed a cover letter explaining that they were going to be asked to complete a series of questionnaires. The cover letter mentioned that responses to the questionnaire were confidential and anonymous and that they could skip any question that they were not comfortable responding to. After reading the cover letter, participants were directed to complete a battery of questionnaires assessing demographic information, body image, sexual satisfaction, and sexual functioning. Following completion of the questionnaire, participants were asked to release their responses for the purposes stated in the cover letter. They were then directed to submit their responses, and a debriefing screen appeared advising participants to contact the Principal Investigator if they had any concerns about the study. At the end of the debriefing page, each participant had the opportunity to submit their email address in order to be entered into a monthly drawing for a prize of 50 dollars. Because of the anonymity of the questionnaire, email submissions and any other contact initiated on the part of the participant were not linked to the participants' surveys.

Main Outcome Measures

Sexual Satisfaction

The Sexual Satisfaction Scale for Women (SSS-W) is a 30-item questionnaire that asks participants to rate their level of agreement with a series of statements on a 5-point Likert scale [47]. Scores range from 0 to 130, with higher scores indicating greater levels of satisfaction. The SSS-W assesses five separate domains of sexual satisfaction supported by factor analyses: ease and comfort discussing sexual and emotional issues (communication); compatibility between partners in terms of sexual beliefs, preferences, desires, and attraction (compatibility); contentment with emotional and sexual aspects of the relationship (contentment); personal distress concerning sexual problems (personal concern, reverse-coded); and distress regarding the impact of their sexual problems on their partner and relationship at large (interpersonal concern, reverse-coded). In a combined sample of women with and without sexual dysfunction, internal consistency coefficients for each domain were in the acceptable range (Cronbach's alpha ≥ 0.72) and have been shown to have test-retest reliability ($r = 0.58$ to 0.87) [47].

Body Image

The Body Esteem Scale (BES) is a 35-item instrument that measures esteem in relation to body parts and functions [48]. Participants are asked to rate the degree to which they feel positive or negative about each on a 5-point Likert scale. A high score is indicative of greater body esteem. The Body Esteem Scale is composed of three subscales. The weight concern subscale is comprised of body parts that can be altered by exercise and that are generally considered to be under public scrutiny (e.g., thighs, appearance of stomach, weight). The physical condition subscale contains items relating to physical qualities that are generally not under public scrutiny (e.g., physical stamina, physical coordination). The sexual attractiveness subscale contains items that cannot be altered by exercise and are often associated with physical attractiveness (e.g., breasts, face, or sex organs). In order to generate an overall body esteem score, we calculated a BES total score by taking the sum of the means for all three subscales [49,50]. The Body Esteem Scale has been shown to be internally consistent (Cronbach's alpha ≥ 0.78) and reliable over a 3-month period ($r \geq 0.75$).

The Cognitive Distraction During Sexual Activity Scale (CDDSA) is a 20-item measure that assesses thoughts and worries during sexual activity [44]. It is separated into appearance-based distraction and performance-based distraction. For the purpose of this study, only the 10 items from the appearance-based distractions subscale were included (e.g., "During sexual activity, I am worried about how my body looks to my partner"). Participants rate the frequency with which they have each thought on a 6-point Likert scale, from 1 = always to 6 = never. Possible scores ranged from 10 to 60, with higher scores indicating lower frequency of distracting body-related thoughts during sexual activity. Dove et al. demonstrated an internal consistency of 0.95 for each subscale [44].

Sexual Functioning

The Female Sexual Functioning Index (FSFI) is a 19-item questionnaire that is subdivided into six domains supported by factor analysis: desire (two items); arousal (four items); lubrication (four items); orgasm (three items); satisfaction (three items); and pain (three items) [51]. The satisfaction domain was excluded for the calculation of the FSFI total score because of the overlap in the mea-

Table 2 Participant characteristics on independent variables (N = 154)

	Mean (standard deviation)
Sexual satisfaction*	
Contentment	19.8 (7.5)
Communication	23.7 (5.9)
Compatibility	22.3 (7.0)
Relational concern	22.9 (7.3)
Personal concern	22.8 (6.5)
Total	111.7 (28.1)
Body esteem†	
Weight concern	27.1 (9.5)
Physical condition	27.7 (7.3)
Sexual attractiveness	46.3 (7.6)
Total	101.1 (21.2)
Cognitive distractions during sexual activity‡	
Appearance-based	23.0 (12.2)
Sexual functioning§	28.1 (5.2)
	N (%)
Body mass index (BMI) category	
Underweight (BMI < 18.5)	15 (9.7)
Normal weight (BMI 18.5–24.9)	87 (56.5)
Overweight (BMI 25–29.9)	26 (16.9)
Obese (BMI ≥ 30)	26 (16.9)

