THE JOURNAL OF SEX RESEARCH, *00*(00), 1–12, 2017

ISSN: 0022-4499 print/1559-8519 online
DOI: https://doi.org/10.1080/00224499.2017.1321732

Degree and Direction of Sexual Desire Discrepancy are Linked to Sexual and Relationship Satisfaction in Couples Transitioning to Parenthood

Natalie O. Rosen
Department of Psychology and Neuroscience, Dalhousie University; and Department of Obstetrics and Gynecology, IWK Health Centre, Halifax, Nova Scotia, Canada

Kristen Bailey
Department of Psychology and Neuroscience, Dalhousie University

Amy Muise
Department of Psychology, York University

Many new parents are concerned that they have different levels of interest in sex than their partner. Understanding the role of desire discrepancies in their sexual and relationship satisfaction could help promote adjustment. In community couples, larger desire discrepancies have been inconsistently linked to lower sexual and relationship satisfaction. However, these studies rarely accounted for both the degree and direction (e.g., which partner has higher desire) of the discrepancy. We surveyed 255 mixed-sex new parent couples to assess their sexual desire, sexual satisfaction, and relationship satisfaction. Using polynomial regression with response surface analysis (RSA), we found that desire discrepancies between partners (i.e., when partners were more mismatched as opposed to matched on their levels of sexual desire) were associated with lower sexual (but not relationship) satisfaction for both partners. However, the direction of desire discrepancy mattered: Parents felt less satisfied when mothers were the higher-desire partner compared to when fathers were the higher-desire partner. In addition, when partners' level of sexual desire was in agreement, they were more sexually and relationally satisfied if both partners reported higher compared to lower desire. Results demonstrate the important role of both the magnitude and direction of desire discrepancies in new parent couples.

New parents are often tired, managing new stressors, and coping with hormonal and physical changes that may make sex low on the list of their priorities (Cowan & Cowan, 2000). Partners may also respond differently to becoming a parent: One partner might be eager to reignite their sex life; the other partner might be less interested in sex during this time. In fact, researchers have shown that many new parents are concerned about a greater discrepancy between their interest in sex and their partner's desire during this period (Olsson, Lundqvist, Faxelid, & Nissen, 2005; Pastore, Owens, & Raymond, 2007; Schlagintweit, Bailey, & Rosen, 2016). In one study of 239 heterosexual new parent couples, the vast majority were concerned about having different levels of sexual desire than their partner after the baby arrived. While most (91% of mothers and 91% of fathers) were particularly concerned about the father having higher desire than the mother, more than half of the sample were also concerned about the mother having higher desire: 59% of mothers and 57% of fathers reported this concern (Schlagintweit et al., 2016). These data suggest that both mothers and fathers may, at times, be the higher-desire partner. There is limited knowledge of whether and how such discrepancies in sexual desire—both the magnitude (i.e., degree of difference in desire) and direction (i.e., which partner has higher desire)—relate to couples' sexual and relationship satisfaction during the transition to parenthood. Understanding the role of desire discrepancies in the sexual and relationship satisfaction of new parents could help promote better adjustment during this critical yet vulnerable life stage.

Correspondence should be addressed to Natalie O. Rosen, Dalhousie University, Department of Psychology and Neuroscience, 1355 Oxford Street, P.O. Box 15000, Halifax, Nova Scotia B3H 4R2, Canada. E-mail: nrosen@dal.ca

Color versions of one or more of the figures in the article can be found online at www.tandfonline.com/HJSR.

Sexual and Relationship Challenges in the Transition to Parenthood

Welcoming a new baby into the family is often a time of great joy and happiness, yet new parents are faced with significant challenges to their sexual and intimate relationships (Cowan & Cowan, 2000; Schlagintweit et al., 2016). Longitudinal studies show that new parents experience steeper declines in relationship satisfaction compared to nonparents over the same relationship period (Doss, Rhoades, Stanley, & Markman, 2009; Lawrence, Rothman, Cobb, Rothman, & Bradbury, 2008). Similar declines in sexual satisfaction from prepregnancy to postpartum have been reported by new mothers and fathers alike (Condon, Boyce, & Corkindale, 2004; De Judicibus & McCabe, 2002; Yildiz, 2015). Indeed, in a cross-sectional study of 768 new parents, 36% of mothers and 46% of fathers described themselves as sexually dissatisfied at 6 months postpartum (Ahlborg, Dahlöf, & Hallberg, 2005). Although sexual frequency typically improves over the first year postpartum, sexual and relationship satisfaction often do not (De Judicibus & McCabe, 2002). Further, one study found that experiencing sexual problems was associated with an increased likelihood of relationship difficulties for women at 6 months postpartum (Brown & Lumley, 2000).

New mothers consistently report lower sexual desire in the first year postpartum compared to prepregnancy levels (De Judicibus & McCabe, 2002; Gordon & Carty, 1978; Serati et al., 2010; von Sydow, 1999). For fathers, there has been mixed evidence, with some studies reporting that new fathers experience declines in desire (Condon et al., 2004) and others showing no changes (Gordon & Carty, 1978; von Sydow, 1999). Changes in partners' roles and responsibilities as new parents, less time alone together as a couple, and increased stress and fatigue have been proposed as explanations for declines in sexual desire after a baby is born (Ahlborg et al., 2005; Cowan & Cowan, 2000; Woolhouse, McDonald, & Brown, 2012). As the partner recovering from the physical toll of pregnancy, labor, and delivery, and who may be breastfeeding, some factors (e.g., genital healing, body image, breastfeeding, fatigue, and related hormonal fluctuations) affect mothers who gave birth more than the other parent, possibly accounting for the more consistent evidence documenting declines in sexual desire for new mothers. But beyond declines in each partners' desire during the transition to parenthood, mismatches in sexual desire between partners are of significant concern to new parents (Pastore et al., 2007; Schlagintweit et al., 2016), and these differences may uniquely predict sexual and relationship satisfaction during this period.

Sexual Desire Discrepancies

Sexual desire fluctuates for individuals over the course of a relationship, with potential consequences for the couple in terms of desire discrepancies. Studies with community couples have debunked the myth that men are always the partner with higher desire; rather, these discrepancies ebb and flow such that women can also be the higher-desire partner at times (Herbenick, Mullinax, & Mark, 2014; Mark, 2014; Mark & Murray, 2012). Discrepancies in sexual desire can arise for a variety of reasons, including relationship factors, hormonal levels, medical problems, and psychosocial stressors that may affect one or both members of the couple (Mark, 2015). Negative factors may be indicative of couple vulnerabilities that become more pronounced in stressful times, such as in the transition to parenthood (Shapiro, Gottman, & Carrère, 2000). When there is a difference in partners' sexual desire, it can have negative implications for both partners' sexual satisfaction. The person with lower desire may feel obligated or pressured to engage in sexual activity with his or her partner, or feel guilty about declining sexual activity. In contrast, the person with higher desire might experience negative emotions related to being the person who frequently initiates sex, from being rejected by his or her partner, or from feeling that his or her sexual needs are not being met (Sutherland, Rehman, Fallis, & Goodnight, 2015). In both cases, negative affective and behavioral reactions to the desire discrepancy are likely to be associated with decreased sexual satisfaction for both members of the couple. And given the interdependence of sexual and relationship satisfaction (Fallis, Rehman, Woody, & Purdon, 2016; McNulty, Wenner, & Fisher, 2016), these repercussions could extend to more global evaluations of the relationship.

