

Body Image and Marital Satisfaction: Evidence for the Mediating Role of Sexual Frequency and Sexual Satisfaction

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How does women's body image shape their interpersonal relationships? Based on recent theories of risk regulation and empirical evidence that sex is an emotionally risky behavior, we predicted that women's body image would predict increased sexual frequency and thus increased sexual and marital satisfaction for both members of established relationships. The current study of 53 recently married couples provided results consistent with this prediction. Specifically, wives' perceptions of their sexual attractiveness were positively associated with both wives' and husbands' marital satisfaction, controlling for wives' body mass index (BMI) wives' global self-esteem, wives' neuroticism, and reports of whether or not the couple was trying to get pregnant, and both of these associations were mediated by increased sexual frequency and higher sexual satisfaction. Notably, wives' perceptions of their sexual attractiveness accounted for 6% of the variance in husbands' marital satisfaction and 19% of the variance in wives' marital satisfaction that was unique from BMI and the other controls. Accordingly, marital interventions may greatly benefit by addressing women's body esteem.

Keywords: body image, marriage, sexual frequency, sexual attractiveness, body mass

Women in Western societies face numerous pressures to be thin. They are bombarded by images of thin women in the media (Stice & Shaw, 1994), evaluated more positively by men to the extent that they are thin (e.g., Singh & Young, 1995), and even criticized by other women for not being thin (Kaschak, 1992). These and other pressures have led women to demonstrate a "normative discontent" regarding their bodies (Silberstein, Striegel-Moore, & Rodin, 1987).

It is not surprising that such poor body image is associated with numerous negative mental and physical health outcomes. Regarding mental health, women with poor body image are more likely to experience negative emotional outcomes, such as anxiety (Fredrickson & Roberts, 1997) and depression (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). Regarding physical health, women with poor body image are also more likely to engage in extreme dieting (Stice, Mazotti, Krebs, & Martin, 1998) and disordered eating (Stice, Chase, Stormer, & Appel, 2001).

In addition to these and other negative *intrapersonal* outcomes, there is reason to expect poor body image to be associated with negative *interpersonal* outcomes. Specifi-

cally, theories of relationship maintenance (e.g., Murray, Holmes, & Collins, 2006) highlight the necessity of positive self-evaluations for promoting emotionally risky behaviors (e.g., self-disclosure) that can maintain and strengthen relationships. Accordingly, women with poor body image may be less likely to engage in relationship-promoting behaviors and thus may experience decreased satisfaction with their relationships. The goal of the current research was to test this hypothesis.

Global Self-Esteem and Relationship Satisfaction

How people evaluate themselves plays an important role in their close relationships (e.g., Hally & Pollack, 1993; Murray et al., 2006). According to Murray and colleagues' (2006) risk regulation model, for example, because high self-esteem individuals are more confident regarding their partners' acceptance and continued commitment, they are more likely to take emotional risks, risks that are sometimes necessary to maintain their relationships (see Reis & Shaver, 1988). For example, because a wife with high global self-esteem is likely to be confident that her husband accepts her and will remain committed to her, she should be more likely to disclose her most intimate thoughts and desires and thus be more likely to remain happy in her relationship. In contrast, because a wife with low global self-esteem is likely to doubt that her husband accepts her and will remain committed to her, she should be less likely to disclose her intimate thoughts and thus be more likely to be unhappy with her relationship.

Empirical research supports these ideas. Specifically, people with high self-esteem are indeed more confident in their interpersonal abilities (e.g., communication skills; see

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Baumeister, Campbell, Krueger, & Vohs, 2003) and report increased dependence on and responsiveness to their partners, whereas individuals with low self-esteem report decreased dependence on and responsiveness to their partners (Murray, Holmes, MacDonald, & Ellsworth, 1998). Furthermore, taking such emotional risks appears to promote long-term satisfaction with the relationship. For example, Laurenceau, Barrett, and Pietromonaco (1998) reported that intimates feel closer to their partners on days that they engage in more emotional self-disclosure, particularly if that disclosure is reciprocated.

Body Image and Relationship Satisfaction

Given that body image is an important component of global self-esteem (Franzoi & Shields, 1984), women's body image may shape relationship satisfaction in similar ways. That is, women with more positive body image may be more confident that their partners will continue to accept them and thus be more likely to take emotional risks that are necessary to maintain the relationship. Conversely, women with poor body image may be more likely to doubt that their partners will continue to accept them and thus be less likely to take such important emotional risks.

