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REGULAR ARTICLE

Associations Between Postpartum Depressive Symptoms and Couples' Sexual Function and Sexual Distress Trajectories Across the Transition to Parenthood

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Abstract

Background The transition to parenthood is associated with changes to new parents' mood and sexual health. Sexual dysfunction—problems with sexual function accompanied by sexual distress (i.e., worries and concerns about one's sex life)—is linked to poorer overall health, yet few studies have examined how sexual dysfunction unfolds for couples during this transition. Postpartum depression is a risk factor for sexual dysfunction; however, the association between depressive symptoms and how postpartum sexual dysfunction evolves has not been examined.

Purpose To establish trajectories of sexual function and sexual distress for mothers and partners and to examine if postpartum depressive symptoms were associated with these trajectories.

Methods Data were collected from 203 first-time parent couples from midpregnancy until 12-months postpartum. Sexual function and sexual distress were assessed at six time points (two prenatal) and depressive symptoms were assessed at 3-months postpartum.

Results Dyadic latent piece-wise growth curve models revealed significant declines in mothers' and partners' sexual function between pregnancy and 3-months postpartum and significant improvements from 3- to 12-months postpartum. Mothers' sexual distress increased between pregnancy and 3-months postpartum and decreased thereafter, whereas partner's sexual distress remained stable. Depressive symptoms were associated with poorer sexual function and higher sexual distress at 3-months postpartum for both partners but did not predict change over time.

Conclusions Mothers and their partners experience changes to their sexual function during the transition to parenthood; however, mothers are at greater risk of sexual dysfunction. Depressive symptoms are a risk factor for poorer sexual health at 3-months postpartum for both parents.

Keywords Sexual health · Sexual dysfunction · Sexual distress · Postpartum depressive symptoms · Transition to parenthood · Actor–partner interdependence model

Introduction

The transition to parenthood (TTP), which includes experiences during pregnancy up to 12-months postpartum, is associated with changes to new parents' mood and sexual health [1–4]. Up to 26% of new mothers and fathers experience postpartum depressive symptoms. Compared to depressive symptoms outside of the TTP, postpartum depressive symptoms occur following the birth of a child and are more likely to include symptoms related to low mood/mood swings, psychomotor agitation, and restlessness and are less likely to include suicidal ideation and anhedonia [4]. Problems with sexual function—low desire and satisfaction, arousal and orgasm difficulties, and pain during intercourse—are even more prevalent

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(e.g., 20%–68% of new mothers and 22%–45% of new fathers), often emerging during pregnancy and persisting up to 12-months postpartum [1, 2]. Changes to the sexual relationship can be concerning for new parents and are often accompanied by sexual distress (i.e., worries or concerns regarding one's sex life; [5–7]), yet very limited research has examined sexual distress beyond pregnancy and sexual distress among partners.

Sexual health is an important component of health and well-being, with evidence that sexual health uniquely contributes to better mental and physical health outcomes [8]. Despite the inherently interpersonal context of sexuality and importance to overall health [8], no research has examined how *couples'* sexual function and distress change during the TTP. Although cross-sectional studies suggest that postpartum depressive symptoms are negatively associated with sexual function and positively associated with sexual distress [1], no research has examined these factors in a dyadic context to explore whether an individual's depressive symptoms predict change in their own and their partner's sexual outcomes. The purpose of the current study was twofold. First, we established average trajectories of sexual function and sexual distress for mothers and partners beginning midpregnancy through 12-months postpartum within an actor–partner interdependence model. That is, a model that includes actor effects (i.e., the association between one's own intercept and one's own slope), as well as partner effects (i.e., the association between one's own intercept and their partner's slope). Second, we examined the associations between one's own and one's partner's postpartum depressive symptoms at 3-months postpartum and these trajectories.

Sexual Function and Sexual Distress in Pregnancy and Postpartum

Biopsychosocial models of postpartum sexual function [1], highlight the importance of biological (e.g., physiological changes associated with pregnancy, birth, and postpartum), psychological (e.g., depression, anxiety, fatigue), and social factors (e.g., relationship adjustment) for sexual dysfunction. Mothers may experience these factors to a greater degree [9], which would then contribute to more marked changes to their sexual function and sexual distress. However, consistent with family systems theory [10], the biopsychosocial factors affecting one parent likely influence the other in a reciprocal manner, underscoring the importance of adopting a dyadic approach.

Existing cross-sectional and longitudinal studies suggest that sexual function declines during pregnancy for expectant mothers [2, 11] and their partners [2, 12] and improves gradually over the postpartum period [1–3, 12]. Much of this research is underpowered, and the clinical utility of the findings is limited by the use of nonvalidated measures (e.g., [11, 12]). The longitudinal studies that do exist compare responses across time-points (e.g., comparing mean scores at 3 months with those at 6 months; [2, 12]); however, this approach precludes estimation of the degree of change and variability in change over time (i.e., slopes). The one exception is a recent study examining trajectories of postpartum sexual function among 646 first-time mothers, which reported significant heterogeneity in the degree of improvement in sexual function from 3- to 12-months postpartum [13]. No studies have established trajectories of sexual function from pregnancy through postpartum, nor accounted for the interdependence of mothers' and partners' sexual function by modeling data from both members of the couple. We hypothesized that sexual function would decrease during pregnancy and then increase during the postpartum period for mothers and partners (Hypothesis 1).

Sexually related personal distress involves negative feelings (e.g., worries, frustration) about one's sexual relationship [5]. Sexual distress is necessary for a diagnosis of sexual dysfunction [14], yet sexual distress during the TTP has received limited attention. Although sexual distress is a determinant of treatment-seeking behaviour [15], only 15% of new parents discuss sexual concerns with health care providers [16]. Clinically significant sexual distress pertains to a level of sexual distress that distinguishes groups with and without sexual dysfunction [5]. Sexual distress in pregnancy is common, with 42% of pregnant women experiencing clinically significant levels [7]. Another study found that women experience clinically elevated sexual distress postpartum [17]. There is limited information about partners' sexual distress; however, a cross-sectional study [6] found that nearly 90% of new mothers and partners endorsed more than 10 sexual concerns that they perceived to be moderately distressing, suggesting that partners also experience worries about their sexuality during the TTP. Although none of these studies are longitudinal, given that both parents experience changes to their sexual function during this transition, we hypothesize that they will experience stable or increasing levels of sexual distress during pregnancy and then either stable or declining levels of sexual distress during the postpartum period (Hypothesis 2). We hypothesized interdependence for both sexual function and sexual distress, such that these would be positively associated between mothers and partners (Hypothesis 3; e.g., mothers with higher sexual function will have partners who also report higher sexual function).

Depressive Symptoms and Sexuality in an Interpersonal Context

One factor that may contribute to changes in sexual function and sexual distress for both mothers and partners during the TTP is depressive symptoms. Between 33% and 67% of mothers and 33% and 77% of partners reported concerns about the impact of postpartum depressive symptoms on their sexual relationship [6, 18]. Meta-analyses estimate between 10% and 25% of mothers and 10% and 26% of partners are affected by postpartum depression or significant symptoms of depression [4, 19] and that mothers' and partners' depressive symptoms are positively related [4, 20].