Findings regarding the associations between desire discrepancies and sexual and relationship satisfaction in community couples have been inconsistent. Most research on desire discrepancies has calculated a difference score between partners' self-reported levels of sexual desire to assess the degree of desire discrepancy between partners. In this research, some studies have found that when partners have greater desire discrepancies (i.e., a larger difference between partners' reports of desire), both men (Mark, 2012) and women (Bridges & Horne, 2007; Davies, Katz, & Jackson, 1999; Mark, 2014; Mark & Murray, 2012) reported lower sexual satisfaction. But other studies have failed to replicate this association in men (Davies et al., 1999; Mark, 2014; Mark & Murray, 2012; Sutherland et al., 2015) and women (Mark, 2012; Sutherland et al., 2015). Greater desire discrepancies have also been linked to lower relationship satisfaction in women (Davies et al., 1999; Mark & Murray, 2012) and men (Mark, 2012), though these effects have not been consistently replicated across these same studies.

A key limitation of this literature that may account for the inconsistent findings is that researchers rarely consider the direction of the discrepancy (i.e., who is the higher-desire partner) alongside the degree of the discrepancy between partners' desire (e.g., Bridges & Horne, 2007; Mark, 2012; Mark & Murray, 2012). For example, if a negative association with sexual satisfaction exists when women are the higher-desire partner but not when men are the higher-desire partner, then ignoring the direction of the discrepancy could lead to null or inconsistent findings. Using multiple regression analysis and a single-item measure which accounted for direction and magnitude of perceived desire discrepancy (i.e., at the individual level rather than

comparing self-reported desire between members of the couple), Sutherland and colleagues (2015) found that for both women and men, perceiving one's sexual desire to be much higher or much lower than one's partner was associated with lower sexual satisfaction. However, the authors found no significant associations between actual desire discrepancy (i.e., couple-level differences) and sexual satisfaction when considering magnitude and direction together. They did not examine relationship satisfaction, and this latter finding for sexual satisfaction requires further replication given the numerous inconsistent findings in the field.

Further, it is possible that the influence of direction—that is, who is the higher-desire partner—may become more important in circumstances where desire discrepancies may be new or more pronounced and couples are less satisfied overall, such as in the transition to parenthood (Ahlborg et al., 2005; Doss & Rhoades, 2017). Several social-cognitive theories, such as interdependence theory (Rusbult & Arriaga, 1997) and the interpersonal exchange model of sexual satisfaction (Lawrance & Byers, 1995), position expectations as a key determinant of sexual and relationship outcomes in interpersonal relationships. A central premise underlying each of these theories is that people tend to feel more satisfied when their expectations are met or surpassed but less satisfied when their expectations are violated (i.e., their experience fails to live up to expectations). New parents might view a (birth) mother's decreased desire as more normative and expected because they have a more readily available set of attributions for this change (e.g., recovering from pregnancy and childbirth, breastfeeding, fatigue), compared to when fathers are the lower-desire partner. When expectations regarding the transition to parenthood are met, parents tend to be more satisfied compared to when their expectations have not been met (Lawrence, Nylen, & Cobb, 2007; Roy, Schumm, & Britt, 2014). Hence, a discrepancy in which fathers have higher desire than mothers may have fewer consequences for sexual and relationship satisfaction than when mothers are the higher-desire partner. A more nuanced understanding of desire discrepancy in the transition to parenthood may inform prevention and intervention efforts aimed at promoting the sexual and relationship well-being of new parent couples.

The Current Study

In the current study, we tested two key predictions about the associations between sexual desire discrepancy and sexual and relationship satisfaction among first-time parent couples. We used polynomial regression with response surface analysis (RSA), a cutting-edge technique for modeling the consequences of matches and mismatches (Barranti, Carlson, & Côté, in press), to test both the effect of the degree of desire discrepancy and the effect of the direction of the discrepancy in the same model. We predicted that a larger desire discrepancy (i.e., a greater difference between partners' self-reported level of sexual desire) would be associated with lower sexual and relationship satisfaction for both members of the couple. But we also predicted that the direction of the desire discrepancy would have implications for both partners' sexual and relationship satisfaction. Specifically, parents would be more sexually and relationally satisfied when fathers were the higher-desire partner compared to when mothers were the higher-desire partner.

Method

Participants

Recruitment occurred from September 2014 to May 2015 as part of a larger, cross-sectional online study of couples transitioning to parenthood for the first time. Participants were recruited across North America through several online sources (i.e., Kijiji, Craigslist, Reddit, scienceofrelationships.com). Couples had to be first-time parents, in a romantic relationship with each other, with a healthy infant aged three to 12 months who was born at term (37 to 42 weeks gestation). In addition, women were required to be 18 to 45 years of age (i.e., to avoid potential confounds related to menopause) and their partners had to be 18 years of age or older. Eligibility criteria were determined using a brief screening questionnaire prior to beginning the survey. If one member of the couple failed the selection criteria but had a partner who had already completed the survey, then the partner's data were excluded as well. A total of 67 participants were excluded for failing to meet the selection criteria ($N = 51$ women; $N = 16$ partners). Eligibility criteria were further verified by comparing participants' own (and their partners') responses on several sociodemographic items that overlapped with selection criteria, and these responses were compared for consistency. Couples were excluded if (a) their responses did not match each other (e.g., if the woman and partner reported different ages of the child) or (b) their responses on the sociodemographic items violated the selection criteria (i.e., inconsistent responding within a participant). Ten couples were excluded for these reasons. Two same-sex couples were excluded due to a test of distinguishability (Kenny, Kashy, & Cook, 2006) showing that the couples were distinguishable by participant gender and could not be pooled across both genders ($p < .001$). Twelve additional couples were excluded due to missing data representing more than 10% of the key study measures. The final sample included 255 couples who ranged in age from 20 to 45 years old (mothers: $M = 27.20$, $SD = 3.31$; fathers: $M = 28.93$, $SD = 4.05$). Most participants were married (90%), with an average relationship length of 47.11 months ($SD = 28.13$). The majority of participants were American (80.4% of mothers; 80.0% of fathers) and resided in the United States (85.9%). Sample demographic characteristics are presented in Table 1.

Measures

Sample Characteristics. Each member of the couple self-reported age, country of residence, biological sex, and cultural background. Women also provided information on

Table 1. *Sample Characteristics (N = 255, Unless Otherwise Noted)*

	Women		Men	
Characteristics	***M* (Range) or *n***	***SD* or %**	***M* (Range) or *n***	***SD* or %**
Age (in years)	27.20 (20)	3.31	28.93 (40)	4.05
Country of residence				
United States	219	85.9%	—	—
Canada	36	14.1%	—	—
Biological sex				
Female	255	100.0%		
Male			255	100.0%
Cultural background				
Canadian	41	16.1%	41	16.1%
American	205	80.4%	210	80.0%
European	3	1.2%	5	2.0%
Other	6	2.8%	4	2.0%
Annual income (household)				
$0–$19,999	2	.80%	—	—
$20,000–$39,999	14	5.4%	—	—
$40,000–$59,999	47	18.4%	—	—
$60,000–$79,999	100	39.2%	—	—
$80,000–$99,999	49	19.2%	—	—
≥$100,000	43	16.9%	—	—
Relationship status				
Married	229	89.8%	—	—
Common law	8	3.1%	—	—
Dating	18	7.1%	—	—
Relationship duration (in months; *N* = 253)	47.11	28.13	—	—
Infant age (in months)	6.69 (3–12)	2.47	—	—
Breastfeeding (yes)	153	60.0%	—	—
Frequency of intercourse in past 4 weeks (*N* = 172)			—	—
Less than once a month	2	1.2%		
About once a month	18	10.5%		
Two to three times a month	32	18.6%		
Once a week	51	29.7%		
Multiple times a week	69	40.1%		
Postpartum fatigue (*N* = 220)	4.59 (2–7)	1.13	—	—
Depressive symptoms (*N* = 220)	8.87 (0–23)	5.70		
Mode of delivery (*N* = 207)				
Vaginal	137	57.8%		
Cesarean	68	28.7%		

the couple's annual household income, current relationship status, relationship duration, current age of their baby, whether they were breastfeeding, mode of delivery (vaginal or caesarean), frequency of intercourse in the past four weeks (0 = *Less than once a month* to 4 = *Multiple times a week*), and her average level of energy on a typical postpartum day (1 = *Extreme fatigue* to 7 = *High energy*). Women reported their depressive symptoms using the well-validated, 10-item Edinburgh Postnatal Depression Scale, on which responses are scored as 0, 1, 2, or 3, according to increased severity (Cox, Holden, & Sagovsky, 1987); see Table 1).

