



Perceptual Accuracy for Sexual Rejection in Romantic Relationships

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Abstract

In the current research, we investigated perceptual accuracy in romantic partners' detection of sexual rejection. In two daily diary studies of predominantly cisgender heterosexual couples, we examined patterns of accuracy and bias concerning both the degree of sexual disinterest (Study 1; $N=98$ couples) and occurrence of sexual rejection (Study 2; $N=115$ couples), as well as how these perceptions were associated with satisfaction. Using a multi-method approach to capture both continuous and categorical operationalizations of sexual rejection (Study 1: truth and bias; Study 2: quasi-signal detection), we found that people were both accurate and biased in their perceptions of partner rejection. Across studies, results showed that people demonstrated general tracking accuracy in detecting a partner's sexual rejection, but they also overestimated the degree and occurrence of this rejection. Additionally, this overestimation bias was associated with lower daily relationship and sexual satisfaction. Overall, our findings highlight the importance of dyadic perceptions of sexual rejection in shaping daily relationship and sexual functioning.

Keywords Sexual rejection · Accuracy and bias · Romantic relationships · Person perception

Introduction

Interpersonal rejection is one of life's most painful experiences. The refusal of desired social connectedness is associated with intense negative emotions and has been linked to poorer mental health outcomes (e.g., Eisenberger & Lieberman, 2004; Leary, 2015). Prior research focusing on rejection from new or potential partners has shown its association with feelings of humiliation, loss of face, and decreased self-esteem (e.g., Baumeister et al., 1993). While less work has studied rejection from established romantic partners, these experiences are also distressing given that it involves being hurt by the person whose acceptance one most desires (Murray et al., 2006). Indeed, hurt feelings are commonly precipitated by situations involving relational devaluation,

and people report a higher relational impact when receiving hurtful messages from a partner than from family or close others (Leary et al., 1998; Vangelisti & Crumley, 1998). Feelings of distress can be further heightened in the context of sexual rejection by a partner given that, in the context of monogamous romantic relationships, intimate partners rely predominantly (although, of course, not exclusively) on one another to meet their dyadic sexual needs (Hauptert et al., 2017). In one study, people reported feeling more rejected, insecure, and dissatisfied when their partner rejected their sexual advances than when their partner declined a request to engage in nonsexual activities (Impett et al., 2020). Given the emotionally charged nature of sexual interactions in relationships and the pain that sexual rejection can inflict, it may be especially difficult for partners to convey feelings of disinterest in sex to one another, thus creating greater opportunities for misunderstandings. In the current research, we examine accuracy and bias in romantic partners' perceptions of sexual rejection and the relational consequences of (in)accuracy.

Sexual Rejection

Sexual rejection refers to the refusal of or communication of disinterest in sexual activity and is quite common in established romantic relationships. Studies largely including young

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adults have found that partners make sexual advances an average of 3–4 times per week, but only have these advances accepted (and thus leading to sexual activity) 1–2 times per week (Byers & Heinlein, 1989; Vannier & O’Sullivan, 2011). Given that romantic partners often pursue sexual activity as a means of increasing intimacy and closeness in their relationship (Impett et al., 2005), perceiving that one’s sexual advances are not wanted or that they are explicitly rejected may powerfully detract from satisfaction. In two recent daily experience studies of couples, perceived sexual rejection by a relationship partner was associated with lower feelings of acceptance and validation (Kim et al., 2020) and also predicted lower sexual satisfaction in the moment when rejection occurred as well as up to 2 days later (Dobson et al., 2020).

There are several reasons why sexual rejection might be difficult to communicate to a romantic partner and, hence, difficult to perceive. The sexual domain of romantic relationships is characterized by inhibited sexual communication, as partners often have difficulty discussing what pleases and displeases them sexually (Byers, 2011; MacNeil & Byers, 2009). Research has also shown qualitative differences in the ways couples engage in sexual versus nonsexual conflict discussions (Rehman et al., 2017), underscoring the increased sensitivity, anxiety, and perceived relationship threat that accompany sexual communication (Theiss & Estlein, 2014). Rejecting a partner for sex may be particularly difficult as people try to simultaneously navigate avoiding unwanted sexual activity and hurting their partner’s feelings. During the negotiation of sex in ongoing heterosexual relationships, misconstruals may be particularly prevalent due to the influence of traditional sexual scripts, whereby men and women construe different meanings and goals for sexual activity (see Wiederman, 2005 for a review). Gender role scripts designating men as the initiators and women as the restrictors of sexual activity, as well as gender differences in sexual desire (Baumeister et al., 2001b), point to why men are more frequently the recipients of sexual rejection in relationships and may experience heightened concerns about sexual rejection compared to women (Byers & Heinlein, 1989; Dworkin & O’Sullivan, 2005; O’Sullivan & Byers, 1992; Vannier & O’Sullivan, 2011). In light of the struggles people face when rejecting a romantic partner, the challenges of sexual communication in relationships, as well as the gendered nature of sexual scripts, accurately perceiving a romantic partner’s sexual rejection in relationships may be difficult, yet it remains an open question whether any systematic cognitive biases exist for this process. In the current research, we examine perceptual accuracy in romantic partners’ perceptions of one another’s sexual rejection behaviors (i.e., the extent to which people’s judgments of their partner correspond to the partner’s reported behaviors), and how (in)accuracy is associated with sexual and relationship satisfaction.

Perceptual Accuracy

Relationship science has demonstrated that key relationship processes can be better understood when considering people’s perceptions and judgments of their romantic partners’ behavior, in addition to more objective aspects of an interpersonal exchange (Neff & Karney, 2002). In particular, judgments concerned with assessing a partner’s regard reflect a fundamental relationship process underlying intimacy and relationship closeness (Fletcher & Kerr, 2010; Murray et al., 1996; Reis et al., 2004). Previous work shows the degree to which romantic partners are accurate or biased in their judgments of one another can be crucial determinants of relationship outcomes, especially when such judgments are about whether one’s partner understands and cares for oneself (Fletcher & Kerr, 2010; Reis et al., 2004).

