

# **Body Image and Sexual Satisfaction in Mixed-Sex Couples: The Mediating Role of Sexual Anxiety**

by

**Marissa L. Bowsfield**

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# Approval

**Name:** Marissa L. Bowsfield

**Degree:** Master of Arts (Psychology)

**Title:** Body Image and Sexual Satisfaction in Mixed-Sex Couples: The Mediating Role of Sexual Anxiety

**Examining Committee:** **Chair: Dr. John McDonald**  
Professor

**Dr. Rebecca Cobb**  
Senior Supervisor  
Associate Professor

**Alexander Chapman**  
Supervisor  
Professor

**Dr. Cory Lynn Pedersen**  
External Examiner  
Instructor  
Department of Psychology  
Kwantlen Polytechnic University

**Date Defended/Approved:** December 6, 2017

## Ethics Statement

The author, whose name appears on the title page of this work, has obtained, for the research described in this work, either:

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## **Abstract**

Body satisfaction predicts sexual satisfaction (e.g., Pujols, Meston, & Seal, 2010; Holt & Lyness, 2007), and may have indirect effects on sexual satisfaction through sexual anxiety. In a sample of mixed-sex dating couples, I predicted that, over one year, increases in body satisfaction would predict increases in actor sexual satisfaction, increases in body satisfaction would predict decreases in actor sexual anxiety, and increases in sexual anxiety would predict decreases in actor sexual satisfaction. I also predicted indirect effects of changes in actor body satisfaction on actor and partner sexual satisfaction through changes in actor sexual anxiety. Results of multiple linear modelling were consistent with all predictions for women and men. Specifically, changes in body satisfaction had indirect actor and partner effects on changes in sexual satisfaction through changes in actor sexual anxiety. Results suggest that body dissatisfaction has negative implications for couples' sexual satisfaction through its effects on sexual anxiety.

**Keywords:** body image; body satisfaction; sexual satisfaction; sexual anxiety; couples

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# Introduction

Sexual satisfaction robustly predicts relationship and marital quality and stability (e.g., McNulty, Wenner, & Fisher, 2014; Yeh, Lorenz, Wickrama, Conger, & Elder, 2006), and is positively associated with general life happiness (Laumann et al., 2006). Body dissatisfaction is negatively associated with sexual satisfaction (e.g., Pujols, Meston, & Seal, 2010; Milhausen, Bucholz, Opperman, & Benson, 2015; La Rocque & Cioe, 2011; Robbins & Reissing, 2017; Holt & Lyness, 2008); however, mechanisms of the association between body dissatisfaction and sexual satisfaction are unclear. One possibility is that the body is highly salient aesthetically and functionally in the context of sexual activity, and thus body dissatisfaction may elicit sexual anxiety, including tension, discomfort, and worry about sexual interactions (Snell, Fisher, & Walters, 1993). In other words, body dissatisfaction may interfere with sexual satisfaction through its effects on sexual anxiety, which, in turn may have implications for relationship quality and overall happiness. I predicted that body satisfaction would have indirect effects on mixed-sex couples' sexual satisfaction over one year through its effects on sexual anxiety.

Body satisfaction is one component of the multi-dimensional construct of body image and refers to individuals' evaluations of their own body (Cash & Pruzinsky, 2002). Body image is comprised of an affective component (e.g., feelings, like shame or disgust, evoked when the body is salient) and a behavioural component (e.g., effortful attempts to avoid or alter situations where the body is salient; Banfield & McCabe, 2002). I will focus on body evaluations, or the degree to which individuals' are satisfied with their body.

Body dissatisfaction in Western cultures is widespread among women and men. Across the lifespan, 88-93% of women experience body dissatisfaction and just 9% perceive their current body as ideal (Runfola et al., 2013). Although there are fewer studies on men's body satisfaction, they too experience considerable dissatisfaction (e.g., McCreary & Sadava, 2001). For example, 28% to 68% of college-aged men are dissatisfied with their body and desire more muscle mass (McCreary & Sadava, 2001).

Body dissatisfaction is attributed, in part, to the narrow societal ideals of what constitutes the "ideal" female and male body (Cash & Pruzinsky, 2002; Harper &

Tiggemann, 2008). For women, the ideal is the thin body (Harper & Tiggemann, 2008; Hesse-Biber, Leavy, Quinn, & Zoino, 2006) and for men it is the muscular body (Daniel & Bridges, 2013). The thin ideal for women and muscular ideal for men are difficult to achieve and may give rise to discrepancies between actual and ideal physical selves, potentially leading to body shame and dissatisfaction. People with higher body mass assessed via the body mass index (BMI), a value derived from weight and height (World Health Organization, 2006) experience higher levels of body dissatisfaction (e.g., Erbil, 2012; Weaver & Byers, 2006; van den Brink, Smeets, Hessen, Talens, & Woertman, 2013). However, people who fall within objectively “normal” or healthy body mass ranges can also experience body dissatisfaction (e.g., Satinsky, Reece, Dennis, Sanders, & Bardzell, 2012; Weaver & Byers, 2006).

Body satisfaction has implications for sexual relationships; perhaps because body-related worries and associated behaviours are likely to occur in situations where the body is a primary focus or plays a substantial role, such as during sexual activity (e.g., Cash, 2002). Body satisfaction predicts sexual satisfaction among women and men (e.g., Milhausen et al., 2015; Pujols et al., 2010), and is positively associated with sexual confidence and self-esteem (van den Brink et al., 2013; La Rocque & Cioe, 2011), desire for sexual activity (La Rocque & Cioe, 2011), and negatively associated with sexual anxiety and sexual problems (Sanchez & Kiefer, 2007; Weaver & Byers, 2006). Therefore, body satisfaction has implications for numerous facets of sexual relationships, including overall sexual satisfaction and subcomponents of sexual satisfaction (e.g., sexual self-esteem).

One mechanism that may partially account for the association between body dissatisfaction and sexual satisfaction is sexual anxiety. Sexual anxiety is tension, discomfort, and worry about sexual interactions (Snell et al., 1993). During sex, when the body is salient and on display, individuals who experience body dissatisfaction may feel anxious about how their body looks and feels to their partner during sex, how attracted their partner is to their body, and whether they are a desirable sexual partner. In addition to worry, these individuals may also engage in behaviours to ameliorate their anxiety. Cognitive (e.g., worry) and behavioural manifestations (e.g., moving a partner’s hands away from a disliked body part) of anxiety may interfere with individuals’ and their partner’s sexual satisfaction.

Body dissatisfaction is associated with cognitive and behavioural components of sexual anxiety (Meana & Nunnink, 2006; Cash et al., 2004). Specifically, body dissatisfaction is associated with performance-based and appearance-based cognitive distraction for women and men (Meana & Nunnink, 2006), and body dissatisfaction is a stronger predictor of appearance-based distraction (e.g., anxiety about how appealing your partner finds your body) during sexual activity than sexual attitudes, sexual knowledge, sexual experiences, fantasies, sexual satisfaction, and sexual affect (Meana & Nunnink, 2006). Behaviourally, women who are less satisfied with their bodies experience higher discomfort undressing in front of their partners, are less comfortable having sex with the lights on, and have more anxiety about romantic intimacy generally than women with higher body satisfaction (Cash et al., 2004).

Sexual anxiety is associated with sexual dissatisfaction (e.g., Weaver & Byers, 2006) and sexual dysfunction (e.g., Bradford & Meston, 2006; Heiman, 2007; Laurent & Simons, 2009), and anxiety is associated with decreased sexual arousal, sexual desire, and orgasm (Laurent & Simons, 2009). Cognitive distraction and avoidance behaviours may account for these associations; however, physiological consequences of sexual anxiety may also be problematic for achieving sexual satisfaction. Couples in which one or both partners experience sexual anxiety may have lower sexual satisfaction because they have difficulty achieving physiological arousal. At a physiological level, exposure to sexual anxiety stimuli reduces vaginal blood flow, which may impede women's ability to orgasm and interfere with their sexual satisfaction (Beggs, Calhoun, & Wolchik, 1987). Furthermore, men who are exposed to anxiety stimuli demonstrate reduced penile tumescence (i.e., engorgement with blood; Hale & Strassberg, 1990) and anxiety is robustly associated with men's erectile dysfunction (Hedon, 2003). Given the potentially wide range of individual differences in manifestations of anxiety, there are multiple routes through which sexual anxiety could interfere with couples' sexual satisfaction.