Sexual Desire. Sexual desire for a partner was measured using six items from the Sexual Desire Inventory–2 (SDI-2), a valid, reliable measure of sexual desire (Spector, Carey, & Steinberg, 1996). We used the six items shown to assess dyadic desire for a partner in Moyano, Vallejo-Medina, and Sierra (2017). The items assess interest in and thoughts about sexual activity with a partner, scored on either an 8-point scale (0 = *Not at all*, to 7 = *More than once a day/many times a day*) or on a 9-point scale (0 = *No desire/no importance*, to 8 = *Strong desire/extreme importance*). Items were summed and higher total scores indicate greater sexual desire (mothers: *M* = 24.69, *SD* = 7.81; fathers: *M* = 30.80, *SD* = 7.09). Cronbach's alpha was .79 for mothers and .72 for fathers in the current sample.

Sexual Satisfaction. Sexual satisfaction was measured using the Global Measure of Sexual Satisfaction (GMSEX), a valid, reliable measure of sexual satisfaction in relationships (Lawrance & Byers, 1995). Respondents rated the sexual aspect of their relationship with their partner on five bipolar scales: *Good/Bad, Pleasant/Unpleasant, Positive/Negative, Satisfying/Unsatisfying*, and

Valuable/Worthless (mothers: $M = 25.28$, $SD = 6.60$; fathers: $M = 26.57$, $SD = 6.14$). The GMSEX has demonstrated high internal reliability and good test-retest reliability over 18 months (Byers & MacNeil, 2006). Cronbach's alpha was .89 for mothers and .91 for fathers in the current sample.

Relationship Satisfaction. Relationship satisfaction was measured using the 32-item version of the Couples Satisfaction Index (CSI), which has been found to be valid and reliable in previous research (Funk & Rogge, 2007). The CSI uses one global item rated on a 7-point scale and 31 other items rated on 6-point scales, with higher total scores indicating greater satisfaction and adjustment (mothers: $M = 109.98$, $SD = 27.86$; fathers: $M = 112.42$, $SD = 26.77$). Cronbach's alpha was .97 for both mothers and fathers in the current sample.

Procedure

The present study used data collected as part of a larger study on couples transitioning to parenthood. Some results of the larger study have been published previously but did not focus on couple desire discrepancies (Muise, Kim, Impett, & Rosen, 2017; Rosen, Mooney, & Muise, 2016). Participants were asked to provide informed consent online prior to beginning the online survey. One member of the couple completed online questionnaires assessing sexual desire, sexual satisfaction, and relationship satisfaction (as well as other measures pertinent to the larger study). Upon completion of the survey, the participant provided the other couple member's e-mail address. The other member was then e-mailed a questionnaire link generated by the survey software to include an embedded couple identifier that allowed the data to be linked once both members of the couple had completed the survey. Both members of the couple were required to complete the survey within four weeks of each other. Upon completion, participants were provided with a list of online resources related to sexuality and relationships during the transition to parenthood, and each was compensated with a $15 Amazon.com/.ca giftcard. This study was approved by our institution's ethical review board.

Data Analysis

Missing data representing 10% or less of a single measure was replaced by the mean of the scale for that particular person (i.e., for the measure of relationship satisfaction; Tabachnick & Fidell, 2013). We then calculated the mean differences between a person's own sexual desire and his or her partner's sexual desire and calculated the percentage of couples where the father reported higher desire and the percentage where the mother reported higher desire. Next, to test our key predictions about the associations between the magnitude and direction of desire discrepancy and both partners' sexual and relationship satisfaction, we conducted multilevel polynomial regression with RSAs (Edwards & Parry, 1993) following the guidelines of Shanock, Baran, Gentry, Pattison, and Heggestad (2010). We conducted the polynomial regression analyses using multilevel modeling with mixed models in SPSS 20.0 (for a similar analytic strategy, see Muise, Stanton, Kim, & Impett, 2016). These analyses allowed us to test how the degree of agreement and disagreement between a person's own desire and his or her partner's desire was associated with sexual and relationship satisfaction, as well as how the direction of disagreement (i.e., whether the mother or the father reported higher desire) was associated with sexual and relationship satisfaction. We conducted the analyses using a two-level model with separate intercepts for mothers and fathers.

As per the guidelines in Shanock et al. (2010), we centered the variables (i.e., own report of sexual desire; partner's report of sexual desire) around the midpoint of the scale. In this case, we calculated participants' mean score on the sexual desire scale ($M = 4.62$, $SD = 1.34$) and then we centered this value around the midpoint of the scale (i.e., 4). The centered variable had a mean of .62 and ranged from −4.00 to 3.62. Next, we

Table 2. *Testing the Association Between Desire Discrepancy and Sexual and Relationship Satisfaction Using Multilevel Polynomial Regression With Response Surface Analyses*

	Multilevel Polynomial Regression Coefficients						Surface Values			
Outcome	b_0	b_1O	b_2P	b_3O^2	$b_4O \times P$	b_5P^2	*a1*	*a2*	*a3*	*a4*
Sexual satisfaction										
Mother	23.98 (.55)***	1.70 (.45)***	2.39 (.37)***	−.26 (.15)	.13 (.21)	−.47 (.16)**	4.09***	−.60	−.69	−.86**
Father	24.52 (.53)***	2.95 (.36)***	.58 (.43)	−.48 (.15)**	.06 (.21)	−.05 (.14)	3.53***	−.47	2.37***	−.59*
Relationship satisfaction										
Mother	96.98 (2.54)***	2.89 (2.07)	9.08 (1.70)***	−.24 (.66)	.98 (.98)	.98 (.74)	11.97***	1.72	−6.19*	−.24
Father	99.79 (2.45)***	9.48 (1.63)***	−1.72 (2.00)	1.17 (.71)	1.80 (.95)	−.88 (.64)	7.76***	2.09	11.20***	−1.51

Note. We include the coefficients from the multilevel polynomial regression because these values are used to calculate the surface values; it is the surface values that provide the key tests of our predictions. O = own sexual desire; P = partner's sexual desire.

*$p < .05$; **$p < .01$; ***$p < .001$.

created squared versions of these variables and a product term (own report × partner's report) and entered all five variables as predictors (see Table 2). We then evaluated the results with regard to four surface test values (*a1, a2, a3*, and *a4*, described in greater detail in the text that follows). To do this, we entered the five coefficients obtained from the multilevel analysis and their respective standard errors into an excel spreadsheet from Shanock et al. (2010) to test the significance of the surface values. Our primary interest in the current study was how the degree of disagreement between a person's own level of desire and their partner's level of desire (*a4*) and how the direction of disagreement (*a3*) was associated with each partner's sexual and relationship satisfaction. The analysis also tested how the degree of agreement between a person's own level of desire and his or her partner's level of desire (*a1*) was associated with satisfaction—that is, when partners have high agreement, is it better to agree on higher versus lower sexual desire?—as well as a test of whether *a1* is best described by a nonlinear relationship (*a2*)—that is, whether the association between agreement and satisfaction is nonlinear.