The patterns and consequences of accurate and biased partner perceptions have been documented across a number of relationship domains and for various positive and negative partner attributes and behaviors (e.g., Dobson et al., 2018; Gable et al., 2003; Murray et al., 1996; Peters & Overall, 2019). A meta-analysis by Fletcher and Kerr (2010) highlighted how people can be both accurate and biased when it comes to their judgments of a romantic partner by outlining the important conceptual distinctions between tracking accuracy and directional bias. Specifically, perceivers may systematically over- or underestimate an aspect of their partner (i.e., directional bias), while simultaneously correctly detecting the specific pattern of an aspect of their partner (tracking accuracy; see Fletcher & Kerr, 2010; West & Kenny, 2011). For example, an individual may be adept at detecting changes in their partner’s negative communication over time (i.e., demonstrate tracking accuracy), yet could also systemically overestimate this negative communication despite tracking the overall pattern (thus demonstrating directional bias as well) (for full details, see West & Kenny, 2011). Furthermore, this work captured the breadth of prior findings assessing relationship-specific perceptual accuracy, showing how different patterns of biases may emerge according to the kind of judgment under consideration. That is, romantic partners exhibited differing degrees of accuracy and bias in their judgments depending on which aspects of their partner or relationship they evaluated. For example, romantic partners tended to have overly optimistic views (i.e., positive mean-level bias) when making predictions about the future of their relationship. However, they also demonstrated a systematic overestimation bias for their partner’s current negative interaction traits (i.e., attributes reflecting low appraisal, such as criticism and hostile behaviors), and underestimation bias for current positive interaction traits (i.e., traits focused on the connection between the self and the partner, such as love or commitment). A prevailing explanation for this phenomenon

draws from principles of error management theory (Haselton & Buss, 2000), which hypothesizes that when judgments are made under uncertainty, people will exhibit biases in the direction that is less costly. Since perceiving more—as opposed to less—connection with a partner than actually exists in the relationship may lead to complacency and lack of effort to maintain the relationship, the overestimation of negative interaction traits (or underestimation of positive interaction traits) is posited to constitute the error with fewer potential relational costs (Fletcher & Kerr, 2010).

Driven by methodological advances in analyzing perceptual accuracy in relationships (e.g., West & Kenny, 2011), recent research has applied these techniques to investigate perceptual accuracy in the sexual domain of romantic relationships, including examinations of (mis)perceptions of sexual interest and initiation behaviors. Muise et al. (2016b) examined (mis)perceptions of sexual interest in long-term relationships, demonstrating that individuals were generally accurate in estimating their partner's levels of sexual desire (i.e., demonstrated tracking accuracy). However, consistent with the notion that underestimation of partners' positive interaction traits may carry fewer costs compared to overestimation by reducing relational complacency (Fletcher & Kerr, 2010), men generally underestimated their partner's sexual desire (i.e., negative directional bias), and this was associated with increased satisfaction for their partner. Dobson et al. (2018) extended these initial findings on sexual desire to demonstrate that individuals were also generally accurate with regard to their romantic partner's sexual initiation behaviors, but were systematically biased as well, with men and women differing in the direction of their bias. In particular, whereas women tended to overestimate the degree to which their partner engaged in sexual advance behaviors, men either underestimated or showed no bias across studies. Additionally, these perceptual biases were differentially associated with experiences of sexual satisfaction and love, with overestimation benefitting oneself and underestimation benefitting one's partner.

While such studies have investigated perceptual accuracy of sexual communication as it relates to detecting sexual interest, it remains an open question how accurate couples are in perceiving a partner's communication of sexual disinterest and rejection of one's sexual advances, a complementary yet distinct aspect of sexual communication. Previous empirical studies and theoretical models suggest that positive and negative experiences, though related, are distinct. For example, extensive prior research has shown that appetitive and aversive processes are functionally independent (Gable & Reis, 2001; Higgins, 1997). Additionally, Gable et al. (2003) found evidence for systematic differences between perceptions of a partner's positive versus negative behaviors, with different patterns of accuracy and bias existing across these behaviors as well as differences in their impact on relational well-being,

with negative interactions having a greater impact on relationships than positive interactions. Consistent with the “bad is stronger than good” argument (Baumeister et al., 2001a), it is possible that experiences of sexual rejection may have a greater impact on romantic relationships than experiences of sexual acceptance. Indeed, recent work has demonstrated longer-lasting effects of being sexually rejected than having one's sexual advances accepted (Dobson et al., 2020). Taken together, this prior work demonstrates the need for further research on couples' communication of sexual disinterest and rejection.

The Current Research

Across two dyadic daily experience studies, we implemented two distinct analytical approaches to assess accuracy and bias in romantic partners' perceptions of one another's sexual rejection communication for both the degree of sexual disinterest (Study 1) and occurrence of sexual rejection (Study 2). To do so, we collected reports of couple members' perceptions of their partner's sexual rejection and compared them to their partner's reports of their own sexual rejection. No formal power analyses were computed given their complexity in multilevel designs, though sample sizes are similar to or exceed recent studies examining accuracy and bias in dyadic diary designs (e.g., Cross et al., 2019; LaBuda & Gere, 2021). Given previous research regarding accuracy of sexual perceptions (e.g., Dobson et al., 2018; Muise et al., 2016b), our first hypothesis was that partners would exhibit significant tracking accuracy for their partner's communication of sexual disinterest. In addition, consistent with previous research demonstrating that partners exhibit positive mean-level bias for negative interaction traits (Fletcher & Kerr, 2010), our second hypothesis was that individuals would overestimate the degree to which they were being sexually rejected by their partner. Given the salience of gender in shaping sexual cognitions, attitudes, and behaviors (Haselton & Buss, 2000; Oliver & Hyde, 1993), we additionally explored potential gender differences in perceptual accuracy for sexual rejection. Prior studies have shown that men tend to underperceive their partner's sexual interest in established relationships (Dobson et al., 2018; Muise et al., 2016b), suggesting the proposed overestimation bias of partner's sexual rejection behaviors may be stronger in men than in women.