What emotionally risky behaviors should body image predict? There are at least two reasons to expect body image to predict women's sexual behaviors. First, sex is culturally tied to body appearance (Daniluk, 1993). Accordingly, how women feel about their bodies may affect how confident they are that their partners will desire and accept them sexually. Indeed, whereas women who report more positive feelings (e.g., pride, satisfaction) toward their bodies also report being more confident that their partners find them sexually attractive (Wade, 2000) and thus sexually desirable (Wiederman & Hurst, 1998), women who report more negative feelings (e.g., shame, dissatisfaction) toward their bodies also report more anxiety about romantic intimacy (Cash, Thériault, & Annis, 2004) and doubts that their partners desire them sexually (Franzoi & Shields, 1984). Second, sexual rejection is a particularly painful rejection, especially for women (de Graaf & Sandfort, 2004; Metts, Cupach, & Imahori, 1992). According to Murray and colleagues' (2006) risk regulation model, the greater likelihood of sexual rejection expected by women with poor body image should lead such women to be less likely to desire, initiate, and engage in sex. Indeed, poor body image is associated with less sexual desire (Seal, Bradford, & Meston, 2009), decreased sexual assertiveness (Weaver & Byers, 2006), and less frequent sexual activity (Faith & Schare, 1993).

Just as the positive association between global self-esteem and relationship risk-taking should have implications for the relationship, the positive association between body image and sexual behavior should have implications for the relationship. Specifically, given that sexual frequency is positively associated with sexual satisfaction (Call, Sprecher, & Schwartz, 1995), which is positively associated with relationship satisfaction (Yeh, Lorenz, Wickrama, Conger, & Elder, 2006), women who have positive body image and thus engage in more sexual behavior

may also experience increased sexual satisfaction and thus increased relationship satisfaction. In contrast, women who have poor body image and thus engage in less sexual behavior may experience decreased sexual satisfaction and thus decreased relationship satisfaction. Consistent with this possibility, women's body image has been positively linked to both sexual (Hoyt & Kogan, 2002) and marital satisfaction (Friedman, Dixon, Brownell, Whisman, & Wilfley, 1999).

Nevertheless, previous research leaves several important questions regarding the role of body image in marriage unanswered. First, we are aware of no studies that have established the mechanism of the association between body image and relationship satisfaction. Specifically, although studies indicate that body image is associated with sexual frequency, sexual satisfaction, and relationship satisfaction, we are aware of no studies that have directly examined whether, as can be predicted on the basis of the risk regulation model, the sexual relationship between two partners mediates the association between body image and global satisfaction with the relationship. Second, we are aware of no studies that have explored which component of body image is responsible for the association between body dissatisfaction and relationship satisfaction. One of the most commonly used measures of body image, the Body Esteem Scale (BES; Franzoi & Shields, 1984), has three subscales: Sexual Attractiveness, Weight Concern, and Physical Condition. Given our theoretical rationale that body image affects relationship satisfaction through the sexual relationship, self-perceived sexual attractiveness may be the component primarily responsible for the association between body image and relationship satisfaction.

Overview of the Current Study

The current research examined the role of wives' body image in shaping the relationships of couples recently married for the first time. This an appropriate sample in which to investigate these issues because body image concerns are important among younger women (Tiggemann, 2004) and recently married couples are more sexually active than more established couples (Klusmann, 2002). In the current study, husbands and wives reported the number of times they had engaged in sexual intercourse during the prior 30 days and completed measures of sexual and marital satisfaction. In addition, wives completed measures of body esteem, global self-esteem, and neuroticism, and reported their height, weight, and whether or not the couple was trying to get pregnant.

Our hypotheses are summarized in Figure 1. First, we predicted that wives' perceived sexual attractiveness would be positively associated with wives' and husbands' marital satisfaction (Path A). Second, we predicted that these positive associations would be mediated by the sexual relationship, such that perceived sexual attractiveness would lead to increased sexual frequency (Path B), which would lead to higher sexual satisfaction for wives and husbands (Path C), which would lead to higher marital satisfaction for wives and husbands (Path D).

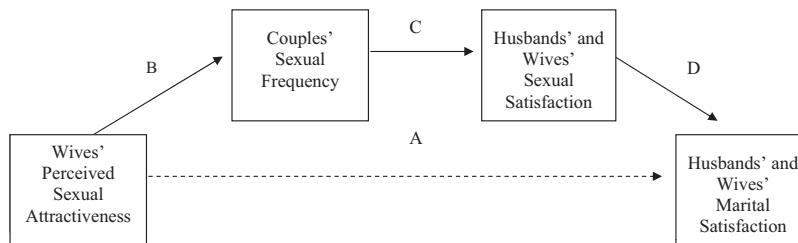


Figure 1. Summary of hypotheses predicting wives' body image and married couples' sexual and relationship satisfaction.

