

Perceptions of Partner Sexual Satisfaction in Heterosexual Committed Relationships

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Abstract Sexual script theory implies that partners' ability to gauge one another's level of sexual satisfaction is a key factor in determining their own sexual satisfaction. However, relatively little research has examined how well partners gauge one another's sexual satisfaction and the factors that predict their accuracy. We hypothesized that the degree of bias in partner judgments of sexual satisfaction would be associated with quality of sexual communication. We further posited that emotion recognition would ameliorate the biases in judgment such that poor communicators with good emotion recognition would make less biased judgments of partner satisfaction. Participants were 84 married or cohabiting heterosexual couples who completed measures of their own and their partners' sexual satisfaction, relationship satisfaction, quality of communication about sexual issues within their relationships, and emotion recognition ability. Results indicated that both men and women tended to be accurate in perceiving their partners' levels of sexual satisfaction (i.e., partner perceptions were strongly correlated with self-reports). One sample *t*-tests indicated that men's perceptions of their partners' sexual satisfaction were biased such that they slightly underestimated their partners' levels of sexual satisfaction whereas women neither over- nor underestimated their partners' sexual satisfaction. However, the gender difference was not significant. Bias was attenuated by quality of sexual communication, which interacted with emotion recognition ability such that when sexual communication was good, there was no significant association between emotion recognition ability and bias, but when sexual communication was poor, better emotion recognition ability was associated with less bias.

Keywords Couples · Sexual satisfaction · Sexual communication · Emotion recognition

Introduction

Sexual script theory posits that, similar to most other social behavior, sexual behavior is guided by scripts (Simon & Gagnon, 1986). The theory further proposes that (1) what is considered sexual will differ depending on one's culture; (2) sexual scripts, which are socially determined, have a greater influence on sexual behavior than do biological factors; (3) people learn sexual scripts appropriate to their cultures throughout their lives, and (4) people may not do exactly what is dictated by their cultural scripts, but instead make small changes to the cultural script so it better meets their needs (Laumann, Gagnon, Michael, & Michaels, 1994). The idea that individuals modify their cultural sexual scripts to meet their own needs is particularly relevant to the current research. Specifically, Simon and Gagnon (1986) argued that individuals modify cultural scripts to ensure their sexual behavior brings them pleasure and they feel competent to enact their roles in the scripts. Once an individual finds a sexual script that achieves these goals, there is a tendency for the individual to adopt the script, which will stabilize over time.

Dyadic Sexual Scripts

Metts and Cupach (1989; Cupach & Metts, 1991) expanded on sexual script theory by coining the term "dyadic sexual script" to describe the sexual scripts that couples personalize and adopt. Further, they identified communication as the key mechanism by which couples formulate dyadic sexual scripts. More specifically, they proposed that couples develop dyadic sexual scripts by describing their individual preferences and negotiating compromises when different preferences exist (Cupach & Metts,

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1991). In addition to influencing dyadic sexual script development, Metts and Cupach (1989) proposed that sexual communication, specifically sexual self-disclosure, contributes to increased sexual satisfaction in two ways. First, sexual self-disclosure provides information that increases each person's understanding of his or her partner's sexual needs, desires, likes, and dislikes, which, in turn, leads to more pleasurable sexual scripts, thereby enhancing sexual satisfaction. Second, sexual self-disclosure (as well as self-disclosure more generally) enhances partners' closeness, intimacy, and satisfaction with the relationship, which, in turn, leads to greater sexual satisfaction. MacNeil and Byers (2005, 2009) labeled these pathways the instrumental and expressive pathways respectively, and conducted a series of studies that support the ideas proposed by Metts and Cupach.

Metts and Cupach's (1989; Cupach & Metts, 1991) perspective implies that having accurate perceptions of one's partner's sexual behavior preferences is quite important for achieving a mutually satisfying sexual script. Accordingly, Miller and Byers (2004) and Simms and Byers (2009) examined people's understanding of their romantic partners' sexual preferences. Understanding was defined as "the extent to which an individual's perceptions of his or her partner correspond to the partner's self-perceptions" (Simms & Byers, 2009, p. 15). Miller and Byers found that women underestimated how long their male partners wanted both foreplay and intercourse to last, while men's perceptions of their female partners' preferences did not differ from their partners' reported preferences. Similarly, Simms and Byers found that women significantly overestimated how often their partners wanted to engage in these sexual behaviors, while men's perceptions of their partners' preferences did not differ significantly from what the female participants reported.