In addition, we sought to explore the relational outcomes associated with (mis)perceiving a partner's sexual rejection behaviors and examine whether accurate or biased perceptions of a partner's sexual rejection may be associated with the quality of people's sex lives and relationships. In both studies, we examined whether accuracy and bias in perceptions of sexual rejection are associated with relationship and sexual satisfaction. A unique feature of these studies is that sexual rejection was measured in either a continuous or categorical manner

which, accordingly, reflects the different operationalizations used in prior work. Specifically, sexual rejection has been previously characterized as the communication of sexual disinterest (e.g., de Graaf & Sandfort, 2004; Kim et al., 2020), as well as defined in binary terms as a negative (versus positive) response to a partner's sexual initiation attempt (e.g., Byers & Heinlein, 1989; O'Sullivan & Byers, 1992). Reflecting this, we employed two distinct analytical techniques used in prior research on perceptual accuracy in relationships.

In Study 1, we used the truth and bias model (TBM; West & Kenny, 2011) to assess both accuracy and bias in perceptions of a partner's communication of sexual disinterest. The TBM framework involves comparing partners' scores on the same continuous scale; thus, it is uniquely informative of partners' ability to detect the degree of sexual rejection communicated. In Study 2, the occurrence of daily sexual rejection was measured categorically; thus, we assessed correspondence between perceived and enacted sexual rejection using Gable et al.'s (2003) quasi-signal detection (QSD) analysis. The QSD framework is chiefly concerned with partners' agreement on the presence or absence of an event, namely whether sexual rejection occurred.

While an increasing amount of research has independently used TBM or QSD analyses to investigate accuracy and bias in partner perceptions, almost no research has used these techniques in tandem, with the exception of research on perceptions of a partner's communal behavior (Pusch et al., 2020). Using both techniques together, however, allows us to examine whether the same effects exist across different measurement and analytic approaches (i.e., continuous versus categorical operationalization of sexual rejection, TBM versus QSD). That is, we would expect patterns of effects that are particularly robust to emerge across these analyses given that both methods are designed to capture accurate and biased perceptions of sexual rejection in their respective ways. Put simply, by incorporating these distinct models of accuracy and bias together, the current research aimed to provide a more nuanced and comprehensive investigation of how sexual rejection in relationships was perceived, both in degree and in daily occurrence.

Study 1

Data for Study 1 came from a larger investigation of sexual rejection behaviors in relationships (Kim et al., 2020). Our goal in this study was to compare daily reports of both couple members regarding their own and their partner's sexual rejection using the TBM to examine patterns of perceptual accuracy and their associations with key outcomes. As rejection variables were measured continuously, we were able to assess whether people were accurate or biased in terms of the degree of sexual rejection communicated.

Method

Participants and Procedure

Participants consisted of 98 Canadian couples ($N = 196$) recruited on Kijiji.ca. In order to be eligible, participants had to be at least 18 years old, and all couples had to be living together and in a relationship for at least 2 years. Participants consisted of 100 men and 96 women (cisgender) that were an average of 33 years of age ($SD = 8$) and had been in their relationships for 8 years ($SD = 5$). Seventy-one percent of participants were Caucasian and 64% identified as middle or upper-middle class while 36% identified as lower or lower-middle class. To record sexual orientation, participants responded to the prompt "I would describe myself as:" with possible responses being Heterosexual; Gay or Lesbian; Bisexual; Queer; Uncertain or Questioning; I choose not to answer; and Other (please specify), where an open response text box was provided. The majority of couples were heterosexual (85.8%) and were almost all in common-law, engaged, or married relationships (98.5%). Participants were contacted via email to confirm their eligibility and underwent a phone screening by a trained research assistant, who verified the relationship and explained study procedures. In the background survey, participants reported basic demographic information (e.g., gender, age, relationship status, relationship length). Participants were instructed to complete their surveys every evening and that their responses would be ineligible if completed the next day. Participants were told to complete the surveys separately, to not discuss their surveys with their partner, and that if they missed a day, they should leave that particular survey blank. Each participant was initially sent a background survey in which they provided demographic information. Then, starting the following day participants completed 28 daily surveys delivered electronically at the same time each day. Only daily surveys completed before 6:00 am the next morning were treated as valid. Compensation for this study was pro-rated, with each participant receiving up to \$55 in gift cards if they completed all daily surveys. In total, participants completed an average of 24.80 surveys across the 28 days (i.e., 4,861 daily surveys, although complete surveys from both partners were not always obtained for the same day).

Measures

Relationship and Sexual Satisfaction

To assess relationship satisfaction, participants completed a one-item daily measure: "Today, with regard to my relationship, I felt satisfied" (1 = *not at all*; 7 = *a lot*) ($M = 5.65$, $SD = 1.45$). To assess sexual satisfaction (i.e., evaluations of overall satisfaction with their sexual relationship), participants

completed a modified version of the Global Measure of Sexual Satisfaction (GMSEX; Lawrance and Byers, 1998) by rating their sex life that day on five 7-point bipolar scales: “bad–good,” “unpleasant–pleasant,” “negative–positive,” “unsatisfying–satisfying,” “worthless–valuable” ($M = 4.95$, $SD = 1.63$, $R_c = 0.96$). Both satisfaction variables were within-person-centered such that values reflected day-to-day deviations from a participant’s own mean. Across studies, we report within-person reliability of our measures (reliability of change, R_c).

Sexual Rejection

On each day for 28 days, participants completed a survey asking if any sexual activity occurred, and whether they or their partner had higher sexual desire rated on a 21-point scale (i.e., “Please indicate who had higher desire today, you or your partner”; $1 = I$ had much higher desire, $11 = we$ had equal amounts of desire, $21 = my$ partner had much higher desire) (Kim et al., 2020). Importantly, on days when participants did not engage in sex and reported having lower desire than their partner, they indicated the degree to which they communicated sexual disinterest:

There are many ways that we can indicate our interest or lack of interest in sex to our partners. These things can sometimes be quite subtle and may be either verbal (e.g., saying things to our partner that communicates our disinterest) or nonverbal (e.g., distancing ourselves from our partner). Today, to what extent did you do something to indicate to your partner that you were not in the mood for sex? ($1 = not$ at all; $7 = a$ lot).

Similarly, if participants perceived their partner to have lower relative desire, they indicated the degree to which their partner communicated sexual disinterest.

