

An Investigation of Perceptions of Partner Sexual Satisfaction in Committed Relationships

by

Erin Fallis

A thesis
presented to the University of Waterloo
in fulfilment of the
thesis requirement for the degree of
Master of Arts
in
Psychology

Waterloo, Ontario, Canada, 2010

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Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners. I understand that my thesis may be made electronically available to the public.

Abstract

To date, only two studies have examined the accuracy of people's perceptions of their romantic partners' sexual satisfaction. These have yielded inconsistent results, with one study suggesting that men tend to overestimate their partners' sexual satisfaction while women do not, and the other suggesting that women tend to overestimate their partners' sexual satisfaction while men do not. Both studies have significant methodological limitations that make it difficult to interpret their findings. The first purpose of the current study was to investigate how similar people's perceptions of their partners' sexual satisfaction were to the levels of sexual satisfaction their partners reported, using an improved research methodology that addressed the limitations of past research. The second purpose of the current study was to better understand the factors that predict bias in perceptions of partner sexual satisfaction, using an integrative model that included both interpersonal and intrapersonal factors. Participants were 84 heterosexual couples who were married or cohabiting. They completed measures of sexual satisfaction (their own and their partners'), relationship satisfaction, quality of communication about sexual issues within their relationships, and also completed a task designed to assess emotion recognition abilities. We found that partner perceptions of sexual satisfaction were strongly correlated with self-reported sexual satisfaction for both males and females. We also found that males' perceptions of their female partners' sexual satisfaction were significantly biased, such that they underestimated their partners' levels of sexual satisfaction. Females neither over nor underestimated their partners' sexual satisfaction. Additionally, we found that better quality of sexual communication predicted decreased bias, while there was a trend toward better emotion recognition abilities predicting decreased bias. Further, quality of sexual communication and emotion recognition abilities interacted such that when the quality of sexual communication was good, there was no

association between emotion recognition abilities and bias, but when the quality of sexual communication was poor, better emotion recognition abilities were associated with less bias. Implications of these findings are discussed.

Acknowledgements

I would like to thank my supervisors, Dr. Uzma Rehman and Dr. Christine Purdon, for their collaboration and invaluable assistance with all aspects of this project. I would also like to thank my third reader, Dr. Erik Woody, for providing assistance with data analysis and helpful feedback on this document. Additionally, I would like to acknowledge Dr. Jackson Goodnight for his assistance with data analysis, and the undergraduate research assistants who helped with data collection: Neha Ahuja, Katie Carswell, Sarah Cook, Kassandra Cortes, Jenna Dawson, Jennifer Fitzgerald, Chantal Johnson, Kyrene Kim, Catherine Lau, Shauna McLean, Jessica Padgett, Jessie Pearce, and Maryam Woldeyohannes. I would also like to thank the members of the Relationship Research Lab for helping me to develop my research ideas, as well as providing feedback on my brown bag presentations: Dave Duong, Gelareh Karimiha, Ravinder Sidhu, and Rebecca Wells. On a personal note, I would like to thank Colleen Merrifield, Vanessa Huyder, Dee Gavric, and Geoff Loewen for their support.

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The sexuality literature provides robust and consistent evidence to suggest that sexual satisfaction is associated with both individual and dyadic well-being. Laumann and colleagues (2006) examined predictors and correlates of subjective sexual well-being in a sample of 27,000 men and women between 40 and 80 years of age and found that satisfaction with the physical and emotional aspects of one's sexual relationship were strong predictors of overall life happiness for both men and women (Laumann et al., 2006). Sexual satisfaction has also been found to predict marital satisfaction and stability. For example, Karney and Bradbury (1995) conducted a meta-analysis examining longitudinal research on marriage and found that sexual satisfaction was the strongest predictor of increased marital stability for men, and the second strongest predictor of increased marital stability for women.

In investigating causal models of the association between sexual and marital satisfaction, Yeh and colleagues (2006) found that higher levels of sexual satisfaction predicted increased levels of marital satisfaction and increased marital stability for both men and women over time. In contrast, earlier marital satisfaction and stability did not predict later sexual satisfaction, indicating that there may be a causal relationship from initial sexual satisfaction to subsequent marital satisfaction and stability (Yeh et al., 2006). Given that sexual satisfaction may influence subsequent marital satisfaction, research investigating the factors that contribute to sexual satisfaction is warranted.

Individual Differences in Perceptions of Partner Sexual Satisfaction

Our research into sexual satisfaction is guided by the definition of sexual satisfaction proposed by Lawrence and Byers (1995). Their definition takes into account both affective and evaluative considerations and defines sexual satisfaction as “an affective response arising from one's subjective evaluation of the positive and negative dimensions associated with one's sexual

relationship” (Lawrance & Byers, 1995, p. 268). Additionally, Lawrance and Byers proposed and validated a conceptual framework for understanding sexual satisfaction. The interpersonal exchange model of sexual satisfaction is based on the principles of social exchange theory (Lawrance & Byers, 1995). The model suggests that sexual satisfaction is influenced by four factors: the rewards associated with one’s sexual relationship, the costs associated with one’s sexual relationship, the individual’s comparison level for rewards and costs, and the perceived equality of the rewards and costs between both members of the dyad (Lawrance & Byers, 1995). In validating the model, Lawrance and Byers found that all four of these factors predicted unique variance in sexual satisfaction, and that sexual satisfaction was “most strongly influenced by the degree to which reward level exceeds cost level” (p. 278-279). This finding can be interpreted to suggest that achieving a balance in which the rewards of a sexual relationship outweigh the costs of the sexual relationship over time is important for attaining sexual satisfaction.