Perceptions of Sexual Behavior Preferences versus Perceptions of Sexual Satisfaction

These studies provide information as to how accurately people perceive their partners' sexual *behavior preferences*, but less research has examined the accuracy of people's perceptions of their partners' sexual *satisfaction*. Indeed, while we expect the accuracy of one's perceptions of one's partner's sexual behavior preferences (e.g., desired length of foreplay) to be significantly correlated with the accuracy of one's perceptions of one's partner's sexual satisfaction, we see these as distinct constructs. For example, consider a couple in which both partners are highly aware of one another's behavior preferences, but only a subset of these preferred behaviors are included in their dyadic sexual script. Initially, based on their understanding of one another's preferences, the couple developed a script that was mutually pleasurable and in which both partners felt competent and capable of fulfilling their roles. Based on the tenets of sexual script theory, we expect both members of the couple to be sexually satisfied. As this script is repeated over time, however, one or

both partners' sexual satisfaction may decrease for a number of reasons. For example, the novelty of the script will decrease, which in turn may reduce the sexual pleasure it affords both partners; one partner might increasingly want to incorporate a preferred behavior that the other partner does not enjoy; and/or changing health (e.g., injury, aging) or life circumstances (e.g., becoming parents) might interfere with the couple's ability to enact their established script. Importantly, in this example the partners' sexual behavior preferences have not changed while their sexual satisfaction has, illustrating a potential divergence between specific behavioral preferences and overall sexual satisfaction. We argue that individuals in long-term relationships must be able to estimate their partners' sexual satisfaction with reasonable accuracy in order to notice when their partners' sexual satisfaction has decreased and take corrective action (i.e., revise the dyadic sexual script). Thus, it is important to understand the accuracy of people's perceptions of their partners' sexual satisfaction in addition to studying their understanding of their partners' particular sexual behavior preferences.

Although the impact of accurately perceiving one's partner's sexual satisfaction on subsequent sexual satisfaction has not been examined directly, there is some past research to suggest that more accurate perceptions of one's partner's opinions about other aspects of the sexual relationship are related to greater sexual satisfaction (MacNeil & Byers, 2005; Purnine & Carey, 1997). For example, Purnine and Carey found that the accuracy of men's perceptions of their female partners' sexual behavior preferences was positively related to both men's and women's sexual satisfaction. These findings highlight the importance of having accurate perceptions of one's partner's opinions about the sexual relationship and are consistent with the idea that an accurate understanding of one's partner's sexual satisfaction may be associated with maintenance of, or increases in, sexual satisfaction over time.

Past Research on Perceptions of Partners' Sexual Satisfaction

Two studies have indirectly addressed the question of how accurately people perceive their partners' levels of sexual satisfaction. In their interviews with a demographically representative sample of the American population, Laumann et al. (1994) asked participants how often they had experienced orgasm with their sexual partner during the past 12 months, and how often their sexual partner had experienced orgasm with them. Results showed that 75.0% of men reported always experiencing orgasm with their primary partners, while 78.0% of women reported their primary partners always experienced orgasm with them. In contrast, 28.6% of women reported always experiencing orgasm with their primary partners, while 43.5% of men reported their primary partners always experienced orgasm with them. This result can be interpreted to suggest that women's perceptions of

their male partners' sexual satisfaction are relatively accurate, whereas men might overestimate their partners' sexual satisfaction. Laumann et al. identified several variables that might explain men's apparent tendency to overestimate their partners' orgasm frequency: men might overreport rates of orgasm because it is a socially desirable outcome, they might misinterpret ambiguous cues as suggesting orgasm has occurred because female orgasm can be difficult to identify, and/or women might sometimes be feigning orgasm. It is important to note that orgasm frequency is a problematic operationalization of sexual satisfaction. One's satisfaction with one's sex life has consistently been found to be associated with other factors (e.g., sexual frequency, oral-genital contact, partner characteristics) that are not captured by only asking about orgasm (Haavio-Mannila & Kontula, 1997). Laumann et al. acknowledged this limitation and also asked about subjective feelings of sexual satisfaction, but did not assess perceptions of partners' subjective sexual satisfaction.

Dunn, Croft, and Hackett (2000) examined levels of subjective sexual satisfaction in a sample of adults in England. Results showed that 69.9 % of men reported themselves to be sexually satisfied while 78.2 % of women reported their partners were sexually satisfied. In contrast, 79.5 % of women reported themselves to be sexually satisfied, while 82.9 % of men reported their partners were sexually satisfied. Their results can be interpreted to suggest that men may be more accurate in deciding if their partners are sexually satisfied, while women might overestimate their partners' sexual satisfaction.

It is difficult to extract firm conclusions about the accuracy of people's judgments of their partners' sexual satisfaction from these studies. As mentioned above, Laumann et al. (1994) operationalized sexual satisfaction as orgasm frequency, a construct that captures only one of many elements that comprise sexual satisfaction. Also they only reported on people who indicated they "always" had orgasms. Dunn et al. (2000) used a single-item measure of sexual satisfaction and did not include a moderate or neutral response option, so participants who perceived their partners' satisfaction as falling in the middle of the response scale were forced to choose between saying that their partners were "quite satisfied" or "quite dissatisfied." The authors also collapsed the sexual satisfaction index into a dichotomous variable, which yielded a fairly rudimentary indication of satisfaction. Finally, both studies were conducted with individuals as opposed to couples. Consequently, we cannot compare people's estimates of their partners' sexual satisfaction to their partners' reports of their own sexual satisfaction. Instead we must make comparisons between the reports of the men and women who participated in the study. The first purpose of the current study, then, was to examine the accuracy of partners' perceptions of one another's sexual satisfaction.