Data Analysis

To examine accuracy and bias in judgments of sexual rejection communication, we examined daily reports of perceived partners’ sexual disinterest alongside partners’ actual reports. Specifically, we used multilevel modeling methods for repeated measures designs with indistinguishable dyads (Kenny et al., 2006) and West and Kenny’s (2011) TBM to test the degree to which people were accurate and biased in their daily judgments of their partner’s communication of sexual disinterest. The actors’ ratings of their partner were compared to their partner’s own ratings in these models, requiring reports from both actors and partners on the partner’s sexual disinterest communication. These reports were provided on days in which sex did not occur. In total, there were 1091 unique days which had the necessary corresponding reports from both couple members for the present TBM

analysis (a full breakdown of diary days that were ineligible for analysis from this dataset are provided in the supplemental materials).

Actors’ judgments of their partner’s daily sexual disinterest communication (the outcome variable) were centered on the partner’s actual reported degree of disinterest communication by subtracting the mean of the partner’s sexual disinterest communication across the diary from the perceiver’s judgment of their partner on each day. Because participants made multiple ratings of their partner over the course of 28 days (West & Kenny, 2011), we person-centered individuals’ judgments of their partner (i.e., centered on the partner’s average report across days), which means that the intercept represents the difference between the average of the perceiver’s judgments of their partner’s communication and the average of their partner’s self-reported degree of sexual disinterest communication. The average of this coefficient is referred to as directional bias in the TBM, essentially reflecting how much perceivers’ judgments of their partner were higher or lower relative to what their partner reported. A negative intercept indicates that perceivers underestimated the degree to which their partner engaged in sexual disinterest communication, whereas a positive intercept indicates that perceivers overestimated their partner communicating sexual disinterest. In turn, tracking accuracy was represented by the slope of partners’ reported degree of sexual disinterest communication ratings on perceivers’ judgments, indicating the extent to which perceivers’ judgments correctly map onto their partner’s actual ratings. A significant positive slope indicates tracking accuracy. Lastly, many studies using the TBM test for an effect of assumed similarity, which indicates the extent to which perceivers project their perceptions of their own behavior onto their judgments of their partner. In the current analyses, we were unable to test for assumed similarity effects as doing so would require individuals to both engage in and perceive sexual disinterest communication on the same day, an occurrence which did not occur in the data. We also examined whether the effects of directional bias and tracking accuracy differ between men and women by testing for moderations by gender. To do so, we estimated an interaction model commonly used in the actor–partner interdependence model framework (APIM; Kenny et al., 2006).

Further, to address our research question of how specific patterns of perception were associated with outcomes using the TBM, we tested for moderations by relationship satisfaction and sexual satisfaction. Thus, we examined whether the strength of the tracking accuracy and directional bias effects significantly differed when individuals were highly satisfied (1 SD above the mean) compared to when they were less satisfied (1 SD below the mean). To test for these moderator variables, and as outlined in West and Kenny (2011), we included interaction terms for each of these variables in separate models. We also controlled for the previous day’s

Table 1 Estimates of directional bias and tracking accuracy for sexual rejection communication and moderator effects

	<i>b</i>	<i>SE</i>	<i>t</i>	<i>r</i>	95% CI
Judgments of partners' sexual disinterest communication					
Directional bias	.24	.10	2.37*	.19	.04, .44
Gender interaction	.08	.11	.71	.06	-.13, .28
Daily relationship satisfaction	-.24	.05	-4.83***	.16	-.34, -.15
Daily sexual satisfaction	-.19	.06	-3.29***	.11	-.31, -.08
Tracking accuracy					
Gender interaction	.02	.05	.43	.01	-.07, .12
Daily relationship satisfaction	-.04	.04	-1.17	.04	-.11, .03
Daily sexual satisfaction	.04	.04	.94	.03	-.04, .11

* $p < .05$, ** $p < .01$, *** $p < .001$. In gender interaction models, men were coded as 1 and women as -1. Effect sizes calculated as $r = \sqrt{(t^2/t^2 + df)}$ (Kashdan & Steger, 2006)

satisfaction to rule out serial dependency (West et al., 2000). The main effect of the moderator variable reflects whether there was significant moderation of the directional bias effect, and the interaction between the moderator variable and partner-reported rejection reflects whether there was significant moderation of the tracking accuracy effect.

Analyses were conducted in R with two-level random-intercept multilevel models. The data reflect a three-level structure, with daily sexual disinterest ratings across days nested within individuals, and individuals within dyads. However, estimated random variability at the dyad level (Level 3) was near zero in this model and did not result in better model fit than a two-level model, $\chi^2(1) = 0.00$, $p > .99$; thus, random intercepts were specified at the individual level (Level 2). Further, while two-level cross-classified models are considered appropriate for the majority of longitudinal diary analyses of romantic dyads (Laurenceau & Bolger, 2005), the current context consisted of examining days in which the outcome variable (i.e., the perceiver's estimate of their partner's behavior) exists exclusively for one of the partners, thereby precluding the ability to correlate residuals between partners at Level 1.

Results

The results for directional bias and tracking accuracy across individuals and their partners are shown in Table 1, with separate reports for men and women. First, in assessing the degree to which a partner communicated sexual disinterest, individuals demonstrated tracking accuracy, but also demonstrated a systematic overperception bias. That is, individuals were generally correct about the pattern of their partner's disinterest over time, but tended to overestimate the degree to which their partner communicated sexual disinterest on a given day, relative to what their partner actually reported.

Tests of moderator variables revealed that the interactions between gender and both the directional bias and the tracking accuracy effects were not significant (see Table 1), indicating no significant gender differences in these accuracy components. Further, neither daily relationship nor sexual satisfaction moderated the tracking accuracy effect. However, daily relationship and sexual satisfaction significantly moderated the directional bias effect, suggesting that overperception was associated with lower relationship and sexual satisfaction. Specifically, follow-up tests showed that participants reported higher relationship satisfaction ($b = -0.07$, $SE = 0.12$, $t = -0.60$, $p = .55$) and sexual satisfaction ($b = -0.06$, $SE = 0.13$, $t = -0.50$, $p = .62$) on days when they exhibited no overperception bias, whereas they reported lower relationship satisfaction ($b = 0.41$, $SE = 0.12$, $t = 3.45$, $p < .001$) and sexual satisfaction ($b = 0.34$, $SE = 0.12$, $t = 2.85$, $p < .01$) on days in when they exhibited a stronger overperception bias.