We argue that one way partners might develop a sexual relationship characterized by high levels of rewards and low levels of costs, which in turn should lead to increased sexual satisfaction, is to develop a mutually satisfying sexual script. Sexual script theory posits that, similar to most other social behavior, sexual behaviour is guided by “an operating syntax” (Simon & Gagnon, 1986, p. 98), or scripts. Sexual script theory makes several assumptions as to how individuals learn about and express sexuality (Laumann, Gagnon, Michael, & Michaels, 1994). Briefly, the assumptions are that: (a) what is considered sexual will differ depending on one’s culture; (b) sexual scripts, which are socially determined, have a far greater influence on humans’ sexual behavior than do instincts or other biological factors; (c) people learn sexual scripts appropriate to their culture over the course of their lifetime, and (d) people may not do exactly what is dictated by their cultural scripts, and instead will make small changes to the

cultural script so that it better meets their needs (Laumann et al., 1994). Based on these assumptions, sexual script theory predicts, “with whom people have sex, when and where they should have sex, what they should do sexually, and why they should do sexual things” (Laumann et al., 1994, p. 6).

The fourth assumption, that individuals will modify the sexual script they have learned from their culture to meet their own needs, is especially relevant to the current study. Simon and Gagnon (1986) argue that an individual modifies his or her cultural script to ensure that it provides both sexual pleasure and that the individual feels competent in enacting it. Once an individual has found a sexual “formula that works” (p. 111), in these ways, there is tendency for individuals and couples to adopt the formula, which will stabilize over time. These formulas are known as intrapsychic and interpersonal sexual scripts, respectively. Simon and Gagnon acknowledge that there is some variability in what people will do during different sexual encounters, but they argue that this variability will all be captured within their larger scripts.

Miller and Byers (2004) focus on interpersonal sexual scripts and argue that a couple’s sexual performance script, which they define as what the couple does during sexual encounters, will be influenced by both couple members’ perceptions of one another’s sexual preferences. Based on Simon and Gagnon’s (1986) explanation of what constitutes a successful formula, we expect a mutually satisfying sexual script to be one that provides sexual pleasure to both members of the couple, and that both members of the couple feel competent to enact. Consistent with this idea, researchers have begun to examine the accuracy of people’s perceptions of their partners’ sexual preferences. In one study, Miller and Byers (2004) asked both members of heterosexual dating couples how long their partners wanted foreplay and intercourse to last. They found that women underestimated how long their male partners wanted both foreplay and

intercourse to last, while men's perceptions of how long women wanted foreplay and intercourse to last did not differ significantly from what the female participants reported. Additionally, Simms and Byers (2009) asked both members of heterosexual dating couples how often their partners wanted to engage in a number of sexual behaviours. Similar to the pattern of results in the Miller and Byers (2004) study, Simms and Byers found that women significantly overestimated how often their partners wanted to engage in the sexual behaviours, while men's perceptions of how often women wanted to engage in the same behaviours did not differ significantly from what the female participants reported.

Consistent with both the research and theory discussed above, we posit that it is important for individuals to accurately perceive their partners' sexual satisfaction in order to develop a mutually satisfying sexual script. One risk of not accurately perceiving one's partner's sexual satisfaction is that the couple might develop and subsequently adopt a sexual script that does not work for one or both members of the couple. A second risk is that people who do not accurately perceive their partners' sexual satisfaction may not recognize changes in their partners' sexual satisfaction over time, and thus the couple may not modify their sexual script if it no longer produces sexual satisfaction in one or both members of the couple. Additionally, the couple might not incorporate a novel, but pleasing, sexual behaviour into their sexual script if they do not recognize that this behaviour had a positive impact on the partner's sexual satisfaction. We expect that these occurrences (i.e., inclusion of displeasing behaviours in the sexual script, failure to incorporate pleasurable behaviours into the sexual script, and failure to modify the sexual script in response to changes in partners' sexual satisfaction) will be related to poorer sexual outcomes for couples over time. Although the effects of having accurate perceptions of one's partner's sexual satisfaction on subsequent sexual satisfaction have not been

examined directly, other research has suggested that more accurate perceptions of one's partner's opinions about other aspects of the sexual relationship are related to greater sexual satisfaction. For example, Purnine and Carey (1997) found that the accuracy of males' perceptions of their female partners' sexual behaviour preferences was positively related to both males' and females' sexual satisfaction. Additionally, in validating the interpersonal exchange model of sexual satisfaction, MacNeil and Byers (2005) found that the accuracy of males' perceptions of how rewarding their female partners found their sexual relationships to be was related to females' sexual satisfaction, and that the accuracy of females' perceptions of how rewarding their male partners found their sexual relationships to be was related to males' 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 improvements in, sexual satisfaction over time.