Cross-sectional and longitudinal studies sampling individuals and couples with sexual dysfunction who are not in the TTP support bidirectional links between greater depressive symptoms and poorer sexual function [21] and higher sexual distress [22]. In addition, cross-sectional studies have linked greater postpartum depressive symptoms with poorer sexual function in new mothers (reviewed in [1, 3]). In a prospective longitudinal study of first-time mothers, postpartum depressive symptoms at 3-months postpartum predicted membership in trajectories characterized by moderate and marked problems with sexual function [13]. We are unaware of equivalent studies of sexual distress.

According to empirically supported cognitive theories [23], depression is characterized by biased cognitive processing of information, such as greater attention to negative cues and discounting positive cues in the environment. It follows that increased depressive symptoms might contribute to poorer sexual function and higher sexual distress in the postpartum period by increasing attention to negative sexual cues (e.g., genital pain, signs of partner sexual disinterest) and impairing processing of positive sexual cues (e.g., pleasure, intimacy). As such, postpartum depressive symptoms experienced by either partner may put both partners at increased risk for problems with sexual function and increased sexual distress.

Given cross-sectional evidence that postpartum depressive symptoms are linked with sexual outcomes, we also hypothesized that an individual's greater depressive symptoms at 3-months postpartum would be associated with their own and their partner's lower sexual function and with their own and their partner's higher sexual distress at 3-months postpartum (Hypothesis 4a). No studies, however, have examined how an individual's postpartum depressive symptoms are associated with *changes* in their own or their partner's sexual function and distress during the TTP. We hypothesized that depressive symptoms would be associated with the degree to which sexual function and sexual distress *change* over time, such that higher depressive symptoms at 3-months postpartum would predict less improvement in sexual function and sexual distress over time for both partners (Hypothesis 4b). Given that mothers typically experience more adverse biopsychosocial changes associated with pregnancy, birth, and postpartum [1, 9], we predicted that for all our hypotheses, the effects would be stronger for mothers (who gave birth) compared to partners (Hypothesis 5).

Despite the inherently interpersonal context of sexuality and the importance of sexual health for couples' health and well-being, dyadic longitudinal studies examining sexual function and sexual distress, including predictors of change during the TTP do not exist. The purpose of the current study was to (i) model average change in sexual function and sexual distress from pregnancy to 12-months postpartum for mothers and partners (i.e., trajectories), (ii) test associations between couples' trajectories based on the actor-partner interdependence model, and (iii) examine postpartum depressive symptoms as a predictor of these trajectories. We also examined biopsychosocial factors commonly thought to influence sexual health during the TTP (i.e., sociodemographic, labor and delivery, and parent and infant characteristics) as covariates to ensure our main findings remained consistent. Given the longitudinal and dyadic study design, our findings may advance understanding of sexual health during the TTP for both members of the couple by establishing dyadic trajectories and testing associations with a known risk factor—depression.

Method

Participants

First-time parent couples were recruited midpregnancy (M = 19.39 weeks; range, 13–24 weeks, SD = 1.56). Recruitment occurred between May 2016 and April 2018, online (40.0%), through advertising in the community (e.g., doctor's offices; 24.2%), or word of mouth (14.4%). Some of the sample was recruited in-person during their routine 20-week ultrasound appointment at the IWK Health Centre diagnostic imaging clinic in Halifax, Nova Scotia, Canada (15.3%). To be eligible, both members of the couple were required to: (i) be over 18 years of age; (ii) be in a romantic relationship of at least six months; (iii) be fluent in English; (iv) have access to a personal email account; (v) reside in Canada or the United States. Mothers were required to: (v) have not previously given birth; (vi) have an uncomplicated, singleton pregnancy. Of note, all participants who gave birth indicated that their gender/sex was woman/female, with one person identifying as a trans woman and

female. We therefore refer to this group collectively as "mothers." Two-hundred and fifty-two couples were recruited and eligible; a sample of 215 was eligible to be included in the current analyses (see Fig. 1). Couples who became pregnant for a second time during the study period (n = 12) were excluded, given that they may have a different TTP experience [24], leaving 203 couples for the analyses.

Procedure

Online advertisements were posted on Canadian and US websites (e.g., Kijiji, Facebook), whereas physical advertisements were posted in community centers, doctor's offices, and stores in urban centers. For in-person recruitment at the ultrasound clinic, research staff reviewed parity information from the patient requisition forms to identify potential participants prior to their 20-week appointment. Once identified, a research assistant approached patients before their appointment to describe the study and if interested and eligible, enrolled the couple. All participants provided informed consent online before accessing the first online survey.

Qualtrics was the survey platform (baseline: 20-weeks pregnant, 32-weeks pregnant, 2-weeks postpartum, and 3-, 6-, 9-, and 12-months postpartum). Secure survey links were emailed to participants, expiring after 4 weeks. Retention strategies included reminder phone calls within the first 48–72 hr if the survey was not completed [13, 25], and reminder emails sent one week before the next survey and 1 week and 3 weeks following the email with the survey link. Couples were eligible to receive $105 CDN (or a US equivalent) in the form of gift cards. The study was approved by