Study 2

In Study 2, we sought to replicate these effects in a new sample and with a new framework for conceptualizing accuracy to provide greater evidence for the robustness of the effects. Specifically, we implemented a QSD approach (Gable et al., 2003) to analyze patterns of perceptual accuracy for partners' engagement in sexual rejection as well as their associations with outcomes. In this study, sexual rejection was measured at a categorical, binary level (i.e., daily rejection did or did not occur) rather than on a continuous scale as in Study 1. Echoing the QSD approach, correct rejections reflected days when both the perceiver and the partner agreed that the partner did not engage in rejection, whereas hits reflected days when both the perceiver and the partner agreed that the partner did engage in rejection. Misses reflected days when the partner reported engaging in rejection but it was

not reported by the perceiver, while false alarms reflected days when the perceiver reported that their partner engaged in rejection but the partner did not report rejecting. Consistent with the results of Study 1 demonstrating partners are generally accurate in their perceptions of sexual rejection, we predicted that there would be more days when partners agreed about the presence or absence of sexual rejection (i.e., correct rejection or hit days) than days when they disagreed (false alarm or miss days). In addition, we predicted that there would be a higher proportion of false alarms than misses, consistent with partners' tendency to overestimate in Study 1. We also anticipated a higher rate of correct rejections than hits, false alarms, or misses, given that sexual rejection only occurs about 1–2 times per week in romantic relationships (e.g., Byers & Heinlein, 1989), and the results of Study 1 indicated that partners were generally accurate in perceiving sexual disinterest. Finally, we again explored the link between accuracy and both sexual and relationship satisfaction. All Study 2 hypotheses, methods, and the analytic plan were preregistered, and these, as well as the syntax, output, and data for both studies can be found on the Open Science Framework at <https://osf.io/e7f4w/>.¹

Method

Participants and Procedure

Participants consisted of 130 cohabiting, heterosexual, monogamous romantic couples recruited through online advertisements, participant email lists, and flyers posted around the London, Ontario community. To record sexual orientation, participants responded to the following question: "Which describes your current sexual orientation?". Possible responses were Heterosexual, Lesbian/Gay, Bisexual, or they could choose to write in how they identify their sexual orientation in an open response text box. Data from 15 couples were excluded because one or both partners did not consent to participate in the study ($n = 5$), their responses during the initial screening process did not match their survey responses for the inclusion criteria ($n = 4$ non-monogamous, $n = 1$ same-sex couple, $n = 1$ did not speak/read English fluently), or they did not complete at least three diary surveys ($n = 4$), resulting in a final sample of 115 couples. Participants were, on average, 30.78 years old ($SD = 8.99$), largely

White (73.04%; 16.52% Asian; 5.65% Hispanic or Latinx; 3.91% African American or Native American), and had been in their relationships for 6.83 years ($SD = 5.87$). Most couples were common-law, engaged, or married (58.26%); the remainder were dating.

Participant responses were collected online, and survey links were automatically sent to participants at a pre-set time of their choosing (typically in the evening). Participants were instructed to complete all surveys, including a 30-min background survey, 10-min daily surveys for 21 consecutive days, and a 30-min post-diary survey, independently from their partner. The current research only used responses to the 21-day daily diary portion of the study. On average, participants completed 19 out of 21 diaries (range 4–21) for a total of 4,339 diary surveys completed across all participants. Compensation for this study was pro-rated; participants could earn up to \$35 per person for completing all study measures.

Measures

Accuracy in Perceptions of Sexual Rejection

Each day, participants were asked to indicate whether they made a sexual advance toward their partner and, if so, whether it led to sexual activity. Additionally, participants were asked to report whether their partner made a sexual advance toward them and, if so, whether that advance led to sexual activity. Thus, in this data, we had four items (an actor's report of whether they made a sexual advance; if "yes," an actor's report of whether their sexual advance led to sexual activity; a partner's report of whether the actor made a sexual advance; if "yes," a partner's report of whether the actor's advance led to sexual activity) that resulted in nine different potential response patterns, which we coded into the four QSD categories as described below. The actor was coded as perceiving sexual rejection when they reported making a sexual advance that did not lead to sexual activity. The partner was coded as enacting sexual rejection when they reported receiving a sexual advance from the actor that did not lead to sexual activity.

Although this information was not used for the current analyses, participants were asked to elaborate on daily sexual rejection experiences on half of the diary days. This information was examined to help verify our operationalization of rejection. When participants indicated their partner made a sexual advance but that it did not lead to sexual activity (consistent with the coding scheme for enacting rejection in this study), participants were asked to indicate what they did in response to their partner's advance to indicate they were not interested in sexual activity. They were provided with a list of 24 common sexual rejection behaviors developed by previous research and asked to select all that apply, or to provide an open-ended response (see supplemental materials).

¹ These data were previously used in Dobson et al.'s (2020) examination of the immediate and lagged effects of engaging in and perceiving sexual acceptance and rejection on relationship and sexual satisfaction. However, at the time of preregistration for the current study, the authors had no knowledge of the level of correspondence between partners regarding these behaviors (i.e., whether perceptions were accurate or not), the specific aim of the current research.

Table 2 Frequency and proportion of total responses in the categories of correct rejections, hits, false alarms, and misses

Event	Frequency			Proportion		
	Men	Women	Overall	Men	Women	Overall
Correct rejections	1759	1838	3597	84.4	88.1	86.2
Hits	113	61	174	5.4	2.9	4.2
False alarms	118	114	232	5.7	5.5	5.6
Misses	95	74	169	4.6	3.5	4.1

In the vast majority of cases (89%), participants either indicated that what was coded as sexual rejection involved the use of one or more of the common sexual rejection behaviors or described a scenario where the participant turned down their partner's advance for various reasons (e.g., health reasons, timing, fatigue), thus lending confidence that instances coded as sexual rejection involved one partner turning down a sexual advance by the other partner.