The Current Study

In past work, accuracy has been defined as the correlation between individuals' estimates of their partners' level of a characteristic and the partners' self-reported level of the characteristic (e.g., Murray, Holmes, Bellavia, Griffin, & Dolderman, 2002). However, with this method, people's estimates could be highly correlated with their partners' self-reports and therefore accurate, even though the partners' overall level of satisfaction is consistently under- or overestimated. To address this, we adopted Sandler and Woody's (2003) definition of bias as "a tendency to be systematically off in one's perceptions of oneself or of others, compared with some standard" (p. 89) and applied it such that we compared people's estimates of their partners' sexual satisfaction with the partners' self-reported sexual satisfaction. Thus, we examined both the accuracy and bias of people's perceptions of their partners' sexual satisfaction. With regard to accuracy, we hypothesized that people will have reasonably accurate perceptions of their partners' sexual satisfaction (i.e., estimates of partner sexual satisfaction will be significantly, positively correlated with partners' self-reported levels of sexual satisfaction (Hypothesis 1). Based on the work of Laumann et al. (1994) and Dunn et al. (2000), we tentatively hypothesized that people will demonstrate a bias toward overestimating their partners' sexual satisfaction (Hypothesis 2).

The second purpose of the current study was to identify factors that predict bias in gauging one's partner's level of satisfaction. Theories to date have not explicated factors that lead to biases in judgments, but there is a large body of research that clearly indicates sexual communication is a key factor in sexual satisfaction (e.g., Byers & Demmons, 1999; Cupach & Metts, 1991, MacNeil & Byers, 2005, 2009; Metts & Cupach, 1989; Purnine & Carey, 1997). We reasoned that partners with good sexual communication directly provide one another with information that informs their perceptions of how sexually satisfied the other is. Furthermore, consistent with the model proposed by Metts and Cupach (1989), we expected that by discussing one another's sexual likes and dislikes, partners have the opportunity to correct misconceptions about the other's sexual preferences and provide information that can be used to judge whether their sexual activities are likely to be pleasing.

Despite the benefits of open sexual communication, we know there are many barriers to couples candidly discussing their sexual relationships; these include feelings of shame and discomfort, and concern that such discussions will reveal discrepant desires or preferences that may threaten the relationship (Metts & Cupach, 1989). However, even if a couple does not have good sexual communication, each individual may be able to rely on intrapersonal strengths to make accurate judgments of his or her partner's sexual satisfaction. In particular, we were interested in the impact

of emotion recognition ability on the accuracy of people's perceptions of their partners' sexual satisfaction. The term "emotion recognition ability" refers to the ability to infer the mental state (i.e., emotion) of another person (Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001), which can be achieved by heavy reliance on nonverbal cues, such as facial expression (Watts & Douglas, 2006). The second purpose of the current study, then, was to examine the influence of sexual communication and emotion recognition ability on the bias in partners' judgments of sexual satisfaction. Based on this reasoning, we proposed the following hypotheses:

Hypothesis 3: There will be a main effect of sexual communication with higher quality sexual communication predicting lower bias;

Hypothesis 4: There will be a main effect of emotion recognition ability with better emotion recognition ability predicting lower bias;

Hypothesis 5: There will be an interaction of sexual communication and emotion recognition ability, such that when quality of sexual communication is reported to be low, individuals with better emotion recognition skills will not hold more biased perceptions of their partners' sexual satisfaction as compared to individuals who report good sexual communication in their relationships. In contrast, individuals who both report poor sexual communication and have poor emotion recognition skills are expected to have more biased perceptions of their partners' sexual satisfaction.

Method

Participants

A total of 91 heterosexual couples participated in the current study, as part of a larger study examining the effects of interpersonal factors on sexual satisfaction and sexual functioning. Seven couples were excluded from the current analyses because one or both of the individuals in the couple had scores that fell more than 3 SDs beyond the mean on one or more of the measures relevant to our study hypotheses. This resulted in a final sample of 84 couples. The couples were recruited from southwestern Ontario using posters placed in local businesses and offices of physicians and couples and sex therapists, referrals from physicians and couples and sex therapists, advertisements placed in local newspapers, and online classified ads (e.g., Kijiji). Couples referred by couples and sex therapists represented a very small percentage (approximately 2%) of the total sample.

