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Unmet and Exceeded Expectations for Sexual Concerns across the Transition to Parenthood

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ABSTRACT

Expectations play a key role in shaping sexual and relationship well-being. Across the transition to parenthood, couples navigate many changes to their sexual relationships, yet little is known about their expectations related to sex. This longitudinal study investigated how unmet and exceeded expectations for postpartum sexual concerns – assessed in pregnancy and compared to experiences at 3-months postpartum – affect sexual and relationship well-being. Data were collected from 200 new-parent couples mid-pregnancy and at 3, 6, 9, and 12-months postpartum. Mothers' unmet expectations (i.e., sexual experiences were worse than expected) were associated with their own lower sexual and relationship satisfaction at 3-months postpartum. Partners' unmet expectations were associated with their own lower sexual satisfaction, higher sexual distress and relationship conflict, and mothers' lower sexual satisfaction. Mothers' exceeded expectations (i.e., sexual experiences were not as bad as they expected) were linked to their own and their partners' higher sexual satisfaction and lower sexual distress and relationship conflict at 3-months postpartum. Partners' exceeded expectations were only associated with mothers' lower sexual distress at 3-months postpartum. Expectations did not predict change in outcomes over time. Findings provide novel evidence that expectations for one's sexual relationship are associated with new parents' sexual and relationship adjustment during a vulnerable period for sexuality and well-being.

Welcoming a child into the family is typically a time of great joy and happiness. Yet this transition presents significant challenges as couples balance the overwhelming task of caring for a newborn while also attending to their sexual and romantic relationship (Doss & Rhoades, 2017; Rosen et al, 2020). Declines in both sexual and relationship well-being are common among new parents and put them at risk for poorer mental health, relationship dissolution, and less sensitive parenting (Figueiredo et al., 2008; Goldberg & Carlson, 2014). For example, over 90% of new parents endorse multiple sexual concerns specific to the transition to parenthood (Schlagintweit et al., 2016), sexual satisfaction is low for 36% to 46% of new parents in the 12 months postpartum (Ahlborg et al., 2005; Rosen et al., 2020), and 24% of first-time mothers report clinical levels of sexual distress (Rosen et al., 2020). New parents also report steeper declines in relationship satisfaction compared to nonparents over the same period (Doss et al., 2009) as well as increased relationship conflict, which has been linked to lower relationship quality and less cooperative coparenting (Christopher et al., 2015; Kluwer & Johnson, 2007). Given these challenges, it is crucial to identify factors that can promote the sexual and relationship well-being of new parents. One such factor might include the expectations each partner holds for their sex life after they become parents and how these expectations compare to their actual experiences. This study drew on longitudinal data provided by 200 couples surveyed mid-pregnancy with their first child and at 3-, 6-, 9-, and 12-months postpartum to examine how unmet (i.e., worse than expected) and exceeded (i.e., not as bad as expected) sexual expectations predict sexual satisfaction, sexual distress, relationship satisfaction, and relationship conflict across the first-year postpartum.

Expectations and the Transition to Parenthood

Expectations are mental representations associated with a future event (Roy et al., 2014). According to interdependence theory, expectations are a key determinant of outcomes in interpersonal relationships (Arriaga, 2013; Kelley & Thibaut, 1978; Rusbalt & Arriaga, 1997). People evaluate their relationships by comparing them to prior expectancies and feel less satisfied when expectations fall below their comparison level (i.e., their experience fails to live up to expectations or is worse than they expected), and more satisfied when expectations meet or exceed their comparison level (i.e., their experience is better or not as bad as they expected; Arriaga, 2013). The transition to parenthood may be what Holmes and Rempel (1989) identified as a "diagnostic situation" in the context of Interdependence Theory. Diagnostic situations occur when a person's needs conflict with the needs of their partner or

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the relationship in general, as is common when couples are navigating changes to their sexual relationship in the early stages of parenthood (Muise et al., 2017). Diagnostic situations shape one or both partners' perception of the relationship more broadly and may be more common at periods of transition (Eastwick et al., 2019). As such, the degree to which new parents' sexual expectations are unmet or exceeded may have implications for the way they view their sexual and romantic relationship over time.

Interdependence theory has been applied to and is empirically supported in studies of sexual relationships. For example, Byers and MacNeil (2006) showed that the extent to which people's actual sexual experiences exceed or fall short of their expectations is a key component in predicting their own and their partner's sexual satisfaction. In a longitudinal study of 72 newlywed couples, wives (but not husbands) with higher expectations for their future sexual satisfaction reported greater sexual satisfaction six months later (McNulty & Fisher, 2008). Because parenthood is an entirely new experience, many individuals have positive expectations for their ability to navigate this transition (Mitnick et al., 2022), and this optimism may extend to expectations regarding their sexual relationship after the baby is born. However, as postpartum sexual concerns are common (Schlagintweit et al., 2016), new parents are at risk of unmet sexual expectations, which may ultimately lead to lower sexual and relationship well-being.

There is only one study to our knowledge of sexual expectations in the transition to parenthood (Pauleta et al., 2010), but evidence from the broader literature underscores the central role that expectations can play for adjustment during this vulnerable period. Specifically, several studies examined new parents' experiences of unmet expectations across a range of *non-sexual* domains, such as partner support, division of labor, and childcare (e.g., Biehle & Michelson, 2012; Gross & Marcussen, 2017; Lawrence et al., 2007). Consistent with Interdependence Theory (Rusbalt & Arriaga, 1997), unmet expectations in these domains were linked with lower relationship well-being for new parents. Among first-time mothers, 35% reported that their experiences of caring for their infant, and changes to their relationship and well-being were less positive than they expected (Harwood et al., 2007). Greater unmet expectations of personal, relationship, and child-related outcomes at 3-months postpartum predicted steeper declines in relationship satisfaction for mothers and fathers by 18-months postpartum (Lawrence et al., 2007). Similarly, unmet (non-sexual) expectations for a partners' parenting and support behaviors predicted new parent's own and their partner's lower relationship satisfaction at 3- to 5-months postpartum (Mitnick et al., 2022).