Correct Rejections Correct rejections were coded on days when the actor and partner agreed that the actor was not sexually rejected by the partner that day. This included days when: the actor and partner agreed that the actor did not make a sexual advance ($n = 2713$, 65.0%); the actor and partner agreed the actor made an advance that led to sexual activity (was not rejected) ($n = 569$, 13.6%); the actor indicated they made an advance that led to sexual activity (was not rejected) but the partner indicated no advance was made ($n = 185$, 4.4%); and days when the actor indicated they did not make an advance but the partner indicated the actor made an advance that led to sexual activity (was not rejected) ($n = 130$, 3.1%).

Hits. Hits were coded on days when the actor and partner agreed that the actor made a sexual advance, but that advance did not lead to sexual activity (rejection occurred) ($n = 174$, 4.2%).

False Alarms False alarms were coded on days when the actor reported being sexually rejected, but the partner did not report sexually rejecting the actor. This included days when: the actor indicated they made a sexual advance that did not lead to sexual activity (was rejected) but the partner indicated the actor did not make a sexual advance ($n = 206$, 4.9%); and when the actor indicated they made a sexual advance that did not lead to sexual activity (was rejected) but the partner indicated the actor made an advance that led to sexual activity (was not rejected) ($n = 26$, 0.6%).

Misses Misses were coded on days when the actor did not report being sexually rejected, but the partner reported sexually rejecting the actor. This included days when: the actor indicated they did not make a sexual advance but the partner reported the actor made an advance that did not lead to sexual activity (was rejected) ($n = 131$, 3.1%); and when the actor reported they made a sexual advance that led to sexual activity (was not rejected) but the partner indicated

the actor made an advance that did not lead to sexual activity (was rejected) ($n = 38$, 0.9%).²

Sexual Satisfaction

Three items modified from the GMSEX (Lawrance and Byers, 1998) asked participants to indicate on 7-point bipolar scales which best described their sexual relationship that day: unsatisfying–satisfying, unpleasant–pleasant, and good–bad. Items were mean aggregated with higher scores indicating higher sexual satisfaction ($Rc = 0.96$, $M = 4.93$, $SD = 1.81$).

Relationship Satisfaction

Four items from the Relationship Assessment Scale (Hendrick, 1988) asked participants to indicate on a 5-point scale (1 = *not at all/extremely poor*; 5 = *a great deal/extremely good*) how satisfied they were with their relationship each day (e.g., “How satisfied are you with your relationship?”; “How good is your relationship compared to most?”). Items were mean aggregated with higher scores indicating higher relationship satisfaction ($Rc = 0.80$, $M = 4.42$, $SD = 0.71$).

² As a note, given that the previous research has demonstrated that partners overwhelmingly agree about whether sexual activity has occurred on a given day (Birnbaum et al., 2006), prior to examining the data we expected that the majority of coded false alarms and misses would be from disagreement regarding whether or not a sexual advance was made, rather than whether sexual activity occurred. Similarly, we also expected that the majority of correct rejections would be from days when partners agreed that the actor's advance led to sexual activity or agreed that no advance was made. In the event of what appear to be discrepancies between partners in whether sexual activity occurred, we anticipated that this was instead attributable to differences in who made the sexual advance that led to the sexual activity (e.g., each partner reports that the other person initiated, but both agree that sexual activity occurred). This was confirmed as evidenced by the frequencies of event types (available in the supplemental materials: <https://osf.io/e7f4w/>).

Table 3 Summary of multilevel models of signal detection variables predicting sexual and relationship satisfaction

Daily predictor	Daily outcome					
	Sexual satisfaction			Relationship satisfaction		
	<i>b</i> (SE)	95% CI	<i>r</i>	<i>b</i> (SE)	95% CI	<i>r</i>
Intercept	4.98 (.06)***	4.85, 5.11	.99	4.43 (.02)***	4.39, 4.47	1.00
Hit	-.54 (.12)***	-.77, -.30	.08	-.04 (.03)	-.10, .02	.02
False alarm	-.37 (.10)***	-.56, -.17	.06	-.05 (.03)*	-.11, -.001	.03
Miss	-.37 (.11)***	-.59, -.15	.06	-.06 (.03) ⁺	-.12, .001	.03
Yesterday's outcome	.43 (.02)***	.41, .46	.46	.67 (.01)***	.64, .69	.77

We present unstandardized model statistics. Effect sizes calculated as $r = \sqrt{(t^2/t^2 + df)}$ (Kashdan & Steger, 2006). ⁺ $p < .06$, * $p < .05$, ** $p < .01$, *** $p \leq .001$

Results

Rate of Agreement and Frequency of Events

The rates of correct rejections, hits, false alarms, and misses recorded across all diary days are shown in Table 2, in addition to the proportion of all diaries on which that event occurred. Overall, accuracy occurred in 90.4% of cases, with the vast majority being days when correct rejection occurred (86.2%), with hits occurring on 4.2% of days. Consistent with hypotheses, false alarms (5.6%) occurred more frequently than misses (4.1%). Chi-square goodness of fit analysis comparing the frequencies of each category confirmed that there was a significant difference between frequency counts in the four categories from that expected by chance ($\chi^2(3, 4172) = 8341, p < .001$, Cohen's $w = 1.41$) indicating that correct rejections occurred more frequently than all other categories. Follow-up Bonferroni-corrected one-proportion z -tests (with Cohen's h) to compare the relative rates of two categories showed that false alarms occurred significantly more frequently than misses ($z = 3.15, p < .01, h = 0.16$) and hits ($z = 2.88, p < .01, h = 0.14$).

Association of Accuracy Categories with Gender

We also examined whether there were differences in the rates of each of the accuracy categories based on the actor's gender. We ran a two-proportion z -test for each of the categories by gender, and found significant differences between men and women in the rate of correct rejections ($z = 3.47, p < .001, h = 0.11$) and hits ($z = 4.03, p < .001, h = 0.13$), but not false alarms ($z = 0.28, p = .781, h = 0.01$) or misses ($z = 1.66, p = .098, h = 0.05$). More specifically, women had more correct rejection days than men, whereas men had more hit days than women.