To be eligible for the study, couples were required to be married or living together as if married. We wanted to ensure that both married ($n = 58$) and cohabiting couples ($n = 26$) were similarly committed to their relationships, and thus required that cohabiting couples had been living together for a minimum of

2 years. There were no significant differences between the levels of commitment reported by women who were married ($M = 95.09$; $SD = 7.17$) and cohabiting ($M = 93.38$; $SD = 9.15$), $t(79) = 1.04$, or men who were married ($M = 94.37$; $SD = 8.65$) and cohabiting ($M = 93.76$; $SD = 9.71$), $t(80) < 1$. Furthermore, both members of the couple had to be between the ages of 21 and 65 and report being able to speak and read English at a grade 8 level to ensure that they could understand and complete the study measures. Given that sexual satisfaction is negatively impacted by the birth of a child (Ahlborg, Dahlof, & Hallberg, 2005) and consistent with other studies examining the effects of interpersonal factors on sexual satisfaction (e.g., Purnine & Carey, 1997), the female partner could not have given birth during the 6 months prior to her participation in the study. Finally, both members of the couple had to be willing to participate.

Couples had been in their current relationships for an average of 10.7 ($SD = 8.8$) years. Of the couples who participated, 41.7% had no children. The remaining couples had 2.52 ($SD = 1.32$) children (including biological, step, and adopted children) on average. Women were on average 35.9 ($SD = 11.4$) years old, had completed 16.4 ($SD = 3.6$) years of education counting from Grade 1, and the modal gross personal annual income was \$20,000 to \$40,000. Men were on average 37.5 ($SD = 11.3$) years old, had completed 15.7 ($SD = 2.8$) years of education counting from Grade 1, and the modal gross personal annual income was \$20,000–\$40,000. The majority (88% of men and 93% of women) of the sample was Caucasian.

Measures

Background Questionnaire

This questionnaire was designed for the current study. It gathered information about participants' demographic characteristics (e.g., age, income, educational achievement) and the history of their current relationships (e.g., marital status, relationship length).

Broderick Commitment Scale (Beach & Broderick, 1983)

The Broderick Commitment Scale is a 1-item measure that assessed participants' commitment to their current relationships on a scale from 0 (Not at All Committed) to 100 (Completely Committed). It was utilized for descriptive purposes.

Quality of Marriage Index (QMI) (Norton, 1983)

The QMI is a 6-item questionnaire that assessed participants' satisfaction with their current romantic relationships. Participants rated their agreement with five statements such as "We have a good relationship" on a scale from 1 (Very Strongly

Disagree) to 7 (Very Strongly Agree). They also rated their overall happiness in the relationship on a scale from 1 (Very Unhappy) to 10 (Perfectly Happy). Scores on the QMI range from 6 to 45 with higher scores indicating greater relationship satisfaction. The QMI is a frequently used measure of relationship satisfaction; its scores correlate highly with scores on other measures of relationship satisfaction and marital adjustment, and are moderately negatively correlated with the amount of change people desire in their relationships (Heyman, Sayers, & Bellack, 1994). In the current sample, the QMI showed strong internal consistency for both men (Cronbach's alpha = .93) and women (Cronbach's alpha = .89).

Index of Sexual Satisfaction (ISS) (Hudson, 1993)

The ISS is a 25-item measure of one's sexual dissatisfaction within a relationship (for ease of communication we refer to this construct as sexual satisfaction). Participants responded to the items on a scale from 1 (None of the Time) to 7 (All of the Time). Participants completed two versions of the ISS; the original described above and a second that instructed participants to report on their perceptions of their partners' sexual satisfaction. In this version the items were reworded to ask about one's partner's sexual satisfaction. The ISS is scaled such that scores range from 0 to 100, with lower scores indicating greater sexual satisfaction. With regard to the validity of the original version of the ISS, individuals experiencing sexual problems score significantly lower than those who are not, and scores on the ISS are moderately correlated with marital satisfaction (Hudson, Harrison, & Crosscup, 1981). The ISS showed excellent internal consistency for both men (Own Satisfaction, Cronbach's alpha = .94; Partner Satisfaction, Cronbach's alpha = .95) and women (Own Satisfaction, Cronbach's alpha = .94; Partner Satisfaction, Cronbach's alpha = .91) in the current sample.

Dyadic Sexual Communication Scale (DSCS) (Catania, 1998)

The DSCS is 13-item questionnaire that assessed individuals' perceptions of the quality of their communication as a couple about sexual topics. Participants rated their agreement with statements such as "My partner rarely responds when I want to talk about our sex life" on a scale from 1 (Disagree Strongly) to 6 (Agree Strongly). Scores on the DSCS range from 13 to 78 with higher scores indicating better perceived quality of communication about sexual issues within the relationship. The DSCS has been shown to discriminate between people who report experiencing sexual problems and those who do not, such that those who report sexual problems have poorer sexual communication (Catania, 1998). The DSCS showed good internal consistency for both men (Cronbach's alpha = .85) and women (Cronbach's alpha = .84) in the current sample.