Sexual Expectations

Expectations – societal, cultural, and those specific to sexual experiences – have been conceptualized as important factors in recent biopsychosocial models of perinatal sexuality (Fitzpatrick et al., 2021). As sexual and relationship satisfaction can follow distinct trajectories (Lorber et al., 2015; McNulty et al., 2015), expectant parents are likely to form expectations for changes to their sexuality that are unique from expectations for how other aspects of their relationship might change. Indeed, the vast majority of expectant and new parents report a range of sexual concerns that are specific to the transition to parenthood, including a reduced frequency of sexual activity, changes in body image, impacts of childrearing and sleep deprivation on time and interest in sexual activity, and differences in sexual desire between partners, among others (Pastore et al., 2007; Schlagintweit et al., 2016). However, to our knowledge, only one study has examined sexual expectations in the transition to parenthood. Pauleta et al. (2010) found that soon after being discharged from the hospital, 23% of new mothers expected a decrease in sexual frequency over the next six months (compared to when they were pregnant), 17% expected an increase, and 60% expected no change. However, this study focused exclusively on expectations for sexual frequency and neglected other areas of concern, did not link expectations to sexual or relationship well-being, and did not include the partners of women who had given birth. Considering prior work on expectations, coupled with the vital role of sexuality in couples' overall relationships (Joel et al., 2020), examining sexual expectations may shed light on why some new parents navigate the transition better than others.

New parents who perceive their relationship as falling below expectations report lower relationship satisfaction (Lawrence et al., 2007; Mitnick et al., 2022), but research on these expectations is limited in several ways. First, although new parents navigate changes to their sexual relationship (Schlagintweit et al., 2016), and sexual well-being is a key predictor of broader relationship satisfaction (Joel et al., 2020), research in this area has primarily focused on expectations related to partner support, parenting efficacy, division of labor, and childcare (e.g., Biehle & Michelson, 2012; Lawrence et al., 2007), and little is known about *sexual* expectations. Second, despite the inherently interpersonal nature of relationship well-being, dyadic studies of expectations in the transition to parenthood remain uncommon. When dyadic studies do exist, the experiences of mothers and partners are typically analyzed separately (e.g., Biehle & Michelson, 2012; Flykt et al., 2014; Lawrence et al., 2007), but interdependence theory contends that each partners' expectations and experiences may shape not only their own outcomes (as has been the focus of prior research), but also the other partner's well-being. Third, some studies assess the perception of unmet expectations at a single time-point (e.g., Biehle & Michelson, 2012). Although this approach provides insight into participants' perceptions at the time of data collection, measuring expectations prior to actual experiences is necessary to draw conclusions about the effects of earlier experiences on later outcomes. This temporal separation is particularly important if the goal is to inform perinatal interventions (e.g., modifying the expectations of soon-to-be parents to better prepare them for postpartum challenges).

Finally, prior studies have measured the degree to which expectations are met or unmet along a continuum, with higher scores indicating that expectations have been exceeded (i.e., not as bad as expected) and lower scores indicating that expectations were unmet (i.e., worse than expected; Biehle & Michelson, 2012; Gross & Marcussen, 2017; Harwood et al., 2007). This approach precludes distinguishing the unique effects of exceeded versus unmet expectations, which is

important for directing intervention efforts. Theoretically, it is possible for unmet and exceeded expectations to have different implications for couples' adjustment. Prior studies of non-sexual expectations have found curvilinear associations between expectations and well-being (Flykt et al., 2009; Murray et al., 2017). For example, in first-time parent couples, fathers with low relationship satisfaction reported greater increases in commitment when they underestimated (versus met or overestimated) their post-baby responsibilities, and mothers with low relationship satisfaction reported greater increases in commitment when they overestimated (versus met or underestimated) their post-baby responsibilities (Murray et al., 2017). In the present study, we speculated that unmet and exceeded sexual expectations may predict distinct patterns of sexual and relationship outcomes.

Current Study and Hypotheses

The current study drew from a sample of 200 first-time parent couples who completed measures of sexual satisfaction, sexual distress, relationship satisfaction, and relationship conflict at 18–20 weeks pregnancy, and 3-, 6-, 9-, and 12-months postpartum. We measured unmet or exceeded sexual expectations by assessing expectations for postpartum sexual concerns at 18–20 weeks pregnancy and comparing those expectations to their postpartum sexual experiences at 3-months postpartum, providing the most ecologically valid method of assessment. In this measurement, unmet expectations reflected postpartum sexual experiences that were worse than expected, whereas exceeded expectations indicated that postpartum sexual experiences were not as concerning as expected. We increased the rigor of our analysis by controlling for both expectations and sexual and relationship well-being assessed during pregnancy. Taken together, this approach allowed us to examine the unique contribution of unmet and exceeded expectations for predicting trajectories of sexual and relationship well-being across the first year of the transition to parenthood.

Broadly, we expected that the degree to which an individual's sexual expectations were unmet or exceeded would be linked with their own and their partner's lower and higher sexual and relationship well-being at 3-months postpartum, respectively. No research has examined sexual expectations as a predictor of the trajectory of sexual and relationship well-being over time. However, following from Interdependence Theory (Lawrance & Byers, 1995; Rusbalt & Arriaga, 1997) and longitudinal research on new parents' non-sexual expectations (e.g., Lawrence et al., 2007), we expected that unmet or exceeded expectations at 3-months postpartum would also predict the trajectory (i.e., slope) of sexual and relationship well-being across 3- to 12-months postpartum. Based on the theory and research reviewed above, we developed the following specific hypotheses: Mothers[1] and partners with more unmet sexual expectations at 3-months postpartum would report (a) lower sexual and relationship satisfaction and higher sexual distress and relationship conflict at 3-months postpartum, (b) a smaller increase in sexual satisfaction, a greater decrease in relationship satisfaction, a smaller decrease in sexual distress (mothers only) and a greater increase in relationship conflict over the postpartum period. In contrast, mothers and partners with more exceeded sexual expectations at 3-months postpartum would report (c) higher sexual and relationship satisfaction and lower sexual distress and relationship conflict at 3-months postpartum, and (d) a greater increase in sexual satisfaction, a smaller decrease in relationship satisfaction, a greater decrease in sexual distress (mothers only) and a smaller increase in relationship conflict over the postpartum period.

[1]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."