*Sexual Satisfaction Scale for Women (SSS-W).
†Body Esteem Scale (BES).
‡Cognitive Distraction During Sexual Activity Scale (CDDSA).
§Female Sexual Functioning Index (FSFI) total score (includes Satisfaction domain).
Higher scores for the SSS-W, BES, and FSFI indicate greater satisfaction, body esteem, and sexual functioning.
Higher scores for the CDDSA indicate higher frequency of distracting thoughts.

surement of the sexual satisfaction construct as indicated by its high correlation with the SSS-W total in the current study (contentment: $r = 0.80$; total score: $r = 0.73$) and in the previous studies [47]. The FSFI total—including desire, arousal, lubrication, orgasm, and pain items—will be referred to as the "modified FSFI total." Each item is rated on a 5-point Likert scale where higher scores indicate greater sexual functioning. The questionnaire has been shown to discriminate between sexually healthy women and women diagnosed with female sexual arousal disorder [51], and with female orgasm disorder [52]. The FSFI has demonstrated good internal reliability ($r = 0.89$–0.97), and test-retest reliability ($\alpha = 0.79$–0.88). Divergent validity has been demonstrated with the Locke–Wallace Marital Adjustment Test [53].

Results

Participant Characteristics

Table 2 provides the variable characteristics for the sample. Women of ethnic minority groups did not differ significantly on sexuality or body image variables. This differs from previous research showing ethnic differences in body esteem [54–56], and may be because of the small number of minority participants in the present study. Women reporting having a medical condition or a psychological problem did not differ significantly on sexuality or body image variables. Sexual satisfaction scores ranged from 35 to 150 (M = 111.7, standard error [SE] = 2.3), and were significantly lower, $t(147) = -5.06$, $P < 0.001$, than scores found in historical nonclinical samples (M = 123.4, SE = 2.3) [13]. According to results from the FSFI, overall sexual functioning scores (M = 28.1, SD = 5.2) for the sample were within the range of scores previously found among control women with no sexual difficulties [51]. The modified FSFI total score (which excluded the satisfaction domain), added to the regression analyses was 23.5 (SD = 4.2). Scores on the BES were comparable with normative values for a college-aged population (M = 110.1, SD = 6.7) [48]. The CDDSA yielded similar scores (M = 23.0, SD = 12.0) to studies that sampled undergraduate women (M = 24.1, SD = 11.4). [44,57] Participants, on average, reported rarely to sometimes having appearance-based distracting thoughts during sexual activity.

Relationships Between Sexual Satisfaction and Body Image Variables

We computed Pearson correlations to assess relationships between sexual satisfaction and sexual functioning, body esteem, body mass index (BMI), and appearance-related thoughts during sexual activity. As expected, we found both body esteem total scores and appearance-based thoughts during sexual activity to be significantly correlated with sexual satisfaction total scores ($r = 0.44$ and 0.39, respectively) (see Table 3). In order to further explore the observed relationship between BES scores and sexual satisfaction, we computed BES subscale scores according to Franzoi and Shields' scoring guidelines and SSS subscale scores according to the Meston and Trapnell SSS-W scoring guidelines [48,47]. We then computed Pearson correlations between the Weight Concern, Physical Condition, and Sexual Attractiveness subscales scores of the BES with the Contentment, Communication, Compatibility, Relational Concern, and Personal Concern subscales of the SSS-W. All three subscales of the BES were found to be positively correlated with domains of the SSS-W, with higher levels of body esteem related to increased sexual satisfaction. Significant correlations ranged from $r = 0.21$ to $r = 0.53$, with the strongest relationships between the sexual attractiveness sub-

Table 3 Intercorrelations of predictors of sexual satisfaction subscales (N = 154)

Sexual Satisfaction subscales†	Contentment	Communication	Compatibility	Relational Concern	Personal Concern	Total
Body esteem‡	0.44***	0.27***	0.30***	0.45***	0.42***	0.44***
Weight concern	0.30***	0.15	0.24**	0.35***	0.27***	0.30***
Physical condition	0.32***	0.24**	0.21**	0.35***	0.35***	0.34***
Sexual attractiveness	0.53***	0.33***	0.33***	0.49***	0.50***	0.51***
Appearance-based distracting thoughts§	0.39***	0.23**	0.37***	0.37***	0.33**	0.39***
Overall sexual functioning¶	0.66***	0.32***	0.53***	0.65***	0.60***	0.69***
Sexual desire	0.38***	0.17*	0.28***	0.38***	0.26***	0.36***
Sexual arousal	0.55***	0.31***	0.43***	0.53***	0.55***	0.59***
Vaginal lubrication	0.36***	0.20**	0.27***	0.38***	0.42***	0.42***
Orgasm	0.32***	0.25**	0.26***	0.46***	0.47***	0.44***
Sexual pain	0.22**	0.10	0.14	0.24**	0.25**	0.24**
Body mass index	–0.10	0.03	–0.10	–0.07	0.01	–0.06