The Reading the Mind in the Eyes Task Revised Version (Eyes Task) (Baron-Cohen et al., 2001)

This task assessed individuals' ability to recognize emotions. Participants were presented with photos of people's eyes and were asked to select, from four possible answers, the response option that best described the emotion displayed by the eyes in the picture. Participants were provided with a glossary defining all of the response options. The task included one practice item and 36 scored items, with an equal number of male and female photos. Scores on the measure were calculated by summing the number of items participants answered correctly. Normally functioning adults typically perform below ceiling levels on this task and performance on the task has been shown to distinguish adults of normal intelligence from those of normal intelligence with minor difficulties in social intelligence and those with Asperger syndrome (Baron-Cohen et al., 2001).

Procedure

All study measures and procedures were reviewed and approved by the Office of Research Ethics. Two trained research assistants worked individually with each couple. When the couple arrived at the lab, the research assistants reviewed the information letter and consent forms. Partners were then separated into two different rooms where they completed all questionnaires individually. One research assistant was randomly assigned to work with each partner from that point forward. Participants began by completing the Background Questionnaire and then completed the remaining measures relevant to the current study in random order. Participants also completed additional questionnaires and a discussion task that are not relevant to the current study. When both members of the couple had finished, they were provided with a feedback letter, a list of sexual health resources, and received \$50.00 each for their time. The entire study procedure took approximately 3 h.

Calculation of the Dependent Variables

The dependent variable for this study was the bias people exhibited in estimating their partners' levels of sexual satisfaction. To facilitate investigation of our hypotheses, two versions of the bias variables were calculated for both men and women: bias-full range and bias-absolute value. Both variables represent the degree of bias in one partner's estimate of the other partner's sexual satisfaction (i.e., women's bias is the bias in women's estimates of their male partners' sexual satisfaction and men's bias is the bias in men's estimates of their female partners' sexual satisfaction). The women's bias-full range variable was calculated by subtracting the male partner's report of his own sexual satisfaction from the female partner's estimate of her partner's sexual satisfaction. The men's bias-full range variable was calculated by subtracting the female partner's report of her own sexual

satisfaction from the male partner's estimate of his partner's sexual satisfaction. Recalling that higher scores on the ISS indicate lower sexual satisfaction, the bias-full range variables can be interpreted such that a score of 0 indicates no bias, while positive scores indicate an underestimation of partner sexual satisfaction and negative scores indicate an overestimation of partner sexual satisfaction. One's bias-full range score provides information about both the magnitude and direction (i.e., over versus underestimation) of the bias in one's perceptions of one's partner sexual satisfaction and thus is relevant to Hypothesis 2.

The men's and women's bias-absolute value variables are the absolute values that result from the calculations of the men's and women's bias-full range variables described above. One's bias-absolute value score provides information about the magnitude of bias in one's perception of one's partner sexual satisfaction, regardless of the direction of bias. This variable was used to test Hypotheses 3, 4, and 5, as there was no theoretical basis to expect one's sexual communication quality or emotion recognition ability to impact the direction of bias.

Results

Preliminary Analyses

Sample Descriptive Characteristics

The mean scores and SDs of key study variables are shown in Table 1. Overall, the sample was fairly relationally and sexually satisfied. On average, they reported good quality of sexual communication. Both men's and women's mean scores on the Eyes Task were comparable to what is typically found in samples of normally functioning adults (Baron-Cohen et al., 2001). There were no significant differences between men's and women's scores on these variables. The correlations among these variables for men and women are shown in Table 2.

The Association Between Bias and Sexual Satisfaction

As a means of testing our assertion that the degree of bias in one's perceptions of one's partner's sexual satisfaction is relevant to one's own sexual satisfaction, we tested the association between one's own bias-absolute value score and one's own sexual satisfaction with zero-order correlations. Greater bias-absolute value was associated with poorer sexual satisfaction for both men ($r = .26, p < .05$) and women ($r = .33, p < .01$).¹

¹ Given that the men's and women's bias variables were calculated using their partners' self-reported sexual satisfaction scores, it was not possible to examine the correlations between one's own level of bias and one's partner's self-reported sexual satisfaction.

Hypotheses 1 and 2: Accuracy and Bias

In order to determine the accuracy of people's perceptions of their partners' levels of sexual satisfaction we calculated separate Pearson's correlation coefficients for men and women. Consistent with Hypothesis 1, the results indicated that men's perceptions of their female partners' sexual satisfaction were significantly correlated with women's self-reported levels of sexual satisfaction ($r = .67, p < .01$), and women's perceptions of their male partners' sexual satisfaction were significantly correlated with men's self-reported levels of sexual satisfaction ($r = .66, p < .01$). We compared the correlations and found there was not a significant difference between men's and women's accuracy scores, $z = 0.18$.