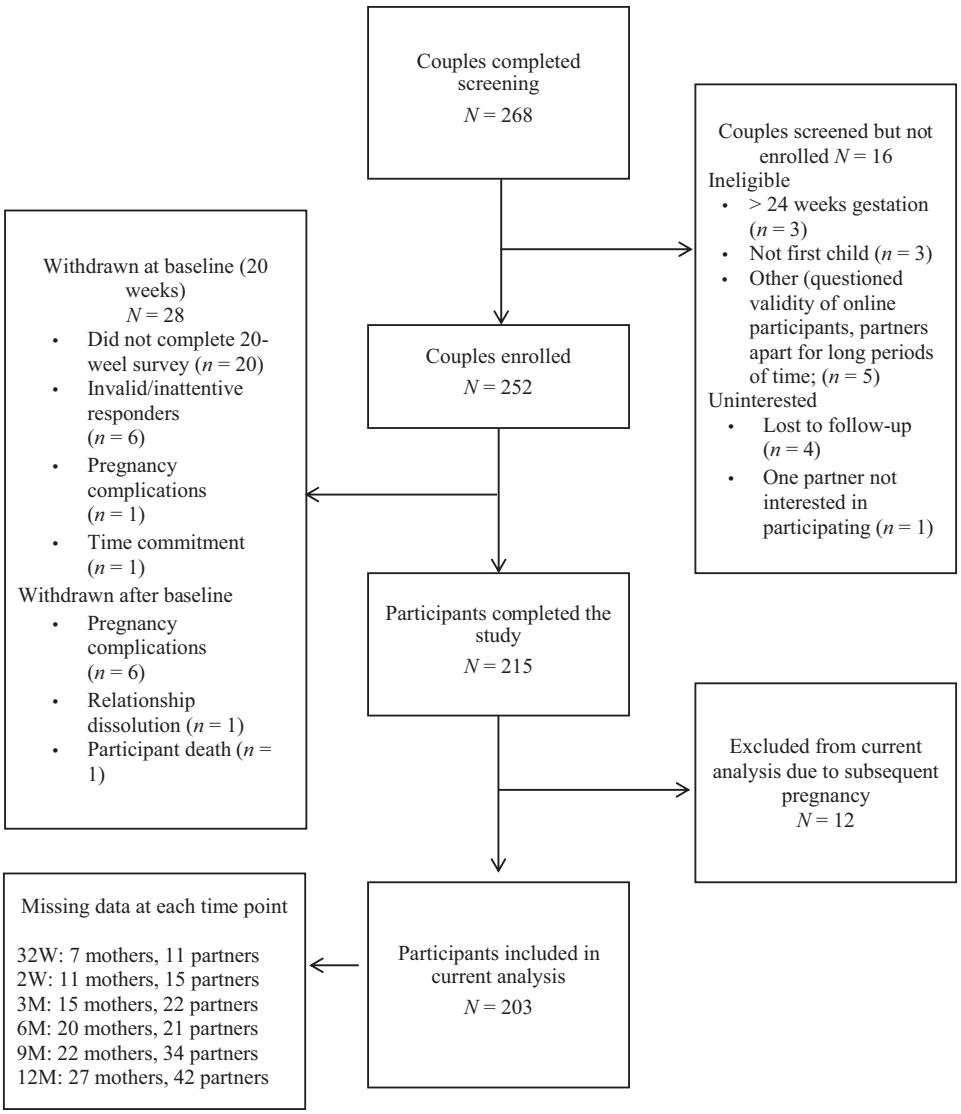

Fig. 1. Participant recruitment flow.

the ethical review boards at the IWK Health Centre (Halifax, Nova Scotia, Canada), Dalhousie University (Halifax, Nova Scotia, Canada), and the University of Toronto (Toronto, Ontario, Canada).

Measures

Sociodemographic information was collected in the baseline survey. Sexual function and sexual distress were collected at six time points. Labor and delivery characteristics (i.e., vaginal delivery (no/yes), episiotomy (no/yes), perineal tearing (no/yes), epidural (no/yes), induction (no/yes), gestational age, infant weight, time in NICU (no/yes), infant health issues (no/yes), previous pregnancies (no/yes), breastfeeding (no/yes)) were collected in the 2-weeks postpartum survey. Infant/parent characteristics (i.e., parental difficulty caring for and soothing their infant (1–7), infant sleep quality (1–7), parent fatigue (1–7), and parent sleep quality (0–10)), and postpartum depressive symptoms were collected in the 3-months postpartum survey.

Sexual function

Sexual function during the past four weeks was assessed at each time point using the 19-item Female Sexual Function Index (FSFI; [26]) and the 15-item International Index of Erectile Function (IIEF; [27]). Both measures assess a range of sexual problems including sexual arousal, sexual desire, orgasm, and sexual satisfaction and both measures have been used to assess sexual function in pregnancy and postpartum [2, 13]. Women who were not sexually active in the previous 4 weeks did not get a total score for that particular time point [28]. FSFI total scores based on this scoring method range from 7.2 to 36, IIEF total scores range from 5 to 75, and higher scores indicate better sexual function [27]. Both the FSFI and IIEF have demonstrated strong psychometric properties [26, 27] and in our sample showed similar internal consistency (Cronbach's αs = .96–.97 for the FSFI and Cronbach's αs = .72–.79 for the IIEF). To ensure that scores were comparable across participants, the following adjustment was made to the FSFI to re-scale the scores on the same metric as the IIEF: $[(\chi - 2) - (75/34)]$. Trajectories were interpreted using established clinical cut-offs for the FSFI (i.e., <26.55 indicative of problems with sexual function, adjusted score < 54.15; [29]). No established clinical cut-offs for the IIEF have been published; however, a number of studies have reported mean total scores for men with diagnosed sexual dysfunction (32.2–40) and community men without sexual dysfunction (55.4–63.2) [27, 30, 31]. We used a total IIEF score <55 as indicative of clinically significant problems with sexual function.

Sexual distress

Distress about one's sex life in the past four weeks was assessed using the 13-item Female Sexual Distress Scale (FSDS; [5]), which is validated for use in men [32] and has been used to assess sexual distress in pregnancy and postpartum [7, 13]. Total scores range from 0 to 52, with higher scores indicative of greater sexual distress. Different cut-offs exist for evaluating clinically significant sexual distress associated with sexual problems for women (>11) and men (>19.5) [5, 32]. The FSDS has demonstrated good psychometric properties and showed strong internal consistency in the current study for mothers and partners (Cronbach's α = .93–.96 and .92–.94, respectively).

Postpartum depressive symptoms

Postpartum depressive symptoms were assessed using the Edinburgh Postnatal Depression Scale (EPDS; [33]). This 10-item measure assesses depressive symptoms in the past week and is validated for use in both women and men [33, 34]. Total scores range from 0 to 30, with higher scores indicative of greater depressive symptoms. A total score of 13 or higher suggests clinically significant postpartum depressive symptoms [35]. This measure has demonstrated excellent psychometric properties [33] and showed strong internal consistency in our sample of mothers and partners (Cronbach's αs = .86 and .80, respectively).

Data Analysis

Our predictions and analysis plan were preregistered prior to analyzing (but after collecting) the data (https://osf.io/kz4d3/). Descriptive statistics were calculated with SPSS version 25.0 and all other analyses were estimated with M*plus* version 8.4. Prior to calculating total scores for our measures, maximum likelihood imputation was used for item-level missing data, provided that the missing data were less than 50% of the total number of items in a given measure [36]. Imputation was not used for the calculation of FSFI or IIEF as per recommendations [28].

Unconditional dyadic latent growth curve models (DLGCM) within a structural equation model (SEM; [37]) were used to establish trajectories of sexual function and distress, respectively. These DLGCM were tested within an Actor–Partner Interdependence Model (APIM; [37]). Members of the couple were distinguished based on the person who gave birth (i.e., mother) and the person who did not give birth (i.e.,

partner). We tested a piece-wise model [38], with the 3-months postpartum time point used as the knot, that is, the point at which we expected a shift in the trajectories to occur based on prior research [1, 3, 11]. We adjusted the weights for each time point to account for the varied sampling time-frames pre- and postpartum. The unconditional DLGCMs allowed us to test our first three hypotheses: (i) and (ii) changes in sexual function and sexual distress from pregnancy to 3-months postpartum and from 3- to 12-months postpartum; and (iii) the covariances among mothers' and partners' intercepts and slopes reported as correlation coefficients. Following the unconditional DLGCMs, to test our fourth hypothesis we conducted conditional models in which depressive symptoms at 3-months postpartum (own and partner's) were included as time-invariant predictors of the postpartum intercepts and slopes. To test our fifth hypothesis, we conducted Wald χ^2 tests within the DLGCMs to examine differences between mothers and partners for intercepts, slopes, and the effect of depressive symptoms on intercepts and slopes.