Two previous studies provide preliminary information about the accuracy of people's perceptions of their partners' sexual satisfaction. The primary purpose of these studies was not to examine accuracy of perceptions of partner sexual satisfaction and thus methodological issues limit their ability to inform us about this issue. In the National Health and Social Life Survey (NHSL), Laumann, Gagnon, Michael, and Michaels (1994) interviewed a demographically representative sample of the United States population in order to gather information about the sexual behaviour of Americans. The sample had just over 3400 randomly selected participants and 79% of individuals contacted agreed to participate. As part of the interview, participants were asked to report how often, during the past 12 months, they had experienced orgasm with their primary sexual partner and how often their primary sexual partner had experienced orgasm

with them. They answered by selecting one of five response options: always, usually, sometimes, rarely, or never. Laumann and colleagues reported descriptive statistics for the participants who chose the 'always' response option. They found that 75.0% of males reported that they always experienced orgasm with their primary partners, while 78.0% of females reported that their primary partners always experienced orgasm with them. In contrast 28.6% of females reported always experiencing orgasm with their primary partners, while 43.5% of males reported that their primary partner always experienced orgasm with them. Overall, their findings suggest that females' perceptions of their male partners' sexual satisfaction are relatively accurate, while males' perceptions of their female partners' sexual satisfaction may be somewhat inaccurate. However, there are significant methodological problems that limit our confidence in these results. First, Laumann and colleagues only reported the data for people who selected the always response option. Thus, it is unclear whether people's perceptions of their partners' sexual satisfaction differ when people are less satisfied. Second, Laumann and colleagues used orgasm frequency as an operationalization of sexual satisfaction and interpreted more frequent orgasm as greater sexual satisfaction. Orgasm frequency is a mediocre operationalization of sexual satisfaction. In fact, 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 and colleagues acknowledge this limitation, and for this reason they also asked their participants to report on their subjective feelings of sexual satisfaction in their primary relationships. Unfortunately, they did not ask participants to report on their partners' subjective sexual satisfaction. Third, the study was conducted with individuals as opposed to couples. As a result we cannot compare people's estimates of their partners' sexual satisfaction to their partners'

reports of their sexual satisfaction. Instead we must make comparisons between the reports of the males and females who participated in the study. Laumann and colleagues argue that given that the sample is representative of the U.S. population and was randomly selected, there is no reason to suspect that the orgasm frequency of the men and women sampled would differ from that of the partners of the men and women sampled, but we cannot know this with certainty.

The second study that provides information about the accuracy of people's perceptions of their partners' sexual satisfaction examined estimates of subjective feelings of sexual satisfaction. Dunn, Croft, and Hackett (2000) conducted a study to examine levels of sexual satisfaction within a general population. This study was conducted with a sample of 1768 adults in England, which represents only 44% of the individuals contacted to participate. The individuals contacted to participate were a stratified random sample of patients from four doctors' practices that differed in terms of their geographical location and urbanization. Participants were asked to report on how sexually satisfied they were with their current sexual relationship and to report on how sexually satisfied they believed their partners to be. In responding to these questions participants were asked to select one of the following options: extremely dissatisfied, quite dissatisfied, quite satisfied, or extremely satisfied. Dunn, Croft, and Hackett then combined the four categories to create two: satisfied and dissatisfied. Dunn, Croft, and Hackett also presented their results using only descriptive statistics. They found that 69.9% of men reported themselves to be sexually satisfied while 78.2% of women reported that their partners were sexually satisfied. With regard to their own sexual satisfaction, 79.5% of women reported themselves to be sexually satisfied, while 82.9% of men reported that their partners were sexually satisfied. In contrast to the results of the NHSLs, the results of this study suggest that some women may see their partners as sexually satisfied when they are not, but men may be

more accurate in deciding whether their partners are sexually satisfied or not. There are a number of limitations to the methods used by Dunn, Croft, and Hackett for determining whether people have accurate perceptions of their partners' sexual satisfaction. First, the response options that they used are potentially problematic. Specifically, the response options they provided did not include a moderate or neutral response option. Participants who believed that their partners fell somewhere in the middle of the scale were forced to choose between saying that their partners were "quite satisfied" or "quite dissatisfied." Given that the "quite satisfied" response is far more socially desirable, it is possible that this study overestimates rates of sexual satisfaction. Second, the authors used a one-item measure of sexual satisfaction. Given that their measure is only one item it is not possible to assess its psychometric properties, nor do they report any statistics to support its validity as a measure of sexual satisfaction. Third, similar to the study conducted by Laumann and colleagues (1994), partner reports were not collected in this study and thus we cannot compare people's reports of their partners' levels of sexual satisfaction to the self-report of the partners. Finally, as alluded to previously, both studies reported only descriptive data and thus are limited in their ability to determine whether people significantly over or underestimate their partners' levels of sexual satisfaction.

Given the limitations of previous work in this area, the first purpose of the current study was to examine how accurately people in committed relationships perceive their partners' sexual satisfaction, using a methodology that addressed the limitations of past studies. First, to allow us to directly compare people's perceptions of their partners' sexual satisfaction to their partners' self-reported sexual satisfaction, we recruited a sample of couples and had both members of the couple complete a measure of sexual satisfaction twice – once to report on their own sexual satisfaction and once to report on their perceptions of their partners' sexual satisfaction. Second,

in order to ensure that our measure of sexual satisfaction is valid and reliable, we used a standardized measure with demonstrated strong psychometric properties (*The Index of Sexual Satisfaction*, Hudson, 1993). This measure includes items that address multiple facets of sexual satisfaction including overall appraisals of one's sex life, satisfaction with the techniques one's partner uses, and satisfaction with frequency of sexual encounters, and thus does not rely on information from only one domain to define sexual satisfaction. Finally, we analyzed our quantitative data statistically, which allowed us to determine whether there were statistically significant differences between people's perceptions of their partners' sexual satisfaction and the levels of sexual satisfaction reported by their partners. In our study we considered two ways in which the similarity between people's estimates of their partners' sexual satisfaction and the levels of sexual satisfaction their partners report can be defined and statistically examined: accuracy and bias. In past literature, 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). Bias can be defined as "a tendency to be systematically off in one's perceptions of oneself or of others, compared with some standard" (Sadler & Woody, 2003, p. 89), and has been examined using difference scores. It is important to note that past research with dyads has demonstrated that individuals can be simultaneously accurate and biased in their perceptions of their partners' score on a particular attribute (Luo & Snider, 2009).