In order to determine whether people demonstrate bias in estimating their partners' sexual satisfaction (Hypothesis 2), we conducted two one-sample *t*-tests using a test value of 0,

Table 1 Means and SDs for men's and women's scores on study measures

Measure	Men	Women
Quality of Marriage Index ^a	38.99 (6.36)	39.89 (5.50)
Index of Sexual Satisfaction—Self-Report ^b	22.17 (13.93)	22.02 (13.98)
Index of Sexual Satisfaction—Estimate Partner Satisfaction ^b	25.35 (14.76)	22.89 (12.48)
Dyadic Sexual Communication Scale ^c	62.08 (10.58)	63.77 (10.65)
Eyes Task ^d	26.69 (3.77)	27.02 (3.92)

Note No gender differences were significant

^a Absolute range, 6–45

^b Absolute range, 0–100

^c Absolute range, 13–78

^d Absolute range, 0–36

Table 2 Correlations among men's and women's scores on study measures

	QMI	DSCS	Eyes Task	Bias-absolute value
QMI	<i>.48**</i>	<i>.40**</i>	.04	-.19
DSCS	<i>.29**</i>	<i>.41**</i>	.01	-.20
Eyes Task	-.10	-.03	<i>-.004</i>	-.13
Bias-absolute value	-.15	-.23*	-.05	<i>.37**</i>

Note $N = 84$ couples; QMI Quality of Marriage Index, DSCS Dyadic Sexual Communication Scale. Correlations between men's scores on study measures appear above the diagonal (diagonals denoted by italic values), correlations between women's scores on study measures appear below the diagonal, and correlations between men's and women's scores on the same measure appear along the diagonal

* $p < .05$, two-tailed

** $p < .01$, two-tailed

which allowed us to determine if mean bias-full range scores were significantly different from 0 (i.e., no bias). Women's bias-full range scores ($M = 0.73$, $SD = 11.01$) did not significantly differ from 0, suggesting that they were neither overestimating nor underestimating their partners' levels of sexual satisfaction, $t(83) < 1$. In contrast, men ($M = 3.33$, $SD = 11.63$) significantly underestimated their partners' levels of sexual satisfaction, $t(83) = 2.62$, $p = .01$, $d = 0.29$. A paired samples t test revealed the gender difference was not significant, $t(83) = 1.14$.

Hypotheses 3, 4, and 5: Factors that Contribute to Bias

In order to determine whether quality of sexual communication and emotion recognition ability explain variability in the bias people demonstrate in their perceptions of their partners' levels of sexual satisfaction, the present study used a hierarchically structured design, with individuals nested within couples. Thus, the data were organized according to two levels: the level of the couple and the level of the individual. Multilevel structures imply interdependence of data, which violates the assumption of standard regression procedures that observations are completely independent of one another. Therefore, we used mixed model regression, which enabled us to account for interdependence in the data.

We tested a model that included two predictor variables (i.e., sexual communication and emotion recognition ability) and the relevant two-way interaction term. The outcome variable was bias-absolute value. All of the variables were standardized so that the regression coefficients can be interpreted as effect sizes.²

Consistent with Hypothesis 3, there was a significant main effect for sexual communication, such that individuals who reported better quality of sexual communication within their relationships had less biased perceptions of their partners' sexual satisfaction, $\beta = -.23$, $t(158.27) = -3.04$, $p < .01$. Contrary to Hypothesis 4, emotion recognition ability did not significantly predict bias in perceptions of one's partner's sexual satisfaction, $\beta = -.09$, $t(142.70) = -1.30$. As predicted in Hypothesis 5, the main effect for sexual communication was qualified by a significant interaction between emotion recognition ability and quality of sexual communication, $\beta = .14$, $t(127.26) = 2.13$, $p = .04$.

² To investigate the impacts of relationship satisfaction, relationship length, and gender on our results, we ran three additional models in which we separately included these variables as covariates. Including these variables did not influence the significance or direction of our findings. We further investigated the impact of gender with a model that included the main effect of gender and the relevant two-way and three-way interaction terms involving gender. None of the interaction terms were significant. Given that relationship satisfaction, relationship length, and gender did not influence our findings, we report on the more parsimonious model.

To understand the interaction between sexual communication and emotion recognition ability, we conducted simple slopes analyses. Consistent with the recommendations of Aiken and West (1991), we examined the effects of emotion recognition ability on bias-absolute value scores at high and low levels of perceived quality of sexual communication. This was achieved by estimating the effect of emotion recognition ability when perceived quality of sexual communication was centered at 1 SD below the mean and again when perceived sexual communication was centered at 1 SD above the mean. The results of the simple slopes analyses indicated that for individuals who were 1 SD above the mean in sexual communication in their relationships, there was no association between emotion recognition ability and bias-absolute value scores, $\beta = .06$, $t(114.29) < 1$. In contrast, for individuals who were 1 SD below the mean in sexual communication, better emotion recognition ability predicted less bias in perceptions of partner sexual satisfaction, $\beta = -.24$, $t(143.70) = -2.26$, $p = .03$. Together, sexual communication, emotion recognition ability, and their interaction predicted 7.3 % of the total variance in women's bias-absolute value scores, and 4.1 % of the total variance in men's bias-absolute value scores.