Missing data due to attrition over time were treated using the full information maximum likelihood function (FIML; [39]) when running the DLCGMs. Overall model fit was tested by considering several fit indices: a statistically nonsignificant chi-square value; a Comparative Fit Index (CFI) and Tucker Lewis Index (TLI) of .95 or higher; and a root mean square error of approximation (RMSEA) below .06 [40].

Results

Sociodemographics for the sample are available in Table 1. Descriptives related to labor and delivery and infant and parent characteristics are available in Supplemental Table 1. Descriptives and correlations among sexual function, sexual distress, and postpartum depressive symptoms across time points and between partners are available in Supplemental Table 2. Correlations were in the expected directions, such that for both mothers and partners, sexual function was negatively correlated with sexual distress. Mothers' and partners' sexual outcomes and depressive symptoms were significantly correlated. In general, the majority of mothers and partners reported being sexually active in the previous four weeks for at least one time point (99.5%). Across the time points between 80.9% and 90.8% of mothers and 89.5% and 97.4% of partners reported being sexually active with oneself or a partner in the previous four weeks. Trajectories of sexual frequency for this sample are reported elsewhere [41]. Results are organized by hypotheses with the exception of Hypothesis 5, which is examined within each of the models.

Unconditional Dyadic Latent Growth Curve Models

Changes to sexual function among mothers and partners (Hypotheses 1 and 5)

The unconditional DLGCMs enable an examination of change from midpregnancy to 3-months postpartum (pregnancy slope), an intercept (at 3-months postpartum), and change from 3- to 12-months postpartum (postpartum slope). Model fit for sexual function was good: $\chi^2(45) = 59.65$, $p = .07$; CFI = 0.98, TLI = 0.97, RMSEA = 0.04 [CI = 0.00–0.07]. Consistent with Hypothesis 1, mothers' and partners' sexual function declined significantly during pregnancy (–1.21, $p < .001$; –0.27, $p < .001$) and improved significantly postpartum (1.07, $p < .001$; 0.23, $p = .001$; see Fig. 2a). Mothers' sexual function intercept (44.08, $p < .001$) was below clinical cut-offs at 3-months postpartum, whereas partners' intercept was not (61.13, $p < .001$), suggesting that only mothers experienced clinically significant problems with their sexual function. Random estimates of the intercept were significant for mothers (125.77, $p < .001$) and partners (34.44, $p < .001$) indicating variability in sexual function at 3-months postpartum. Random estimates of the slopes (pregnancy and postpartum) were significant for mothers (1.09, $p = .002$; 0.68, $p = .03$) and partners (0.30, $p = .003$; 0.21, $p = .05$), indicating variability in patterns of change over time. With respect to Hypothesis 5, mothers' sexual function intercept was significantly lower than partners' sexual function intercept, Wald $\chi^2(1) = 347.35$, $p < .001$. Compared to their partners, mothers showed significantly stronger declines in their sexual function in pregnancy, Wald $\chi^2(1) = 63.53$ $p < .001$, and significantly stronger improvements in their sexual function postpartum, Wald $\chi^2(1) = 57.37$, $p < .001$.

Changes to sexual distress among mothers and partners (Hypotheses 2 and 5)

The initial unconditional model revealed negative residual variance for one of the latent constructs—partners' sexual distress postpartum slope. The residual variance was therefore fixed to zero, precluding estimation of variability for partners' slope of postpartum sexual distress. The unconditional model fit for sexual distress was adequate: $\chi^2(51) = 86.87$, $p = .001$; CFI = 0.97, TLI = 0.97, RMSEA = 0.06 [CI = 0.04–0.08] (see Fig. 2b). Consistent with Hypothesis 2, mothers' sexual distress increased significantly during pregnancy (0.44, $p < .001$) and declined significantly postpartum (–0.20, $p = .01$). Contrary to

Table 1. Sociodemographics

	Mothers	Partners
	M ± *SD* or *N* (%)	*M* ± *SD* or *N* (%)
Age (years)[^]	30.04 ± 3.49	31.58 ± 4.51
Years of Education Completed (since Grade 1)	17.33 ± 2.79	17.00 ± 3.07
Sex		
Female	203 (100%)	7 (3.4%)
Male	–	196 (96.6%)
Sexual Orientation		
Heterosexual	182 (89.7%)	194 (95.6%)
Lesbian/Gay	6 (3.0%)	4 (2.0%)
Bisexual	12 (5.9%)	3 (1.5%)
Pansexual	2 (1.0%)	–
Asexual	1 (0.5%)	1 (0.5%)
Other (between bisexual and lesbian)	–	1 (0.5%)
Relationship status		
Married/engaged/common law	186 (91.6%)	185 (91.1%)
Living with/dating one partner	17 (8.4%)	17 (8.4%)
Other	–	1 (0.5%)
Relationship length (months)	79.66 ± 43.24	79.66 ± 43.24
Country of residence		
Canada	145 (71.4%)	145 (71.4%)
United States of America	58 (28.6%)	58 (28.6%)
Ethnicity		
Caucasian	160 (78.8%)	164 (80.8%)
Asian American/Asian	19 (9.4%)	10 (4.9%)
Biracial/multiracial	9 (4.4%)	7 (3.4%)
African American/Black	3 (1.5%)	3 (1.5%)
East Indian	6 (3.0%)	5 (2.5%)
Middle Eastern/Central Asian/South Asian	3 (1.5%)	7 (3.4%)
Other (e.g., not specified, Ashkenazi, First Nations, Hispanic, Pacific Islander)	3 (1.5%)	7 (3.5%)
Annual income[#]		
<$60,000	39 (19.3%)	39 (19.3%)
>$60,000	163 (80.7%)	163 (80.7%)
Gestational age at delivery (in weeks)[!]	39.25 (1.95)	
Infant birthweight (in pounds)[@]	6.98 (1.26)	
Breastfeeding[$]		
Yes	189 (99.0%)	
No	2 (1.0%)	

Note. [^] Age is based on data from 198 mothers and 195 partners due to missing data on this variable. [#] is based on data from 202 mothers and 202 partners due to missing data from one couple. [!] is based on data from 187 couples due to missing data on this variable. [@] is based on data from 190 couples due to missing data on this variable. [$] is based on data from 191 mothers due to missing data on this variable.