*$P < 0.05$, **$P < 0.01$, ***$P < 0.001$.
†Sexual Satisfaction Scale for Women.
‡Body Esteem Scale.
§Cognitive Distraction During Sexual Activity Scale.
¶Modified Female Sexual Functioning Index (FSFI) total score (excludes FSFI Satisfaction domain).

scale of the BES and the SSS-W subscales. The only non-significant relationship was between the Weight Concern subscale of the BES and the Communication subscale of the SSS ($r = 0.15$). Although BMI correlated with other body variables, it was not significantly associated with sexual functioning or satisfaction and was excluded as a covariate in the remainder of analyses.

Relationships Between Sexual Satisfaction and Sexual Functioning

Sexual functioning was strongly correlated with sexual satisfaction such that a greater degree of functioning was related to greater sexual satisfaction ($r = 0.69$, $P < 0.001$). To further explore relationships, we computed Pearson correlations between the SSS-W total score and the FSFI subscales. All of the correlations between the sexual functioning domain scores were strongly associated with sexual satisfaction. The FSFI arousal domain was found to have the strongest association ($r = 0.59$, $P < 0.001$) with SSS-W. The sexual desire, lubrication, and orgasm domains correlated moderately with sexual satisfaction ($r = 0.36$ to 0.44, $P < 0.001$). We also investigated relationships between the FSFI domains and the SSS-W domains. The majority of the FSFI domains were significantly correlated with the SSS-W domains (see Table 3), with the exception of two domains, the desire and pain domains. The FSFI desire domain was marginally significantly related to the SSS-W communication domain, $r = 0.17$, $P < 0.05$. The pain domain was not correlated with the communication or compatibility domains, $r = 0.10$ to 0.14, $P > 0.05$. The FSFI sexual satisfaction domain and the SSS-W contentment domain address similar constructs and is reflected by a high correlation, $r = 0.80$, $P < 0.001$.

Regression Analysis

In order to test the hypotheses that body image variables would predict sexual satisfaction while controlling for sexual functioning, a multiple regression was performed with sexual satisfaction as the dependent variable and the body image variables as predictors. The overall score for the BES, and the appearance-based distracting thoughts subscale score were entered as predictors. Because of the relationship between SSS-W and the FSFI, sexual functioning (using the modified FSFI total) was controlled for. The hypothesized model, $F(3, 146) = 36.06$, $P < 0.001$, accounted for 42.6% (R^2_{adj}) of the variance in sexual satisfaction when controlling for level of sexual functioning. The model revealed that body esteem and appearance-based distracting thoughts during sexual activity were significant predictors. We then computed an expanded regression to examine the predictive value of the three components of the BES in addition to the appearance-based distracting thoughts and sexual functioning. The expanded model, $F(5, 149) = 22.71$, $P < 0.001$, accounted for 41.1% (R^2_{adj}) of the variance in sexual satisfaction. Esteem for body parts associated with sexual attractiveness and appearance-based distracting thoughts were the significant body image predictors. Tables 4 and 5 present the regression coefficients for all predictors.

Table 4 Linear regression of body image variables on sexual satisfaction (N = 150)

Predictor variables	Adj. R^2	*F*	B	SE B	β	*P*<
Hypothesized model	0.426	36.06				0.001
Body esteem*			0.29	0.11	0.20	0.01
Appearance-based distracting thoughts†			0.33	0.17	0.15	0.05
Sexual functioning status‡			3.20	0.44	0.49	0.001

*Body Esteem Scale.
†Cognitive Distraction During Sexual Activity Scale.
‡Modified Female Sexual Functioning Index total score.

Discussion

This study examined the link between multiple indices of body image and sexual satisfaction among a community sample of women. Taking into consideration the broad construct of body image, several measures were selected, including sexual attractiveness, weight concern, and physical condition subscales of the BES, and appearance-based thoughts during sexual activity. It was predicted that the three BES subscales would be related to sexual satisfaction. Consistent with predictions, all subscales of the BES were significantly associated with sexual satisfaction, with higher levels of body esteem related to more satisfaction. That is, the more esteem women had for their own body parts and functions, the higher their sexual satisfaction with their partner beyond the effects of sexual functioning. Results are consistent with previous research showing relationships between body image and sexual satisfaction among university students [43], and extend findings to include a community sample of older women. Results also point towards the importance of multiple aspects of body image in sexual satisfaction. Correlations of 0.30, 0.34, and 0.51 for the Weight Concern, Physical Condition, and Sexual Attractiveness subscales, respectively, showed that these subscales accounted for between 9 and 18% of the variance in sexual satisfaction scores. To our knowledge, this is the first study to show that multiple domains of body image are important to sexual satisfaction.