Method

Participants

Participants were 53 recently married couples who had completed the fifth phase of data collection in a larger longitudinal study of 135 newlywed couples recruited from eastern Tennessee.¹ The couples not included in the current analyses had either (a) divorced ($n = 12$, 9%), (b) dropped from the study ($n = 10$, 7%), (c) been widowed ($n = 1$, 1%), or (d) not completed the fifth phase of data collection at the point of data analysis ($n = 59$, 44%). Participants were recruited through advertisements placed in community newspapers and bridal shops and through invitations sent to eligible couples who had applied for marriage licenses in counties near the study location. Couples who responded were screened in a telephone interview to ensure they met the following criteria: (a) They had been married for less than 6 months, (b) neither partner had been previously married, (c) they were at least 18 years of age, (d) they spoke English and had completed at least 10 years of education (to ensure comprehension of the questionnaires), and (e) did not yet have children.

At their baseline assessment (approximately 2 years earlier), the husbands analyzed here were 25.8 years old ($SD = 4.5$) and had completed 16.4 years of education ($SD = 2.3$). Ninety-four percent were employed full time and 37% were full-time students. The median income group membership reported by husbands was \$20,001 to \$25,000 per year. The wives analyzed here were 23.9 years old ($SD = 3.0$) and had completed 18.4 years of education ($SD = 1.7$). Eighty-one percent were employed full time and 43% were full-time students. The median income group membership reported by wives was \$10,001 to \$15,000 per year. Forty-five (85%) husbands and 47 (89%) wives identified as Caucasian. These couples did not differ from the participants not included in the current analyses on any of these variables, with the exception that these husbands were more educated, $t(127) = 2.86$, $p < .01$.

Procedure

At the fifth wave of data collection, couples were contacted by phone or e-mail and mailed two packets of questionnaires (one for each spouse) that each contained measures of frequency of sexual intercourse, sexual satisfaction, and marital satisfaction. In addition, wives' packets con-

tained a measure of body esteem, measures of relevant control variables (height, weight, self-esteem, neuroticism, and whether or not the couple was trying to get pregnant), a postage-paid return envelope, and an instruction letter reminding couples to complete the questionnaires separately from each other. Couples were paid \$50 for completing these questionnaires. Data from this fifth wave were used because it was the first to include the measure of body esteem.

Measures

Body image. Body image was assessed using the BES (Franzoi & Shields, 1984). The BES is a 35-question scale that assesses participants' satisfaction with aspects of their bodies comprising three subscales: Sexual Attractiveness (e.g., chest or breasts, buttocks, sex organs), Weight Concern (e.g., waist, thighs, weight), and Physical Condition (e.g., physical stamina, reflexes, muscular strength). Individuals are required to respond to each item on a scale from 1 (*have strong negative feelings for*) to 7 (*have strong positive feelings for*). Totals for each subscale were formed by summing the appropriate items. Higher scores indicate higher levels of satisfaction. Scale score reliability was high for Sexual Attractiveness ($\alpha = .78$, 95% CI [.68, .86]), Weight Concern ($\alpha = .89$, 95% CI [.84, .93]), and Physical Condition ($\alpha = .84$, 95% CI [.77, .90]).

Frequency of sex. Frequency of sex was assessed with one item that asked each spouse to provide a numerical estimate of the number of times they had engaged in intercourse with their partner during the prior 30-day period. Given that both partners reported on the same behavior, and because individual reports of sexual behavior have been shown to be less reliable (e.g., Jacobson & Moore, 1981), husbands' and wives' reports of their sexual frequency were averaged to form an index of couple sexual frequency. Husbands' and wives' reports were highly correlated ($r = .68$) and did not differ from one another, $t(50) = -0.45$, $p > .50$.

¹ Data from this sample have been described in several other reports (Baker & McNulty, in press; Little, McNulty, & Russell, in press; McNulty & Russell, in press). However, this is the first report to describe the body image of these couples and the first report to describe data from the fifth wave of the broader study of these couples.

Sexual satisfaction. The degree of spouses' sexual satisfaction was assessed with the Index of Sexual Satisfaction (ISS; Hudson, 1998). The ISS measures intimates' satisfaction with their sexual relationship by asking them to indicate the extent to which 25 statements describe their current sexual relations with their partner (e.g., "I think that our sex is wonderful") on a scale from 1 (*none of the time*) to 7 (*all of the time*). Responses to these items were summed to form an index of sexual satisfaction that ranged from 25 to 175, with higher scores indicating higher levels of satisfaction. Scale score reliability of this measure was high (for husbands, $\alpha = .96$, 95% CI [.95, .98]; for wives, $\alpha = .93$, 95% CI [.90, .96]).