Given the limitations of past research examining accuracy and bias in perceptions of partner sexual satisfaction, our hypotheses were tentative. However, we made two predictions. First, with regard to accuracy, we predicted that males' and females' perceptions of their partners' sexual satisfaction would be significantly and positively correlated with their partners'

self-reported levels of sexual satisfaction. Second, given that previous research suggested that both men and women overestimate their partners' levels of sexual satisfaction (be it measured objectively or subjectively), we predicted that in general people would demonstrate a bias such that they would significantly overestimate their partners' levels of sexual satisfaction.

Factors that Predict Bias in Perceptions of Partner Sexual Satisfaction

The second purpose of the current study was to identify and test some of the factors that might explain why people have more or less biased perceptions of their partners' sexual satisfaction. In examining factors that might influence people's perceptions of their partners' sexual satisfaction, we wanted to consider both *interpersonal* and *intrapersonal* factors by examining how characteristics of relationships and of individuals might interact to predict individual outcomes. With this goal in mind, we identified and tested two factors that we hypothesized to be relevant to the bias of people's perceptions of their partners' sexual satisfaction: the quality of communication about sexual issues within the context of the relationship (an interpersonal factor) and emotion recognition abilities (an intrapersonal factor).

We argue that the quality of sexual communication within the relationship (referred to as "sexual communication" from here onward) will predict the degree to which individuals' perceptions of their partners' sexual satisfaction are biased. We reasoned that when the quality of sexual communication is good, partners directly provide one another with information about how sexually satisfied (or dissatisfied) they are. For example, if members of a couple discuss one another's sexual likes and dislikes they should be providing one another with information that can be used to judge whether their sexual behaviours are likely to be pleasing for one another. They may also identify and correct misconceptions that their partners hold about their sexual likes and dislikes, which should in turn decrease bias. Second, couples may identify and discuss

sexual problems or specific areas of dissatisfaction, again providing information that will influence one's perceptions of one's partner's sexual satisfaction. Third, couples may directly discuss their sex life and provide information specifically as to whether or not they are sexually satisfied.

People vary in their skillfulness in discussing issues pertaining to sexuality (Zimmer, 1983). Further, sexuality is a difficult domain for many couples to discuss. Sanford (2003) asked psychologists who frequently work with couples to rate 24 areas of relationship disagreement in terms of how difficult they are for couples to discuss. Sexual interaction was identified as the fifth most difficult (Sanford, 2003). Based on their clinical experience, Metts and Cupach (1990) identified a number of barriers to couples discussing sexual issues. These include that: (a) some people feel threatened when they reveal sexual information as they are self-disclosing about a private aspect of their identity; (b) there is a risk that discussing sexual issues will identify discrepant sexual desires or preferences between the members of the couple, which can be threatening to the relationship; (c) some people are not skilled at discussing sexual issues and as a result feel embarrassed when they discuss sexual topics; (d) some people think sex is an immoral topic or that discussing it will elicit scorn and consequently feel ashamed about discussing it; (e) some people assume that it should not be necessary to discuss sex within the context of their relationship because they have emotional intimacy and believe that as a result they understand their relationship partner; and (f) men and women may have different ideas about how to talk and think about sex, which can make it difficult for them to communicate effectively.

Given the difficulty and the barriers that couples face in discussing sexual issues, we wanted to examine whether an individual's skills might compensate for a couple's difficulty in

effectively communicating about their sexual relationship. We reasoned that if members of a couple were not able to effectively communicate about their sexual relationship, each partner's individual emotion recognition skills might compensate for the couple's weakness by facilitating perceptions of one's partner's internal state. The term 'emotion recognition abilities' refers to the ability to infer the mental state (i.e., emotion) of another person (Baron-Cohen et al., 2001). Emotion recognition abilities are relevant to communication because an individual's nonverbal behaviours provide additional information beyond that provided by one's verbal communication. For example, facial expression is understood to play an essential role in communication because of the emotion and information it conveys (Watts & Douglas, 2006). We argue that if a couple has difficulty talking, or does not talk, directly about sexual issues, an individual with strong emotion recognition abilities may be able to infer his or her partner's mental state during or after sexual encounters and/or during discussion of sexual issues, and this information will inform his or her perceptions of his or her partner's sexual satisfaction.

We made three predictions with regard to how sexual communication and emotion recognition abilities would influence people's perceptions of their partners' sexual satisfaction. First, given that discussing sexual issues is expected to result in partners verbally providing one another with information about their levels of sexual satisfaction, we hypothesized that sexual communication would significantly predict bias, such that better quality of sexual communication within the relationship would predict decreased bias. Second, because people's impressions of their partners' emotional states during sexual encounters and discussions of sexual issues should inform their perceptions of how sexually satisfied their partners are, we hypothesized that emotional recognition abilities would significantly predict bias, such that better emotion recognition abilities would predict decreased bias. Third, given that couples who have

difficulty discussing sexual issues directly would likely rely more on their impressions of their partners' emotional states than would those couples whose quality of sexual communication was better, we hypothesized that sexual communication and emotion recognition abilities would interact to predict bias, such that if quality of sexual communication is reported to be low, individuals with better emotion recognition skills would be able to compensate for this weakness, and they would not hold more biased perceptions of their partners' sexual satisfaction as compared to individuals who report good sexual communication in their relationship. In contrast, individuals who report both poor sexual communication and have poor emotion recognition skills would have more biased perceptions of their partners' sexual satisfaction.