Discussion

Based on the tenets of sexual script theory (Simon & Gagnon, 1986) and subsequent elaborations by Metts and Cupach (1989; Cupach & Metts, 1991), we proposed that accurately perceiving one's partner's level of sexual satisfaction is important for people's sexual satisfaction, as people use this information to make decisions as to whether they should maintain or attempt to revise their dyadic sexual scripts. Very little research has examined how accurately people perceive their partners' levels of sexual satisfaction, and thus we examined the degrees of accuracy and bias in married and cohabiting individuals' perceptions of their romantic partners' sexual satisfaction. Consistent with Hypothesis 1, we found that both men and women's perceptions of their partners' sexual satisfaction were strongly, positively correlated with their partners' self-reported sexual satisfaction. These findings indicate there is a strong relationship between the level of sexual satisfaction an individual reports and the level of sexual satisfaction that his or her partner perceives the individual to have, suggesting that overall people have generally accurate perceptions of their romantic partners' sexual satisfaction.

Hypothesis 2 tentatively predicted that people would significantly overestimate their partners' levels of sexual satisfaction. Instead, we found that women did not significantly overestimate or underestimate their partners' levels of sexual satisfaction, whereas men perceived their partners' levels of sexual satisfaction to be slightly (albeit significantly) lower than what their partners reported. Importantly, although men slightly underestimated their partners' sexual satisfaction, when we directly compared the amounts of bias exhibited by men and

women, these amounts did not differ significantly. Thus, men and women did equally well in estimating their partners' sexual satisfaction.

Together the accuracy and bias findings suggest that, on average, people are generally aware of their partners' levels of sexual satisfaction. Thus, we expect most people have sufficient knowledge of their partners' sexual satisfaction to appropriately inform their decisions as to whether their dyadic sexual script should be maintained or renegotiated. At the same time, however, we found that the degree of bias people demonstrated varied widely. Thus, while overall people have the knowledge necessary to realize when they should consider changing their sexual routine, there are large individual differences in degree of awareness of one's partner's sexual satisfaction.

Our findings, suggesting that both men and women have fairly accurate and unbiased perceptions of their partners' sexual satisfaction, differ from those of both Laumann et al. (1994) and Dunn et al. (2000). It is likely that differences in the study methodologies account for these discrepancies. Both previous studies were characterized by significant methodological shortcomings that limited their ability to address this question (e.g., using problematic definitions and measures of sexual satisfaction, using samples of individuals rather than couples). Furthermore, neither of these studies was designed specifically to examine accuracy and bias and these questions were addressed post hoc using descriptive statistics. Because it addresses these limitations, we believe the current study provides the best information as to how accurately people perceive their partners' sexual satisfaction.

To better understand what factors explain variability in the degree of bias people show in their perceptions of their partners' sexual satisfaction, we identified and tested two theoretically relevant factors: sexual communication (an interpersonal factor) and emotion recognition ability (an intrapersonal factor). By examining them simultaneously, we were able to investigate the interplay between them in predicting perceptions of partner sexual satisfaction. Specifically, our goal was to determine whether strengths in one of these areas might compensate for weaknesses in the other. As predicted, we found that those who reported better quality of sexual communication had less biased perceptions of their partners' sexual satisfaction (Hypothesis 3); contrary to our predictions, however, we did not find a significant association between emotion recognition ability and bias (Hypothesis 4). Further, sexual communication and emotion recognition ability interacted such that when the quality of sexual communication within the relationship was good, emotion recognition ability did not predict bias, but when the quality of sexual communication within the relationship was poor, better emotion recognition ability was associated with having less biased perceptions of one's partner's sexual satisfaction (Hypothesis 5). In instances when couples have poorer sexual communication, we believe that one or both individuals' emotion recognition abilities may help compensate for the couple's weakness by provid-

ing an alternate means to gather information about one's partner's sexual satisfaction. We expected sexual communication and emotion recognition ability to inform men and women's perceptions of their partners' sexual satisfaction in the same way (i.e., by giving the partner information on which to base his or her judgments) and, indeed, the model was not impacted by gender. The results also held regardless of how long individuals had been in their relationships and regardless of their relationship satisfaction. It is important to note that because our study is a correlational study, it does not rule out the possibility of other causal links between these variables.

Implications

Given the paucity of research into the questions examined in the current study, it will be important to replicate the findings. If replicated, the findings have important implications. Firstly, the results of this study add to our theoretical understanding of sexual satisfaction within an interpersonal context. Much of the existing research examining factors that contribute to sexual satisfaction focuses exclusively on individual-level factors, yet Lawrance and Byers (1995) argued that interpersonal factors may be more informative than individual-level factors in predicting sexual satisfaction. Our findings provide an example of how intrapersonal and interpersonal factors can interact to affect relationship outcomes. More specifically, they provide an example of how strengths at one of these levels can compensate for deficits in the other.