Association of Accuracy Categories with Satisfaction

Finally, we examined the association between the categories of accuracy and sexual and relationship satisfaction using

multilevel modeling. We conducted two-level cross-classified models, in which individuals were nested within couples crossed with diary day to account for the fact that both partners completed measures on the same days. We used dummy-coded variables for actors' hits, false alarms, and misses as our predictors, with correct rejections as the reference category (see Gable et al., 2003). Thus, all results presented are a contrast between days when that outcome occurred (hits, misses, false alarms) and days when a correct rejection occurred. We also controlled for the actor's satisfaction on the previous day, and this variable was grand-mean-centered. We ran separate models for sexual and relationship satisfaction. The results of these analyses are shown in Table 3.

Hits, misses, and false alarms were all associated with lower sexual satisfaction than correct rejections. However, only false alarms were associated with differences in relationship satisfaction, with relationship satisfaction being significantly lower on false alarm days than correct rejection days. These results suggest that perceiving sexual rejection from one's partner (hits or false alarms) was associated with lower sexual satisfaction, regardless of whether those perceptions were accurate. Additionally, a partner's enacted sexual rejection (hits or misses) was also associated with lower sexual satisfaction, regardless of whether the rejection was perceived or not.

We also explored gender differences in the association between accuracy and satisfaction by adding gender as a moderator to the models, and following up with simple slopes models when significant interactions occurred. Only the interaction between misses and gender predicting sexual satisfaction was significant ($b = 0.41, t(3014.20) = 3.71, p < .001, 95\% \text{ CI}: [0.20, 0.63], r = .07$), with men reporting no differences in sexual satisfaction on miss and correct rejection days ($b = -0.004, t(1685.24) = -0.03, p = .976, 95\% \text{ CI}: [-0.27, 0.26], r < .001$), but women reporting significantly lower sexual satisfaction on miss days than correct rejection days ($b = -0.62, t(1727.35) = -3.89, p < .001, 95\% \text{ CI}: [-0.93, -0.31], r = .09$).

Discussion

Rejection from a romantic partner is a particularly painful form of interpersonal rejection (Leary et al., 1998; Murray et al., 2006), and sexual rejection in particular can be even more distressing (Impett et al., 2020). In two daily experience studies of romantic dyads, we used two complementary analytical techniques (i.e., TBM in Study 1, QSD in Study 2) to provide the first empirical test of perceptual accuracy for sexual rejection. Although previous research has typically used these techniques separately, the current approach provided a more nuanced understanding of partners' perceptions of sexual rejection than either approach could provide alone. By documenting similar effects across models and measures, namely the degree of sexual disinterest (Study 1) and occurrence of sexual rejection (Study 2), the current findings speak to the robustness of the demonstrated effects.

Results across studies indicated that individuals in ongoing romantic relationships can both accurately perceive the pattern of their partner's sexual rejection while also systematically overperceiving such rejection. These findings suggest that situations involving the communication of sexual disinterest or rejection between partners have the potential to present as a common source of misperceptions in relationships and may contribute to underlying difficulties in sexual communication and satisfaction between intimate partners (Byers, 2011). For example, overestimating the likelihood of rejection from one's partner may result in partners expressing sexual interest less frequently with one another than one or both partners desires, thereby impeding optimal sexual functioning among couples (Muise et al., 2016b). Prior studies have shown that evaluations of a partner's negative interaction traits (i.e., attributes and behaviors which convey a lack of care and validation from a partner, such as criticism and negative communication behaviors) tend to be systematically overestimated (Fletcher & Kerr, 2010). The current findings demonstrating an overestimation of sexual rejection align with this previous work. Given the value that partners place on having regular sex in romantic relationships (e.g., Muise et al., 2016a), the communication of sexual disinterest requires, to a large extent and in many circumstances, that individuals communicate a message to their partner that is inherently negative in nature. One explanation for the overestimation of sexual rejection draws from principles of error management theory, suggesting that it may be more costly to perceive greater, as opposed to less, connection with a partner than actually exists in the relationship. Failing to perceive signs of declining trust or love from a partner (i.e., underestimating negative interaction traits) could lead to complacency and lack of effort to maintain the relationship. Overestimating may result in exerting more effort than necessary to maintain one's relationship, but may be less costly for one's personal

and relationship success. As an error management strategy, people may therefore overperceive sexual rejection to readily detect potential threats to the relationship and indications of low regard from a partner (i.e., Fletcher & Kerr, 2010; Haselton & Buss, 2000).

Interestingly, although partners were biased in their perceptions of sexual rejection, they were also accurate, and these effects were particularly robust. Previous research has demonstrated perceptual accuracy for a partner's sexual desire (Dobson et al., 2018; Muise et al., 2016b), and our findings are consistent with and extend these findings to include the communication of sexual disinterest. We found evidence of accuracy in partners' perceptions of sexual rejection when measured in two different ways: the degree of sexual disinterest (Study 1) and actual enacted rejection (Study 2). Accurately perceiving a partner's disinterest in sex may, at times, be beneficial to the relationship and to the individual, as it allows them to balance their needs for self-protection and closeness (Murray et al., 2006). In terms of sexual rejection, accurately perceiving these experiences may act as a signal of discordance between partners or a partner's waning sexual interest, the knowledge of which might give partners the opportunity to address such issues before causing more entrenched relationship problems that are difficult to resolve.

Prior studies have also found that men underperceive—yet accurately track—their partner's level of sexual desire, and that one reason for this may be due to the motivation to avoid rejection (Muise et al., 2016b). However, we found no significant effect of gender in bias for perceptions of sexual rejection in Studies 1 or 2. There were, however, gender differences in the prevalence of each type of accuracy in Study 2. More specifically, men were more likely than women to accurately perceive a partner's sexual rejection, whereas women were more likely than men to correctly identify when they had not been rejected. These findings are consistent with previous research demonstrating gender differences in sexual scripts, with men initiating sexual activity more frequently than women, and women serving as gatekeepers of sexual activity (Byers & Heinlein, 1989; Wiederman, 2005). Initiating sexual activity more frequently may create greater opportunities for men to experience sexual rejection, and thus encounter more situations than women to correctly detect it.