Hypothesis 2, partners' sexual distress did not change significantly during pregnancy (0.13, $p = .07$) or postpartum (–0.01, $p = .84$). Mothers' (16.62, $p < .001$) but not partners' (10.60, $p < .001$) sexual distress intercept was above clinical cut offs, suggesting that at 3-months postpartum only mothers were experiencing clinically significant sexual distress. Random estimates of the intercepts were all significant, indicating variability in sexual distress at 3-months postpartum for both mothers (71.46, $p < .001$) and partners (59.00, $p < .001$). Random estimates of mothers' postpartum (0.38, $p = .03$), but not pregnancy (0.31, $p = .10$) slopes were also significant, indicating

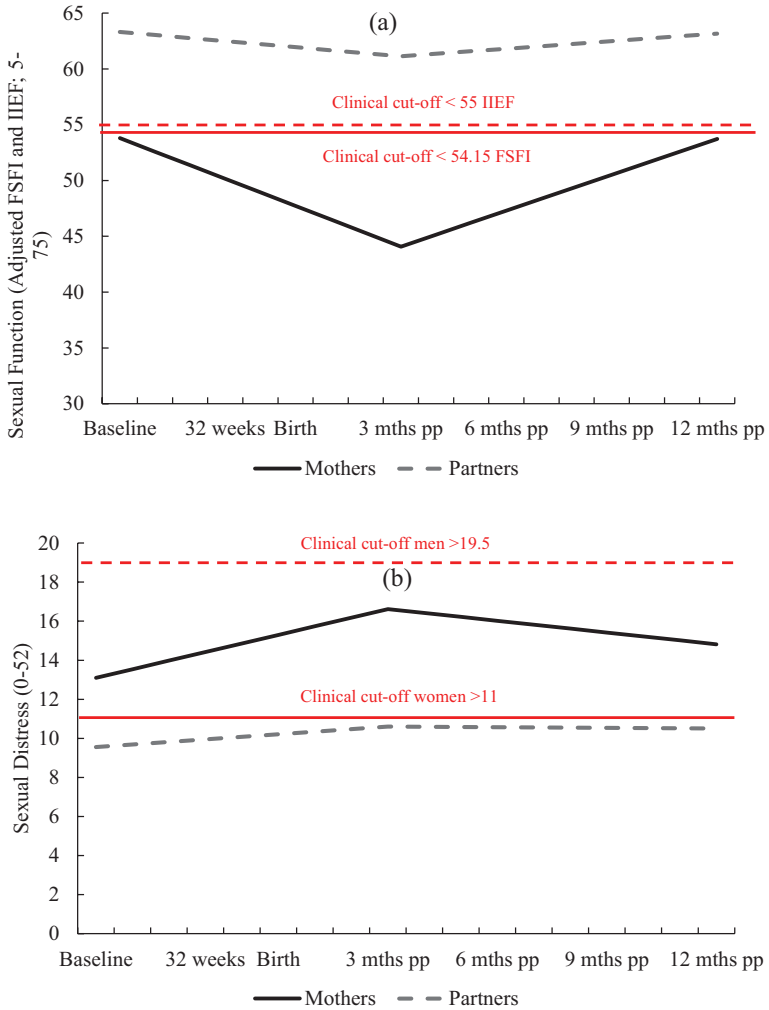

Fig. 2. Trajectories of sexual function (a) and sexual distress (b) midpregnancy to 12-months postpartum for mothers and partners.
Note. IIEF = International Index of Erectile Function. FSFI = Female Sexual Function Index.

variability in mothers' postpartum sexual distress over time. Random estimates of partners' pregnancy slope were significant (0.44, $p < .001$), indicating variability in change for partners' sexual distress in pregnancy only. With respect to Hypothesis 5, mothers' sexual distress intercept was significantly higher than partners', Wald $\chi^2(1) = 49.53$ $p < .001$. Compared to their partners, mothers showed stronger increases in their sexual distress in pregnancy, Wald $\chi^2(1) = 9.36$ $p = .002$, but no significant difference in change (between mothers and fathers) in sexual distress postpartum, Wald $\chi^2(1) = 3.74$, $p = .05$.

Interdependence between couples' sexual outcomes (Hypothesis 3)

Only significant correlations are reported below for examining the interdependence between couples' sexual function and sexual distress (see Table 2). Mothers' and partners' sexual function intercepts were positively associated, suggesting that mothers with higher sexual function had partners who also had higher sexual function at 3-months postpartum (0.42, $p < .001$). All other partner effects for sexual function (e.g., between mothers' sexual function intercepts and their partners' sexual function slopes and vice versa) were not significant, suggesting that one's own sexual function at 3 months was not significantly related to partners' change in sexual function and that mothers' and partners' sexual function during pregnancy and postpartum were not changing in parallel. Mothers' and partners' sexual distress intercepts were positively associated (0.26, $p = .004$), suggesting that mothers with higher sexual distress at 3-months postpartum had partners who also had higher sexual distress. All other partner effects were not significant, suggesting that mothers' and partners' intercepts were unrelated to their own and their partners' change in sexual distress over time and that the pregnancy and postpartum slopes were not associated.

Table 2. Unconditional dyadic latent growth curve model standardized (STDYX) coefficients for APIM relationships for sexual function and sexual distress

	Mothers' pregnancy slope	Mothers' intercept (3m pp)	Mothers' postpartum slope	Partners' pregnancy slope	Partners' intercept (3m pp)	Partners' postpartum slope
Sexual function						
Mothers' pregnancy slope	–	0.28*	0.03	0.20	0.02	0.10
Mothers' intercept (3m pp)		–	–0.47***	0.16	0.42***	–0.33
Mothers' postpartum slope			–	–0.11	–0.22	0.46
Partners' pregnancy slope				–	0.29*	–0.04
Partners' intercept (3m pp)					–	–0.72***
Partner's postpartum slope						–
Sexual distress						
Mothers' pregnancy slope	–	0.23	–0.29	0.46	–0.04	n/a
Mothers' intercept (3m pp)		–	0.10	0.08	0.26**	n/a
Mothers' postpartum slope			–	0.06	0.13	n/a
Partners' pregnancy slope				–	0.38***	n/a
Partners' intercept (3m pp)					–	n/a
Partner's postpartum slope						–

Note. *$p < .05$. **$p < .01$. ***$p < .001$. n/a = not applicable because partner's postpartum slope could not be covaried because residual variance was fixed to zero to address issues with model fit.