Also novel to the current study, sexual satisfaction was significantly related to esteem about body parts that can be physically altered through exercise (i.e., from the Weight Concern subscale), such as thighs, appearance of stomach, and weight, as well as to body parts that cannot be changed easily through exercise (i.e., items from the Sexual Attractiveness subscale), such as face and breasts. This is consistent with previous research showing that the weight concern and the sexual attractiveness subscales of the BES were related to sexual functioning scores among women with sexual difficulties [58]. Sexual satisfaction was also related to body qualities that are *less* likely to be under public scrutiny (i.e., items from the Physical Condition subscale), such as physical stamina, energy level, and physical coordination. The findings demonstrated a relationship between sexual satisfaction and physical fitness, and lead one to question whether sexual satisfaction would be altered by changes in overall level of fitness or physical condition. Although, a considerable percentage of the women were overweight and over a third of the sample experienced medical and psychological issues, many reported being sexually satisfied. Research in aging and sexuality lends support for the speculation that increases in fitness may lead to greater sexual satisfaction. For example, Bortz and

Table 5 Post hoc linear regression of body image subscales on sexual satisfaction (N = 154)

Predictor variables	Adj. R^2	*F*	B	SE B	β	*P*<
Hypothesized model	0.41	22.71				0.001
Body esteem*						
Weight concern			–0.28	0.27	–0.09	NS
Physical condition			0.56	0.36	0.14	NS
Sexual attractiveness			0.63	0.33	0.18	0.05
Appearance-based distracting thoughts†			0.42	0.17	0.16	0.05
Sexual functioning status‡			3.00	0.46	0.46	0.001

*Body Esteem Scale.
†Cognitive Distraction During Sexual Activity Scale.
‡Modified Female Sexual Functioning Index total score.
NS = not significant.

Wallace found a correlation between degree of fitness and sexual satisfaction among physically active men and women more than 50 years of age [59].

In the current study, items from the Sexual Attractiveness subscale showed the strongest relationship with sexual satisfaction, accounting for 18% of the variance after controlling for sexual functioning status. As noted by the authors of the measure, body parts measured by this subscale (e.g., facial features, breasts) are generally deemed as features that can only be changed to a meaningful degree through cosmetics or surgery. Indeed, women have reported that their primary motivation for seeking breast augmentation surgery has been to improve their body esteem and feel better about themselves [60]. In accordance with the popularity of plastic surgery in Europe and Latin America, increased rates of plastic surgery in the United States reflect the desire to improve such body parts (i.e., facelifts have increased 14% and breast augmentations 6% from 2006 to 2007 [61]). The motivation to alter these body parts may, partially, be caused by sociocultural reasons such as the high premium many men place on physical attractiveness in their women partners [62,63]. Additionally, women have reported that their most important motivations in seeking breast augmentations have been to feel better about oneself and improve one's body esteem [60]. These motivations are also prevalent among other groups of women, such as Ethiopian women seeking surgery for obstetric fistulas for which psychological well-being improves considerably post-surgery [64]. The degree to which women undergo these surgeries in order to enhance their sexual satisfaction is a question worthy of investigation.

The significant relationships between sexual satisfaction and body esteem noted in this study are inconsistent with the finding that self-rated attractiveness was unrelated to sexual satisfaction among a community sample of older women [27]. This may be caused by different ages of the samples, with Koch et al. [29]. including women aged 39 to 56 years, whereas participants in the current study ranged in age from 18 to 49 years. As has been previously suggested, body image concerns likely change with their own ages and/or their partner's age. Crose suggested that body image concerns in later adulthood are related to health issues [65]. Davidson and McCabe found that women in early to middle adulthood (18–49 years) experienced more social-related body image concerns and increased likelihood of making appearance comparisons than those in later adulthood (50–86 years) [42]. Differences in body image concerns across age suggest that age should be a careful consideration in studies of body image.