Method

Participants

First-time parent couples were recruited during the second trimester of pregnancy (M = 19.39 weeks; range, 13–24 weeks, SD = 1.56). Participants were recruited online (40%) via community advertisement (e.g., pamphlets distributed to health care providers; 24.2%), in-person during a routine 20-week ultrasound appointment (15.3%), and word of mouth (14.4%) between May 2016 and April 2018. Eligible participants were at least 18 years old, in a romantic relationship of at least six months, fluent in English, had access to a personal e-mail account, and living in Canada or the United States. Eligible gestating parents had not previously given birth and had an uncomplicated, singleton pregnancy. See Figure 1 for participant recruitment flow. The final analytic sample included 200 couples. Descriptive statistics for all sociodemographic variables – including age, sex, sexual orientation, ethnicity, country of residence, relationship status, relationship length, years of education, income, and breastfeeding – are reported in Table 1.

Procedure

For participants recruited in person, trained research assistants identified potentially eligible participants via review of patient requisition forms. Research assistants approached potential participants prior to their 20-week ultrasound appointment to describe the study. For all recruitment methods, all participants (mothers and partners) were screened either in person or on the phone. A research assistant confirmed that both members of the couple were interested in participating, met eligibility criteria, and were fully informed about the study. After screening was complete, eligible and interested participants were enrolled in the study. Participants provided informed consent and completed online surveys distributed using Qualtrics. Surveys were distributed at seven timepoints (18–20 weeks pregnancy, 32-weeks pregnancy, 2-weeks postpartum, and 3-, 6-, 9-, and 12-months postpartum), although data from only five timepoints (18-20-weeks pregnancy, 3-, 6-, 9-, and 12-months postpartum) were included in the current study. Participants completed the measure of expectations for postpartum sexual concerns at 18-20 weeks pregnancy, the measure of current sexual concerns at 3-months postpartum, and measures of sexual satisfaction, sexual distress, relationship satisfaction, and relationship conflict at all five timepoints. Participants received a secure survey link via e-mail. Retention strategies were based on past research (Rosen et al., 2020). Participants received a reminder e-mail one week before each survey was distributed. Once the survey link was e-mailed,

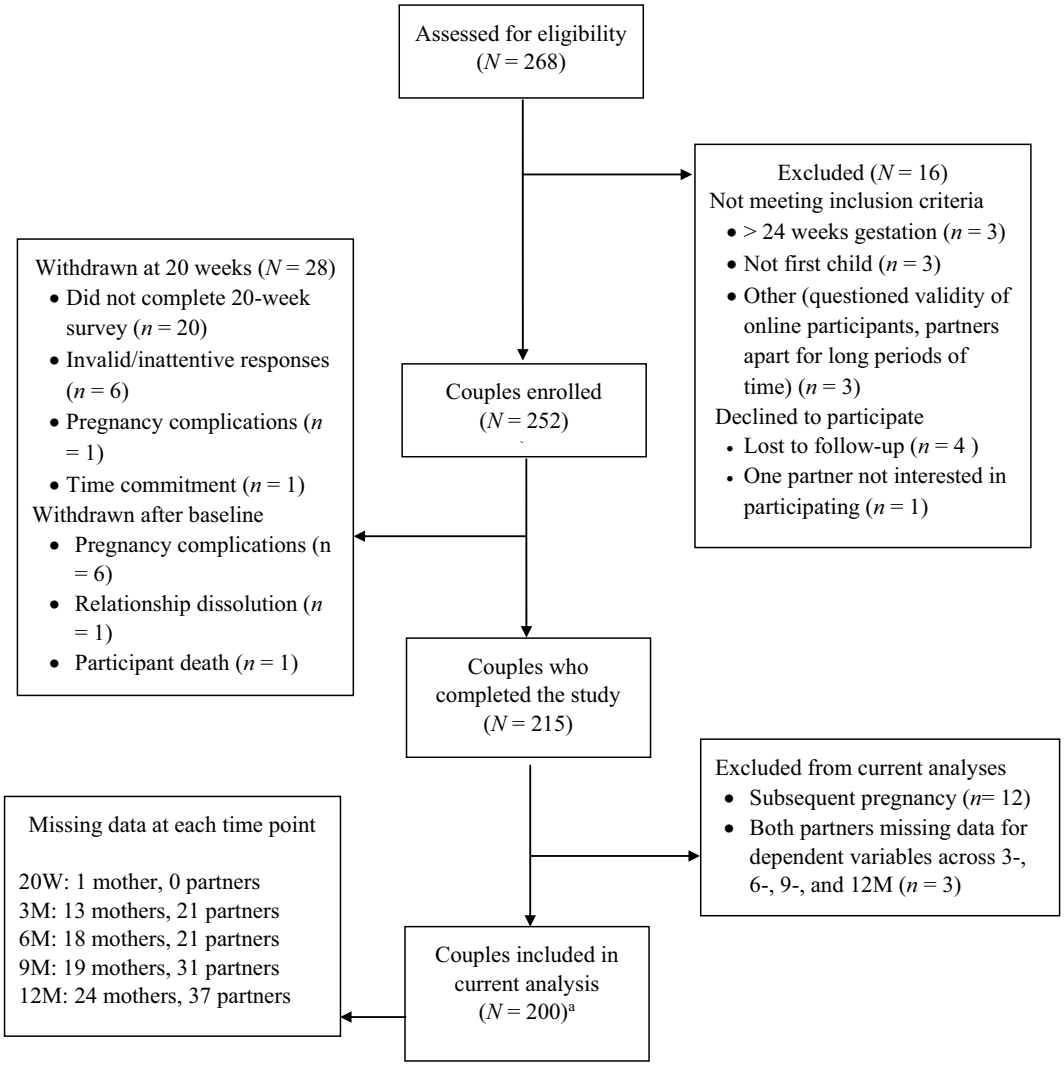

Figure 1. Participant recruitment flow. [a]We initially pre-registered a sample size of 202. During analysis we identified two additional couples where both partners were missing data for dependent variables across 3-, 6-, 9-, and 12-months.

participants who did not complete the survey participants received a reminder phone call (within 48–72 hours) and reminder e-mails (at 1 week and 3 weeks). All compensation was provided in gift cards. Each member of the couple received $15 CAN for completing each of the two surveys in pregnancy and the four surveys postpartum. They also received $5 CAN for completing a very brief survey at 2-weeks postpartum regarding labor and delivery characteristics. Participants who completed all seven surveys received an additional $10 CAN. In total, participants were eligible to receive up to $105 CAN. The study was approved by our institutional research ethics boards (Dalhousie University and University of Toronto, Mississauga).