Sexual function and postpartum depression (Hypotheses 4a, 4b, and 5)

To examine the relationship between postpartum depressive symptoms and sexual function and sexual distress, mothers' and partners' depressive symptoms total scores were included as time-invariant predictors of their own and their partners' intercept and postpartum slope for each sexual outcome in separate models. The model predicting mothers' and partners' sexual function intercepts and postpartum slopes provided good fit indices: $\chi^2(61) = 84.43$, $p = .03$; CFI = 0.97, TLI = 0.96; RMSEA = 0.04 [90% CI = 0.02–0.07]. Hypothesis 4a was partially supported. Mothers' higher depressive symptoms at 3-months postpartum predicted their own (i.e., actor effect; –0.49, $p = .02$) and their partners' (i.e., partner effect; –0.26, $p = .01$) lower sexual function at 3 months, such that for every 1-unit increase in mothers' depressive symptoms at 3 months, there was a 0.49 and 0.26 reduction in sexual function intercepts for mothers and partners, respectively. Partners' higher depressive symptoms at 3-months postpartum predicted their own lower sexual function at 3 months (i.e., actor effect; –0.56, $p < .001$) but not mothers' sexual function (i.e., partner effect; –0.04, $p = .86$), such that for every one unit increase in partners' depressive symptoms at 3 months, there was a 0.56 reduction in their own sexual function intercept. There was no significant difference in the strength of the effect of mothers' and partners' own depressive symptoms on their own sexual function, Wald $\chi^2(1) = 1.42$ $p = .23$. Inconsistent with Hypothesis 4b, mothers' depressive symptoms did not predict change in their own (i.e., actor effect; 0.05, $p = .07$) or their partners' postpartum sexual function slopes (i.e., partner effect; 0.03, $p = .07$). Similarly, partners' depressive symptoms did not predict change in their own (i.e., actor effect; 0.03, $p = .16$) or mothers' postpartum sexual function slopes (i.e., partner effect; –0.009, $p = .77$).

The effects of depressive symptoms on sexual function held when the significant covariates were included. In this model, breastfeeding remained significantly associated with mothers' lower sexual function intercept (–16.17, $SE = 7.67$, $p = .04$) and relationship length was significantly associated with partners' lower sexual function intercept (–0.02, $SE = 0.01$, $p = .02$) (all data and syntax are available at https://osf.io/kz4d3/ and see Supplemental Table 1 for a summary of the univariate effect of each covariate on the intercepts).

Sexual distress and postpartum depression (Hypotheses 4a, 4b, and 5)

The conditional model fit for sexual distress was adequate: $\chi^2(68) = 129.24$, $p < .001$; CFI = 0.96, TLI = 0.94; RMSEA = 0.07 [90% CI = 0.05–0.08]. Partially consistent with Hypothesis 4a, mothers' higher depressive symptoms at 3-months postpartum predicted their own higher sexual distress at 3 months (i.e., actor effect; 0.40, $p = .008$) but was not related to their partners' sexual distress (i.e., partner effect; –0.06, $p = .60$). Partners' higher depressive symptoms at 3-months postpartum predicted their own (i.e., actor effect; 0.86, $p < .001$) sexual

distress, but was not related to mothers' sexual distress (i.e., partner effect; 0.22, $p = .26$). For every one unit increase in mothers' and partners' depressive symptoms at 3-months postpartum there was a 0.40 and 0.86 increase in their own sexual distress intercepts for mothers and partners, respectively. The strength of the actor effect (i.e., own depressive symptoms on own sexual distress) was statistically different for mothers and partners, Wald $\chi^2(1) = 7.54$ $p = .006$, and contrary to Hypothesis 5 was stronger for partners. Contrary to Hypothesis 4b, depressive symptoms (own and their partners') did not predict the degree of change (i.e., slopes) in postpartum sexual distress for mothers (–0.01, $p = .45$; 0.02, $p = .42$, respectively). These effects held when significant covariates from the univariate models (see Supplemental Table 1 for univariate effects) were included in a single model. Only gestational age and infant birth weight remained significant covariates, such that gestational age was significantly associated with mothers' higher sexual distress (0.85, $SE = 0.40$, $p = .03$) and birthweight was significantly associated with partners' higher sexual distress (1.40, $SE = 0.44$, $p = .002$).

Discussion

This study is the first to our knowledge to establish dyadic trajectories of the two core symptoms of sexual dysfunction—sexual function and sexual distress—from pregnancy until 12-months postpartum. We observed significant changes in sexual function and sexual distress that hinged on the birth event, with evidence of interdependence between mothers' and partners' sexual function and sexual distress at 3-months postpartum. However, we did not find an association between how mothers' and partners' sexual function and distress evolved over time. Further, greater postpartum depressive symptoms at 3-months postpartum were associated with poorer sexual function and higher sexual distress for both partners, but depressive symptoms did not relate to the degree to which sexual function and sexual distress changed over time.

On average, sexual function declined significantly during pregnancy and improved significantly postpartum for both mothers and partners; however, only mothers (who gave birth) experienced clinically significant problems in pregnancy that persisted at 12-months postpartum (i.e., <54.15). Partners' sexual function never reached clinically significant levels (i.e., <55). Despite changes in sexual function for both parents, only mothers experienced fluctuations in their sexual distress in pregnancy and postpartum that were within the clinical range (i.e., >11). Taken together, these results suggest that mothers are at greater risk of experiencing sexual dysfunction during pregnancy and the postpartum. This finding is likely due to biopsychosocial factors that are known to interfere with sexual function that uniquely or disproportionately affect mothers (e.g., physical and hormonal changes during pregnancy, childbirth, and child rearing; [1]).

Despite significant interdependence between mothers' and partners' sexual function and sexual distress at 3-months postpartum, we did not find that couples' sexual function or distress trajectories moved together, even though there were similarities in the overall shape of the trajectories. Although sexual behavior is often an interpersonal experience, our results suggest that intraindividual differences specific to this transition (e.g., differences in role expectations, social support) or more generally (e.g., attachment styles) may be more important contributors to how sexual function and sexual distress change over time rather than how their partner's sexual outcomes are changing. Indeed, these intraindividual differences have been shown to be relevant for understanding changes to relationship satisfaction during the TTP (for a review, see [42]) and for sexual function in community couples and couples with other sexual health problems [43–45]. For example, individuals higher in attachment anxiety and avoidance report more problems with sexual function, with possible mediators of this link being sexual assertiveness, motivation for sexual activity, and sexual frequency [43–45].

Consistent with prior cross-sectional studies (reviewed in [1, 3]), greater depressive symptoms were associated with lower sexual function and higher sexual distress at 3-months postpartum. There was also some evidence of interdependence, such that mothers' higher depressive symptoms were associated with partners' lower sexual function at 3-months postpartum. Depressive symptoms did not predict the degree of improvement in sexual function or distress over time, suggesting that these symptoms may not be a risk factor for persistent postpartum sexual dysfunction. Still, the relationship between sexual dysfunction and postpartum depressive symptoms (own and partner's) may be relevant for understanding precipitating factors contributing to risk of sexual dysfunction for new parents. Although depressive symptoms (e.g., diminished interest in enjoyable activities, loss of pleasure) share some conceptual overlap with sexual function problems (e.g., diminished interest in sexual activity, low sexual satisfaction), the current findings support depressive symptoms and sexual difficulties as distinct phenomena given the relatively small to moderate correlations.

There was significant variability in changes to sexual function and sexual distress over time for mothers and partners (i.e., some individuals showed greater change than others), consistent with prior research [13, 41]. It is

likely that within our average trajectory there are unique trajectories capturing improving, worsening, and stable change in sexual function and sexual distress. Given that postpartum depressive symptoms were not predictive of the average change in sexual function and sexual distress, future research should examine what other factors may be associated with this variability. For example, there is preliminary evidence to support links between dyadic processes (e.g., dyadic empathy, communal motivation, perceived partner responsiveness) and sexual desire and satisfaction among mothers and couples in the TTP [25, 46, 47].