## **Current Study and Hypotheses**

Given associations among body satisfaction, sexual anxiety, and sexual satisfaction (e.g., Milhausen et al., 2015; Pujols et al., 2010; Robbins & Reissing, 2017; Holt & Lyness, 2008; Weaver & Byers, 2006), I predicted the mediation model in Figure 1. Specifically, I predicted that changes in body satisfaction would have direct negative actor effects (i.e., the within-partner effect of individuals' body satisfaction on their own

sexual anxiety) but not partner effects (i.e., cross-partner effect of individuals' body satisfaction on their partner's sexual anxiety) on changes in sexual anxiety (Paths a), that changes in sexual anxiety would have negative actor and partner effects on sexual satisfaction (Paths b), and that changes in body satisfaction would have positive actor but not partner effects on changes in sexual satisfaction (Paths c). I also predicted that changes in body satisfaction would have indirect actor and partner effects on changes in sexual satisfaction through changes in actor sexual anxiety (Paths a \* Paths b).

This study addressed gaps in the literature on body satisfaction and sexual satisfaction and built on existing research in three ways. First, the literature focuses exclusively on actor effects of body satisfaction on sexual satisfaction, but partner effects of body satisfaction on sexual satisfaction have yet to be explored (see Meltzer & McNulty, 2010 for an analysis of actor and partner effects of women's, but not men's body image on *marital* satisfaction). Given the dyadic nature of partnered sex, body satisfaction and sexual anxiety may have implications for partners' sexual satisfaction. Second, I assessed sexual anxiety as a mechanism of the association between body satisfaction and sexual satisfaction. Body dissatisfaction may elicit sexual anxiety, which is associated with couples' sexual satisfaction. Lastly, I assessed how body satisfaction, sexual anxiety, and sexual satisfaction covary over one year, which is a more stringent method for establishing associations between variables than cross-sectional analyses.

# Methods

## Participants

Participants were 123 mixed-sex dating couples recruited to participate in a one-year study on communication in relationships. Eligible couples were in mixed-sex dating partnerships, cohabiting for at least one year, aged 19 to 45, and had no children. The study required an in-person lab session, and thus only couples who lived in the Metro Vancouver area who were able to commute to Simon Fraser University (SFU) were invited to participate. Couples were also required to be fluent in English and to have access to a computer and the Internet to complete online questionnaires. Couples were recruited via posters on and off campus, posts on online forums and websites (e.g., Reddit, Facebook), print advertisements, radio advertisements, and emails sent to university departmental mailing lists.

At T1, relationship length (based on the report of the date the relationship started provided by the member of the couple who completed a phone screening interview) averaged 4.19 years ( $SD = 2.65$ ) and cohabitation length averaged 3.11 years ( $SD = 2.15$ ). As per eligibility criteria, all couples were cohabiting and unmarried; 12 couples indicated that their relationship was or had been in the past consensually non-monogamous (e.g., threesomes, polyamorous relationships). Women averaged 25.84 ( $SD = 4.21$ ) years of age and 69.9% were Caucasian, 16.3% were Asian, 3.3% were Indo-Canadian/South Asian, 1.6% were Middle Eastern, 1.6% were First Nations, and 7.3% were “other” ethnicities. Almost half of the women (40.7%) had completed high school, 1.6% had a general education diploma, 13.8% had an associate’s degree, 32.5% had a bachelor’s degree, 9.8% had a master’s degree, 0.8% had a doctorate, and 0.8% had less than a high school education. Women averaged 15.76 ( $SD = 2.48$ ) years of education, and had an average annual income of \$15,199; 31.7% were working full-time, 36.6% were working part-time, 30.1% were not working, and 0.02% did not report work status.

Men averaged 27.55 ( $SD = 4.90$ ) years of age and 72.4% were Caucasian, 9.8% were Asian, 4.1% were South Asian, 3.3% were Latino, 1.6% were Middle Eastern, 2.4% were First Nations, 0.8% were Black, and 5.7% were “other” ethnicities. Almost half (48.8%) had completed high school, 1.6% had a general education diploma, 13.0% had

an associate's degree, 26.0% had a bachelor's degree, 4.9% had a master's degree, 0.8% Juris Doctor (law) degree, and 4.9% had less than a high school education. Men averaged 15.09 ( $SD = 2.69$ ) years of education, and had an average annual income of \$19,499; 18.7% were working full-time, 48.0% were working part-time, 30.9% were not working, and 0.02% did not report work status.

## Procedure

The SFU Research Ethics Board approved all study procedures. Individuals who contacted the SFU Close Relationships Lab in response to recruitment efforts were emailed an information email about the study, and were screened by phone to determine eligibility and the Couples Satisfaction Index-4 (Funk & Rogge, 2007) was administered to the partner who completed the screening interview. See Figure 2 for a flowchart of couples included in analyses. Of the 618 individuals who contacted the lab, 375 were screened for eligibility and 243 were not, either because they were identified as ineligible based on initial contact (e.g., stated they were married in their initial email to the lab), did not respond to our attempts to contact them, were no longer interested in participating once we reached them by phone, or contacted us after recruitment was complete. Of the 375 couples who were screened, 187 were eligible. Eligible couples were younger ( $M_{Women} = 26.02$ ,  $SD = 4.27$ ;  $M_{Men} = 27.74$ ,  $SD = 5.20$ ), in shorter relationships ( $M_{Years} = 4.10$ ,  $SD = 2.54$ ), and more relationally satisfied ( $M_{CSI-4} = 19.26$ ,  $SD = 7.40$ ) than ineligible couples ( $M_{Women} = 31.68$ ,  $SD = 10.24$ ,  $t(363) = -6.92$ ,  $p < .001$ ,  $d = 0.73$ ;  $M_{Men} = 33.88$ ,  $SD = 11.26$ ,  $t(362) = -6.72$ ,  $p < .001$ ,  $d = 0.71$ ;  $M_{Years} = 5.00$ ,  $SD = 4.89$ ,  $t(362) = -2.20$ ,  $p = .03$ ,  $d = 0.23$ ;  $M_{CSI-4} = 17.87$ ,  $SD = 4.50$ ,  $t(363) = 2.16$ ,  $p = .03$ ,  $d = 0.23$ ). There were no significant differences in educational attainment between eligible versus ineligible couples.

Following the screening, eligible couples were provided with an information email and electronic consent form and were asked to confirm by phone or email that they and their partner were both interested in participating. At this stage, 32 eligible couples indicated that they did not wish to participate for various reasons (e.g., too busy, no longer interested, partner uncomfortable with study protocol). Once confirmation that both partners wished to participate was received, the couple was scheduled for a laboratory visit and each partner was emailed information about the study, a copy of the consent form, and a link to the Time 1 (T1) questionnaires. Of the 155 couples who

received T1 questionnaires, 21 couples withdrew without completing any questionnaires, five couples were excluded from analyses because only one member completed T1 questionnaires, and one couple completed T1 questionnaires but requested their data be removed from the study. This resulted in a final sample of 128 couples. Included eligible couples ( $n = 128$ ) did not differ from eligible couples who withdrew or were excluded ( $n = 58$ ) on age, educational attainment, or relationship length. Included couples were more relationally satisfied ( $M_{\text{CSI-4}} = 19.83$ ,  $SD = 8.76$ ) at screening on the CSI-4 (Funk & Rogge, 2007) than couples who withdrew or were excluded ( $M_{\text{CSI-4}} = 18.02$ ,  $SD = 2.19$ ,  $t(184) = 2.19$ ,  $p = .03$ ,  $d = 0.32$ ).