Method

Participants

Ninety-one heterosexual couples participated in the current study, as part of a larger longitudinal study examining the effects of interpersonal factors on sexual satisfaction and sexual functioning. The data for the current study were gathered as part of the first wave of data collection. Seven couples were excluded from the current analyses because one or both of the individuals in the couple had scores that fell more than three standard deviations beyond the mean on one or more of the measures relevant to our study hypotheses (i.e., DSCS, Eyes Task, QMI and/or ISS Self or Partner version). This resulted in a final sample of 84 couples. The couples were recruited from Southwestern Ontario using posters in local businesses and offices of physicians and mental health professionals, referrals from physicians and mental health professionals, advertisements placed in local newspapers and online classified ads (e.g., Kijiji).

To be eligible for the study, participants either had to be married or living together as if married for a minimum of two years. 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 two years. There were no significant differences between the levels of commitment reported by females who were married ($M = 95.09$; $SD = 7.17$) and cohabiting ($M = 93.38$; $SD = 9.15$), $t(79) = 1.04$, $p = .30$, or between the levels of commitment report by males who were married ($M = 94.37$; $SD = 8.65$) and cohabiting ($M = 93.76$; $SD = 9.71$), $t(80) = -0.487$, $p = .63$. Furthermore, both members of the couple had to be between the ages of 21 and 65 and both members of the couple had to report being able to speak and read English at a grade 8 level to ensure that they would be able to accurately understand and complete all of the study measures. Given that sexual satisfaction is

negatively impacted by the birth of a child (Chivers, Ross, Cook, Grigoriadis, Villegas, & Bradley, 2008), 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 six months prior to her participation in the study. Finally, both members of the couple had to be willing to participate in the study.

The 84 couples who participated in the study had been in their current relationships for an average of 10.7 years ($SD = 8.8$ years). Of the couples who participated, 41.7% had no children. The remaining couples had an average of 2.52 ($SD = 1.32$) children. This total includes biological, step, and adopted children. The female participants had an average age of 35.91 years ($SD = 11.37$) and had completed on average 16.41 years ($SD = 3.55$) of education¹. Of the female participants, 70.9% reported that their personal gross annual income was less than \$40,000, with the most participants (36.7%) reporting that their income fell between \$20,000 and \$40,000. Ninety-three per cent of the female participants were Caucasian. The remaining female participants were of Middle Eastern (2.4%), African (1.2%), Hispanic (1.2%), and Asian (1.2%) descent. One participant declined to report her ethnicity. The male participants had an average age of 37.49 years ($SD = 11.33$) and had completed on average 15.70 years ($SD = 2.77$) of education. Of the male participants, 81.2% reported that their personal gross annual income was less than \$80,000, with the most participants (30.1%) reporting that their income fell between \$20,000 and \$40,000. Eighty-eight per cent of the male participants were Caucasian. The remaining male participants were of Hispanic (2.4%), South Asian (3.6%), First Nation (2.4%), Asian (1.2%), and Middle Eastern (1.2%) descent. One participant declined to report his ethnicity.

¹ Years of education were counted starting from grade 1 for both males and females.

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 relationship on a scale from 0 (*Not at All Committed*) to 100 (*Completely Committed*).

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 showed strong psychometric properties when used with both males and females in the current sample. Chronbach's alphas were 0.93 for males and 0.89 and for females.

Index of Sexual Satisfaction (ISS; Hudson, 1993). The ISS is a 25-item measure of sexual satisfaction within a relationship. 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. One was the original version described above. The second was a modified version 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 0-100 with lower scores indicating greater sexual satisfaction. The ISS showed

strong psychometric properties when used with both males and females in the current sample. Chronbach's alphas were 0.94 and 0.95 for men reporting on their own and partners' sexual satisfaction and 0.94 and 0.91 for females reporting on their own and partners' sexual satisfaction, respectively.

Dyadic Sexual Communication Scale (DSCS; Catania, 1986). The DSCS is 13-item questionnaire that assessed couples' 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 showed strong psychometric properties in our sample, with Chronbach's alphas of 0.85 and 0.84 for males and females, respectively.

The Reading the Mind in the Eyes Task Revised Version (Eyes Task; Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001). This is a task that assessed individuals' ability to recognize emotions. Participants were presented with pictures 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. The correct answers for the items were established based on the consensus of a large population. Normally functioning adults typically perform below ceiling levels on this task (Baron-Cohen et al., 2001).

Procedure

All study measures and procedures were reviewed and approved by the University of Waterloo's Office of Research Ethics. Two trained research assistants (undergraduate students or the author) individually assessed each couple. When the couple arrived at the lab, the research assistants reviewed the information letter and consent forms. The male and female 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 using paper and pencil. They then completed the remaining measures relevant to the current study in random order using a laptop. Participants also completed additional questionnaires and a discussion task that were part of the larger longitudinal project but are not relevant to the current study. When both members of the couple had finished the study, they were debriefed and received \$50.00 each for their time. They were also given a list of sexual health resources. The entire study procedure took approximately three hours.

Results

Preliminary Analyses

Sample Descriptive Characteristics. The mean scores and standard deviations of key study variables are listed in Table 1. There were no significant gender differences between males' and females' scores on the key study variables. However, there was a trend toward males' scores on the partner version of the ISS being higher than females' scores on the partner version of the ISS, $t(83) = -1.96, p = .054$.