Also consistent with expectations, appearance-based thoughts during sexual activity were associated with sexual satisfaction, with increased appearance-based thoughts related to lower levels of satisfaction. These findings are consistent with those from Meana and Nunnink, in which satisfaction was negatively related to higher levels of appearance-based distraction during sexual activity among college women [57]. Findings are also consistent with the concept of spectatoring by Masters and Johnson [66]. Spectatoring refers to a cognitive self-absorption wherein individuals fixate on and carefully inspect, monitor, and evaluate themselves during sexual activity. Spectatoring is thought to impede sexual functioning through cognitive interference, with cognitions being directed away from the sexual experience and leaving less cognitive resources for processing erotic and physiological arousal cues. Barlow's model of sexual functioning suggests that for men, spectatoring or self-monitoring involves thoughts about one's performance (i.e., concerns about erectile function) [67]. For women, however, it has recently been suggested that physical appearance concerns may have an analogous negative influence on sexual function [68]. This has been supported by research showing that women report higher levels of appearance-based distraction during sexual activity than men [57]. Previous research also suggests that cognitive distraction can impair women's sexual responses, whether the nature of the distraction is sexual [44] or not [68,69]. Findings from the current study suggest that, in addition to having a detrimental effect on sexual functioning, appearance-based thoughts during sexual activity are also detrimental to levels of sexual satisfaction. These findings point towards the importance of considering the impact of distraction, including distraction based on appearance, on several domains of women's sexual experience.

Regression analyses showed that body image variables accounted for 15% to 20% of the variance in overall sexual satisfaction scores, after controlling for effects of sexual functioning. This is the first study to demonstrate the relationship between body image and sexual satisfaction after controlling for sexual functioning. Considering that close to half of community samples and the majority of women among clinical samples report

low sexual satisfaction[3,4], and given the importance of sexual satisfaction in relationships [47,70,71] it is important to gain a thorough understanding of myriad contributing factors involved in women's sexual satisfaction.

Altogether, findings suggest that thoughts about one's body during sexual activity, including actual body size as well as physical condition, play an important role in women's sexual satisfaction. Of the five domains of sexual satisfaction assessed, the interpersonal and personal distress components of sexual satisfaction had the strongest association with body esteem. Specifically, distress with one's sexual difficulties and concerns about a partner's perception of those sexual difficulties were significantly associated with decreased body esteem. It may be that one possible source of sexual dissatisfaction stems from women's perception of how their bodies will be viewed in conjunction with sexual difficulties faced during sexual activity. Sexual activity inherently creates a focus on the body for women and their partners. For women who are dissatisfied with their bodies, whether the result of physical trauma (e.g., rape), debilitating medical issues, or psychological problems such as depression or body dysmorphia, this focus may rouse negative feelings regarding body image, which then becomes detrimental to the enjoyment of sexual activity. The finding that general body esteem was associated with the frequency of distracting thoughts about one's body suggests that poorer body esteem may influence sexual satisfaction by increasing partner-focused and personal distress (i.e., representative of sexual dissatisfaction) directly and via specific body-related cognitions.

Findings also reinforce the importance of considering body image in conceptualizing women's sexuality. These considerations may be important in the treatment for women who present with low sexual satisfaction, and suggest that questions about body image are an important part of clinical case conceptualization and treatment planning. Findings from the current study suggest that factors such as body weight and size, physical condition, and facial attractiveness are important for women's sexual satisfaction. It may be that levels of sexual satisfaction would increase if such factors were changed, for instance through dieting, exercise, or with the use of cosmetic surgery or makeup. On the other hand, research shows that sexual variables are influenced by both actual physical (e.g., weight) and nonphysical conditions (e.g., perceptions about body size), with the latter often being shown to account for a greater portion of body dissatisfaction among women [40,72,73]. Challenging irrational perceptions about one's body may prove to be a valuable treatment component for women who are sexually dissatisfied.

There are several limitations to the study's design that should be noted. Foremost, the generalizability of the findings is limited by the sample that was relatively homogeneous with regard to ethnicity and education, and was not representative of woman aged 50 years and above. Second, though Internet questionnaires that ensure anonymity may provide more comfort in responding than do paper and pencil questionnaires in a laboratory setting, the findings may not generalize to women who are not comfortable with reporting about their sexuality online [74] or to women who do not have access to the internet. Of note, however, previous studies have shown that the external validity of surveys conducted over the internet do not differ substantially from laboratory paper and pencil questionnaires [75,76]. Second, this study was correlational in nature, and although results indicate associations and influences among variables, causation cannot be implied.

Conclusions

Several aspects of body image were examined jointly as factors in sexual satisfaction. A conservative conclusion is that the body image variables that contributed the greatest in the prediction of sexual satisfaction, defined as satisfaction with personal and interpersonal sexual relations and low distress over sexual activity, were: (i) high esteem for one's body; and (ii) low frequency of appearance-related thoughts during sexual activity. Practitioners may consider assessing body image when clients present with sexual problems, as distress and distraction over the appearance of their bodies may be substantially contributing to their overall sexual satisfaction independent of their sexual function.

Acknowledgments

This publication was made possible by Grant No. 5 RO1 HD051676-04 to the third author. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the National Institute of Child Health and Human Development (NICHD).

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Conflict of Interest: None declared.