Measures

Unmet/Exceeded Sexual Expectations

Descriptive statistics for all study variables are reported in Table 2. At 18–20 weeks pregnancy, participants completed a measure of expectations related to common postpartum sexual concerns and were asked to rate "How much will the following things affect your sex life once you are a parent?" Participants completed the same measure at 3-months postpartum and were asked to rate "How much do the following things affect your sex life [since becoming a parent]?" This measure is based on an existing measure of postpartum sexual concerns (Schlagintweit et al., 2016) and includes 21 items that are rated on a 7-point scale (1 = *not at all* to 7 = *extremely*). Sample items include: "changes in your own body image," "energy for sex (i.e., fatigue)," and "time for sex." Mean scores were computed with higher scores indicating a greater impact. The original measure of postpartum sexual concerns (dichotomous: yes/no) was developed and validated via informal focus groups and formal pretesting by surveys with postpartum samples. Supporting the validity of scores on the postpartum sexual concerns measure, higher scores on the continuous version of this scale (i.e., a likert scale, as in the current study) were associated with lower relationship satisfaction and higher depressive symptoms in new mothers and their partners (Dawson et al., 2022; Schlagintweit et al., 2016). In addition, consistent with the theory that the birthing parent experiences more disruptions to their sexuality than the non-

Table 1. Sociodemographic information (N = 200).

	Mothers *M* ± *SD* or *n* (%)	Partners *M* ± *SD* or *n* (%)
Age (years)[a]	30.04 ± 3.51	31.57 ± 4.54
Sex		
Female	200 (100%)	7 (3.5%)
Male	-	193 (96.5%)
Sexual orientation		
Heterosexual	179 (89.5%)	191 (95.5%)
Bisexual	12 (6%)	3 (1.5%)
Lesbian/Gay	6 (3%)	4 (2%)
Pansexual	2 (1%)	-
Asexual	1 (0.5%)	1 (0.5%)
Additional orientations (e.g., "not straight")	-	1 (0.5%)
Ethnicity		
White	157 (78.5%)	162 (81%)
Asian American/Asian	19 (9.5%)	10 (5%)
Biracial/multiracial	9 (4.5%)	6 (3%)
African American/Black	3 (1.5%)	3 (1.5%)
East Indian	6 (3%)	5 (2.5%)
Middle Eastern/Central Asian/South Asian	3 (1.5%)	7 (3.5%)
Additional ethnicities (e.g., not specified, Ashkenazi, First Nations, Hispanic, Pacific Islander)	2 (1%)	7 (3.5%)
Country of residence		
Canada	143 (71.5%)	143 (71.5%)
United States of America	57 (28.5%)	57 (28.5%)
Relationship status		
Married/engaged/common law	183 (76%)	182 (75.5%)
Living with/dating one partner	17 (34%)	17 (34%)
Other	-	1(0.5%)
Relationship length (months)	79.69 ± 43.58	79.98 ± 43.50
Years of education completed (since Grade 1)	17.38 ± 2.78	17.02 ± 3.09
Annual income[b]		
<$60,000	39 (19.5%)	39 (19.5%)
>$60,000	160 (80%)	160 (80%)
Breastfeeding from birth to 3-months postpartum[c]		
Yes	175 (93.1%)	
No	13 (6.9%)	

[a]Due to missing data *n* = 195 for mothers and 192 for partners; [b]Due to missing data *n* = 199 for mothers and partners; Due to missing data *n* = 188.

birthing parent (Fitzpatrick et al., 2021), new mothers reported more postpartum sexual concerns relative to their partners (Allsop, 2022; Dawson et al., 2022). The internal consistency of this measure ranged from α = .86–.93 in prior research (Dawson et al., 2022; Schlagintweit et al., 2016). Similarly, the measure demonstrated good reliability for mothers (20-weeks α = .85; 3-month α = .84) and partners (20-weeks α = .87; 3-month α = .85) in the current study.

To consider the possibility that unmet expectations differentially influenced postpartum trajectories compared to exceeding expectations, we followed a bilinear modeling approach (Gottman, et al., 2002; Kenny et al., 2006) to coding our key independent variable. First, the pregnancy sexual expectations variable was subtracted from the postpartum sexual experiences variable to create a continuous difference score with positive scores reflecting unmet expectations (i.e., worse than expected), a zero score indicating met expectations, and a negative score signifying exceeded expectations (i.e., not as bad as expected; mother *M* = -.35, *SD* = .87; partner *M* = -.17, *SD* = .91). The difference score was coded into separate exceeded/unmet expectations variables for analysis. The unmet expectations variable equaled the difference score when the difference was positive and was coded zero when expectations were met or unmet. The exceeded expectations variable equaled the difference score when the difference was negative and was coded zero when expectations were met or exceeded. This variable was reverse coded so that higher scores in the analyses signified greater exceeded expectations. In this measurement, unmet expectations reflected postpartum sexual experiences that were worse than expected, whereas exceeded expectations indicated postpartum sexual experiences that were not as concerning as expected. To capture substantive divergence from one's expectations, we coded ±0.5 *SD* around zero as having met expectations (±.45 for mothers and ±.46 for partners; Johnson et al., 2021). Overall, for mothers, 44.38% had exceeded expectations, 39.71% had met expectations, and 15.91% had unmet expectations. For partners, 36.67% had exceeded expectations, 44.51% had met expectations and 18.82% had unmet expectations.

Sexual Satisfaction

The Global Measure of Sexual Satisfaction (GMSEX; Lawrance & Byers, 1995) was administered at each time-point. The GMSEX evaluates participants' subjective global satisfaction with their sexual relationship with their partner in the past four weeks, including five items rated on seven-point bipolar scales: *good-bad, pleasant-unpleasant, positive-negative, satisfying-unsatisfying*, and *valuable-worthless*. Items were summed to provide a total score (5 to 35), where higher scores reflect greater sexual satisfaction. The measure had excellent reliability for mothers (α = .93–.96) and partners (α = .94–.96) across all time-points.

Sexual Distress

The 13-item Sexual Distress Scale (SDS; Derogatis et al., 2002; Santos-Iglesias et al., 2018) measured sexual distress at each time-point. Participants answered items such as "How often did you feel distressed about your sex life?" and "How often did you feel unhappy about your sexual relationship?" in relation to the past four weeks. Items were rated on a 5-point scale (0 = *never*) to (5 = *always*). Items were summed and total scores range from 0 to 52, with higher scores indicative of greater sexual distress. The measure demonstrated excellent reliability for mothers (α = .94–.96) and partners (α = .93–.94) across all time-points.