In addition to examining the extent to which partners in ongoing relationships are accurate and biased in perceptions of a partner's sexual rejection, another key goal of this work was to examine links between perceptual accuracy and both relationship and sexual outcomes. In Study 1, overestimation of a partner's sexual rejection was associated with lower reports of both daily relationship and sexual satisfaction, but no bias was displayed on days when individuals were more satisfied with their relationship and sex lives. In Study 2, hits, misses, and false alarms were all associated with lower sexual satisfaction, and false alarms were also associated with lower

relationship satisfaction. While error management theory may help to explain why an overperception bias for sexual rejection exists due to its potential benefits to relationships in the long term (Fletcher & Kerr, 2010), our findings suggest that it may be detrimental for individuals in the short term. The future research should further investigate these competing ideas, including examining the potential long-term consequences (or benefits) of sustained overestimation on relationship and personal well-being. Additionally, given that the overperception of sexual rejection was linked with lower satisfaction, the current findings suggest that mitigating biased overperceptions of a partner's sexual rejection may be one avenue through which couples may experience short-term relational benefits.

The current research contributes to the literature on sexual communication in relationships and has applications for educators and therapists trying to help couples who present with sexual concerns related to mismatches in desire between partners. As this work identifies important cognitive aspects underlying sexual rejection communication, the findings are relevant for research, theory, and practice focused on dynamics of the sexual negotiation and consent process in relationships, of which the detection of a partner's acceptance or rejection plays a key role. By helping couples to recognize the existence of perceptual biases (i.e., sexual rejection overperception), these practitioners may aid couples in calibrating their sexual expectations (e.g., rejection expectations) and sexual behaviors (e.g., rejection communication) so that partners are more aligned in understanding and meeting one another's sexual needs. The current work also has potential implications for research on preventing rejection-related sexual victimization in relationships (Livingston et al., 2007; Shotland & Goodstein, 1992) and maladaptive partner responses to sexual rejection (Kim et al., 2019) to the extent that these outcomes may be precipitated by misconstruals of sexual rejection. Our findings may inform this research by highlighting the relevance of examining cognitive factors when assessing the way in which sexual rejection experiences shape these negative relational processes.

Limitations and Future Directions

The current research had a number of limitations that warrant consideration and give rise to directions for the future research. First, data from the two studies were limited in the extent to which they were able to fully capture all possible scenarios in which sexual rejection could occur. For example, neither study measured the extent of perceptions of sexual rejection on days when sexual activity occurred. Similarly, our construal of sexual rejection days and corresponding QSD categories in Study 2 was contingent on days in which a sexual advance was made (i.e., sexual rejection constituted a day in which a sexual advance was made but sex did not occur). Additionally, measures in Study 1 were contingent upon partners agreeing

that one person had lower sexual desire than the other and sex did not occur. Although these aspects align with previous representations of sexual rejection as a negative response to sexual initiation attempts by the more interested partner (e.g., Byers & Heinlein, 1989), sexual rejection may still occur from partners experiencing higher relative desire, in the absence of a sexual advance attempt (e.g., to pre-empt an anticipated sexual advance from one's partner), and prior to or alongside sexual activity among partners; these instances were thus not encompassed in the current analyses. Nevertheless, these situations occur less frequently than the more traditional conceptualizations used in the current research and are unlikely to alter the overall results (e.g., see Study 1 supplemental materials for more information on excluded data). Additionally, while the two analytic approaches used were distinct in their operationalization of sexual rejection, they were also complementary in their ability to address measurement limitations of each other and capture broader representations of sexual rejection communication and perception. That is, the use of both continuous and categorical measures of sexual rejection in addition to different conceptualizations of accuracy and the consistent effects across studies lend confidence to the overall findings. However, the future research should consider operationalizing sexual rejection in a more direct manner that is not contingent on relative differences in desire, sexual advances being made, or the occurrence of sexual activity.

Similarly, in order to determine whether an actor was accurate or biased, it was necessary to examine discrepancies between actors' and partners' reports of partners' behavior. In doing so, partners' reports of their own behavior were treated as the true behavior, consistent with prior accuracy and bias research and models involving self-other reports (e.g., Dobson et al., 2018; West & Kenny, 2011). However, we recognize that partners' reports may, for various reasons, be inaccurate. For example, given the extent to which monogamous romantic partners rely on one another for dyadic sexual activity, they may feel a sense of obligation to engage in such activity and experience guilt at refusing it, leading them to underreport their enactment of sexual rejection behaviors. Although behavioral observation in the domain of sexuality may be tricky, to say the least, the future research could consider alternative, objective measures of sexual rejection that do not rely on accurate partner reports.

Additionally, the current samples consisted of predominantly white and relatively young heterosexual couples. The future research with a more diverse sample of couples would help inform researchers of potential contextual differences in perceptions of sexual rejection as well as the generalizability of the findings.

Finally, although the use of experience sampling allowed us to capture people's sexual communication close in time to when it actually unfolded in couples' lives, we were nonetheless limited to examining associations between perceived

sexual rejection and satisfaction. The link between sexual rejection and relationship quality likely reflects a bidirectional process in that individuals who perceive less rejection are likely to be more satisfied, and those who are more satisfied may be less likely to overperceive rejection. Although we controlled for satisfaction on the previous day in our analyses, accounting for this bidirectional process to some extent, our analyses do not offer concrete evidence for the direction of these effects. Additionally, as the current investigation was limited to examining associations with current levels of satisfaction, it is possible that the links between accuracy and bias with satisfaction may function differently when examined over time. The future research examining the effects of sustained perceptual (in)accuracy of sexual rejection is necessary to determine its impact on longer-term relationship functioning.

Conclusion

Across two dyadic daily experience studies, we provided evidence that people were generally accurate in tracking their partner's communication of sexual rejection. However, they also exhibited a systematic overperception bias in judgments of their partner's expressions of sexual disinterest (Study 1) and actual enacted rejection (Study 2). These (in)accurate perceptions are meaningfully associated with satisfaction experiences and offer a potential avenue through which to improve partners' relationship evaluations.

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Declarations

Conflict of interest The authors declare no conflicts of interest or competing interests.

Data Availability All of the data and analytic code for this work are available on the Open Science Framework at <https://osf.io/e7f4w/>.

Ethical Approval The questionnaire and methodology for this work were approved by the Human Research Ethics boards of the University of Toronto Mississauga (Study 1) or the University of Western Ontario (Study 2).

Informed Consent Informed consent was obtained from all individual participants included in this work.

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