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References

1 Laumann EO, Paik A, Rosen R. Sexual dysfunction in the United States: Prevalence and predictors. JAMA 1999;281:537–44.
2 Mulhall J, King R, Glina S, Hvidsten K. Importance of and satisfaction with sex among men and women worldwide: Results of the global better sex survey. J Sex Med 2008;5:788–95.
3 Laumann EO, Gagnon JH, Michael RT, Michaels S. The social organization of sexuality: Sexual practices in the United States. Chicago: The University of Chicago Press; 1994:364–75.
4 Ferenidou F, Kapoteli V, Moisidis K, Koutsogiannis I, Giakoumelos A, Hatzichristou D. Presence of a sexual problem may not affect women's satisfaction from their sexual function. J Sex Med 2008;5:631–9.
5 King M, Holt V, Nazareth I. Women's views of their sexual difficulties: Agreement and disagreement with clinical diagnoses. Arch Sex Behav 2007; 36:281–8.
6 Amichetti M, Caffo O. Quality of life in patients with early stage breast carcinoma treated with conservation surgery and radiotherapy. An Italian monoinstitutional study. Tumori 2001;87:78–84.
7 Gorisek B, Krajnc P, Krajnc I. Quality of life and the effect on social status among Slovenian women after breast cancer treatment. J Int Med Res 2009;37: 557–66.
8 Brandberg Y, Sandelin K, Erikson S, Jurell G, Liljegren A, Lindblom A, Linden A, von Wachenfeldt A, Wickman M, Arver B. Psychological reactions, quality of life, and body image after bilateral prophylactic mastectomy in women at high risk for breast cancer: A prospective 1-year follow-up study. J Clin Oncol 2008;26:3943–9.
9 Korfage IJ, Essink-Bot ML, Mols F, Poll-Franse LV, van de Kruitwagen R, van Ballegooijen M. Health-related quality of life in cervical cancer survivors: A population-based survey. Int J Radiat Oncol Biol Phys 2009;73:1501–9.
10 Luzi K, Guaraldi G, Murri R, De Paola M, Orlando G, Squillace N, Esposito R, Rochira V, Zirilli L, Martinez E. Body image is a major determinant of sexual dysfunction in stable HIV-infected women. Antivir Ther 2009;14:85–92.
11 Browning A, Menber B. Women with obstetric fistula in Ethiopia: A 6-month follow up after surgical treatment. BJOG 2008;115:1564–9.
12 Muleta M. Obstetric fistula in developing countries: A review article. J Obstet Gynaecol Can 2006;28: 962–6.
13 Christopher F, Sprecher S. Sexuality in marriage, dating, and other relationships: A decade review. J Marriage Fam 2000;62:999–1017.
14 Hawkins D, Booth A. Unhappily ever after: Effects of long-term, low-quality marriages on well-being. Social Forces 2005;84:451–71.
15 Rosen RC, Bachman GA. Sexual well-being, happiness and satisfaction in women: The case for a new conceptual paradigm. J Sex Marital Ther 2008;34: 288–94.
16 McCall-Hosenfeld J, Liebschutz J, Spiro A, Seaver M. Sexual assault in the military and its impact on sexual satisfaction in women veterans: A proposed model. J Womens Health 2009;18:901–9.
17 Ferguson G, Nelson C, Brandes S, Shindel A. The sexual lives of residents and fellows in graduate medical education programs: A single institution survey. J Sex Med 2008;5:2756–65.
18 Young M, Denny G, Luquis R, Young T. Correlates of sexual satisfaction in marriage. Can J Hum Sex 1998;7:115–27.
19 Sprecher S. Sexual satisfaction in premarital relationships: Associations with satisfaction, love, commitment, and stability. J Sex Res 2002;39:190–6.
20 Waite L, Joyner K. Emotional satisfaction and physical pleasure in sexual unions: Time horizon, sexual behavior, and sexual exclusivity. J Marriage Fam 2001;63:247–64.
21 Byers E. Relationship satisfaction and sexual satisfaction: A longitudinal study of individuals in long-term relationships. J Sex Res 2005;42:113–8.
22 Litzinger S, Gordon K. Exploring relationships among communication, sexual satisfaction, and marital satisfaction. J Sex Marital Ther 2005;31: 409–24.
23 Wiederman M. Women's body image self-consciousness during physical intimacy with a partner. J Sex Res 2000;37:60–8.