Relationship Satisfaction

The three-item satisfaction subscale of the Perceived Relationship Quality Components scale (Fletcher et al., 2000) assessed relationship satisfaction at each time-point. The items "*How satisfied are you with your relationship?*," "*How content are you with your relationship?*" and, "*How happy are you with your relationship?*" were rated on a 7-point scale (1 = *not at all* to 7 = *extremely*). Items were summed and total scores range from 3 to 21, with higher scores indicative of greater relationship satisfaction. The subscale demonstrated good to excellent reliability for mothers (α = .92–.96) and partners (α = .89–.96) across all time-points.

Relationship Conflict

The two-item conflict subscale from the Revised Dyadic Adjustment Scale (Busby et al., 1995) assessed relationship conflict at each time-point. The items "*How often do you and your partner quarrel*?" and "*How often do you and your partner 'get on each other's nerves'*?" were rated on a 5-point scale (0 =

Table 2. Descriptive statistics for study variables (N = 200 couples).

	20 Weeks Pregnancy		3 Months Postpartum		6 Months Postpartum		9 Months Postpartum		12 Months Postpartum	
	Mother	Partner	Mother	Partner	Mother	Partner	Mother	Partner	Mother	Partner
Expectations Variables										
Expectations										
Mean (SD)	4.06 (.79)	3.55 (.90)								
% Missing	6.40	5.90								
Unmet Expectations										
Mean (SD)			.16 (.42)	.23 (.56)						
% Missing			13.30	16.30						
Exceeded Expectations										
Mean (SD)					.52 (.68)	.38 (.57)				
% Missing					13.30	16.30				
Outcome Variables										
Sexual Satisfaction										
Mean (SD)	26.38 (7.07)	27.04 (6.98)	23.82 (7.31)	23.87 (7.57)	25.16 (6.87)	25.56 (7.66)	25.78 (7.16)	26.10 (6.91)	26.43 (7.39)	25.98 (7.13)
% Missing	.50	.00	7.90	11.80	10.30	11.80	10.80	16.70	13.30	19.70
Sexual Distress										
Mean (SD)	13.38 (10.52)	9.62 (8.35)	16.89 (11.19)	11.17 (9.35)	16.05 (11.41)	10.31 (9.18)	14.68 (11.30)	9.74 (9.37)	14.81 (11.76)	10.71 (8.81)
% Missing	.00	.00	7.90	11.80	10.30	11.80	10.80	16.70	13.30	19.70
Relationship Satisfaction										
Mean (SD)	19.17 (2.12)	18.78 (2.29)	18.17 (2.93)	17.65 (3.20)	17.77 (3.36)	17.68 (3.29)	17.91 (3.19)	17.49 (3.41)	17.31 (3.53)	17.00 (3.62)
% Missing	.00	.00	7.40	10.30	10.30	11.30	10.80	16.70	13.30	19.70
Relationship Conflict										
Mean (SD)	1.67 (.57)	1.68 (.63)	1.68 (.64)	1.59 (.72)	1.70 (.74)	1.69 (.73)	1.73 (.76)	1.70 (.84)	1.78 (.81)	1.71 (.72)
% Missing	.00	.00	7.40	10.30	10.30	11.30	10.80	16.70	13.30	19.70

Expectations range from 1–7. Sexual satisfaction ranges from 5–35. Sexual distress ranges from 0–52. Relationship satisfaction ranges from 3–21. Relationship conflict ranges from 0–5.

all the time to 5 = *never*). Responses were reverse coded, and a mean score was calculated. Higher scores indicate greater conflict. The subscale had acceptable to good reliability for mothers (α = .66–.85) and partners (α = .66–.85) across all time-points.

Analysis Plan

We preregistered our hypotheses and planned analyses after collecting and before analyzing the data (https://osf.io/ahrbx/?view_only=e013a24dd0a94e29bb138367afbbb8ee). We report all preregistered analyses in the main body of the paper and did not deviate from the preregistered analysis plan. We first ran unconditional univariate latent growth curve models separately for mothers and partners for each dependent variable (sexual satisfaction, sexual distress, relationship satisfaction, and relationship conflict) using M*plus* 8.5 (Muthén & Muthén, 1998–2017). We set intercept loadings in each model to 1, corresponding to initial levels at 3-months postpartum, and linear slope loadings signified the uniform passage of time because data collection occurred at equal intervals (e.g., 0 [3 months postpartum], .333 [6 months postpartum], .667 [9 months postpartum], and 1 [12 months postpartum]). We considered nonlinear patterns with latent basis growth models (McArdle & Epstein, 1987), which allowed the slope loadings to be estimated by the data (first and last measurement occasion loadings are set at 0 and 1, respectively, to identify the model). This approach allowed us to capture a variety of nonlinear change patterns because it does not have a specific functional form (e.g., quadratic, cubic). We fitted each construct to a series of increasingly complex growth models (e.g., intercept-only model with the variance fixed to 0, intercept-only model with freely estimated variance, linear slope model with no slope variance, etc.) and determined the best-fitting trajectory via change in model chi-square.

We next computed a series of four dyadic latent growth curve models (Kenny et al., 2006), one for each outcome, and added mother and partner unmet and exceeded expectations as predictors of each partner's intercept and slope (assuming significant variability was present in each growth parameter). Our proposed analytic model is depicted in Figure 2. We controlled for each partner's sexual expectations at 20 weeks pregnancy in the model to ensure that the effect of exceeding or unmet expectations was beyond their initial level of expectations. Additionally, we included the outcome variable for each partner assessed at 20 weeks pregnancy as a control variable to provide a rigorous test of how unmet and exceeded expectations predicted postpartum sexual and relational outcomes.

We determined statistical power via a Monte Carlo simulation based on recommendations provided by Wang and Wang (2019) and using common effect size guidelines (Cohen, 1988). We had 82% power to detect a small change in an outcome variable (i.e., a small slope, $d = .25$) across the entire 3- to 12-month postpartum period given our sample size of $N = 200$ couples. Similarly, we also had adequate power, ranging from 84% to 94%, to detect a small association ($r = .25$) between our set of predictors and women and partner's growth intercepts and slopes.