The values can be interpreted as follows. In regard to our primary analyses of interest, if *a4* is significant and negative, this indicates that a larger difference between one's own desire and a partner's desire is associated with lower satisfaction, whereas a significant positive value indicates that a larger difference is associated with higher satisfaction. We expected to find, for both mothers and fathers, a significant negative *a4* value, whereby a larger desire discrepancy would be associated with lower sexual and relationship satisfaction. For *a3*, positive values indicate that when a person's own desire is higher than a partner's desire, that person will report greater sexual and relationship satisfaction compared to when a partner's desire is higher than one's own desire, whereas negative scores for *a3* indicate that when a partner's desire is higher than one's own desire, that person will report greater satisfaction compared to when one's own desire is higher. In the current study, for mothers, we expected a significant negative *a3* value whereby they would report greater sexual and relationship satisfaction when fathers' desire was higher than their own desire, compared to the reverse. For fathers, we expected a significant positive *a3* value such that they would report greater sexual and relationship satisfaction when their own desire was higher than the mothers', compared to the reverse. In addition, in the analyses, a significant positive value for *a1* indicates that when partners show agreement (i.e., matching) on their levels of sexual desire, it is better for their sexual and relationship satisfaction if partners show agreement for higher desire compared to lower desire. A significant negative value for *a1* indicates that when partners are matched on their levels of desire it is better for satisfaction if they agree on lower desire compared to higher desire. The *a1* surface value differs from *a4* in that it is a test of how agreement is associated with satisfaction—that is, when partners agree, is it better to agree and have higher desire or lower desire? In contrast, *a4* tests how disagreement influences satisfaction—that is, does the extent to which partners disagree on their levels of desire influence satisfaction? For *a1*, we expected to find a significant positive a1 value for both mothers and fathers, such that when partners agree on their levels of desire (i.e., when their desire is matched) they will report greater sexual and relationship

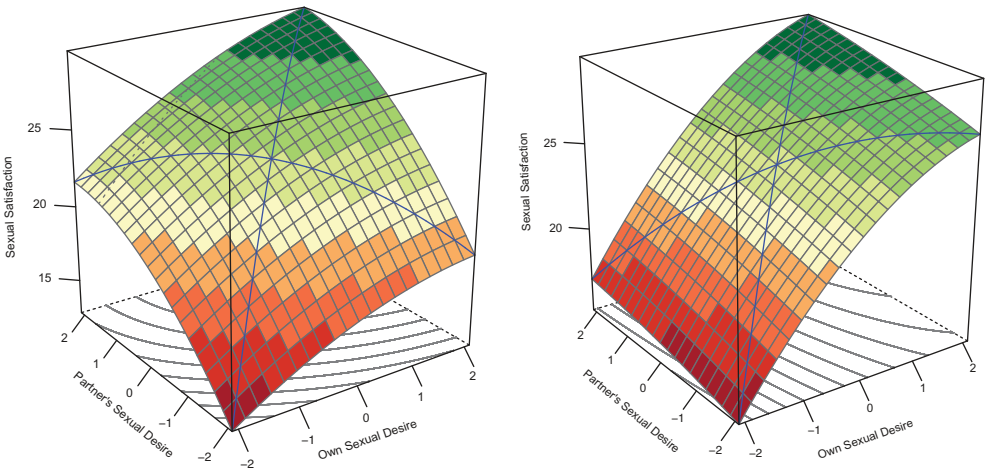

Figure 1. Response surface plots for the association between a person's own desire and his or her partner's desire on sexual satisfaction.The vertical line (i.e., the line of congruence) reflects the association between agreement (i.e., matching) and sexual satisfaction (*a1* and *a2*); the pattern here, with the top end at a higher value of sexual satisfaction, indicates that greater agreement for higher desire is associated with higher sexual satisfaction; *a2* tests whether the line of congruence is best represented by a curvilinear association, but this is not the case. The horizontal line (i.e., the line of incongruence) reflects the association between discrepancy (i.e., mismatching) and sexual satisfaction (*a3* and *a4*). Here, *a4* is depicted by the shape of the line of incongruence; if the ends are higher than the middle, this suggests there is a difference between matches and mismatches for the outcome. In this case, the concave shape of line of incongruence (*a4*) indicates that sexual satisfaction is lower when partners diverge on levels of sexual desire. Also, *a3* is depicted by the tilt or the slope of the line of incongruence; when the right side is higher than the left side, it suggests satisfaction is higher when one's own desire is greater than partner's desire; when the left side is higher than the right side, it suggests satisfaction is higher when a partner's desire is greater than one's own desire.

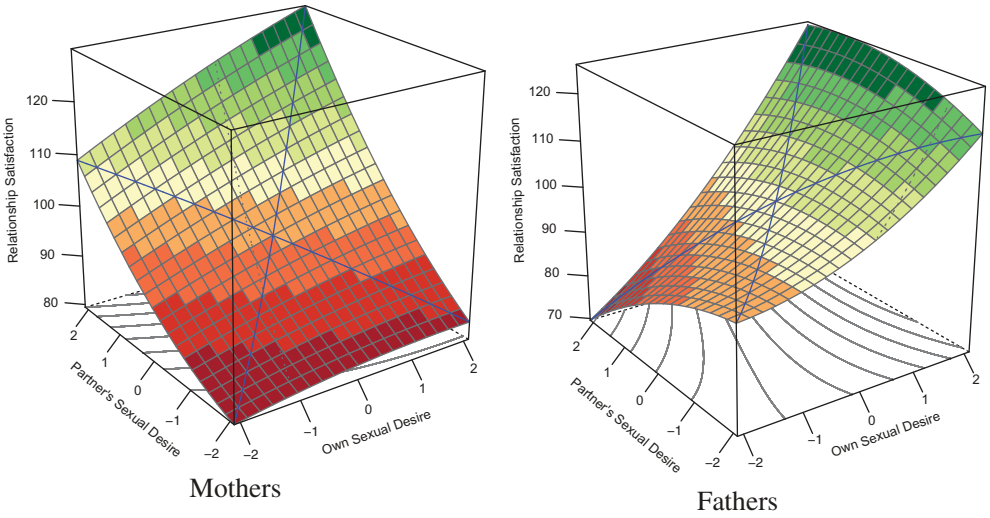

Figure 2. Response surface plots for the association between a person's own desire and his or her partner's desire on relationship satisfaction.The vertical line (i.e., the line of congruence) reflects the association between agreement (i.e., matching) and relationship satisfaction (*a1* and *a2*); the pattern here, with the top end at a higher value of satisfaction, indicates that greater agreement for higher desire is associated with higher relationship satisfaction; *a2* tests whether the line of congruence is best represented by a curvilinear association, but this is not the case. The horizontal line (i.e., the line of incongruence) reflects the association between discrepancy (i.e., mismatching) and relationship satisfaction (*a3* and *a4*). Here, *a4* is depicted by the shape of the line of incongruence; in this case *a4* is not significant and the figure does not depict a clear concave or convex pattern. Also, *a3* is depicted by the tilt or the slope of the line of incongruence; when the right side is higher than the left side, it suggests satisfaction is higher when one's own desire is greater than partner's desire; when the left side is higher than the right side, it suggests satisfaction is higher when a partner's desire is greater than one's own desire.

satisfaction when they are both high in desire compared to low. If the *a2* value is significant, this would indicate that the association in *a1* is best characterized by a nonlinear association, but we did not expect this to be the case in the current study. In line with Shanock et al. (2010), the results are depicted in surface plots (see Figures 1 and 2). We used the R package RSAplots to graph the surface plots.

Results

Descriptives and Correlations

To calculate the level of discrepancy between partners' sexual desire, we subtracted the mother's score on sexual desire from the father's score, for an average desire discrepancy of 6.1 (range = −20 to 39). Of the 255 couples in the current sample, 12 couples (5%) reported levels of desire that were in perfect agreement, 64 couples (25%) had mothers reporting higher desire than fathers (*M* desire discrepancy = 4.70, *SD* = 4.24), and 170 couples (70%) had fathers reporting higher desire than mothers (*M* desire discrepancy = 10.39, *SD* = 8.81). None of the sociodemographic variables (age, country of residence, biological sex, cultural background, household income, relationship duration) or mode of delivery correlated with the dependent variables at > .30 and were therefore not considered as covariates in the analyses.