Secondly, consistent with the assertions of Metts and Cupach (1989), as well as past research (e.g., Byers & Demmons, 1999; MacNeil & Byers, 2005, 2009), the results of this study underscore the fact that sexual communication processes are important to couples' sexual relationships. However, they also indicate that people with poorer quality of communication about sexual issues may still be able to accurately perceive their partners' sexual satisfaction. Our results indicate that such individuals may be able to rely on their emotion recognition abilities in developing perceptions of their partners' sexual satisfaction.

Limitations

It is also important to note some of the limitations of our study. First, the study used a convenience sample, which may limit the generalizability of the results. Consistent with the population of the Ontario city from which it was recruited, our sample was primarily Caucasian. Thus, our results may not generalize to couples from other cultures or of other ethnicities. Additionally, the current sample reported fairly high levels of relationship and sexual satisfaction overall. Thus, the current results may not generalize to couples experiencing greater levels of relationship and/or sexual dissatisfaction or couples who seek treatment for these types of difficulties. Previous research has also demonstrated that people who are willing to participate in studies of

sexuality differ from those who are not in important ways. For example, they tend to be more sexually experienced and less traditional in their attitudes toward sex (Wiederman, 1999). It is possible such individuals might exhibit different patterns of accuracy and bias, or that the factors found to predict bias might operate differently for them. Replicating the current results in other samples represents an important area for future research. Second, the model we tested explained a relatively modest amount of variance in bias in perceptions of partner sexual satisfaction. The variables that we included were selected based on relevant theoretical models as well as past empirical research; however, our findings suggest there are additional factors that contribute to individual differences in accuracy of perceptions of partner sexual satisfaction.

Future Directions

In order to continue increasing our understanding of how people develop accurate perceptions of their partners' sexual satisfaction, future research could focus on identifying factors that promote or interfere with the development of accurate and unbiased perceptions of partner sexual satisfaction. Investigating individuals' personalities and communication styles, as well as the interplay between these might be especially informative. For example, some partners might be particularly reluctant to express dissatisfaction with their sexual relationships, minimizing negative reactions or providing inaccurate information in order to spare their partners' feelings. As perceivers, individuals might vary in the degree to which they are motivated to attend to their partners' sexual satisfaction and in their tendencies to appreciate versus discount both negative and positive feedback. Another direction for future research is to examine what factors people take into account when forming perceptions of their partners' sexual satisfaction. In the current study we deliberately used a measure of sexual satisfaction that asked people to report on their perceptions of their partners' opinions about multiple facets of sexual satisfaction (e.g., overall appraisals of one's sex life, satisfaction with the techniques one's partner uses, satisfaction with frequency of sexual encounters). However, we do not know what factors (e.g., sexual frequency, experience of orgasm, tenderness during sex) people consider when deciding, for example, how satisfied their partners are with their sex lives overall. Furthermore, there are likely individual differences, and possibly gender differences, in the relative importance given to different domains when people develop their perceptions of their partners' sexual satisfaction.

An additional area for future research is the longitudinal effects of having more or less biased perceptions of one's partner's sexual satisfaction. Based on the tenets of sexual script theory, we expect greater accuracy and less bias to predict better sexual outcomes (i.e., maintenance or increases in sexual satisfaction), while less accuracy and greater bias would predict poorer sexual outcomes. Although this specific question has not yet been

examined, past research has shown that having accurate perceptions of one's partner's sexual preferences is associated with greater sexual satisfaction cross-sectionally (e.g., MacNeil & Byers, 2005; Purnine & Carey, 1997). In the current study we found a significant cross-sectional association between degree of bias and one's own sexual satisfaction, providing preliminary support for this assertion. Future research might also focus on further understanding the process by which sexual script revision is undertaken. In the current study, we proposed that having accurate perceptions of one's partner's sexual satisfaction is important to the process, as detecting that one's partner is not sexually satisfied may signal to an individual that their sexual routine is no longer functioning well. However, we do not know what factors promote or discourage couples from revising their sexual scripts once they realize one or both partners' satisfaction is decreasing. It could be that couples with higher levels of commitment, love, or relationship satisfaction are more likely to revise their script. Additionally, variables related to the individuals' or couple's comfort with sexual communication, as well as sexuality more generally, may influence their willingness to try to change their sexual relationship.

The current research indicated that people in long-term committed relationships tend to have accurate perceptions of their partners' sexual satisfaction. It also begins to identify some of the factors that help partners develop accurate perceptions of their partners' sexual satisfaction. Consistent with the tenets of sexual script theory, having accurate perceptions of one partner's sexual satisfaction is expected to promote appropriate dyadic sexual script modification and to contribute to higher levels of sexual satisfaction for couples over time.

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