Missing data ranged from 0% to 19.70% and was handled with multiple imputation (MI) and 20 imputed datasets. MI produces less biased results than traditional deletion methods

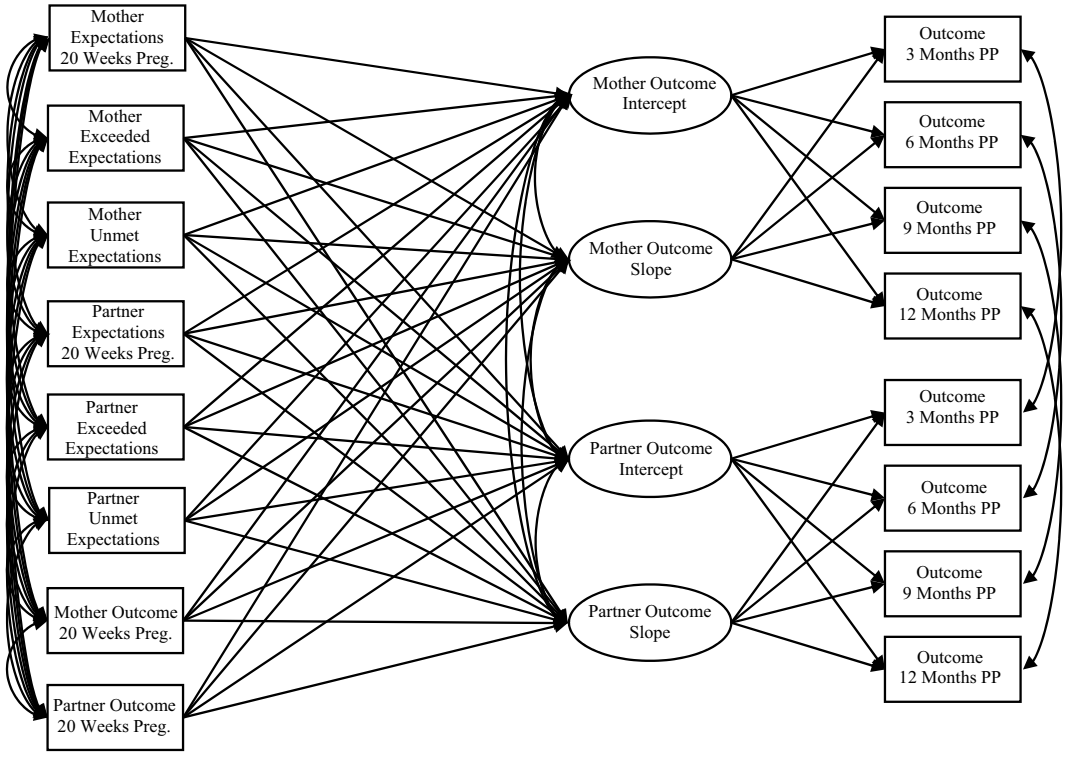

Figure 2. Prototype dyadic latent growth curve model depicting mother and partner unmet/exceeded expectations as predictors of mother and partner outcomes (sexual satisfaction, sexual distress, relationship satisfaction, and relationship conflict).

or mean substitution and performs similarly to full-information maximum likelihood estimation in growth curve analyses (Enders, 2011). We evaluated model fit by consulting local (e.g., residuals and modification indices) and global fit indices (Kline, 2016). Good global model fit is indicated by: (1) a non-significant Chi-Square value, (2) values of the Confirmatory Fit Index (CFI) and Tucker-Lewis Index (TLI) greater than .95, (3) and values of the Root Mean Square Approximation of Error (RMSEA) and the Standardized Root Mean Square Residual (SRMR) less than .05 (Little, 2013). Adequate global fit is signified by values greater than .90 on the CFI and TLI and less than .08 for the RMSEA and SRMR. If issues of model misfit were apparent at the local or global level, we implemented conceptually permissible modifications as needed to attain adequate fit. We computed final models that incorporated the exceeded and unmet expectations variables with robust maximum likelihood estimation because these variables were not normally distributed as a result of the bilinear modeling approach to their coding (skewness from 1.11 to 3.01 and kurtosis from .29 to 9.55). The anonymized dataset and final model code and output, including 95% confidence intervals, are available at https://osf.io/ahrbx/?view_only=e013a24dd0a94e29bb138367afbbb8ee

Results

Preliminary Analyses

Full model fit indices for the univariate growth curve model comparisons, modeling notes, and a description of each trajectory for the sexual and relationship well-being variables are available in the supplementary material (Table S1). Once the best fitting growth curve for mothers and partners for each outcome variable was identified, we then computed four unconditional dyadic latent growth curve models (one for each outcome variable) to ensure the models would converge and determine associations between each partner's sexual and relationship outcome trajectories. For sexual satisfaction, the dyadic latent growth curve model fit the data well: $\chi^2(25) = 28.855$, $p = .270$; RMSEA =.028 (.000, .065); CFI =.994; TLI =.993; SRMR =.066. Higher levels of mother's sexual satisfaction at 3 months postpartum were associated with higher 3 months postpartum sexual satisfaction for the partner ($r = .71$, $p < .001$). There was no variance in the sexual satisfaction slope for mothers and partners.

The unconditional dyadic latent growth curve model for sexual distress also fit the data well: $\chi^2(23) = 27.057$, $p = .254$; RMSEA = .030 (.000, .068); CFI =.994; TLI =.993; SRMR =.048. Higher sexual distress for mothers at 3-months postpartum was associated with higher values on the partner's sexual distress intercept ($r = .26$, $p = .004$). Change in the mother's sexual distress was not associated with their own ($r = -.01$, $p = .953$) or their partner's ($r = .10$, $p = .521$) 3-months postpartum sexual distress level (partners only had an intercept).

The relationship satisfaction dyadic latent growth curve fit the data well: $\chi^2(22) = 31.294$, $p = .090$; RMSEA =.046 (.000, .080); CFI =.985; TLI =.981; SRMR =.137. Higher relationship satisfaction for mothers at 3-months postpartum was associated with higher 3-month postpartum satisfaction for the partner ($r = .46$, $p < .001$), but changes in mother's relationship satisfaction flowed independently of their own ($r = -.15$, $p = .285$) and partner's ($r = .15$, $p = .197$) relationship satisfaction intercept (there was no variance in the partner's slope).