Marital satisfaction. We assessed marital satisfaction using a version of the Semantic Differential (SMD; Osgood, Suci, & Tannenbaum, 1957). This 15-item version of the SMD asks participants to evaluate their relationship according to sets of opposing adjectives (e.g., good–bad, satisfying–unsatisfying) on a 7-point scale. Thus, scores on the SMD could range from 15 to 105, with higher scores indicating greater marital satisfaction. Scale score reliability was high (for husbands, $\alpha = .95$, 95% CI [.93, .97]; for wives, $\alpha = .98$, 95% CI [.97, .99]).

Control variables. Given that body image and relationship variables may appear correlated because both are associated with other factors, such as neuroticism (Fisher & McNulty, 2008; Mathes & Kahn, 1975) and self-esteem (Hally & Pollack, 1993; Mathes & Kahn, 1975), given that body image is confounded with body mass index (BMI; Cash, 1990), and given that sexual frequency may be confounded with trying to get pregnant, we controlled for these variables in all primary analyses. Global self-esteem was assessed with the Rosenberg Self-Esteem Scale (Rosenberg, 1965; 10 items, response range = 1–4, $\alpha = .90$, 95% CI [.85, .93]). Neuroticism was assessed with the neuroticism subscale of the Big Five Personality Inventory (Goldberg, 1999; 10 items, response range = 1–5, $\alpha = .90$, 95% CI [.85, .93]). BMI was derived from self-reported height and weight. In addition, wives reported whether or not the couple was attempting to get pregnant on a scale from 1 (*definitely not*) to 7 (*definitely*).

Results

Descriptive Statistics and Preliminary Analyses

Two wives and their husbands were dropped from analyses because they failed to complete all measures, and one additional husband failed to complete marital and sexual satisfaction measures. Descriptive statistics for the remaining 51 wives and 50 husbands are presented in Table 1. A few results are worth highlighting. First, wives and husbands in these relatively new marriages reported high levels of marital and sexual satisfaction that did not significantly differ from one another: relationship satisfaction, $t(51) = 0.28$, $p > .50$; sexual satisfaction, $t(51) = 0.33$, $p > .50$. Second, couples reported having had sex approximately once every 4 days, on average. Nevertheless, there was substantial variability around this mean, as several couples

Table 1
Descriptive Statistics

Variable	<i>M</i>	<i>SD</i>	<i>n</i>
Body esteem	105.25	18.10	51
Sexual attractiveness	45.43	6.78	51
Weight concern	29.80	8.63	51
Physical condition	30.02	5.95	51
Sexual frequency (prior 30 days)	6.65	5.37	51
Wives' sexual satisfaction	136.93	25.13	51
Husbands' sexual satisfaction	137.64	27.92	50
Wives' marital satisfaction	90.29	17.45	51
Husbands' marital satisfaction	90.69	12.68	50
Wives' body mass index	25.15	6.74	51
Wives' neuroticism	2.73	0.83	51
Wives' self-esteem	3.48	0.52	51
Attempting pregnancy	5.65	2.23	51

reported having had no sex over the prior 30 days and one couple reporting having had sex 20 times over the past 30 days. Third, wives' average BMI was just into the overweight range. Finally, the means and standard deviations for wives' body esteem were similar to those obtained in previous studies (e.g., Franzoi & Shields, 1984).

As can be seen in Table 2, numerous significant associations emerged among these variables, a few of which are particularly relevant. First, consistent with prior research (Franzoi & Shields, 1984), the subscales of the BES were significantly positively related. Second, consistent with predictions, a pattern of positive associations emerged between all components of wives' body esteem and wives' and husbands' sexual satisfaction and marital satisfaction. Of course, these zero-order correlations do not take into account the shared variances among these variables and do not control for other influential variables. Indeed, wives' BMI, neuroticism, and self-esteem demonstrated expected associations with wives' body esteem and with wives' sexual and relationship satisfaction, supporting the need to control for these variables.

Which Component of Body Esteem Is Uniquely Associated With Marital Satisfaction?

As mentioned previously, prior research has not examined the specific component(s) of the BES that are uniquely associated with women's relationship satisfaction. To address this issue, we conducted two separate multiple regression analyses (one for husbands and one for wives) in which we simultaneously regressed marital satisfaction onto the three subscales of body esteem—Sexual Attractiveness, Weight Concern, and Physical Condition—controlling for wives' BMI, neuroticism, self-esteem, and attempts to get pregnant. The results are presented in Table 3. As can be seen there, wives' perceived sexual attractiveness emerged as the only component of body esteem significantly associated with wives' and husbands' marital satisfaction, once the variance these subscales share with one another was controlled. In fact, wives' perceived sexual attractiveness accounted for 19% of the variance in wives' marital satisfaction and 6% of the variance in husbands' marital satis-