Strengths and Limitations

Strengths of our study include the large sample size, sampling both partners, and the prospective longitudinal design. By using validated measures with established clinical cut-offs, clinicians will be able to use our data to identify mothers and partners at risk of sexual dysfunction (i.e., FSFI/IIEF and FSDS scores in the clinical range, elevated postpartum depressive symptoms) who could benefit from early assessment and intervention. Although we assessed two core criteria of sexual dysfunction, our procedure did not include a clinical assessment or diagnosis. Interpretation of the postpartum sexual function and distress scores do, however, support that mothers (who gave birth) would likely meet diagnostic criteria for sexual dysfunction [48]. Scoring for the sexual function measures necessitates that total scores are only valid for those who report sexual activity in the previous four weeks, which is a limitation because individuals may choose not to engage in sexual activity because they are experiencing sexual function problems. Previous research sampling first-time mothers found no significant differences between sexually-active versus inactive groups for sexual distress, relationship satisfaction, or biomedical factors associated with labor and delivery [13]. Regardless of the scoring method, almost all of our couples (99.5%) had valid sexual function scores for at least one time-point and were able to be retained in the analyses. Our sample was relatively homogenous with respect to gender, sexual orientation, ethnicity, and socioeconomic status, limiting generalizability. While we chose to examine the trajectories using a piece-wise model that hinged on the 3-months postpartum time point [38], it is possible that other events and trajectories may fit the data.

Clinical Implications

Despite the high prevalence of distressing problems with sexual function postpartum, only 15% of those experiencing sexual problems discuss them with health professionals [16] and very few expectant or new parents (e.g., 18%) receive information regarding possible changes to their sexual function following childbirth [16]. An important contribution of this study is that although sexual function and sexual distress are negatively impacted during pregnancy and early in the postpartum period, they do improve significantly postpartum. This knowledge could be integrated into psychoeducation and sexual health interventions to foster more realistic expectations for new parents, which may help to normalize their experience and reduce associated distress and impairment, contributing to better overall health and well-being [8]. Clinicians working with individuals or couples during this transition could use the established trajectories to inform their assessment and intervention planning. For example, clinicians could administer brief validated measures to assess and monitor sexual function [49, 50], sexual distress [51], and depressive symptoms [33]. Individuals who do not follow patterns similar to the average trajectories reported here (i.e., those who show stable and low, fluctuating, or slow improvements in sexual function or distress) may be at risk of more persistent sexual dysfunction and in need of more intensive intervention. In addition to providing more targeted and nuanced information about this transition, our results highlight the need for the development of prenatal and postpartum sexual health programs that address the concerns of both partners.

Conclusions

New parents experience significant changes to their sexual function and sexual distress during the TTP, with some evidence of interdependence. The results of this study revealed that greater postpartum depressive symptoms at 3-months postpartum were associated with poorer sexual function and higher sexual distress for both partners, but did not predict how sexual function and sexual distress evolved over time.

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Compliance with Ethical Standards

Authors' Statement of Conflict of Interest and Adherence to Ethical Standards The authors declare that they have no conflict of interest.

Authors' Contributions S.J.D., N.D.L., E.A.I., and N.O.R. conceptualized the study, hypotheses, and edited the manuscript. S.J.D. conducted the formal analysis and original draft preparation. E.A.I., and N.O.R. were responsible for the methodology and data collection. All authors read and approved the final version.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. All participants provided written informed consent prior to their participation.

References

1. McBride HL, Kwee JL. Sex after baby: Women's sexual function in the postpartum period. *Curr Sex Health Rep.* 2017;9:142–149.
2. Saotome TT, Yonezawa K, Suganuma N. Sexual dysfunction and satisfaction in Japanese couples during pregnancy and postpartum. *J Sex Med.* 2018;6:348–355.
3. Serati M, Salvatore S, Siesto G, et al. Female sexual function during pregnancy and after childbirth. *J Sex Med.* 2010;7:2782–2790.
4. Paulson JF, Bazemore SD. Prenatal and postpartum depression in fathers and its association with maternal depression: A meta-analysis. *JAMA.* 2010;19:1961–1969.
5. Derogatis LR, Rosen R, Leiblum S, Burnett A, Heiman J. The Female Sexual Distress Scale (FSDS): Initial validation of a standardized scale for assessment of sexually related personal distress in women. *J Sex Marital Ther.* 2002;28:317–330.
6. Schlagintweit HE, Bailey K, Rosen NO. A new baby in the bedroom: Frequency and severity of postpartum sexual concerns and their associations with relationship satisfaction in new parent couples. *J Sex Med.* 2016;13:1455–1465.
7. Vannier SA, Rosen NO. Sexual distress and sexual problems during pregnancy: Associations with sexual and relationship satisfaction. *J Sex Med.* 2017;14:387–395.
8. Diamond LM, Huebner DM. Is good sex good for you? Rethinking sexuality and health. *Soc Personal Psychol Compass.* 2012;6:54–69.
9. Buultjens M, Murphy G, Robinson P, Milgrom J. The perinatal period: A literature review from the biopsychosocial perspective. *Clin Nurs Stud.* 2013;1:19–31.
10. Cox MJ, Paley B. Understanding families as systems. *Curr Dir Psychol Sci* 2003;12:193–196.
11. Pauleta JR, Pereira NM, Graça LM. Sexuality during pregnancy. *J Sex Med.* 2010;7:136–142.
12. Condon JT, Boyce P, Corkindale CJ. The First-Time Fathers Study: A prospective study of the mental health and wellbeing of men during the transition to parenthood. *Aust N Z J Psychiatry.* 2004;38:56–64.
13. Dawson SJ, Vaillancourt-Morel MP, Pierce M, Rosen NO. Biopsychosocial predictors of trajectories of postpartum sexual function in first-time mothers. *Health Psychol.* 2020;39:700–710.
14. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*. 5th ed. Washington, DC: American Psychiatric Publishing; 2013.
15. Evangelia N, Kirana PS, Chiu G, Link C, Rosen R, Hatzichristou D. Level of bother and treatment-seeking predictors among male and female in-patients with sexual problems: A hospital-based study. *J Sex Med.* 2010;7:700–711.
16. Barrett G, Pendry E, Peacock J, Victor C, Thakar R, Manyonda I. Women's sexual health after childbirth. *Bjog.* 2000;107:186–195.
17. Zamani M, Latifnejad Roudsari R, Moradi M, Esmaili H. The relationship between frequency of breastfeeding and sexual distress in postpartum women. *J Midwifery Reprod Health.* 2018;6:1447–1453.
18. Pastore L, Owens A, Raymond C. Postpartum sexuality concerns among first-time parents from one U.S. academic hospital. *J Sex Med.* 2007;4:115–123.
19. Shorey S, Chee CYI, Ng ED, Chan YH, Tam WWS, Chong YS. Prevalence and incidence of postpartum depression among healthy mothers: A systematic review and meta-analysis. *J Psychiatr Res.* 2018;104:235–248.
20. Fredriksen E, von Soest T, Smith L, Moe V. Depressive symptom contagion in the transition to parenthood: Interparental processes and the role of partner-related attachment. *J Abnorm Psychol.* 2019;128:397–403.
21. McCabe MP, Sharlip ID, Lewis R, et al. Risk factors for sexual dysfunction among women and men: A Consensus Statement From the Fourth International Consultation on Sexual Medicine 2015. *J Sex Med.* 2016;13:153–167.
22. Pâquet M, Rosen NO, Steben M, Mayrand MH, Santerre-Baillargeon M, Bergeron S. Daily anxiety and depressive symptoms in couples coping with vulvodynia: Associations with women's pain, women's sexual function, and both partners' sexual distress. *J Pain.* 2018;19:552–561.
23. Beck AT. The evolution of the cognitive model of depression and its neurobiological correlates. *Am J Psychiatry.* 2008;165:969–977.
24. Figueiredo B, Field T, Diego M, et al. Partner relationships during the transition to parenthood. *J Reprod Infant Psychol.* 2008;26:99–107.
25. Rosen NO, Williams L, Vannier SA, Mackinnon SP. Sexual intimacy in first-time mothers: Associations with sexual and relationship satisfaction across three waves. *Arch Sex Behav.* 2020;49:2849–2861.
26. Rosen R, Brown C, Heiman J, et al. The Female Sexual Function Index (FSFI): A multidimensional self-report instrument for the assessment of female sexual function. *J Sex Marital Ther.* 2000;26:191–208.
27. Rosen RC, Riley A, Wagner G, Osterloh IH, Kirkpatrick J, Mishra A. The international index of erectile function (IIEF): A multidimensional scale for assessment of erectile dysfunction. *Urology.* 1997;49:822–830.
28. Meyer-Bahlburg HF, Dolezal C. The female sexual function index: A methodological critique and suggestions for improvement. *J Sex Marital Ther.* 2007;33:217–224.
29. Wiegel M, Meston C, Rosen R. The female sexual function index (FSFI): Cross-validation and development of clinical cutoff scores. *J Sex Marital Ther.* 2005;31:1–20.
30. Forbes MK, Baillie AJ, Schniering CA. Critical flaws in the Female Sexual Function Index and the international index of Erectile Function. *J Sex Res.* 2014;51:485–491.
31. Quinta Gomes AL, Nobre P. TheInternational Index of Erectile Function (IIEF-15): Psychometric properties of the Portuguese version. *J Sex Med.* 2012;9:180–187.