Table 3. Standardized conditional dyadic latent growth curve model results with expectation variables as predictors (N = 200 couples).

	Sexual Satisfaction Model		Sexual Distress Model		Relationship Satisfaction Model		Relationship Conflict Model	
	Mother	Partner	Mother	Partner	Mother	Partner	Mother	Partner
Predicting the Intercept								
Mother Exceeded Expectations	.10	.17*	-.29*	-.15*	.29*	.12	-.16*	-.22*
Mother Unmet Expectations	-.16*	.02	.03	-.05	-.33*	-.06	.08	-.02
Partner Exceeded Expectations	.11	.16	-.23*	-.04	-.10	.02	.00	.10
Partner Unmet Expectations	-.14*	-.32*	.06	.24*	-.03	-.09	.09	.15*
Mother Expectations 20 Weeks Pregnancy	-.06	-.21*	.16	.03	-.21*	-.04	.11	.13*
Partner Expectations 20 Weeks Pregnancy	-.10	-.22*	.04	.14	.17*	-.16*	.02	.11
Mother Outcome 20 Weeks Pregnancy	.54*	.15	.68*	.06	.62*	.29*	.63*	.22*
Partner Outcome 20 Weeks Pregnancy	.09	.43*	-.04	.62*	-.01	.50*	.08	.56*
Predicting the Slope[a]								
Mother Exceeded Expectations			.37		-.04			
Mother Unmet Expectations			.03		.21			
Partner Exceeded Expectations			.28		.00			
Partner Unmet Expectations			-.03		-.21			
Mother Expectations 20 Weeks Pregnancy			-.19		.06			
Partner Expectations 20 Weeks Pregnancy			-.03		-.32*			
Mother Outcome 20 Weeks Pregnancy			.27		-.13			
Partner Outcome 20 Weeks Pregnancy			.07		.15			
Model Fit Indices[b]								
Satorra-Bentler χ^2 (df)	128.532 (73)		163.203 (62)		112.233 (62)		148.321 (73)	
RMSEA	.061		.090		.063		.072	
CFI	.937		.916		.945		.914	
TLI	.920		.875		.918		.892	
SRMR	.058		.052		.094		.065	

Standardized coefficients are displayed. [a]Only applicable in models where slopes were present and their variance was not fixed to 0. [b]Given that fit statistics have not been developed specifically for multiple imputation with robust maximum likelihood estimation, reported fit indices are averaged across all imputed data files. *p <.05 (two-tailed).

The unconditional dyadic latent growth curve model for relationship conflict produced two out of bound estimates (i.e., Heywood cases); the mother and partner slopes had non-significant negative variances. The slope variances were fixed to 0 and the model fit the data adequately: $\chi^2(25) = 45.528$, $p = .007$; RMSEA =.064 (.033, .093); CFI =.970; TLI =.967; SRMR =.080. Higher levels of relationship conflict reported by mothers at 3-months postpartum were associated with higher levels of partner postpartum conflict at 3-months postpartum ($r = .63$, $p <.001$).

Conditional Dyadic Latent Growth Curve Models

We then computed our final dyadic latent growth curve models by adding mother and partner exceeded and unmet expectations, expectations assessed at 20 weeks pregnancy, and the outcome assessed at 20 weeks pregnancy as predictors of each partner's intercept and slope (as applicable). Results are displayed in Table 3 and the models generally exhibited acceptable fit.

Turning to our key intercept results of interest, higher levels of exceeded expectations for mothers were associated with better sexual and relationship functioning at three months postpartum. Mother's exceeded expectations predicted higher sexual satisfaction for partners and higher relationship satisfaction for mothers and less sexual distress and relationship conflict for mothers and partners. Partner's exceeded expectations were less consistently linked with the outcomes; partner exceeded expectations predicted less sexual distress for mothers at 3-months postpartum. In accordance with the findings for exceeded expectations, unmet expectations were associated with worse sexual and relationship outcomes at 3-months postpartum. Mothers' unmet expectations were associated with lower levels of mothers' sexual and relationship satisfaction and partner's unmet expectations were associated with less sexual satisfaction for mothers and partners and higher sexual distress and relationship conflict for partners.

For slopes, only mother's sexual distress and relationship satisfaction had significant variance that could be predicted and our expectations variables did not emerge as significant predictors. Secondary to our key hypotheses, the analyses also revealed that pregnancy reports of expectations and the outcomes predicted some postpartum intercepts and one slope[2] (see Table 3 for details).[3]

Discussion

The objective of this study was to examine the associations between unmet and exceeded expectations for postpartum sexual concerns and sexual and relationship well-being for new parents couples across 3-, 6-, 9-, and 12-months postpartum. Although prior research has shown that various

[2]Higher partner reports of expectations at 20 weeks pregnancy predicted a steeper decrease in mother's relationship satisfaction from 3 to twelve months postpartum.

[3]Upon the request of reviewers (i.e., in deviation from our pre-registration), we examined three covariates: education level, relationship length, and depressive symptoms. When education level was included, our focal results remained the same, with two exceptions: mothers' exceeded expectations no longer predicted partner's higher sexual satisfaction at 3-months postpartum, but partner exceeded expectations predicted their own higher sexual satisfaction at 3-months (see Table S3). Relationship length did not predict any of our outcomes and therefore was not examined further. When we attempted to include depressive symptoms, the model fit was poor and there were no conceptually permissible modifications to improve model fit.

expectations contribute to new parents' relationship adjustment (Biehle & Michelson, 2012; Lawrence et al., 2007; Mitnick et al., 2022), none of this work has examined unmet or exceeded expectations in the domain of sexuality. Earlier work on expectations has also tended to focus on the effects for only one facet of new parents' relationship (e.g., relationship satisfaction; Mitnick et al., 2022); we demonstrated that expectations have important implications for both positive and negative indicators in other areas of their intimate relationships. Broadly speaking, we found support for our hypotheses related to unmet and exceeded sexual expectations being linked to poorer and better sexual and relationship well-being, respectively, at 3-months postpartum. We did not find evidence that sexual expectations predicted change in the outcomes over time, though only mothers' relationship satisfaction and sexual distress exhibited the significant variability necessary to test this possibility. Taken together, these results mean that any observed differences at 3-months postpartum were maintained across the study period. For example, mothers with exceeded expectations had more sexually satisfied partners at 3-months postpartum compared to mothers with met or unmet expectations. Given there was no variability in the partner slopes, this rank-ordering remained consistent one year after the birth of the baby. Our findings show the unique influence of exceeding versus not meeting pre-parenthood sexual expectations after accounting for the expectations themselves and the outcome measured during pregnancy.