Table 2
Correlations

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Body esteem	—												
2. Sexual attractiveness	.85***	—											
3. Weight concern	.87***	.57***	—										
4. Physical condition	.82***	.61***	.54***	—									
5. Sexual frequency	.23	.23	.26 [†]	.07	—								
6. Wives' sexual satisfaction	.36**	.40**	.31*	.20	.43**	—							
7. Husbands' sexual satisfaction	.34*	.36*	.37**	.10	.46**	.50***	—						
8. Wives' marital satisfaction	.31*	.42**	.23	.14	.30*	.75***	.52***	—					
9. Husbands' marital satisfaction	.36*	.34*	.34*	.21	.29*	.35*	.50***	.51***	—				
10. Wives' body mass index	-.50***	-.24 [†]	-.65***	-.32*	-.29*	-.42**	-.20	-.33*	-.26 [†]	—			
11. Wives' neuroticism	-.22	-.17	-.20	-.18	-.17	-.35*	-.17	-.34*	-.23	.25 [†]	—		
12. Wives' self-esteem	.55***	.57***	.40**	.45**	.01	.43**	.07	.22	.13	-.37**	-.25 [†]	—	
13. Attempting pregnancy	-.19	-.17	-.13	-.20	.15	-.18	.02	-.03	.02	.10	.13	-.18	—

[†] $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

faction, even after the influence of wives' BMI, global self-esteem, neuroticism, and attempts to get pregnant were removed. Notably, wives' BMI and wives' neuroticism were uniquely negatively associated with wives' marital satisfaction.

Does Sexual Frequency Mediate an Association Between Wives' Perceived Sexual Attractiveness and Both Partners' Sexual Satisfaction?

We predicted that the positive association between wives' perceived sexual attractiveness and husbands' and wives' marital satisfaction would emerge through the sexual relationship. The first mediational hypothesis implied by our model was that wives' perceived sexual attractiveness would predict greater sexual satisfaction through greater sexual frequency. To test this hypothesis, we computed asymmetric confidence intervals for the mediated effect, following the procedures described by MacKinnon, Fritz,

Williams, and Lockwood (2007). Those procedures required two sets of analyses. First, we estimated the association between wives' perceived sexual attractiveness and the expected mediator—sexual frequency—by regressing sexual frequency onto wives' perceived sexual attractiveness, controlling for wives' weight concern, physical condition, BMI, neuroticism, self-esteem, and reported attempts to get pregnant. As can be seen in Table 4, wives' perceived sexual attractiveness was significantly positively associated with sexual frequency. Second, we estimated the association between sexual frequency and wives' and husbands' sexual satisfaction, controlling for wives' perceived sexual attractiveness, weight concern, physical condition, BMI, neuroticism, self-esteem, and reported attempts to get pregnant. As can be seen in Table 4, sexual frequency was significantly positively associated with sexual satisfaction among both wives and husbands. Finally, we multiplied these two effects to obtain an estimate of the mediated effect for wives, $B = 0.51$, and husbands, $B = 0.54$, and computed 95% confidence intervals for wives (0.01, 1.27) and husbands (0.30–⁴, 1.41). Given that neither confidence interval contained zero, our results indicated that both mediated effects were significant.

Table 3
Associations of Wives' Sexual Attractiveness, Weight Concern, and Physical Condition With Both Partners' Marital Satisfaction

Variable	Wives' marital satisfaction		Husbands' marital satisfaction	
	<i>B</i>	<i>r</i> ²	<i>B</i>	<i>r</i> ²
Wife's body mass index	-1.11**	.09	-0.29	.01
Wife's neuroticism	-5.36*	.06	-2.54	.03
Wife's self-esteem	-5.56	.02	-4.53	.02
Attempting pregnancy	0.36	.00	0.51	.01
Weight concern	-0.60	.03	0.15	.00
Physical condition	-0.61	.03	-0.11	.00
Sexual attractiveness	1.72***	.19	0.68*	.06

Note. r^2 = squared semi-partial correlations. *dfs* = 43 for wives and 42 for husbands.
* $p < .05$. ** $p < .01$. *** $p < .001$. All tests are one-tailed.

Does Sexual Satisfaction Mediate an Association Between Sexual Frequency and Marital Satisfaction?