Of the 128 couples who completed T1 questionnaires, 124 participated in the lab session, and these couples received three follow up online questionnaires every four months thereafter (Times 2-4). Demographics assessed at T1, body satisfaction, sexual anxiety, and sexual satisfaction assessed at Times 1-4 (T1-T4), and BMI calculated from height and weight measurements taken during the lab session are the focus of this study. Participants completed other measures and laboratory procedures that are not the focus of this study. Couples received \$50 for the lab session and T1 questionnaires and \$25 for each of the follow-up questionnaires.

## Measures

Study measures are described below and questionnaires are in Appendix A. Cronbach's alpha coefficients for all measures at all time points are in Table 1.

**Body Satisfaction.** The Body Image Questionnaire-Self subscale (BIQ-S; Williams, Logan, Brown, & Cobb, 2007; Bowsfield, Cobb, Millman, Pink, & Logan 2015) consists of three items that assess individuals' satisfaction with aspects of their body and physical appearance (e.g., "How satisfied are you with your body shape/appearance/weight?"). Items are rated on a 7-point Likert scale from 1 (*Very unsatisfied*) to 7 (*Very satisfied*) and are averaged to yield a total score; higher scores reflect greater body satisfaction.

**Sexual Anxiety.** The Sexual Anxiety Subscale (SAS) of the Sexual Needs Scale (Davis et al., 2006) includes seven items that assess general sexual anxiety (e.g., "Generally, I tend to be inhibited about having sex"). Two items focus on anxiety around

sexual attractiveness (i.e., “I feel very confident in my sexual attractiveness;” “I would like to feel very confident in my own sexual attractiveness”), which overlapped conceptually with the measure of body satisfaction and thus were not included in the calculation of sexual anxiety. This resulted in a five-item measure, with items rated on a 7-point Likert scale from 1 (*Very untrue of me*) to 7 (*Very true of me*) and averaged to yield a total score; higher scores reflect greater sexual anxiety.

**Sexual Satisfaction.** The Quality of Sex Inventory Sexual Satisfaction Subscale (QSI-Satisfaction; Shaw & Rogge, 2016) includes six items that assess sexual satisfaction (e.g., “My partner really pleases me sexually”). Items are rated on a 6-point Likert scale from 1 (*Not at all true*) to 6 (*Completely true*) and summed to yield a total score; higher scores reflect greater sexual satisfaction.

**Body Mass Index.** BMI was calculated from height and body weight measurements collected during the lab session ( $\text{BMI} = \text{weight in kilograms} / \text{height in metres}^2$ ).

## Missing Data Procedure

The rate of missing data across study variables (i.e., body satisfaction, sexual anxiety, and sexual satisfaction) and across time was 15%, which is typical for psychological studies (Enders, 2003), and well below the moderately high threshold for missing data of 30% (Graham, 2012). I used multiple imputation (MI) to replace missing values, which accounts for the uncertainty of imputed values by generating multiple, typically five, unique datasets of plausible imputed values, analyzing each one individually, and pooling results to estimate parameters of interest (cf. Rubin, 1987). Analyses based on MI data are comparable to analyses performed on complete data in regression models with as many as 18 predictors and as much as 50% missing data on the dependent variable (Graham & Shafer, 1999), and is one of the most recommended methods for handling missing data in psychological research (Graham, 2009).

MI relies on the assumption that the data are missing at random (MAR; Dong & Peng, 2013). I assessed the validity of this assumption and the data in this study were not MAR (NMAR); however, MI is robust to violations of the assumption of MAR data (Collins, Schafer, & Kam, 2001), and I included auxiliary variables (variables that are not



included in the main study hypotheses; see Appendix B) in the MI procedure to reduce potential bias associated with data that are NMAR (Collins et al., 2001). As recommended by Sterne and colleagues (2009), I imputed five unique datasets using all main study variables (including sexual satisfaction) at all time points to predict missing values. Pooled parameter estimates based on these five datasets were used for all inferential analyses. This resulted in a sample of 123 couples with complete imputed data across all measures and all time points. MI was conducted in SPSS Version 24.0 (IBM Corp, 2016), which provides output based on the original data, based on each of the five imputed datasets, and the final pooled parameter estimates, allowing for comparison of results across imputation levels. Upon inspection, the pattern of results based on the original data and the pooled parameter estimates were consistent.

## **Inferential Analytic Procedure**

I conducted multilevel modelling (MLM) using the MIXED procedure in SPSS Version 24.0 (IBM Corp, 2016), which accounts for the nesting of repeated measures within individuals and the dependence of dyadic data (Kenny, Kashy, & Cook, 2006). Predictors (i.e., body satisfaction and sexual anxiety) were grand mean centred and time was centred at zero and coded as months from T1 to each subsequent time point. Repeated measures (e.g., body satisfaction, sexual anxiety, and sexual satisfaction) were modelled at Level 1 and time-invariant variables (i.e., BMI, grand mean centered) were modelled at Level 2. Specifically, I regressed individual sexual satisfaction (or individual sexual anxiety, where applicable) on individual body satisfaction (actor effects) and on partner body satisfaction (partner effects). Consistent with the literature on body image (e.g., Weaver & Byers, 2006) and the associations between BMI and body satisfaction in this sample (see Table 2), I included BMI as a Level 2 covariate of the Level 1 intercepts in all analyses. Several variables (i.e., relationship satisfaction, depressive symptoms, social anxiety, and self-esteem) were associated with sexual anxiety or with sexual satisfaction and thus I examined whether they should be included as Level 1 or Level 2 covariates in the analyses. Relationship satisfaction (Couples Satisfaction Index-14; Funk & Rogge, 2007), depressive symptoms (Beck Depression Inventory-II; Beck, Steer, & Brown, 1996), and social anxiety (Social Interaction Anxiety Scale; Mattick & Clarke, 1998) as Level 1 covariates and self-esteem (Rosenberg Self Esteem Scale; Rosenberg, 1965) as a Level 2 covariate of the Level 1 intercepts did not

change the pattern of results; analyses excluding these covariates are presented for simplicity. To clarify inconsistencies in the literature about whether associations between body satisfaction and sexual satisfaction exist for women and men and whether associations may be stronger for one sex relative to the other (cf. Milhausen et al., 2015), I tested for differences in the strength of effects between women and men. I found no sex differences, and thus I pooled the effects across women and men, which yielded one set of parameter estimates per test where woman and man are actors and partners.

## **Results**

### **Attrition**

Of the 128 couples who completed T1 measures, 124 couples completed the lab session where height and weight were collected, but one couple was excluded from analyses because of missing data on T1 variables, resulting in a final sample of 123 couples (see Figure 2). Of the 123 couples included in the study, 111 women and men completed T2 questionnaires, 105 women and 92 men completed T3 questionnaires, and 100 women and men completed T4 questionnaires.

### **Descriptive Analyses**

Means and standard deviations at each time point for body satisfaction, sexual anxiety, and sexual satisfaction and differences between women and men on these variables are in Table 1. All descriptive statistics were calculated using the original data before multiple imputation. Men reported greater body satisfaction at T1 and at T2 than women, but there were no differences at T3 and T4. There were no other significant differences between women and men on study variables.

### **Correlations**

Correlations for all study variables at each time point are in Table 2. Correlations were based on the multiple imputation pooled parameter estimates and are presented separately for women and men. For women and men, body satisfaction was negatively associated with sexual anxiety at all time points, body satisfaction was positively associated with sexual satisfaction at most time points, and sexual anxiety was negatively associated with sexual satisfaction at all time points.