However, mothers who were currently breastfeeding reported lower sexual desire (t (218) = 2.30, p = .02) but also higher relationship satisfaction (t (217) = −5.53, p < .001) and sexual satisfaction (t (217) = −2.76, p < .01) compared to mothers who were not breastfeeding. For mothers, higher levels of energy were associated with their own higher sexual satisfaction and relationship satisfaction (r = .48, p < .011 and r = .14, p < .05, respectively) as well as fathers' higher sexual and relationship satisfaction (r = .33, p < .011 and r = .16, p < .05, respectively). Mothers' greater depressive symptoms were also linked to their lower sexual and relationship satisfaction (r = −.36, p < .001; r = −.65, p < .001 respectively) and to father's lower sexual and relationship satisfaction (r = −.41, p < .001; r = −.56, p < .001, respectively). When couples reported more frequent sex, fathers were more sexually satisfied (r = .29, p < .001), but there was no significant association for mothers' sexual satisfaction (r = .12, p = .14) or for the relationship satisfaction of either parent (r = .12, p = .06 for mothers; r = .14, p = .07 for fathers). Finally, as the age of the infant increased, both mothers and fathers were more sexually satisfied (r = .20, p < .001 for mothers; r = .19, p < .01 for fathers) but not more relationally satisfied (r = .02, p = .74 for mothers; r = .05, p = .43 for fathers).

Associations Between Sexual Desire Discrepancy and Sexual and Relationship Satisfaction

Using multilevel polynomial regression with RSA, we tested our key predictions about the associations between magnitude and direction of desire discrepancy on mothers' and fathers' sexual and relationship satisfaction. Table 2

reports the results of the polynomial regression and the surface tests, but the surface values are the key tests of our predictions and what we interpret in the following text. Figures 1 and 2 display the surface plots for sexual and relationship satisfaction, respectively. First, we examined *a4* and *a3* since these were the tests of our key predictions. The surface value *a4* tested the association between degree of desire discrepancy and satisfaction. As shown by the significant negative *a4* value for sexual satisfaction, both mothers and fathers reported lower sexual satisfaction when the degree of desire discrepancy was larger. That is, when new parents reported a larger difference in their sexual desire, both partners reported feeling less sexually satisfied. However, the degree of desire discrepancy was not associated with relationship satisfaction for either parent; that is, overall, couples who were matched on desire did not report significantly greater relationship satisfaction than couples who were mismatched.

Next, *a3* tested how the direction of desire discrepancy is associated with satisfaction. As shown by the significant positive *a3* value for fathers, fathers felt more sexually and relationally satisfied when they reported higher sexual desire than mothers compared to when mothers reported higher desire. Similarly for mothers, as shown by the significant negative *a3* value for relationship satisfaction, they felt more satisfied when fathers' desire was higher than their own desire compared to when their own desire was higher. However, there was no significant association with sexual satisfaction for mothers. That is, both mothers and fathers felt more relationally satisfied and fathers were also more sexually satisfied when the father reported higher sexual desire than the mother. The finding that *a3* (direction of discrepancy) significantly predicted relationship satisfaction, but *a4* (degree of discrepancy) did not, suggests that overall matching was not better for relationship satisfaction than mismatching on desire, but that when couples were mismatched on desire they were more relationally satisfied when the father reported higher desire than the mother.

Finally, we interpreted the *a1* and *a2* values that indicate how agreement in desire is associated with sexual and relationship satisfaction. As expected and as shown by the significant positive *a1* values, when partners' desire was in agreement, both mothers and father felt more sexually and relationally satisfied when they were both higher in desire compared to lower in desire. Put another way, when couples reported that their levels of sexual desire were in greater agreement, having higher desire was associated with greater sexual and relationship satisfaction compared to having desire that was in agreement, but lower. Also as expected, the nonsignificant *a2* values suggested that these associations were linear and not best represented by a nonlinear association—that is, as desire increased together for both partners, satisfaction increased.

Ruling Out Alternative Explanations

Because the data are correlational, we conducted an additional set of analyses to rule out some possible alternative explanations for the observed effects. First, we wanted to rule out the possibility that other aspects of the couples' sex life or relationship were driving the negative consequences of desire discrepancies. It is possible that effects were being driven by other challenges during the postpartum period; couples where new mothers were experiencing more depressive symptoms or where women were more fatigued may report greater desire discrepancies as well as lower sexual and relationship satisfaction. Women who were breastfeeding reported lower desire; therefore, breastfeeding might also influence the association between desire discrepancy and satisfaction. However, after controlling for mothers' depressive symptoms, breastfeeding, and level of fatigue, the effects remained significant. In addition, couples who have more frequent sex (as reported by the mother) may have lower desire discrepancies, and this might be driving the association with sexual and relationship satisfaction. Again, after accounting for sexual frequency, the effects of desire discrepancy on sexual and relationship satisfaction remained significant.[1] Finally, couples with older children may have less discrepant desire, and this could account for the association with sexual and relationship satisfaction. However, the effects remained significant when controlling for the age of the child.

Discussion

Discrepancies in sexual desire between partners is one of the most common sexual concerns reported by new parents (Schlagintweit et al., 2016). In this study we demonstrated that sexual desire discrepancy uniquely predicted the sexual and relationship satisfaction of couples transitioning to parenthood for the first time. We used an analytical technique that was novel to the study of desire discrepancy and corrected limitations of past work in this field by simultaneously examining both the magnitude and the direction of the discrepancy. We found that when there was a greater difference in their level of sexual desire, new parents were less sexually satisfied, although relationship satisfaction was unrelated to degree of desire discrepancy between partners for both mothers and fathers. Providing further nuance to these associations, we showed that when fathers were the higher-desire partners, both mothers and fathers were more relationally satisfied, and fathers were more sexually satisfied, compared to when mothers had higher desire than fathers. In addition, for both new mothers and fathers, when their level of sexual desire was in greater agreement and higher, they were more sexually and relationally satisfied compared to when sexual desire was in agreement but lower. These results remained significant when controlling for potential challenges to sexual and relationship

[1] The frequency of sexual activity was also collected from fathers but was highly correlated with mothers' reports. We therefore used mothers' reported sexual frequency in the analysis. The results were the same when we used fathers' reports instead.

satisfaction that are unique to the postpartum period, including fatigue, frequency of sexual activity, depressive symptoms, and breastfeeding. Thus, our findings suggest that which parent is the higher desire partner has implications for the associations between desire discrepancy and new parents' sexual and relationship satisfaction.

Prior studies examining associations between sexual desire discrepancy and sexual and relationship satisfaction in community samples of women and men have documented inconsistent results with respect to the association between desire discrepancies and feelings of sexual and relationship satisfaction (Mark, 2015). However, when significant associations were observed, people tended to be less sexually and relationally satisfied when the degree of discrepancy was greater between partners (see Mark, 2015 for review). In the only prior study to take into account both the magnitude and direction of sexual desire discrepancy, Sutherland and colleagues (2015) found no association between desire discrepancy and sexual satisfaction in a community sample of couples. Participants in this study (and indeed all prior studies of desire discrepancy in community samples) were generally quite sexually satisfied, which may account for differences with our current results. In contrast, couples transitioning to parenthood are faced with a number of novel sexual concerns (e.g., changes in body image, sexual preferences) and report feeling less sexually satisfied than before the baby was born (Ahlborg et al., 2005; Condon et al., 2004; Schlagintweit et al., 2016). Discrepancies in sexual desire between partners is one of the top sexual concerns reported by new parents (Schlagintweit et al., 2016) and may be an issue that the couple did not expect or had not previously encountered in their relationship. Under these circumstances of unmet expectations, they may be unprepared to deal with this new challenge to their sexual relationship, making the links with sexual and relationship satisfaction potentially more salient.