32. Santos-Iglesias P, Mohamed B, Danko A, Walker LM. Psychometric validation of the female sexual distress scale in male samples. *Arch Sex Behav.* 2018;47:1733–1743.
33. Cox JL, Holden JM, Sagovsky R. Detection of postnatal depression. Development of the 10-item Edinburgh Postnatal Depression Scale. *Br J Psychiatry.* 1987;150:782–786.
34. Matthey S, Barnett B, Kavanagh DJ, Howie P. Validation of the Edinburgh Postnatal Depression Scale for men, and comparison of item endorsement with their partners. *J Affect Disord.* 2001;64:175–184.
35. Matthey S, Henshaw C, Elliott S, Barnett B. Variability in use of cut-off scores and formats on the Edinburgh Postnatal Depression Scale: Implications for clinical and research practice. *Arch Womens Ment Health.* 2006;9:309–315.
36. Newman DA. Longitudinal modeling with randomly and systematically missing data: A simulation of ad hoc, maximum likelihood, and multiple imputation techniques. *Organ Res Methods.* 2003;6:328–362.
37. Kenny DA, Kashy DA, Cook WL. *Dyadic Data Analysis*. New York: Guilford Press; 2006.
38. Perales F. Modeling the consequences of the transition to parenthood: Applications of panel regression methods. *J Soc Pers Relat.* 2019;36:4005–4026.
39. Muthén LK, Muthén BO. *Mplus User's Guide*. 7th ed. Los Angeles, CA: Muthén & Muthén; 1998–2015.
40. Kline RB. *Principles and Practice of Structural Equation Modeling*. 4th ed. New York: Guilford Press; 2015.
41. Rosen NO, Dawson SJ, Leonhardt ND, Vannier SA, Impett EA. Trajectories of sexual well-being among couples in the transition to parenthood. *J Fam Psychol.* 2020. doi:10.1037/fam0000689.
42. Kluwer ES. From partnership to parenthood: A review of marital change across the transition to parenthood. *J Fam Theory Rev.* 2010;2:105–125.
43. Stefanou C, McCabe MP. Adult attachment and sexual functioning: A review of past research. *J Sex Med.* 2012;9:2499–2507.
44. Leclerc B, Bergeron S, Brassard A, Bélanger C, Steben M, Lambert B. Attachment, sexual assertiveness, and sexual outcomes in women with provoked vestibulodynia and their partners: A mediation model. *Arch Sex Behav.* 2015;44:1561–1572.
45. Purcell-Lévesque C, Brassard A, Carranza-Mamane B, Péloquin K. Attachment and sexual functioning in women and men seeking fertility treatment. *J Psychosom Obstet Gynaecol.* 2019;40:202–210.
46. Muise A, Kim JJ, Impett EA, Rosen NO. Understanding when a partner is not in the mood: Sexual communal strength in couples transitioning to parenthood. *Arch Sex Behav.* 2017;46:1993–2006.
47. Rosen NO, Mooney K, Muise A. Dyadic empathy predicts sexual and relationship well-being in couples transitioning to parenthood. *J Sex Marital Ther.* 2017;43:543–559.
48. ter Kuile MM, Brauer M, Laan E. The Female Sexual Function Index (FSFI) and the Female Sexual Distress Scale (FSDS): Psychometric properties within a Dutch population. *J Sex Marital Ther.* 2006;32:289–304.
49. Isidori AM, Pozza C, Esposito K, et al. Development and validation of a 6-item version of the female sexual function index (FSFI) as a diagnostic tool for female sexual dysfunction. *J Sex Med.* 2010;7:1139–1146.
50. Rosen RC, Cappelleri JC, Smith MD, Lipsky J, Peña BM. Development and evaluation of an abridged, 5-item version of the International Index of Erectile Function (IIEF-5) as a diagnostic tool for erectile dysfunction. *Int J Impot Res.* 1999;11:319–326.
51. Santos-Iglesias P, Bergeron S, Brotto LA, Rosen NO, Walker LM. Preliminary validation of the sexual distress scale-short form: Applications to women, men, and prostate cancer survivors. *J Sex Marital Ther.* 2020;46:542–563.