### **Average Change in Body Satisfaction, Sexual Anxiety, and Sexual Satisfaction Over Time**

The average change in study variables over time was assessed using the multiple imputation pooled parameter estimates with the following equations:

$$\text{Level 1: } Y_{ji} (\text{outcome}) = \beta_{0i} + \beta_{1i} (\text{time}) + r_{ji}$$

$$\text{Level 2: } \beta_{0j} = \gamma_{00} + \mu_{0j}$$

$$\beta_{1j} = \gamma_{10} + \mu_{1j}$$

where  $Y_{ji}$  is the outcome (i.e., body satisfaction, sexual anxiety, or sexual satisfaction) for individual  $i$  at time  $j$ ;  $\beta_{0i}$  is the intercept (i.e., initial level of the outcome for individual  $i$  at T1);  $\beta_{1i}$  is the average change over time in the outcome for individual  $i$ ; and  $r_{ji}$  is the residual variance in repeated measurements for individual  $i$ .

For women, body satisfaction and sexual anxiety did not change linearly ( $B_{BIQ} = 0.02, t = 1.70, p = .09$ ;  $B_{SAS} = 0.01, t = 1.16, p = .25$ ) but sexual satisfaction declined over time ( $B_{QSI} = -0.09, t = -2.01, p = .05$ ). For men, body satisfaction increased over time ( $B_{BIQ} = 0.02, t = 2.18, p = .03$ ), sexual anxiety did not change linearly ( $B_{SAS} = -.00, t = -0.09, p = .93$ ), and sexual satisfaction declined ( $B_{QSI} = -0.09, t = -2.23, p = .03$ ). Women's body satisfaction and sexual anxiety, and men's sexual anxiety did not change linearly over time, but they fluctuated around the mean.

## **Direct Effects of Body Satisfaction on Sexual Satisfaction and Indirect Effects Through Sexual Anxiety**

My first hypothesis was that changes in body satisfaction would have negative actor but not partner effects on changes in sexual anxiety (Paths a in Figure 1). The results in Table 3 are pooled estimates of actor and partner effects, where all women and all men in the sample are an actor and a partner. As shown in Figure 3 and consistent with my predictions, for women and men increases in body satisfaction were associated with decreases in sexual anxiety (actor effects) but were unrelated to partner sexual anxiety (partner effects).

My second hypothesis was that changes in sexual anxiety would have negative actor and partner effects on sexual satisfaction (Paths b in Figure 1), controlling for the effects of changes in body satisfaction. Pooled estimates from the MLM are in Table 3. As shown in Figure 3 and consistent with my predictions, for women and men increases in sexual anxiety were associated with decreases in individuals' (actor effects) and their *partner's* (partner effects) sexual satisfaction.

My third hypothesis was that changes in body satisfaction would have positive actor but not partner effects on changes in sexual satisfaction (Paths c Figure 1). Pooled estimates from the MLM are in in Table 3. As shown in Figure 3 and consistent with my predictions, increases in body satisfaction were associated with increases in sexual satisfaction for women and men (actor effects), and there were no significant associations between changes in individuals' body satisfaction and changes in partner sexual satisfaction over one year (partner effects).

My fourth hypothesis was that changes in body satisfaction would have indirect actor and partner effects on changes in sexual satisfaction through changes in actor sexual anxiety (i.e., sexual anxiety would mediate associations between changes in individuals' body satisfaction and changes in their own and their partner's sexual satisfaction; Paths a \* Paths b in Figure 1). The conditions to test the indirect effects (cf. Hayes, 2009) were met: Specifically, there was an actor effect of changes in body image on changes in sexual anxiety, and an actor and partner effect of changes in sexual anxiety on changes in sexual satisfaction. Indirect effects were estimated by computing the products of the a and b pathway coefficients ( $a*b$ ) for the actor and partner models and using the Hayes (2013) MCMED macro for SPSS to compute Monte Carlo 95% confidence intervals for the indirect effects. Intervals that do not include zero indicate that the indirect effect is significant at the .05 alpha level.

As shown in Figure 3, there was a significant indirect actor effect of changes in body image on changes in individuals' sexual satisfaction through changes in individuals' sexual anxiety ( $B = 0.38$ , 95% CI [.26, .52]). However, the direct effect of changes in body satisfaction on changes in actor sexual satisfaction remained significant, indicating that changes in sexual anxiety partially mediated the association between changes in body satisfaction and changes in sexual satisfaction. Changes in individuals' body satisfaction also had a significant indirect partner effect ( $B = 0.17$ , 95% CI [.09, .26]) on changes in their *partner's* sexual satisfaction through changes in individuals' sexual anxiety. There was no significant direct effect of changes in actor body satisfaction on changes in partner sexual satisfaction, thus the indirect effect of changes in body satisfaction on changes in partner sexual satisfaction cannot be termed "mediation" (i.e., there was no initial association to mediate). However, the presence of an association between predictor and outcome is not necessary for indirect effects of predictor on outcome to exist through an intervening variable (Hayes, 2009).

## Discussion

Body image and sexual satisfaction are robustly related (e.g., Pujols et al., 2010; Milhausen et al., 2015) but the mechanisms of the association are unclear and partner effects have not been examined. I examined whether body satisfaction was associated with sexual satisfaction over one year among mixed-sex couples, and whether sexual anxiety mediates associations between body satisfaction and sexual satisfaction. Consistent with my predictions, for women and men, increases in body satisfaction were associated with increases in sexual satisfaction, and with decreases in sexual anxiety over one year. Furthermore, increases in sexual anxiety were associated with decreases in individuals' and their *partner's* sexual satisfaction. Changes in individuals' body satisfaction had indirect effects on individuals' and their *partner's* sexual satisfaction through changes in individuals' sexual anxiety, suggesting that body dissatisfaction has negative implications for couples' sexual satisfaction.

Of importance, individuals' satisfaction with their body predicted sexual anxiety and sexual satisfaction over and above the effects of other related variables, including relationship satisfaction, depressive symptoms, self-esteem, social anxiety, and BMI. Relationship satisfaction, specifically, is a strong predictor of sexual satisfaction and may negate the effects of body dissatisfaction on sexual satisfaction (Milhausen et al., 2015; Steer & Tiggeman, 2008). However, I found that the negative implications of body dissatisfaction on couples' sexual satisfaction persisted regardless of relationship satisfaction. Similarly, body dissatisfaction predicted sexual anxiety and sexual satisfaction beyond the effects of BMI, which was negatively associated with body satisfaction. This suggests that body *perceptions* are important for sexual outcomes and is consistent with previous research in which body satisfaction predicted sexual outcomes, including sexual anxiety (Weaver & Byers, 2006) and sexual satisfaction, over and above the effects of BMI (e.g., Meltzer & McNulty, 2010; Robbins & Reissing, 2017). In this study, a consistent pattern of result emerged regardless of relevant covariates, which implies that body dissatisfaction is an important and robust predictor of couples' sexual satisfaction.

The evidence for sex differences in associations between body satisfaction and sexual satisfaction is mixed. Sex differences have been postulated because of the

consistent pattern of significant findings for men compared to null findings for women (e.g., Milhausen et al., 2015; Weaver & Byers, 2006; Koch, Mansfield, Thureau, & Carey, 2005). However, men are frequently excluded in research on body image and when they are included, potential sex differences are often untested (e.g., Milhausen et al., 2015; Penhollow & Young, 2008). When sex differences in the association between body satisfaction and sexual satisfaction have been tested (Holt & Lyness, 2007), including in this study, no differences emerge. Null findings for women have been explained by “normative discontent” (Milhausen et al., 2015; Rodin, Silberstein, & Striegel-Moore, 1984), which refers to the idea that body dissatisfaction may be so commonplace and expected among women (but not men), that it is unrelated to other areas of life satisfaction, including sexual satisfaction (Milhausen et al., 2015). Although women in this study had lower body satisfaction than men at T1 and T2, there were no sex differences in the associations between body satisfaction and sexual satisfaction, suggesting that normative discontent among women does not negate the negative effects of body dissatisfaction on sexual satisfaction.