We found that greater discrepancy in sexual desire between partners was associated with lower sexual (but not relationship) satisfaction in couples transitioning to parenthood. When considering the magnitude of the desire discrepancy alone, it appeared to be important for new parents' subjective evaluation of the positive and negative components of their sexual relationship, but did not extend to their more global impression of the romantic relationship. When sexual interest diverges between partners, both parents may experience negative affective (e.g., resentment, guilt, anxiety) and behavioral (e.g., avoidance of sexual activity or affection) reactions to the discrepancy that interferes with their sexual satisfaction. There are likely many other contributors to couples' relationship satisfaction during this highly demanding transition to parenthood (e.g., infant characteristics, partners' attachment style; for a review, see Doss & Rhoades, 2017) such that an overall desire discrepancy is less important to overall relationship satisfaction compared to sexual satisfaction. However, when we also took into account the direction of the desire discrepancy, there were implications for parents' sexual *and* relationship satisfaction: When fathers were the higher-desire partners, both mothers and fathers were more relationally satisfied, and fathers were more sexually satisfied, compared to when mothers had higher desire than fathers.

It is possible that when the father has higher desire, this helps the mother cope with negative feelings related to changes in her body image or how she sees herself as a sexual being since becoming a parent, which are two common concerns (Schlagintweit et al., 2016), and this relates to both feeling more relationally satisfied and the father feeling more sexually satisfied. For new mothers, having a partner who is less interested in sex than she is could reinforce these concerns. Indeed, prior research suggests that partner-related factors such as feelings of intimacy, partner level of sexual desire, and amount of partner support, are key determinants of mothers' own sexual desire at 3 months postpartum (Hipp, Low, & van Anders, 2012). Perceptions of the desire discrepancy could also contribute to couples' satisfaction, as seen in the prior research by Sutherland et al. (2015) with community couples. It may be that new parents perceive the same degree of discrepancy as greater when the mother has higher desire than the father, perhaps due to culturally embedded sexual scripts and gender norms that prescribe men as the higher-desire partner (Dworkin & O'Sullivan, 2005), especially postpartum. Future research should include both perceptions of discrepancy and actual desire discrepancy to test this possibility, as well as their relative contribution to postpartum satisfaction.

In line with theories of expectations in interpersonal relationships (Lawrance & Byers, 1995; Rusbult & Arriaga, 1997) parental expectations for their sexual and relationship satisfaction after the baby has arrived may have also played an important role in the current findings. New parents often anticipate a return of sexual functioning to prepregnancy levels (Condon et al., 2004). Therefore, new sexual concerns, including discrepancies in desire and/or a sustained decline in the sexual relationship, may be unexpected. Similarly, the woman having higher sexual desire on average compared to the man goes against gendered stereotypes frequently endorsed in society as well as widely accepted sexual scripts and, indeed, the average experience of heterosexual couples (Baumeister, Catanese, & Vohs, 2001), and may therefore be unexpected. Unmet expectations during the transition to parenthood across a range of domains such as partner support and division of labor and child care predict declines in relationship satisfaction over time (Biehle & Mickelson, 2012; Lawrence et al., 2007). Consistent with interdependence theory, when expectations for the sexual relationship are not met, this could lead to feelings of disappointment and increased conflict, with repercussions for the sexual and relationship satisfaction of new parent couples (Rusbult & Arriaga, 1997). Of course, we also know that new parents are less sexually and relationally satisfied compared to prepregnancy (Ahlborg et al., 2005; Serati et al., 2010). This decreased satisfaction in one or both parent might reduce sexual interest and result in a greater discrepancy in desire between partners.

Although not part of our primary set of hypotheses, we further extended the desire discrepancy literature by demonstrating that new parents were more sexually and relationally satisfied when their sexual desire was more aligned and higher, compared to when their sexual desire was aligned but lower. In other words, it is good for sexual and relationship satisfaction for partners to be "matched" on levels of desire, but this is particularly true when partners are higher in desire compared to lower. New parents who are more in tune with regard to their parenting goals, attitudes, and behaviors tend to adjust better to their new roles and responsibilities and report greater relationship satisfaction compared to parenting couples who are not in agreement (Barnett, Deng, Mills-Koonce, Willoughby, & Cox, 2008; Block, Block, & Morrison, 1981). Our results suggest that the benefits of an individual being aligned with his or her coparent also extend to the domain of sexual desire. There is again likely to be some bidirectionality such that couples who are less sexually and relationally satisfied are also less interested in being sexual with each other.

There are some limitations to this research that warrant caution in the interpretation of the results. This was a single occasion study, and we cannot know whether the observed discrepancies in desire predated the transition to parenthood, nor can we draw causal conclusions from the results. Future studies should follow couples over time to examine temporal sequences as well as changes in satisfaction. This study is also not representative of all new parent couples given that our sample included only those in mixed-sex relationships where the woman gave birth. Same-sex couples and adoptive parents should be included in future research. Although the sexual frequency reported by our sample (about once a week) is consistent with prior postpartum studies (e.g., De Judicibus & McCabe, 2002; Safarinejad, Kolahi, & Hosseini, 2009), the results may not generalize to couples who are less sexually active. We did not take into account whether the pregnancy was planned and fertility challenges (preconception), which could also impact sexual desire and satisfaction postpartum. Finally, depressive symptoms were assessed in the mother only, although paternal depression might be an important covariate. Despite these limitations, this study advanced the more general literature on sexual desire discrepancy between partners by examining both the magnitude and direction of the difference simultaneously using a novel analytical approach, and correcting past limitations of using difference scores (Edwards & Parry, 1993). This study also provided much-needed information about how this common sexual concern in new parents relates to their sexual and relationship satisfaction. Identifying factors that promote the sexual and relationship satisfaction of new parents is essential, because when satisfaction is low there may be wider-reaching implications for the child, as marital conflict has been found to negatively impact the parent–child relationship and the child's socioemotional development (Amato, 2001; Yu, Pettit, Lansford, Dodge, & Bates, 2010).

Although researchers have examined predictors of relationship adjustment in the transition to parenthood (for a review, see Doss & Rhoades, 2017), the current findings contribute to a sparse literature examining factors that may promote sexual satisfaction during this period (Hipp et al., 2012; Olsson et al., 2005; van Anders, Hipp, & Low, 2013) and an even smaller number of studies that incorporate a dyadic approach to studying postpartum sexuality (for exceptions, see Rosen et al., 2016; Schlagintweit et al., 2016). Our findings suggest it is essential for health care providers to query how couples are navigating their sexual relationship since the baby arrived so as to offer appropriate support and intervention when a mismatch in sexual interest is identified. New parents have reported feeling unprepared for the changes to their sexual relationship after having a baby and would like more information about this topic, despite being reticent to bring it up with health care providers (Barrett et al., 2000; Deave & Johnson, 2008; von Sydow, 1999). Enhancing awareness of the possibility for desire discrepancy might be beneficial simply by normalizing this experience and creating more realistic expectations for the sexual relationship during the early phases of new parenthood.