24 Yamamiya Y, Cash TF, Thompson JK. Sexual experiences among college women: The differential effects of general versus contextual body images on sexuality. Sex Roles 2006;55:421–7.
25 Lowery SE, Kurpius SER, Befort C, Blanks EH, Sollenberger S, Nicpon NF, Huser L. Body image, self-esteem, and health-related behaviors among male and female first year college students. J Coll Student Dev 2005;46:612–23.
26 Faith MS, Schare ML. The role of body image in sexually avoidant behavior. Arch Sex Behav 1993; 22:345–56.
27 Ackard DM, Kearney-Cooke A, Peterson CB. Effect of body image and self-image on women's sexual behaviors. Int J Eat Disord 2000;28:422–9.
28 Davison S, Bell R, LaChina M, Holden S, Davis S. Sexual function in well women: Stratification by sexual satisfaction, hormone use, and menopause status. J Sex Med 2008;5:1214–22.
29 Koch P, Mansfield P, Thurau D, Carey M. Feeling frumpy': The relationships between body image and sexual response changes in midlife women. J Sex Res 2005;42:215–23.
30 Areskoug-Josefsson K, Oberg U. A literature review of the sexual health of women with rheumatoid arthritis. Musculoskeletal Care 2009 Feb 25 [Epub ahead of print] doi:10.1002/msc.152.
31 Stunkard AJ, Stinnett JL, Smoller JW. Psychological and social aspects of the surgical treatment of obesity. Am J Psychiatry 1986;143:417–29.
32 Lowenstein L, Gamble T, Sanses T, van Raalte H, Carberry C, Jakus S, Kambiss S, McAchran S, Pham T, Aschkenazi S, Hoskey K, Kenton K. Sexual function is related to body image perception in women with pelvic organ prolapse. J Sex Med 2009;6:2286–91.
33 Dörholt D, Noeker M, Ranke M, Haverkamp F. Body height, body image and general well-being in adult women with Turner's syndrome Growth, stature, and psychosocial well-being [e-book]. Ashland, OH: Hogrefe & Huber Publishers; 1999: 95–103.
34 Migeon C, Wisniewski A, Gearhart J, Meyer-Bahlburg H, Rock J, Brown T, Casella SJ, Maret A, Ngai KM, Money J, Berkovitz GD. Ambiguous genitalia with perineoscrotal hypospadias in 46, XY individuals: Long-term medical, surgical, and psychosexual outcome. Pediatrics 2002;110:31.
35 Fauerbach J, Heinberg L, Lawrence J, Munster AM, Palombo DA, Richter D, Spence RJ, Stevens SS, Ware L, Muehlberger T. Effect of early body image dissatisfaction on subsequent psychological and physical adjustment after disfiguring injury. Psychosom Med 2000;62:576–82.
36 Thombs B, Notes L, Lawrence J, Magyar-Russell G, Bresnick M, Fauerbach J. From survival to socialization: A longitudinal study of body image in survivors of severe burn injury. J Psychosom Res 2008;64:205–12.
37 Treuer T, Koperdák M, Rózsa S, Füredi J. The impact of Physical and sexual abuse on body image in eating disorders. Eur Eat Disord Rev 2005; 13:106–11.
38 Stice E. Risk and maintenance factors for eating pathology: A meta-analytic review. Psychol Bull 2002;128:825–48.
39 Cash TF, Morrow JA, Hrabosky JI, Perry AA. How has body imaged changed? A cross-sectional investigation of college women and men from 1983 to 2001. J Consult Clin Psychol 2004;72:1081–9.
40 Weaver AD, Byers ES. The relationships among body image, body mass index, exercise, and sexual functioning in heterosexual women. Psychol Women Q 2006;30:333–9.
41 Wiederman MW, Hurst SR. Physical attractiveness, body image, and women's sexual self-schema. Psychol Women Q 1997;21:567–80.
42 Davison T, McCabe M. Relationships between Men's and Women's body image and their psychological social, sexual functioning. Sex Roles 2005; 52:463–75.
43 Hoyt W, Kogan L. Satisfaction with body image and peer relationships for males and females in a college environment. Sex Roles 2001;45:199–215.
44 Dove N, Wiederman M. Cognitive distraction and women's sexual functioning. J Sex Marital Ther 2000;26:67–78.
45 Offman A, Matheson K. Sexual compatibility and sexual functioning in intimate relationships. Can J Hum Sex 2005;14:31–9.
46 Trudel G. Sexuality and marital life: Results of a survey. J Sex Marital Ther 2002;28:229–49.
47 Meston C, Trapnell P. Development and validation of a five-factor sexual satisfaction and distress scale for women: The Sexual Satisfaction Scale for Women (SSS-W). J Sex Med 2005;2:66–81.
48 Franzoi SL, Shields SA. The Body Esteem Scale: Multidimensional structure and sex differences in a college population. J Pers Assess 1984;48:173–8.
49 Goldenberg J, McCoy S, Pyszczynski T, Greenberg J, Solomon S. The body as a source of self-esteem: The effect of mortality salience on identification with one's body, interest in sex, and appearance monitoring. J Pers Soc Psychol 2000;79:118–30.
50 Seal BN, Bradford A, Meston CM. The association between body esteem and sexual desire among college women. Arch Sex Behav 2009;38:866–72.
51 Rosen R, Brown C, Heiman J, Leiblum S, Meston CM, Shabsigh R, Ferguson D, D'Agostino R. The Female Sexual Function Index (FSFI): A multidimensional self-report instrument for the assessment of female sexual function. J Sex Marital Ther 2000; 26:191–208.
52 Meston CM. Validation of the Female Sexual Function Index (FSFI) in women with female orgasmic