The second mediational hypothesis implied by our model was that the greater sexual frequency predicted by wives' perceived sexual attractiveness would lead to greater marital satisfaction through greater sexual satisfaction. To test this hypothesis, we again conducted two sets of analyses to compute asymmetric confidence intervals. First, we estimated the association between sexual frequency and the expected mediator—sexual satisfaction—by regressing sexual satisfaction onto sexual frequency, controlling for wives' perceived sexual attractiveness, weight concern, physical condition, BMI, neuroticism, self-esteem, and re-

Table 4
Associations of Wives' Self-Perceived Sexual Attractiveness With Sexual Frequency, Sexual Satisfaction, and Marital Satisfaction

Variable	Wives						Husbands			
	Sexual frequency		Sexual satisfaction		Marital satisfaction		Sexual satisfaction		Marital satisfaction	
	<i>B</i>	<i>r</i> ²	<i>B</i>	<i>r</i> ²	<i>B</i>	<i>r</i> ²	<i>B</i>	<i>r</i> ²	<i>B</i>	<i>r</i> ²
Body mass index	-0.26*	.05	-0.99 [†]	.03	-0.53 [†]	.02	0.25	.00	-0.25	.01
Neuroticism	-0.87	.02	-4.83 [†]	.02	-2.62	.01	-2.78	.00	-1.77	.01
Self-esteem	-2.97 [†]	.05	12.27 [†]	.04	-11.16**	.06	-7.84	.01	-2.26	.01
Attempting pregnancy	-0.45	.03	1.67	.02	-1.11	.02	0.03	.00	-0.38	.00
Weight concern	-0.00	.00	-0.47	.01	-0.36	.01	0.94 [†]	.03	-0.01	.00
Physical condition	-0.13	.01	-0.56	.01	-0.28	.01	-0.97	.02	0.11	.00
Sexual attractiveness	0.32*	.07	0.86	.02	1.12**	.08	1.30 [†]	.04	0.35	.01
Sexual frequency			1.60**	.09	-0.57	.02	1.69*	.08	-0.00	.00
Wives' sexual satisfaction			—	—	0.52***	.30				
Husbands' sexual satisfaction									0.18**	.10

Note. *r*² = squared semi-partial correlations. For analyses predicting sexual frequency, *dfs* = 43; for analyses predicting sexual satisfaction, *dfs* = 42 for wives and 41 for husbands; for analyses predicting marital satisfaction, *dfs* = 41 for wives and 40 for husbands. [†] *p* < .10. * *p* < .05. ** *p* < .01. *** *p* < .001. All tests are one-tailed.

ported attempts to get pregnant. As noted above, the results of this analysis are reported in Table 4 and indicate that sexual frequency was significantly positively associated with sexual satisfaction among both wives and husbands. Second, we estimated the association between sexual satisfaction and marital satisfaction, controlling for sexual frequency, wives' perceived sexual attractiveness, weight concern, physical condition, BMI, neuroticism, self-esteem, and reported attempts to get pregnant. As can be seen in Table 4, sexual satisfaction was significantly positively associated with marital satisfaction among both wives and husbands. Finally, we multiplied these two effects to obtain an estimate of the mediated effect for wives, *B* = 0.83, and husbands, *B* = 0.30, and again computed 95% confidence intervals for wives (0.21, 1.55) and husbands (0.02, 0.72), which indicated that both mediated effects were significant. Notably, wives' perceived sexual attractiveness was unrelated to husbands' marital satisfaction once sexual frequency and sexual satisfaction were controlled, indicating that these factors fully mediated the association between wives' body esteem and husbands' marital satisfaction.

Alternative Mediational Models

Although the previous analyses are consistent with our prediction that wives' perceived sexual attractiveness predicts both wives' and husbands' marital satisfaction through sexual frequency and sexual satisfaction, the cross-sectional nature of the data allows for equally plausible alternative interpretations. We conducted additional analyses to rule out the two alternative models that provided the greatest challenge to our interpretations. First, we computed asymmetric confidence intervals to test whether husbands' or wives' sexual satisfaction predicts wives' perceived sexual attractiveness through sexual frequency. To do so, we estimated the association between sexual satisfaction and the possible mediator—sexual frequency—in one set of analyses, controlling for wives' weight concern, physical condi-

tion, BMI, self-esteem, neuroticism, and reported attempts to get pregnant. Sexual satisfaction was significantly associated with sexual frequency for both wives, *B* = 0.10, *SE* = 0.03, *t*(43) = 3.13, *p* < .01, semi-partial *r*² = .40, and husbands, *B* = 0.08, *SE* = 0.03, *t*(42) = 2.82, *p* < .01, semi-partial *r*² = .37. Then, in a second set of analyses, we estimated the association between sexual frequency and wives' perceived sexual attractiveness, controlling for each spouse's sexual satisfaction and wives' weight concern, physical condition, BMI, self-esteem, neuroticism, and reported attempts to get pregnant. Sexual frequency was not significantly associated with wives' perceived sexual attractiveness controlling for wives' sexual satisfaction, *B* = 0.18, *SE* = 0.14, *t*(42) = 1.25, *p* = .22, semi-partial *r*² = .12, or controlling for husbands' sexual satisfaction, *B* = 0.18, *SE* = 0.14, *t*(41) = 1.30, *p* = .20, semi-partial *r*² = .12. Finally, we multiplied these two effects to obtain an estimate of the mediated effect for wives, *B* = 0.02, and husbands, *B* = 0.01, and computed 95% confidence intervals for wives (-0.01, 0.05) and husbands (-0.01, 0.04). Given that both 95% confidence intervals contain zero, our results indicated that neither spouse's sexual satisfaction predicts wives' perceived sexual attractiveness through sexual frequency.