Table 1. Means and standard deviations for males and females on study measures.

	<u>Males</u>	<u>Females</u>
Quality of Marriage Index	38.99 (6.36)	39.89 (5.50)
Index of Sexual Satisfaction – Self Report	22.17 (13.93)	22.02 (13.98)
Index of Sexual Satisfaction – Estimate Partner Satisfaction	25.35 (14.76)	22.89 (12.48)
Dyadic Sexual Communication Scale	62.08 (10.58)	63.77 (10.65)
Eyes Task	26.90 (3.70)	27.08 (3.94)

Dependent Variable. The dependent variable for the majority of the study analyses was the bias people exhibited in estimating their partners' levels of sexual satisfaction. Two bias variables were calculated: female bias (the bias of female partners' estimates of their male partners' sexual satisfaction) and male bias (the bias of male partners' estimates of their female partners' sexual satisfaction). The female bias 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 male bias 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. We used the absolute value of the difference scores as our bias variables in order to

facilitate the interpretation of our results. These variables can be interpreted such that lower scores indicate less bias.

Correlations Among Key Study Measures. The correlations among key study variables for males and females are presented in Tables 2 and 3 respectively. Relationship satisfaction was significantly correlated with perceived quality of communication about sexual issues for both males and females. Further, females' bias scores were significantly correlated with perceived quality of communication about sexual issues. Males' scores on these domains were not significantly correlated. Table 4 lists the correlations between males' and females' scores on each of the key study variables. Male and female partners' scores on the QMI, DSCS, and Bias measures were moderately correlated, while their scores on the Eyes Task were not.

Table 2. *Correlations among study measure for males.*

	QMI	DSCS	Eyes Task	Male Bias (Absolute Value)
QMI	-	.402**	.078	-.188
DSCS		-	.027	-.198
Eyes Task			-	-.111
Male Bias				-

Note. QMI = Quality of Marriage Index; DSCS = Dyadic Sexual Communication Scale.

** Correlation is significant at the 0.01 level (2-tailed).

Table 3. *Correlations among study measure for females.*

	QMI	DSCS	Eyes Task	Female Bias (Absolute Value)
QMI	-	.292**	-.091	-.153
DSCS		-	-.031	-.233*
Eyes Task			-	-.041
Female Bias				-

Note. QMI = Quality of Marriage Index; DSCS = Dyadic Sexual Communication Scale.

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Table 4. *Correlations between males' and females' scores on key study measures.*

QMI	DSCS	Eyes Task	Bias (Absolute Value)
0.478**	.413**	0.023	0.370**

Note. QMI = Quality of Marriage Index; DSCS = Dyadic Sexual Communication Scale.

** Correlation is significant at the 0.01 level (2-tailed).

Research Question 1: 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 males and females. The results indicated that males' perceptions of their female partners' sexual satisfaction were significantly correlated with females' self-reported levels of sexual satisfaction ($r = 0.67, p < 0.01$), and females' perceptions of their male partners' sexual satisfaction were significantly correlated with males' self-reported levels of sexual satisfaction ($r = 0.66, p < 0.01$). We compared the correlations and found there was not a significant difference between males' and females' accuracy scores, $z = 0.18, p = 0.85$.

In order to determine whether people demonstrate bias in estimating their partners' sexual satisfaction, we examined the full range of scores (i.e., including both positive and negative values), as opposed to the absolute values of the difference scores. The rationale for doing this was that using the positive *and* negative scores would give us additional information about whether males and females tended to perceive their partners' sexual satisfaction as consistently lower or higher than what their partners' reported. By using this method, the bias 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. We conducted two one-sample t-tests using a test value of 0. This allowed us to determine whether mean bias scores were significantly different from 0 (i.e., no bias). Females' bias 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, $t(83) = 0.60, p = .55$. In contrast, males ($M = 3.33, SD = 11.63$) significantly underestimated their partners' levels of sexual satisfaction, $t(83) = 2.62, p = .01, d = 0.29$. However, we ran a paired samples t-test and found there was not a significant gender difference between males' and females' bias scores, $t(83) = 1.14, p = .256$.

Research Question 2: Factors that Contribute to Bias

In order to determine whether emotion recognition abilities and quality of sexual communication within the relationship 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 or dyad, 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 other. Therefore, we used mixed models analyses to examine this question. This enabled us to account for the interdependence of partner data. To examine the role of emotion recognition abilities and perceptions of the quality of the sexual communication within one's relationship on the bias in one's estimates of one's partner's sexual satisfaction we tested the following model:

$$Y' = \beta_0 + \beta_1 U + \beta_2 V + \beta_3 U*V$$

Where:

- Y' represents bias in perceptions of partner sexual satisfaction;
- β_0 represents the intercept;
- β_1 is the regression coefficient for the predictor variable of emotional recognition abilities (U);

- β_2 is the regression coefficient for the predictor variable of one's perception of the quality of sexual communication within one's relationship (V);
- β_3 is the regression coefficient for the interaction between emotion recognition abilities and sexual communication (U*V).

All of the continuous variables included in the models were centered in order to reduce multicollinearity, as suggested by Aiken and West (1991). Given that we wanted to understand the factors that contribute to bias in general, as opposed to over- versus underestimation, we used the absolute value of the bias scores as the dependent variable in these analyses. We controlled for the effects of relationship satisfaction on bias, given the significant correlations between relationship satisfaction and perceived quality of communication about sexual issues for both male and female participants.²

The results showed that there was a trend toward better emotion recognition abilities predicting less bias in perceptions of one's partner's sexual satisfaction, $\beta = -.24$, $t(138.33) = -1.69$, $p = .09$. 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, $\beta = -.16$, $t(150.37) = -2.88$, $p = .005$.