Sexual anxiety had negative actor and partner effects on sexual satisfaction. Anxiety, which is an emotional state associated with future-focused worry and fear of anticipated threats (Miloyan et al., 2014), may manifest cognitively during sex to interfere with couples’ sexual satisfaction. When individuals experience future-focused worry about sex (e.g., thinking about what could go wrong, thinking about consequences of a partner’s negative evaluation of the individual’s body) they are not grounded in the present moment. In the context of a sexual encounter, anxious individuals cannot engage in worried thinking while at the same time holding positive thoughts that focus on fostering or appreciating intimacy and physical pleasure in the moment. This lack of focus on the present moment may impede sexual intimacy and prevent individuals from attending to their own sexual needs and desires, and the needs and desires of their partner. Additionally, a lack of focus on or awareness of physical sensations may also interfere with sexual arousal, sexual desire, and orgasm, which may further negatively influence broader sexual satisfaction.

In addition to cognitive manifestations of sexual anxiety, there may be behavioural manifestations of anxiety during sex that interfere with couples’ sexual satisfaction. Sexually anxious individuals may engage in avoidance behaviours designed to take focus away from the body during sex in an effort to reduce anxiety

(e.g., covering themselves up, turning lights off). These behaviours may prevent them from achieving sexual familiarity and intimacy with a partner and interfere with the stimulation required to become sexually aroused or to orgasm. Among women, higher body exposure avoidance predicts lower sexual arousal, orgasm, and desire (Vencill, Tebbe, & Garos, 2015); for women and men, body exposure avoidance is positively associated with avoidance of sex and negatively associated sexual satisfaction (La Rocque & Cioe, 2011). Although partner effects of body exposure avoidance have not been examined, avoidant behaviours are likely to interfere with partners' sexual satisfaction. Having a partner who avoids certain sexual activities or touch, keeps clothing on during sex, or will only have sex with the lights off, for example, may negatively affect a person's own sexual enjoyment.

If body dissatisfaction and related sexual anxiety have negative implications for sexual satisfaction, couples' broader relationship satisfaction may also be affected. In the context of intimate relationships, self-expansion theory posits that engaging in novel and exciting activities with a romantic partner attenuates declines in relationship satisfaction (e.g., Aron, Aron, Heyman, Norman, & McKenna, 2000). Sexual activity is one area where couples can engage in fun and arousing activities and try new things together. From a self-expansion perspective, if body dissatisfaction triggers sexual anxiety, which then prevents people from exploring new sexual behaviours or activities and thus inhibits joint self-expansion, couples in which one or both partners experience body dissatisfaction may experience steeper declines in relationship satisfaction. For couples, monogamous or not, romantic partners provide opportunities for exploration of various novel and exciting partnered sexual interests. If body dissatisfaction and sexual anxiety prevent people from engaging in fun and novel sexual activities with their partner or partners, they may miss opportunities for self-expansion. Thus, their satisfaction with the relationship (or relationships) may decline at a faster rate than couples who do not experience body dissatisfaction and who take advantage of opportunities for sexual exploration.

## **Limitations and Future Directions**

Several limitations of this study must be considered. First, couples who volunteer for a study on sexual communication may be more comfortable with their sexuality than people who choose not to participate in such studies. Studies assessing



willingness to participate in sexuality research demonstrate that relative to non-volunteers, volunteers tend to be more willing to disclose personal sexual information (Catania, McDermott, & Pollack, 1986), have more sexual experience, less traditional sexual attitudes, and higher sexual self-esteem (Wiederman, 1999). Some couples who contacted our lab in response to recruitment for this study chose not to participate because one or both members of the couple were not comfortable with the focus on sexuality. Therefore, the final sample of couples may not be representative of the broader community of dating, cohabiting couples, and results should be generalized with caution.

Second, the sample of couples may differ from average Metro Vancouver residents on demographic variables, which also limits the generalizability of results. Relative to the general population, women and men in this study had lower annual incomes (<\$20,000 versus \$36,123; Statistics Canada, 2006). Although university degree attainment in this sample was similar to the broader Metro Vancouver population, the number of people whose highest level of education was a high school diploma was overrepresented in this sample (40% of women and 49% of men versus 23% in the broader Metro Vancouver population; Statistics Canada, 2011a). Ethnic minorities, who compose 45% of the Metro Vancouver population (Statistic Canada, 2011b), were underrepresented in this sample, which was approximately 70% Caucasian. Although I recruited a community sample of couples, which is an improvement upon studies body satisfaction studies that focus exclusively on university students (e.g., Weaver & Byers, 2006), they are not representative of the broader local community.

Third, the sample consists of mixed-sex couples only, so I cannot make any conclusions about these associations in other types of couples (e.g., same-sex couples, non-binary identified couples). For example in gay men, body satisfaction predicts sexual arousal but not sexual desire (Levitan, Quinn-Nilas, Milhausen, & Breuer, 2017), whereas among heterosexual men and women, body satisfaction predicts sexual arousal and desire (Cash, Maikkula, & Yamamiya, 2004). Expanding this research to other groups of couples will be important to enhance the generalizability of results and to shed light on the nuanced role of body satisfaction for sexual satisfaction in various relationship types.

Fourth, whether the measures of body satisfaction (BIQ-S) and sexual anxiety (SAS) assessed the intended constructs deserves consideration. The BIQ-S is an unpublished measure; however, preliminary evidence suggests that it is likely reliable and valid. The BIQ-S demonstrates face validity and convergent validity with theoretically related constructs, such as BMI and self-esteem (Bowsfield et al., 2015), but more research on its psychometric properties is necessary to confirm that it measures the intended construct of body satisfaction. Additionally, a more comprehensive assessment of sexual anxiety is warranted. The SAS measures general, non-specific sexual anxiety (e.g., “Generally, I tend to be inhibited about having sex”) and does not include items assessing specific components or manifestations of sexual anxiety. Thus, the SAS does not distinguish cognitive (e.g., difficulty concentrating, catastrophizing) or behavioural (e.g., keeping clothing on, engaging in limited activities/positions, moving partner’s hands) anxiety in the context of sexual encounters, which may relate uniquely to couples’ sexual satisfaction. For example, general sexual anxiety may predict cognitive and behavioural manifestations of sexual anxiety, but perhaps only behavioural manifestations are associated with partners’ sexual satisfaction (i.e., behavioural but not cognitive manifestations may mediate the association). Alternatively, perhaps the association between general sexual anxiety and sexual satisfaction is stronger for individuals who endorse more behavioural manifestations of sexual anxiety (i.e., behavioural but not cognitive manifestations may moderate the association).

Assessing other potential variables that may account for the effects of body satisfaction on sexual satisfaction is also necessary. Although sexual anxiety is a mechanism of the link between body satisfaction and sexual satisfaction, there are other potential intervening variables that may play a role in how body satisfaction affects sexual satisfaction in individuals and their partners. For example, people who are dissatisfied with their body may avoid initiating sex with a partner and therefore end up having fewer sexual interactions than people who are satisfied with their body. People who are dissatisfied with their body may also be more likely to engage in sex for avoidance motives (e.g., to avoid conflict with their partner) than for approach motives (e.g., to promote closeness with a partner), and avoidance sex goals are associated with lower sexual (Impett & Tolman, 2006; Stephenson, Ahrold, & Meston, 2011) and relationship satisfaction (Impett, Peplau, & Gable, 2005).

Different study designs may provide clearer insight on the relationship between body satisfaction and sexual satisfaction. I assessed how changes in body satisfaction, sexual anxiety, and sexual satisfaction covaried over one year. Thus, the analyses in this study do not allow me to make causal conclusions about the role of body satisfaction and sexual anxiety in sexual satisfaction. Exploring this question via an experimental design to examine the effects of manipulated body satisfaction or sexual anxiety (i.e., via priming) on sexual satisfaction may contribute to a better understand causal mechanisms. Furthermore, extending the study duration from one year to several years and collecting data at more time points may elucidate how body satisfaction, sexual anxiety, and sexual satisfaction change within individuals over time as natural aging occurs. Although body dissatisfaction is similar among women of different age ranges, cross-sectional studies (e.g., Robbins & Reissing, 2017; Runfola et al., 2013) preclude conclusions about change over time. Similarly, a longer study period or a period that targets life transitions would allow for assessment of developmental trends related to body satisfaction among couples that cannot be observed within a single year (e.g., how body satisfaction and sexual anxiety are related to sexual satisfaction during pregnancy or the transition to parenthood).