disorder and in women with hypoactive sexual desire disorder. J Sex Marital Ther 2003;29:39–46.
53 Locke H, Wallace K. Short marital-adjustment and prediction tests: Their reliability and validity. Marriage Fam Living 1959;21:251–5.
54 Henriques G, Calhoun L. Gender and ethnic differences in the relationship between body esteem and self-esteem. J Psychol 1999;133:357–68.
55 Henriques G, Calhoun L, Cann A. Ethnic differences in women's body satisfaction: An experimental investigation. J Soc Psychol 1996;136: 689–97.
56 Kornblau IS, Pearson HC, Breitkopf CR. Demographic, behavioral, and physical correlates of body esteem among low-income female adolescents. J Adolesc Health 2007;41:566–70.
57 Meana M, Nunnink S. Gender differences in the content of cognitive distraction during sex. J Sex Res 2006;43:59–67.
58 Seal BN, Meston CM. The Impact of Body Awareness on Sexual Arousal in Women with Sexual Dysfunction. J Sex Med 2007;4:990–1000.
59 Bortz W, Wallace D. Physical fitness, aging, and sexuality. West J Med 1999;170:167–9.
60 Gladfelter J, Murphy D. Breast augmentation motivations and satisfaction: A prospective study of more than 3,000 silicone implantations. Plast Surg Nurs 2008;28:170.
61 American Society of Plastic Surgeons. 2000/2006/2007 National plastic surgery statistics: Cosmetic and reconstructive procedure trends. Arlington Heights, IL: Author. Available at: http://www.plasticsurgery.org/Media.html. (accessed December 15, 2008)
62 Buss D. Sex differences in human mate preferences: Evolutionary hypotheses tested in 3 cultures. In: Reis HT, Rusbult CE, eds. Close relationships: Key readings. Philadelphia: Taylor & Francis; 2004:135–51.
63 Feingold A. Gender differences in effects of physical attractiveness on romantic attraction: A comparison across five research paradigms. J Pers Soc Psychol 1990;59:981–93.
64 Browning A, Fentahun W, Goh J. The impact of surgical treatment on the mental health of women with obstetric fistula. BJOG 2007;114:1439–41.
65 Crose R. A woman's aging body: Friend or foe? In: Trotman FK, Brody CM. Psychotherapy and counseling with older women: Cross-cultural, family, and end-of-life issues. New York, NY: Springer Publishing Co; 2002:17–40.
66 Masters WH, Johnson VE. Human sexual inadequacy. Boston: Little Brown; 1970.
67 Barlow DH. Causes of sexual dysfunction: The role of anxiety and cognitive interference. J Consult Clin Psychol 1986;54:140–8.
68 Wiederman M. 'Don't look now': The role of self-focus in sexual dysfunction. Fam J 2001;9:210–4.
69 Elliott A, O'Donohue W. The effects of anxiety and distraction on sexual arousal in a nonclinical sample of heterosexual women. Arch Sex Behav 1997;26: 607–24.
70 Davies S, Katz J, Jackson J. Sexual desire discrepancies: Effects on sexual and relationship satisfaction in heterosexual dating couples. Arch Sex Behav 1999;28:553–67.
71 MacNeil S, Byers E. Role of sexual self-disclosure in the sexual satisfaction of long-term heterosexual couples. J Sex Res 2009;46:3–14.
72 Cash T, Hicks K. Being fat versus thinking fat: Relationships with body image, eating behaviors, and well-being. Cognit Ther Res 1990;14:327–41.
73 Weeden J, Sabini J. Subjective and objective measures of attractiveness and their relation to sexual behavior and sexual attitudes in university students. Arch Sex Behav 2007;36:79–88.
74 Bailey R, Foote W, Throckmorton B. Human sexual behavior: A comparison of college and Internet surveys psychological experiments on the internet. San Diego, CA: Academic Press; 2000.
75 Buchanan T, Smith JL. Using the internet for psychological research: Personality testing on the world wide web. Br J Clin Psychol 1999;90:125–44.
76 Buchanan T, Smith JL. Research on the internet: Validation of a world-wide web mediated personality scale. Behav Res Methods Instrum Comput 1999;31:565–71.