The main effect for sexual communication was qualified by a significant interaction between

² We ran two additional models that were designed to examine how gender influences our findings. In the first model, we included gender as a covariate and this did not change any of the results presented. Second, we examined a more complex model that included both the main effect of gender as well as the relevant two-way and three-way interaction terms involving gender. None of these interaction terms were significant (gender x emotion recognition abilities: $\beta = .06$, $t(130.25) = 0.43$, $p = .67$; gender x sexual communication: $\beta = -.26$, $t(142.17) = -0.63$, $p = .53$; and gender x emotion recognition abilities x sexual communication: $\beta = .01$, $t(142.60) = 0.59$, $p = .56$). Thus, in our results section, we focus on the more parsimonious model that includes the main effects of sexual communication and emotion recognition abilities and the relevant two-way interaction term.

emotion recognition abilities and quality of sexual communication, $\beta = .03$, $t(122.78) = 2.13$, $p = .04$.

To understand the interaction between sexual communication and emotion recognition abilities, we conducted simple slopes analyses. Consistent with the recommendations of Aiken and West (1991), we examined the effects of emotion recognition abilities on bias scores at high and low levels of perceived quality of sexual communication. The results of the simple slopes analyses indicated that for individuals who perceived having good quality of sexual communication in their relationships, there was no association between their emotion recognition abilities and their bias scores, $\beta = .07$, $t(107.92) = 0.39$, $p = 0.70$. In contrast, for individuals who perceived the quality of their sexual communication to be poor, better emotion recognition abilities predicted less bias in perceptions of partner sexual satisfaction, $\beta = -0.53$, $t(139.88) = -2.43$, $p = 0.02$.

Together, sexual communication and emotion recognition abilities predicted 5.2% of the total variance in females' bias scores, and 4.6% of the total variance in males' bias scores.

Discussion

The current study was designed to investigate the similarity between people's perceptions of their partners' sexual satisfaction and the levels of sexual satisfaction their partners report, in the context of long-term committed romantic relationships. The first purpose of the current study was to determine the degree of accuracy and bias in people's perceptions of their romantic partners' sexual satisfaction. The second purpose of the current study was to investigate theoretically relevant factors, specifically communication about sexual issues within the relationship and emotion recognition abilities, that were hypothesized to predict bias in people's perceptions of their partners' sexual satisfaction.

Individual Differences in Perceptions of Partner Sexual Satisfaction

In order to determine how similar people's perceptions of their partners' sexual satisfaction are to the levels of sexual satisfaction their partners report, we asked both members of heterosexual couples to report on their own sexual satisfaction as well as to report on their perceptions of their partners' sexual satisfaction. We then compared their reports using two different but complementary methods of defining similarity. First, we considered accuracy, which has been defined in past social psychological research as the correlation between an individual's perception of his or her partner's level of a characteristic and the partner's self-reported level of the characteristic (e.g., Murray, Holmes, Bellavia, Griffin, & Dolderman, 2002). Consistent with our hypothesis, we found that males' perceptions of their female partners' sexual satisfaction and females' self-reported sexual satisfaction were strongly, positively correlated. Similarly, we found that females' perceptions of their male partners' sexual satisfaction and males' self-reported sexual satisfaction were strongly, positively correlated. These findings indicate that 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.

To complement the information provided by our accuracy analyses, we also examined bias, or the tendency for individuals to systematically underestimate or overestimate partner sexual satisfaction (Sadler & Woody, 2003). Based on the limited research literature, we tentatively predicted that people would significantly overestimate their partners' levels of sexual satisfaction. Instead, we found that females did not significantly overestimate nor underestimate their partners' levels of sexual satisfaction, while males demonstrated a statistically significant bias such that they consistently perceived their partners' levels of sexual satisfaction to be lower than what their partners reported. The effect size for this result was small, suggesting that males' perceived their partners' sexual satisfaction to be only slightly lower than what their partners reported. Notably, there were no gender differences in either the accuracy or bias findings.

Our findings, suggesting that both men and women have fairly accurate and unbiased perceptions of their partners' sexual satisfaction, differ from those of Laumann and colleagues (1994), whose work suggested that men might overestimate their female partners' orgasm frequency, while women tended to be fairly accurate in estimating their male partners' orgasm frequency. Our findings also differ from those of Dunn and colleagues (2000), whose work suggested that men tended to have fairly accurate perceptions of their partners' sexual satisfaction, while women might overestimate their partners' sexual satisfaction. It is likely that differences in the methodologies used in each of the studies account for the differences between the findings. As discussed earlier, both of these studies have significant methodological limitations, such as using problematic definitions and measures of sexual satisfaction, and only

collecting data from one member of the couple. Furthermore, neither of these studies was designed specifically to examine accuracy and bias and these questions were addressed post-hoc using descriptive statistics. By addressing these limitations of past research, we believe the current study provides the best information about how accurately people perceive their partners' sexual satisfaction.

To our knowledge, there is no past research examining what intrapersonal and interpersonal factors might explain variability in how similar people's perceptions of their partners' sexual satisfaction are to the levels of sexual satisfaction their partners report. Thus, the second purpose of the current study was to investigate factors that might explain variability in degree of bias in perceptions of partner sexual satisfaction.