## **Clinical Implications**

Individuals and couples who present at therapy for sexual problems or dysfunctions should be assessed for body satisfaction and sexual anxiety and interventions should be tailored to address these two targets as necessary. Several techniques designed to improve body satisfaction have been applied in clinical settings and evaluated empirically (Alleva, Sheeran, Webb, Martijn, & Miles, 2015). Cognitive restructuring to target distressing thought patterns related to the body (e.g., dichotomous thinking, overestimation of negative social feedback, negative self-talk) and to highlight interactions between cognitions, emotions, and behaviours can improve body satisfaction (Alleva et al., 2015). Similarly, critical and judgmental language that people use to describe their body (e.g., “I look so fat”) is negatively related to body satisfaction over and above having negative thoughts about their body (Salk & Engeln-Maddox, 2011), and teaching people to use more positive language and reduce judgmental language improves their body satisfaction (Alleva et al., 2015). Consistent with reducing judgmental language are self-compassion interventions, which help people to foster

acceptance, kindness, and appreciation for their body (Albertsen, Neff, & Dill-Shackleford, 2014). Among adult women with body dissatisfaction, a brief self-compassion meditation intervention improved body satisfaction and appreciation, and reduced body shame and appearance-based self-worth, and effects were maintained three months later (Albertsen et al., 2014). Interventions targeting cognitive distortions and critical, judgmental language and thoughts may be crucial in improving body satisfaction, which may then have implications for sexual satisfaction.

An effective behavioural technique to improve body satisfaction is exposure (including guided imagery), which targets avoidance of stimuli that elicit negative body-related emotions (e.g., disgust, shame; Alleva et al., 2015). Avoidance of or escape from stimuli that cause negative body-related emotions prevent or reduce negative emotions, and thus reinforce body dissatisfaction (Alleva et al., 2015). Exposure improves body satisfaction by helping people to learn new emotional associations and test new thoughts about their body (Alleva et al., 2015). Couple's therapists can use exposure treatments such as sensate focus, which involves bringing awareness to physical touch and sensation through graded exposure to enhance sexual and non-sexual intimacy between partners (Linschoten, Weiner, & Avery-Clark, 2016; Masters & Johnson, 1970; Stinson, 2009). This type of exposure may be useful for couples in which one or both partners experience body dissatisfaction. Exposure is a frontline treatment for anxiety generally (Abramowitz, Deacon, & Whiteside, 2012) and may also have clinical utility for sexual anxiety, specifically. Therefore, improving body satisfaction through exposure strategies, like sensate focus, may simultaneously reduce sexual anxiety. Moreover, including partners in treatment for body dissatisfaction, as is done in sensate focus, may be more effective than individual treatment (Scott & Kayser, 2009), perhaps because it facilitates the testing and challenging of negative thoughts or beliefs people hold about what their partner thinks about their body (e.g., "If my partner sees my stomach, she won't be attracted to me"). Overcoming such beliefs may help people to view their body more positively, which may facilitate less anxiety during sex and improve both partners' sexual satisfaction.

If inattention to sexual experiences underlies the link between sexual anxiety and lower sexual satisfaction, mindfulness-based interventions (Kabat-Zinn, 2003, 2004) might hold promise for treating sexual anxiety, which may improve couples' sexual satisfaction. Although there are many approaches to practicing and achieving

mindfulness (e.g., body scans, meditation, breathing), mindfulness practice involves cultivating non-judgmental awareness of our thoughts, sensations, and experiences as they occur in the moment (Kabat-Zinn, 2004). Anxiety is associated with future-focused thoughts (Miloyan et al., 2014), that by their nature, detract from an individual's attention to the present moment (i.e., a person cannot be thinking about the future and focusing attention on the present moment) and preclude a mindful state. Mindfulness-based therapy is an especially effective treatment for reducing symptoms of general anxiety, including somatic symptoms of anxiety (Khoury et al., 2013) and thus may be similarly effective for treating sexual anxiety. Mindfulness-based interventions improve sexual functioning among women with sexual dysfunctions (e.g., Brotto et al., 2012; Brotto & Basson, 2014), which supports the idea that sexual anxiety interferes with sexual satisfaction because it constitutes a non-mindful psychological state. A comprehensive, client-informed case formulation will allow the clinician to apply interventions targeting body dissatisfaction, sexual anxiety, or both to improve the individual or couple's sexual problem.

## **Conclusion**

Fostering sexual satisfaction is important because it predicts general happiness (Laumann et al., 2006) and couples' long-term relationship satisfaction and stability (e.g., McNulty et al., 2014; Yeh et al., 2006). On a more fundamental level, people value sexual relationships for their inherent experience of pleasure and as a means of intimate expression (Byers, 2011). Thus, identifying and understanding the factors that contribute to sexual satisfaction may have implications for helping individuals reap the benefits of satisfying sexual relationships and for helping couples achieve positive long-term outcomes.

## Tables and Figures

**Table 1: Descriptive Statistics for Study Variables at Each Time Point**

	Women			Men			Difference	
	<i>M</i> ( <i>n</i> )	<i>SD</i>	<i>α</i>	<i>M</i> ( <i>n</i> )	<i>SD</i>	<i>α</i>	<i>t</i> -test ( <i>df</i> )	<i>d</i>
T1 BIQ	4.34 (123)	1.51	.90	4.71 (121)	1.39	.90	2.43* (120)	.26
T2 BIQ	4.32 (111)	1.65	.91	4.74 (106)	1.48	.93	2.19* (104)	.26
T3 BIQ	4.58 (101)	1.64	.92	4.76 (89)	1.44	.92	0.67 (84)	.08
T4 BIQ	4.58 (92)	1.60	.94	4.91 (86)	1.33	.91	1.29 (84)	.19
T1 SAS	1.90 (123)	1.36	.83	1.95 (121)	1.32	.80	0.23 (120)	.03
T2 SAS	2.08 (110)	1.37	.81	1.92 (104)	1.20	.72	-1.13 (101)	-.13
T3 SAS	2.08 (101)	1.42	.83	1.96 (89)	1.32	.78	-0.38 (85)	-.05
T4 SAS	1.99 (91)	1.28	.80	1.88 (86)	1.12	.70	-0.22 (83)	-.03
T1 QSI	26.02 (122)	7.02	.95	26.21 (121)	8.02	.96	0.56 (119)	.05
T2 QSI	25.89 (106)	7.73	.97	26.71 (100)	7.30	.96	0.81 (95)	.09
T3 QSI	25.66 (98)	8.15	.97	26.57 (89)	7.65	.96	0.55 (83)	.06
T4 QSI	25.35 (97)	8.25	.97	25.47 (94)	7.78	.96	-0.17 (88)	-.02
T1 BMI	25.34 (123)	6.98	-	25.99 (123)	4.80	-	1.05 (122)	.11

*Note.* BIQ = Body Image Questionnaire; SAS = Sexual Anxiety Scale; QSI = Quality of Sex Inventory – Satisfaction; BMI = Body Mass Index. \*  $p < .05$ , \*\*  $p < .01$ .