Second, we computed asymmetric confidence intervals to test whether husbands' or wives' marital satisfaction predicts wives' perceived sexual attractiveness through sexual satisfaction. To do so, we estimated the association between marital satisfaction and the possible mediator—sexual satisfaction—in one set of analyses, controlling for wives' weight concern, physical condition, BMI, self-esteem, neuroticism, and reported attempts to get pregnant. Marital satisfaction was significantly associated with sexual satisfaction for both wives, *B* = 0.93, *SE* = 0.14, *t*(43) = 6.52, *p* < .001, semi-partial *r*² = .58, and husbands, *B* = 0.93, *SE* = 0.30, *t*(42) = 3.07, *p* < .01, semi-partial *r*² = .39. Then, in a second set of analyses, we estimated the associ-

ation between sexual satisfaction and wives' perceived sexual attractiveness, controlling for each spouse's marital satisfaction and wives' weight concern, physical condition, BMI, self-esteem, neuroticism, and reported attempts to get pregnant. Sexual satisfaction was not significantly associated with wives' perceived sexual attractiveness controlling for wives' marital satisfaction, $B = -0.02$, $SE = 0.04$, $t(42) = -0.50$, $p > .50$, semi-partial $r^2 = -.04$, or controlling for husbands' marital satisfaction, $B = 0.05$, $SE = 0.03$, $t(41) = 1.42$, $p = .16$, semi-partial $r^2 = .13$. Finally, we multiplied these two effects to obtain an estimate of the mediated effect for wives, $B = -0.02$, and husbands, $B = 0.05$, and computed 95% confidence intervals for wives (-0.09, 0.05) and husbands (-0.01, 0.11) that indicated marital satisfaction does not predict wives' perceived sexual attractiveness through sexual satisfaction.

Discussion

Rationale and Summary of Results

How does women's body image shape marriage? Not only did the current study replicate previous research by demonstrating that wives' body image is positively associated with both wives' and husbands' marital satisfaction, it clarified that relationship in two important ways. First, the current study demonstrated that wives' perceived sexual attractiveness was responsible for the positive association between wives' body image and both wives' and husbands' marital satisfaction. Specifically, once the variance shared among the three subscales of body esteem (Sexual Attractiveness, Weight Concern, and Physical Condition) was controlled, wives' perceived sexual attractiveness was the only component of the BES associated with either partner's marital satisfaction. Second, the current study also demonstrated that the positive association between wives' perceived sexual attractiveness and both wives' and husbands' marital satisfaction was mediated by the sexual relationship. Specifically, (a) couples in which wives reported higher levels of perceived sexual attractiveness reported having engaged in more sex over the prior 30 days, (b) both members of couples who reported increased sexual frequency also reported increased sexual satisfaction, and (c) own sexual satisfaction was positively associated with own marital satisfaction. Notably, the sexual relationship fully mediated the association between wives' perceived sexual attractiveness and husbands' marital satisfaction and all effects controlled for wives' BMI, self-esteem, neuroticism, and attempts to get pregnant.

Theoretical and Practical Implications

The current findings have several theoretical and practical implications. First, these findings demonstrate the importance of women's body image to our understanding of marriage. Wives' perceptions of their sexual attractiveness accounted for approximately 19% of the variance in wives' marital satisfaction and approximately 6% of the variance in husbands' marital satisfaction in this sample of community

couples, even after wives' BMI, global self-esteem, neuroticism, and attempts to get pregnant were controlled. Yet, despite this apparent importance of body image to relationships, we are aware of only one other study (Friedman et al., 1999) that has examined the role of body image in marriage. One reason for the paucity of research in this area may be that body image has not been situated within any existing frameworks of marriage. The current study demonstrated the usefulness of situating body image within Murray and colleagues' (2006) risk regulation model. Consistent with that model, perceived sexual attractiveness was associated with the extent to which women were likely to engage in an emotionally risky behavior, sex (see de Graaf & Sandfort, 2004), and thus the extent to which both wives and husbands were satisfied with their sexual relationships and marriages. Future research may benefit by using this framework to guide additional predictions regarding the interpersonal effects of body image.