Factors that Predict Bias in Perceptions of Partner Sexual Satisfaction

To better understand the factors that would explain individual differences in biased perceptions of partner sexual satisfaction, we identified and tested two theoretically relevant factors: sexual communication within the relationship and emotion recognition abilities. These variables represent both interpersonal and intrapersonal factors. By examining them simultaneously, we can 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. We hypothesized that (a) better quality of sexual communication within the relationship would predict decreased bias; (b) better emotion recognition abilities would predict decreased bias and (c) sexual communication and emotion recognition abilities would interact to predict bias, such that strengths in one domain would compensate for weaknesses in the other domain.

Our hypotheses were largely supported. We found that quality of communication about sexual issues in the relationship was a significant predictor of bias, such that those who reported better quality of sexual communication demonstrated less bias. There was also a trend toward better emotion recognition abilities predicting less bias in perceptions of one's partner's sexual satisfaction. Further, sexual communication and emotion recognition abilities interacted such that when the quality of sexual communication within the relationship was good, emotion recognition abilities did not predict bias, but when the quality of sexual communication within the relationship was poor, having better emotion recognition abilities was associated with having less biased perceptions of one's partner's sexual satisfaction.

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 for both research and clinical work. 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) have argued that research suggests interpersonal factors may be more informative than individual-level factors in predicting sexual satisfaction. Our findings also 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. Clinically, the interplay between the two levels of analysis helps us to understand which couples (i.e., those with both poor quality of sexual communication and poor emotion recognition abilities) are at the greatest risk for not accurately perceiving their partners' sexual satisfaction.

Secondly, consistent with past research (e.g., Byers, & Demmons, 1999), the results of our study underscore the fact that sexual communication processes are important. However, our results also indicate that people with poorer quality of communication about sexual issues within their relationships are not necessarily doomed when it comes to perceiving their partners' sexual satisfaction. Our results indicate that they may be able to rely on their emotion recognition abilities in developing perceptions of their partners' sexual satisfaction. Clinically, these results can help to refine interventions designed to help couples who are sexually dissatisfied. For example, if an individual has generally poor emotion recognition abilities, it may be especially important to help the couple develop their ability to discuss sexual issues directly and effectively.

It is also important to note some of the limitations of our study, which need to be kept in mind when interpreting the results. One limitation is that the study used a convenience sample, which may limit its generalizability. Consistent with the population of the Kitchener-Waterloo region, our sample was primarily Caucasian. It is possible that our results will not generalize to couples from other cultures or of other ethnicities. Additionally, previous research has 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 in their perceptions of their romantic partners' sexual satisfaction, or that the factors we found to predict bias might operate differently in such individuals.

A second limitation of our study is that it 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 that there are many additional factors that contribute to individual differences in perceptions of partner sexual satisfaction and that such variables also need to be included in future work in this area.

When selecting the variables to include in our current model, we focused on variables that we expected to facilitate the development of perceptions of partner sexual satisfaction that were similar to partners' self-reported levels of sexual satisfaction. Although we found that people's perceptions of their partners' sexual satisfaction were very similar to what their partners reported, they were not identical. Thus, future research might investigate factors that interfere with people's ability to develop accurate and unbiased perceptions of their partners' sexual satisfaction. There are a number of interesting factors that could be considered in future studies. One possibility that is socially desirable responding is interfering with people's ability to form accurate perceptions (Paulhus & Reid, 1991). Some people might unconsciously or deliberately report that they and/or their partners are more sexually satisfied than they truly are, as being sexually satisfied is a socially desirable state. A second possibility is that people provide inaccurate information to their partners about their levels of sexual satisfaction. They could be explicitly telling their partners that they are sexually satisfied when they are not. Alternatively, they could be providing inaccurate information more covertly during sexual encounters by doing things such as pretending orgasm. A third possibility, especially relevant to understanding why males might demonstrate a bias toward perceiving their female partners as less satisfied than they report themselves to be, is that people may rely on stereotypes to inform their judgments about their partners (Miller & Byers, 2004). It is possible that males are influenced by cultural beliefs (e.g., women do not enjoy sex as much as men do) and as a result believe their female partners are less satisfied than their partners report themselves to be.

Another area 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, and satisfaction with frequency of sexual encounters). However, we do not know what factors people consider when deciding, for example, how satisfied their partners are with their sex lives overall. Some things they may consider include how frequently their partners initiate sex, how often their partners respond positively when they initiate sex, how frequently their partners have (or appear to have) orgasms, or how their partners behave after sexual encounters. 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. It would be interesting to ask participants directly what factors they are considering. If we identified gender differences in the factors considered, it would also be interesting to examine whether people tend to rely on gender stereotypes in deciding what factors are most relevant to determining their partners' sexual satisfaction. For example, do females assume that males' sexual satisfaction is most strongly influenced by frequency of sexual encounters and less influenced by the quality of the sexual encounters?

An additional area for future research is to examine the longitudinal effects of having accurate and/or biased perceptions of one's partner's sexual satisfaction. Currently, we do not know whether accurate and unbiased perceptions of one's partner's sexual satisfaction predict longitudinal increases in sexual satisfaction in one or both members of the couple. However, based on the tenets of sexual script theory, we would 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 found 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). We are planning to follow the participants in the current sample longitudinally in order to address this question. If we find that greater accuracy and/or less bias do predict better sexual outcomes, it will suggest that one aspect of treatment for sexual dissatisfaction might involve helping improve people's ability to perceive their partners' sexual satisfaction. This might be done through improving couples' abilities to discuss sexual issues, to read their partners' emotions, or by improving people's skills in other, yet to be identified, domains relevant to accurately perceiving one's partner's sexual satisfaction.

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