**Table 2: Correlations Among Study Variables at Each Time Point**

		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1.	T1 BIQ	<b>.33**</b>	.71**	.58**	.59**	-.32**	-.33**	-.26**	-.22*	.29**	.32**	.14	.12	-.41**
2.	T2 BIQ	.77**	<b>.24**</b>	.65**	.50**	-.25**	-.40**	-.25**	-.29**	.29**	.38**	.19*	.23*	-.36**
3.	T3 BIQ	.62**	.73**	<b>.35**</b>	.51**	-.30**	-.29**	-.23*	-.20*	.21*	.28**	.27**	.18	-.22*
4.	T4 BIQ	.45**	.51**	.49**	<b>.08</b>	-.28**	-.25**	-.23*	-.21*	.25*	.29**	.15	.21*	-.39**
5.	T1 SAS	-.31**	-.30**	-.18	-.14	<b>.21*</b>	.62**	.57**	.39**	-.52**	-.39**	-.38**	-.31**	.05
6.	T2 SAS	-.31**	-.40**	-.19*	-.20*	.71**	<b>.28**</b>	.61**	.47**	-.36**	-.43**	-.44**	-.24**	.00
7.	T3 SAS	-.28**	-.30**	-.26**	-.10	.61**	.61**	<b>.18*</b>	.43**	-.30**	-.29**	-.41**	-.22*	.05
8.	T4 SAS	-.20*	-.18	-.03	-.27**	.55**	.52**	.46**	<b>.05</b>	-.29**	-.27**	-.24*	-.37**	.17
9.	T1 QSI	.29**	.31**	.16	.21*	-.56**	-.48**	-.39**	-.38**	<b>.57**</b>	.72**	.58**	.56**	-.05
10.	T2 QSI	.24**	.34**	.19*	.26**	-.42**	-.56**	-.47**	-.32**	.65**	<b>.45**</b>	.65**	.57**	-.06
11.	T3 QSI	.23**	.32**	.32**	.24*	-.34**	-.39**	-.54**	-.25**	.61**	.65**	<b>.44**</b>	.52**	.07
12.	T4 QSI	.16	.18	.07	.43**	-.34**	-.36**	-.38**	-.47**	.59**	.55**	.62**	<b>.46**</b>	.01
13.	T1 BMI	-.35**	-.41**	-.29**	-.29**	.01	.02	-.12	-.07	-.01	.02	-.00	.08	<b>.38**</b>

Note.  $n = 123$ ; Associations among female's variables are below the diagonal and associations among male's variables are above the diagonal; correlations between females and males are on the diagonal in bold; BIQ = Body Image Questionnaire; SAS = Sexual Anxiety Scale; QSI = Quality of Sex Inventory – Satisfaction; BMI = Body Mass Index. \*  $p < .05$ , \*\*  $p < .01$

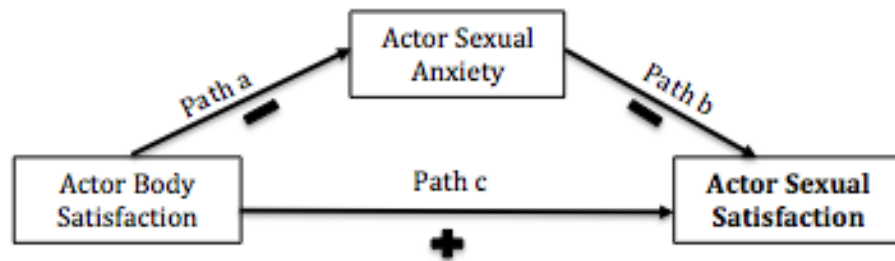


**Table 3: Predicting Sexual Anxiety From Body Satisfaction and Sexual Satisfaction From Body Satisfaction and Sexual Anxiety**

	<i>B</i>	<i>SE</i>	<i>t</i>
Sexual Anxiety (SAS)			
Level 1			
Intercept	2.58***	0.31	8.23
Actor Body Satisfaction	-0.22***	0.03	-7.12
Partner Body Satisfaction	0.00	0.04	-0.91
Level 2			
BMI	-0.02*	0.01	-1.96
Sexual Satisfaction (QSI)			
Level 1			
Intercept	21.35***	1.55	13.81
Actor Body Satisfaction	1.10***	0.19	5.86
Partner Body Satisfaction	0.22	0.17	1.23
Actor Sexual Anxiety	-1.72***	0.18	-9.80
Partner Sexual Anxiety	-0.77***	0.17	-4.42
Level 2			
BMI	0.18**	0.06	3.04

*Note.*  $n = 123$ ; SAS = Sexual Anxiety Scale; QSI = Quality of Sex Inventory – Satisfaction; BMI = Body Mass Index.  
\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

A. Actor Model



B. Partner Model

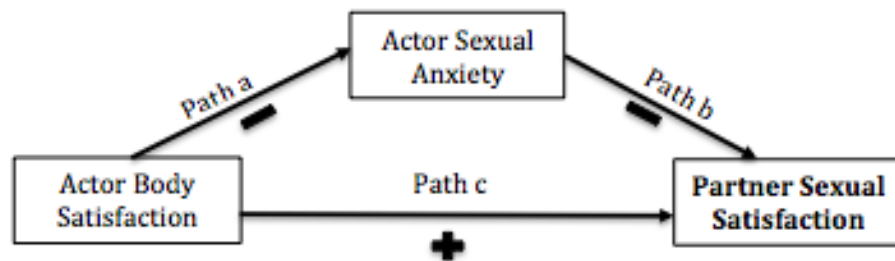
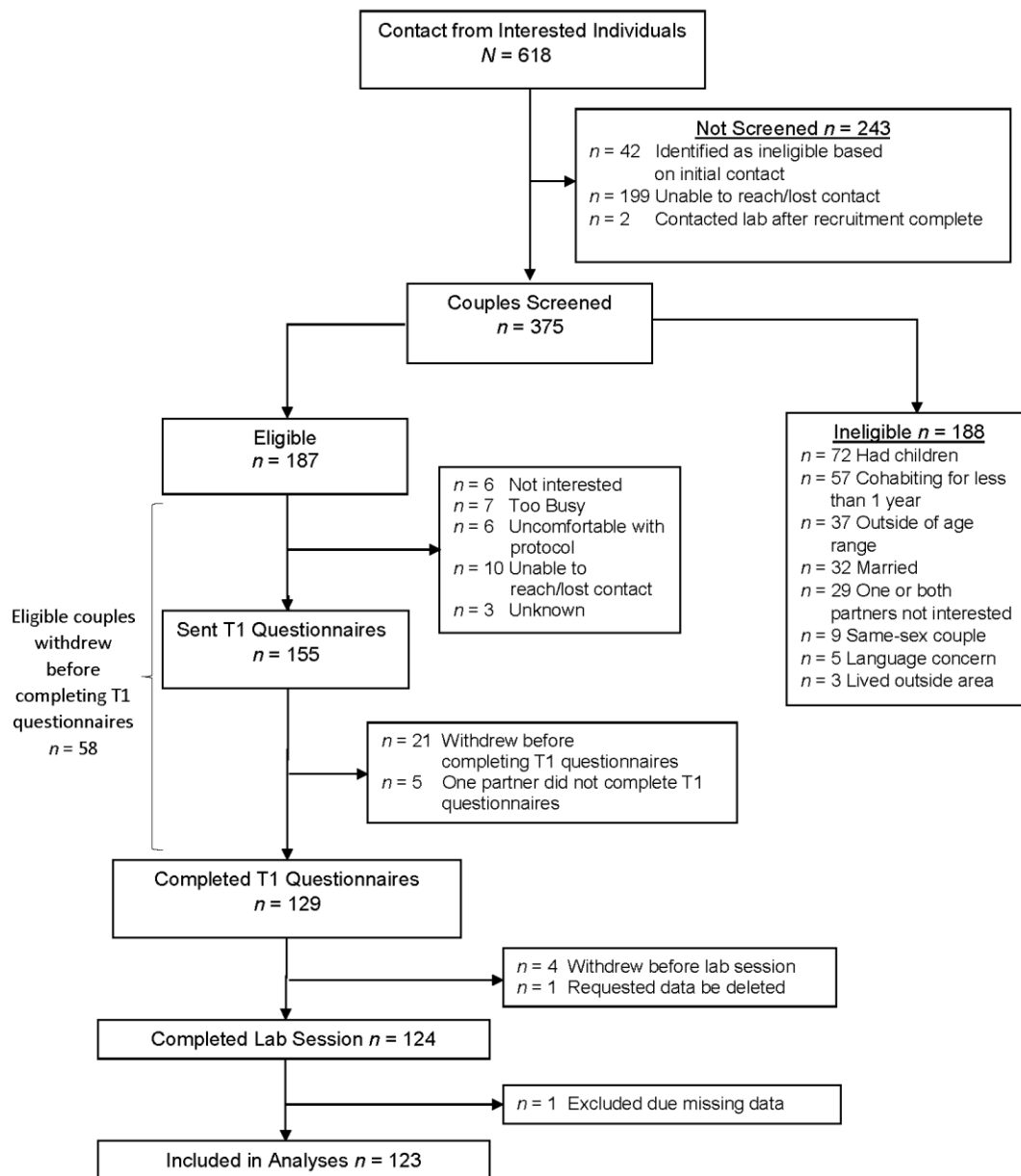
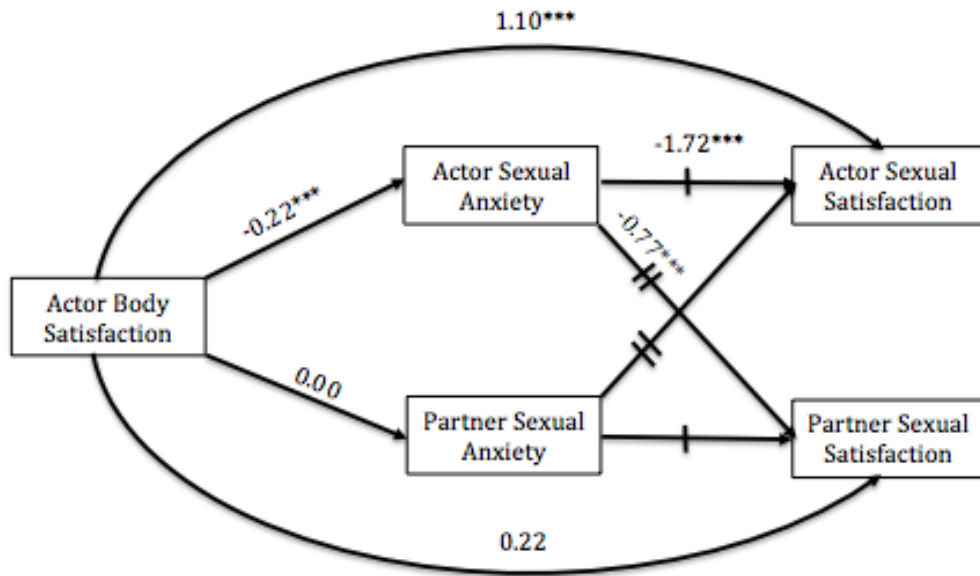