Second, by demonstrating that the sexual relationship mediates the relatively strong association between body image and both wives' and husbands' marital satisfaction, the current findings also suggest a framework for guiding future research on the role of sex in marriage and other romantic relationships—Karney and Bradbury's (1995) vulnerability–stress–adaptation model. According to that model, individual qualities (e.g., self-esteem) and experiences (e.g., stress) combine to shape relationship development through their influence on proximal processes (e.g., behavior). Although most investigations that have drawn on this model have examined the mediating role of various nonsexual behaviors (e.g., problem solving), future studies may benefit by examining the extent to which sexual behaviors account for the various distal factors that affect relationships as well. Indeed, Fisher and McNulty (2008) recently reported that sexual satisfaction completely accounted for the robust association between wives' neuroticism and marital satisfaction. Future research may benefit by examining the extent to which the sexual relationship accounts for the effects of other distal factors on marriage.

Finally, the current findings have important practical implications. Specifically, these findings suggest that interventions to promote and maintain marital satisfaction may benefit by addressing women's views of their bodies—particularly the sexual attractiveness of their bodies (e.g., see Butters & Cash, 1987). It is important to note that the relatively strong association between wives' perceived sexual attractiveness and marital satisfaction emerged even after women's body size and global views of themselves had been controlled. In other words, independent of the actual size of their bodies, and independent of their overall self-evaluations, women's *perceptions* of their sexual attractiveness are associated with sexual frequency, both wives' and husbands' sexual satisfaction, and both wives' and husbands' marital satisfaction. Given the relatively large size of these effects, improving women's body image may have substantial benefits for relationships.

Directions for Future Research

The current findings also highlight at least two potentially fruitful avenues for future research. First, theory and practice may benefit from research that examines ways in which interventions may improve women's perceptions of their own sexual attractiveness. Prior research suggests at least two possible ways to do so. First, given research demonstrating that women who participated in an intervention aimed at improving global self-esteem displayed significant increases in body satisfaction and self-ratings of physical appearance (O'Dea & Abraham, 2000), one way to improve women's perceived sexual attractiveness may be by improving their overall self-esteem. In addition, given research demonstrating that partner evaluations are positively associated with self-evaluations (Murray, Holmes, & Griffin, 1996), another way to improve women's perceived sexual attractiveness may be by increasing the frequency of partners' expressions of satisfaction with women's bodies.

Second, future research may benefit by examining the effects of male body image on interpersonal processes and outcomes. Indeed, one study provides evidence that men's body dissatisfaction is negatively associated with men's marital satisfaction as well (Friedman et al., 1999). Nevertheless, the mechanism of this association remains unclear. Perhaps sexual frequency and sexual satisfaction mediate this effect as well. Indeed, although sexual rejection leads to greater emotional distress for women (de Graaf & Sandfort, 2004), men also report negative reactions to sexual rejection (Metts et al., 1992). Accordingly, like women, men with poor body image may engage in sex less frequently, thus be less satisfied with their relationships, and thus have partners who are less satisfied with their relationships. Future research may benefit by investigating this and other mechanisms through which men's self-evaluations are associated with relationship satisfaction.

Study Strengths and Limitations

Several strengths of the current research enhance our confidence in the results reported here. First, analyses in the current study controlled several potential confounds (i.e., wives' BMI, self-esteem, neuroticism, attempts to get pregnant), thus decreasing the possibility that the results were spurious because of associations with those variables. Second, in contrast to using newly formed or hypothetical relationships, the current study used participants who were young, married couples for whom the measured processes and outcomes were important (Klusmann, 2002; Tigge-mann, 2004). Finally, the current study used recommendations of MacKinnon et al. (2007) for calculating asymmetric confidence intervals to test for mediation, helping to minimize both Type I and Type II errors.

Nevertheless, several factors limit interpretations of the current findings until they can be replicated and extended. First, although the current study controlled for various factors and ruled out several alternative mediational models, causal conclusions should be drawn with caution. Specifically, third variables not measured and controlled here may

account for the association between wives' perceived sexual attractiveness and marital satisfaction, or higher marital satisfaction could lead to higher perceived sexual attractiveness through another mechanism not measured here. Second, whereas the homogeneity of this sample enhances our confidence in the pattern of associations that emerged here, this homogeneity, and the attrition that occurred over the 2 years, limits our ability to generalize these findings to other samples. For example, although wives' perceived sexual attractiveness appears to be related to marital satisfaction in these new marriages, it is unclear whether these self-evaluations are similarly associated in dating relationships, marriages that end in early divorce, or more established marriages. Additional research may benefit by attempting to establish these effects in other populations.

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