In studies of both mothers' and fathers' perceptions of their sexual lives after the baby is born, communication appears to be the key to promoting satisfaction (Ahlborg et al., 2005; Olsson et al., 2005; Olsson, Robertson, Björklund, & Nissen, 2010; Woolhouse et al., 2012). Postnatal visits are an opportunity for clinicians to create a safe and nonjudgmental environment for more open communication between partners about changes to the sexual relationship since having a baby. Consistent with theoretical models of sexual motivation (e.g., the dual-control model; Bancroft, Graham, Janssen, & Sanders, 2009), discussing factors that may enhance sexual desire as well as barriers to desire might facilitate greater alignment in couples' higher sexual desire. Sexual preferences may have also shifted for one or both of the parents (e.g., sensitivity of the breasts while breastfeeding) and clinicians can help to identify how these might be contributing to any desire discrepancy. Further investigations are necessary to better inform clinicians of effective methods for intervention around desire discrepancy in new parents and postpartum sexuality more generally. Postpartum care continues to focus on the birth mother and the baby. The current study emphasizes the importance of including the father (or coparent) given the dyadic nature of sexual concerns and their implications for the broader romantic relationship.

Acknowledgments

The authors would like to thank Hera Schlagintweit and James Kim for their assistance with data collection, the members of the Couples and Sexual Health Research lab at Dalhousie University for their feedback on the manuscript, as well as the couples who participated in this research.

Funding

This research was supported by a Category A operating grant from the IWK Health Centre awarded to Natalie O. Rosen and Kristen Bailey, and by an operating grant awarded to Natalie O. Rosen from the Canadian Institutes for Health Research.

ORCID

Natalie O. Rosen http://orcid.org/0000-0002-4525-0770

References

Ahlborg, T., Dahlöf, L.-G., & Hallberg, L. R.-M. (2005). Quality of the intimate and sexual relationship in first-time parents six months after delivery. *Journal of Sex Research*, *42*, 167–174. doi:10.1080/00224490509552270

Amato, P. R. (2001). Children of divorce in the 1990s: An update of the Amato and Keith (1991) meta-analysis. *Journal of Family Psychology*, *15*, 355–370. doi:10.1037/0893-3200.15.3.355

Bancroft, J., Graham, C. A., Janssen, E., & Sanders, S. A. (2009). The dual control model: Current status and future directions. *Journal of Sex Research*, *46*, 121–142. doi:10.1080/00224490902747222

Barnett, M. A., Deng, M., Mills-Koonce, R. W., Willoughby, M., & Cox, M. (2008). Interdependence of parenting of mothers and fathers of infants. *Journal of Family Psychology*, *22*, 561–573. doi:10.1037/0893-3200.22.3.561

Barranti, M., Carlson, E. N., & Côté, S. (in press). How to test questions about similarity in personality and social psychology research: Description and empirical demonstration of response surface analysis. *Social Psychological and Personality Sciences*.

Barrett, G., Pendry, E., Peacock, J., Victor, C., Thakar, R., & Manyonda, I. (2000). Women's sexual health after childbirth. *British Journal of Obstetrics and Gynecology*, *107*, 186–195. doi:10.1111/j.1471-0528.2000.tb11689.x

Baumeister, R. F., Catanese, K. R., & Vohs, K. D. (2001). Is there a gender difference in strength of sex drive? Theoretical views, conceptual distinctions, and a review of relevant evidence. *Personality and Social Psychology Review*, *5*, 242–273. doi:10.1207/S15327957PSPR0503_5

Biehle, S. N., & Mickelson, K. D. (2012). First-time parents' expectations about the division of childcare and play. *Journal of Family Psychology*, *26*, 36–45. doi:10.1037/a0026608

Block, J. H., Block, J., & Morrison, A. (1981). Parental agreement-disagreement on child-rearing orientations and gender-related personality correlates in children. *Child Development*, *52*, 965–974. doi:10.2307/1129101

Bridges, S. K., & Horne, S. G. (2007). Sexual satisfaction and desire discrepancy in same sex women's relationships. *Journal of Sex and Marital Therapy*, *33*, 41–53. doi:10.1080/00926230600998466

Brown, S., & Lumley, J. (2000). Physical health problems after childbirth and maternal depression at six to seven months postpartum. *British Journal of Obstetrics and Gynecology*, *107*, 1194–1201. doi:10.1111/j.1471-0528.2000.tb11607.x

Byers, E. S., & MacNeil, S. (2006). Further validation of the interpersonal exchange model of sexual satisfaction. *Journal of Sex and Marital Therapy*, *32*, 53–69. doi:10.1080/00926230500232917

Condon, J. T., Boyce, P., & Corkindale, C. J. (2004). The First-Time Fathers Study: A prospective study of the mental health and wellbeing of men during the transition to parenthood. *Australian and New Zealand Journal of Psychiatry*, *38*, 56–64. doi:10.1111/anp.2004.38.issue-1-2

Cowan, C. P., & Cowan, P. A. (2000). *When partners become parents: The big life change for couples*. New York, NY: Basic Books.

Cox, J. J., Holden, J. M., & Sagovsky, R. (1987). Detection of postnatal depression: Development of the 10-item Edinburgh Postnatal Depression Scale. *British Journal of Psychiatry*, *150*, 782–786. doi:10.1192/bjp.150.6.782

Davies, S., Katz, J., & Jackson, J. L. (1999). Sexual desire discrepancies: Effects on sexual and relationship satisfaction in heterosexual dating couples. *Archives of Sexual Behavior*, *28*, 553–567. doi:10.1023/A:1018721417683

Deave, T., & Johnson, D. (2008). The transition to parenthood: What does it mean for fathers? *Journal of Advanced Nursing*, *63*, 626–633. doi:10.1111/jan.2008.63.issue-6

De Judicibus, M., & McCabe, M. (2002). Psychological factors and the sexuality of pregnant and postpartum women. *Journal of Sex Research*, *39*, 94–103. doi:10.1080/00224490209552128

Doss, B. D., & Rhoades, G. K. (2017). The transition to parenthood: Impact on couples' romantic relationships. *Current Opinion in Psychology*, *13*, 25–28. doi:10.1016/j.copsyc.2016.04.003

Doss, B. D., Rhoades, G. K., Stanley, S. M., & Markman, H. J. (2009). The effect of the transition to parenthood on relationship quality: An 8-year prospective study. *Journal of Personality and Social Psychology*, *96*, 601–619. doi:10.1037/a0013969

Dworkin, S. L., & O'Sullivan, L. (2005). Actual versus desired initiation patterns among a sample of college men: Tapping disjunctures within traditional male sexual scripts. *Journal of Sex Research*, *42*, 150–158. doi:10.1080/00224490509552268

Edwards, J. R., & Parry, M. E. (1993). On the use of polynomial regression equations as an alternative to difference scores in organizational research. *Academy of Management Journal*, *36*, 1577–1613. doi:10.2307/256822

Fallis, E., Rehman, U. S., Woody, E. Z., & Purdon, C. (2016). The longitudinal association of relationship satisfaction and sexual satisfaction in long-term relationships. *Journal of Family Psychology*, *30*, 822–831. doi:10.1037/fam0000205

Funk, J. L., & Rogge, R. D. (2007). Testing the ruler with item response theory: Increasing precision of measurement for relationship satisfaction with the Couples Satisfaction Index. *Journal of Family Psychology*, *21*(4), 572–583. doi:10.1037/0893-3200.21.4.572

Gordon, I. B., & Carty, E. (1978). Sexual adjustment of postpartum couples. *Canadian Family Physician*, *24*, 1191–1198.

Herbenick, D., Mullinax, M., & Mark, K. P. (2014). Sexual desire discrepancy as a feature, not a bug, of long-term relationships: Women's self-reported strategies for modulating sexual desire. *Journal of Sexual Medicine*, *11*, 2196–2206. doi:10.1111/jsm.12625

Hipp, L. E., Low, L. K., & van Anders, S. M. (2012). Exploring women's postpartum sexuality: Social, psychological, relational and birth-related contextual factors. *Journal of Sexual Medicine*, *9*, 2330–2341. doi:10.1111/j.1743-6109.2012.02804.x

Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic data analysis*. New York, NY: Guilford Press.