Figure 1 Hypothesized indirect effects (Paths a \* Paths b) of changes in body satisfaction on changes in actor and partner sexual satisfaction over one year.



**Figure 2** Flowchart of couples included in analyses.



**Figure 3** Indirect actor and partner effects of body satisfaction on sexual satisfaction through actor sexual anxiety, controlling for BMI (single and double lines indicate that the corresponding pathways are equal).  
 $^{***} p < .001$

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# Appendix A.

## Study Measures

### Body Image Questionnaire – Self Subscale (BIQ-S; Williams et al., 2007)

Very Dissatisfied    1    2    3    4    5    6    7    Very Satisfied

1. How satisfied are you with your appearance?
2. How satisfied are you with your body shape?
3. How satisfied are you with your current weight?

### Sexual Anxiety Scale (SAS; Davis et al., 2006)

Very Untrue of Me    1    2    3    4    5    6    7    8    9    Very True of Me

1. I always worry about how I'm performing when I have sex
2. Generally, I tend to be inhibited about having sex
3. I feel completely comfortable with my sexuality
4. I feel very anxious during sexual activities
5. I would like to worry less about how I am performing during sex

### Quality of Sex Inventory – Satisfaction Subscale (QSI; Shaw & Rogge, 2013)

Not True At	A Little	Somewhat	Mostly True	Very True	Completely
All	True	True			True
1	2	3	4	5	6

1. My sex life is fulfilling
2. I am happy with my sex life with my partner
3. My partner really pleases me sexually
4. I am satisfied with our sexual relationship

5. I am happy with the quality of sexual activity in our relationship
6. Sexual activity with my partner is fantastic

## Appendix B.

### Measures Used in Multiple Imputation

Variable	Measure	Reference (Items)
Depressive Symptoms	Beck Depression Inventory-II	Beck, A. T., Steer, R. A., & Brown, G. K. (1996). <i>Manual for the Beck Depression Inventory-II</i> . San Antonio, TX: Psychological Corporation.
Attachment Security (Anxiety and Avoidance)	Experiences in Close Relationships – Revised	Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item-response theory analysis of self-report measures of adult attachment. <i>Journal of Personality and Social Psychology</i> , 78, 350-365. doi:http://dx.doi.org/10.1037/0022-3514.78.2.350
Relationship Satisfaction	Couples Satisfaction Index-16	Funk, J. L. & Rogge, R. D. (2007). Testing the ruler with item response theory: Increasing precision of measurement for relationship satisfaction with the Couples Satisfaction Index. <i>Journal of Family Psychology</i> , 21, 572-583. doi:10.1037/0893-3200.21.4.572
Relationship Satisfaction	Couples Satisfaction Index-4 (collected at phone screen)	Funk, J. L. & Rogge, R. D. (2007). Testing the ruler with item response theory: Increasing precision of measurement for relationship satisfaction with the Couples Satisfaction Index. <i>Journal of Family Psychology</i> , 21, 572-583. doi:10.1037/0893-3200.21.4.572

Variable	Measure	Reference (Items)
Social Anxiety	Social Interaction Anxiety Scale	Mattick, R. P. & Clarke, J. C. (1998). Development and validation of measures of social phobia scrutiny and social interaction anxiety. <i>Behaviour Research and Therapy</i> , 36, 455-470. doi:https://doi.org/10.1016/S0005-7967(97)10031-6
Health Related Personality Tendencies	Multidimensional Health Questionnaire	Snell, W. E. & Johnson, G. (1997). The Multidimensional Health Questionnaire. <i>American Journal of Health Behavior</i> , 21, 33-42.
Self-Forgiveness	Heartland Forgiveness Scale (Forgiveness of Self Subscale)	Thompson, L. Y., Snyder, C. R., Hoffman, L., Michael, S. T., Rasmussen, H. N., Billings, L. S.,...Roberts, D. E. (2005). Dispositional forgiveness of self, others, and situations. <i>Journal of Personality</i> , 73, 313-359. doi:10.1111/j.1467-6494.2005.00311.x
Perceptions of Partnered Sexual Communication	Dyadic Sexual Communication Scale	Catania, J. A. (1986). Help-seeking: An avenue for adult sexual development. Unpublished doctoral dissertation, University of California San Francisco.
Self-Esteem	Rosenberg Self-Esteem Scale	Rosenberg, M. (1965). <i>Society and the adolescent self-image</i> . Princeton, NJ: Princeton University Press.
Approach and Avoidance Sexual Motives	Approach and Avoidance Sexual Motives	Impett, E. A., Peplau, L. A., & Gable, S. L. (2005). Approach and avoidance sexual motives: Implications for personal and interpersonal well-being. <i>Personal Relationships</i> , 12, 465-482. doi:10.1111/j.1475-6811.2005.00126.x

Variable	Measure	Reference (Items)
Religiosity	Religiosity (two items included)	Sullivan, K. T. (2001). Understanding the relationship between religiosity and marriage: An investigation of the immediate and longitudinal effects of religiosity on newlywed couples. <i>Journal of Family Psychology, 15</i> , 610-626. doi: <a href="http://dx.doi.org/10.1037/0893-3200.15.4.610">http://dx.doi.org/10.1037/0893-3200.15.4.610</a>
Income	Item developed for the purposes of this study	<p>(Not including your partner's income, what was your income last year, before taxes?)</p> <p>\$0 - \$9,999</p> <p>\$10,000 - \$19,999</p> <p>\$20,000 - \$29,999</p> <p>\$30,000 - \$39,999</p> <p>\$40,000 - \$49,000</p> <p>over \$50,000)</p>