Lawrance, K., & Byers, E. S. (1995). Sexual satisfaction in long-term heterosexual relationships: The interpersonal exchange model of sexual satisfaction. *Personal Relationships*, *2*, 267–285. doi:10.1111/pere.1995.2.issue-4

Lawrence, E., Nylen, K., & Cobb, R. J. (2007). Prenatal expectations and marital satisfaction over the transition to parenthood. *Journal of Family Psychology*, *21*, 155–164. doi:10.1037/0893-3200.21.2.155

Lawrence, E., Rothman, A. D., Cobb, R. J., Rothman, M. T., & Bradbury, T. H. (2008). Marital satisfaction across the transition to parenthood. *Journal of Family Psychology*, *22*, 41–50. doi:10.1037/0893-3200.22.1.41

Mark, K. P. (2012). The relative impact of individual sexual desire and couple desire discrepancy on satisfaction in heterosexual couples. *Sex and Relationship Therapy*, *27*, 133–146. doi:10.1080/14681994.2012.678825

Mark, K. P. (2014). The impact of daily sexual desire and daily sexual desire discrepancy on the quality of the sexual experience in couples. *Canadian Journal of Human Sexuality*, *23*, 27–33. doi:10.3138/cjhs.23.1.A2

Mark, K. P. (2015). Sexual desire discrepancy. *Current Sexual Health Reports*, *7*, 198–202. doi:10.1007/s11930-015-0057-7

Mark, K. P., & Murray, S. H. (2012). Gender differences in desire discrepancy as a predictor of sexual and relationship satisfaction in a college sample of heterosexual romantic relationships. *Journal of Sex and Marital Therapy*, *38*, 198–215. doi:10.1080/0092623X.2011.606877

McNulty, J. K., Wenner, C. A., & Fisher, T. D. (2016). Longitudinal associations among relationship satisfaction, sexual satisfaction, and frequency of sex in early marriage. *Archives of Sexual Behavior*, *45*, 85–97. doi:10.1007/s10508-014-0444-6

Moyano, N., Vallejo-Medina, P., & Sierra, J. C. (2017). Sexual Desire Inventory: Two or three dimensions? *Journal of Sex Research*, *54*, 105–116. doi:10.1080/00224499.2015.1109581

Muise, A., Kim, J. J., Impett, E. A., & Rosen, N. O. (2017). Understanding when a partner is not in the mood: Sexual communal strength in couples transitioning to parenthood. *Archives of Sexual Behavior*. Advance online publication. doi:10.1007/s10508-016-0920-2

Muise, A., Stanton, S. C. E., Kim, J. J., & Impett, E. A. (2016). Not in the mood? Men under (not over) perceive their partner's sexual desire in established relationships. *Journal of Personality and Social Psychology*, *110*, 725–742. doi:10.1037/pspi0000046

Olsson, A., Lundqvist, M., Faxelid, E., & Nissen, E. (2005). Women's thoughts about sexual life after childbirth: Focus group discussions with women after childbirth. *Scandinavian Journal of Caring Science*, *19*, 381–387. doi:10.1111/j.1471-6712.2005.00357.x

Olsson, A., Robertson, E., Björklund, A., & Nissen, E. (2010). Fatherhood in focus, sexual activity can wait: New fathers' experience about sexual life after childbirth. *Scandinavian Journal of Caring Sciences*, *24*, 716–725. doi:10.1111/j.1471-6712.2009.00768.x

Pastore, L., Owens, A., & Raymond, C. (2007). Postpartum sexuality concerns among first-time parents from one U.S. academic hospital. *Journal of Sexual Medicine*, *4*, 115–123. doi:10.1111/j.1743-6109.2006.00379.x

Rosen, N. O., Mooney, K., & Muise, A. (2016). Dyadic empathy predicts sexual and relationship well-bring in couples transitioning to parenthood. *Journal of Sex and Marital Therapy.* Advance online publication. doi:10.1080/0092623X.2016.1208698

Roy, R. N., Schumm, W. R., & Britt, S. (2014). *Transition to parenthood*. New York, NY: Springer.

Rusbult, C. E., & Arriaga, X. B. (1997). Interdependence theory. In S. Duck & S. Duck (Eds.), *Handbook of personal relationships: Theory, research, and interventions* (2nd ed., pp. 221–250). Hoboken, NJ: John Wiley & Sons.

Safarinejad, M., Kolahi, A., & Hosseini, L. (2009). The effect of the mode of delivery on the quality of life, sexual function, and sexual satisfaction in primiparous women and their husbands. *Journal of Sexual Medicine*, *6*, 1645–1667. doi:10.1111/j.1743-6109.2009.01232.x

Schlagintweit, H., Bailey, K., & Rosen, N. O. (2016). A new baby in the bedroom: Frequency and severity of postpartum sexual concerns and their associations with relationship satisfaction in new parent couples. *Journal of Sexual Medicine*, *13*, 1455–1465. doi:10.1016/j.jsxm.2016.08.006

Serati, M., Salvatore, S., Siesto, G., Cattoni, E., Zanirato, M., Khullar, V., … Bolis, P. (2010). Female sexual function during pregnancy and after childbirth. *Journal of Sexual Medicine*, *7*, 2782–2790. doi:10.1111/j.1743-6109.2010.01893.x

Shanock, L. R., Baran, B. E., Gentry, W. A., Pattison, S. C., & Heggestad, E. D. (2010). Polynomial regression with response surface analysis: A powerful approach for examining moderation and overcoming limitations of difference scores. *Journal of Business and Psychology*, *25*, 543–554. doi:10.1007/s10869-010-9183-4

Shapiro, F. A., Gottman, J. M., & Carrère, S. (2000). The baby and the marriage: Identifying factors that buffer against declines in marital satisfaction after the first baby arrives. *Journal of Family Psychology*, *14*, 59–70. doi:10.1037/0893-3200.14.1.59

Spector, I. P., Carey, M. O., & Steinberg, L. (1996). The Sexual Desire Inventory: Development, factor structure, and evidence of reliability. *Journal of Sex and Marital Therapy*, *22*, 175–190. doi:10.1080/00926239608414655

Sutherland, S. E., Rehman, U. S., Fallis, E., & Goodnight, J. A. (2015). Understanding the phenomenon of sexual desire discrepancy in couples. *Canadian Journal of Human Sexuality*, *24*, 141–150. doi:10.3138/cjhs.242.A3

Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6th ed.). Upper Saddle River, NJ: Pearson Education.

van Anders, S. M., Hipp, L. E., & Low, L. K. (2013). Exploring co-parent experiences of sexuality in the first 3 months after birth. *Journal of Sexual Medicine*, *10*, 1988–1999. doi:10.1111/jsm.12194

von Sydow, K. (1999). Sexuality during pregnancy and after childbirth: A metacontent analysis of 59 studies. *Journal of Psychosomatic Research*, *47*, 27–49. doi:10.1016/S0022-3999(98)00106-8

Woolhouse, H., McDonald, E., & Brown, S. (2012). Women's experiences of sex and intimacy after childbirth: Making the adjustment to motherhood. *Journal of Psychosomatic Obstetrics and Gynecology*, *33*, 185–190. doi:10.3109/0167482X.2012.720314

Yildiz, H. (2015). The relation between prepregnancy sexuality and sexual function during pregnancy and the postpartum period: A prospective study. *Journal of Sex and Marital Therapy*, *41*, 49–59. doi:10.1080/0092623X.2013.811452

Yu, T., Pettit, G. S., Lansford, J. E., Dodge, K. A., & Bates, J. E. (2010). The interactive effects of marital conflict and divorce on parent-adult children's relationships. *Journal of Marriage and the Family*, *72*, 282–292. doi:10.1111/j.1741-3737.2010.00699.x