New parents who experienced postpartum sexual experiences that were worse than expected reported poorer sexual and relationship well-being at 3-months postpartum. Of note, only 16% of mothers and 19% of partners reported unmet sexual expectations in our sample. Such results are a source of optimism because they suggest that the majority of new parents have realistic expectations for their postpartum sex lives or their actual sexual experiences were not as bad as they thought they would be. However, the results also point to a sizable minority who are vulnerable to unmet expectations and their associated consequences. Future research should consider who is more likely to have unmet sexual expectations as they might benefit from preventative interventions in pregnancy.

Specifically, mothers' greater unmet expectations were associated with their own lower sexual and relationship satisfaction and partners' greater unmet expectations were associated with their own lower sexual satisfaction, and higher sexual distress and relationship conflict. Partners' unmet expectations were also associated with mothers' lower sexual satisfaction. Our findings are consistent with Interdependence Theory (Rusbalt & Arriaga, 1997) and prior research illustrating negative relationship consequences for new parents when they report unmet expectations related to partner support, division of labor, and childcare (Biehle & Michelson, 2012; Harwood et al., 2007; Lawrence et al., 2007; Mitnick et al., 2022). Considering that new parents generally have positive expectations for their ability to navigate this transition effectively (Mitnick et al., 2022), a similar bias in the sexual domain appears to leave some parents vulnerable to disappointment when their sexual experiences are worse than they predicted. These findings are also in line with theoretical models that purport expectations to be central in shaping relationship outcomes via cognitive processes such as counterfactual thinking (Kirsch, 1999; Miller & Turnbull, 1986; Rusbalt & Arriaga, 1997). For example, by 3-months postpartum 78% to 90% of new parents have resumed sexual activity (Jawed-Wessel & Sevick, 2017), but they may be surprised to experience novel challenges such as differences in sexual interest between partners or pain during vaginal penetration. When they compare their experience to what they expected and find a larger discrepancy, feelings of dissatisfaction and distress are amplified. Another possibility is that unmet sexual expectations create uncertainty about the relationship, especially given that sex is a key contributor to feelings of safety and security in intimate relationships (Birnbaum et al., 2006; Kim et al., 2020); relational uncertainty is linked to lower relationship satisfaction, including in new parents (Theiss & Estlein, 2014).

Notably, we observed an interesting pattern whereby partners' unmet expectations more consistently predicted sexual and relationship well-being at 3-months postpartum relative to mothers' unmet expectations, whereas we found the opposite pattern for exceeded expectations (i.e., mothers' exceeded expectations were a more consistent predictor than partners). This overall pattern suggests that maternal disappointment with sex may not be as deleterious and partners' exceeded expectations not as beneficial for new parents' sexual and relationship well-being, which may inform targeted interventions tailored to each member of the couple.

In terms of partner unmet expectations, Gross and Marcussen (2017) found that unmet expectations for parenting efficacy (i.e., belief in one's effectiveness as a parent) was a stronger predictor of postpartum depression for fathers than mothers. The researchers speculated that this difference may be driven in part by the quantity and type of prenatal information and support offered to new mothers versus fathers, with the former receiving more. This explanation conceivably extends to information about sexuality. Moreover, the non-birthing parent typically experiences less disruption to intra-individual aspects of their sexuality (e.g., their own sexual function; Dawson, et al., 2021) and might therefore feel less prepared to navigate interpersonal changes to the sexual relationship (e.g., reduced frequency of sexual activity) or concerns arising in their partners (e.g., breast sensitivity, reduced sexual interest), resulting in poorer adjustment when their positive expectations are not fulfilled. The consequences extended to new mothers as they also felt less sexually satisfied when their partners had more unmet sexual expectations. Our findings underscore the importance of asking all new parents about their expectations and experiences of sexual and relationship adjustment, which necessitates greater inclusion of partners in postpartum care.

While partners' unmet expectations were especially relevant to our outcomes, we found that mothers' exceeded expectations – that is, their postpartum sexual experiences were not as challenging as they thought they would be – showed more associations with sexual and relationship well-being relative to partners' exceeded expectations. Specifically, mothers' greater exceeded expectations were linked to their own and their partners' higher sexual satisfaction and lower sexual distress and relationship conflict at 3-months postpartum, as well

as their own higher sexual satisfaction. Partners' exceeded expectations were only associated with mothers' lower sexual distress at 3-months postpartum. When new mothers' sexual experiences at 3-months postpartum are not as bad as they anticipated, it might reflect greater flexibility in adapting to the novel sexual challenges they are facing (e.g., by communicating changing sexual needs) or that extensive problems did not arise in the first place. In turn, they and their partners are better positioned to reap the benefits of sex, including enhanced intimacy, and mental and physical health (Diamond & Huebner, 2012), and they feel more satisfied and less distressed as a result. There is a common rhetoric that new mothers' sexual function will decline postpartum and this effect is supported on average, but is not true for everyone (Rosen et al., 2020); our results suggest that there are benefits to holding lower expectations for sex as this leaves more room to be pleasantly surprised.

Our hypotheses related to unmet and exceeded sexual expectations predicting the rate of change in sexual and relationship well-being over time were not supported, although we were only able to test these effects for mothers' relationship satisfaction and sexual distress due to limited variability in the other constructs. The lack of variability in most of the slopes coupled with the effects we observed at 3-months postpartum (i.e., the intercept-only effects) indicate that the initial associations (higher or lower relative to others) are still evident 12 months later. This lack of variability speaks to a common pattern of change as new parents adjust in the first year of parenthood and highlights the value of early intervention for preventing sexual and relationship distress. Only a handful of studies have examined psychosocial predictors of trajectories of sexual well-being across the transition to parenthood and they have similarly found evidence of predicting initial levels of outcomes (i.e. at 3-months postpartum), but not change over time (e.g., Dawson, et al., 2021; Tutelman et al., 2021). Regardless, our findings emphasize the importance of interventions earlier in the postpartum period when the majority of couples have resumed sexual activity and experience challenges, given that this starting point is likely to be maintained across the first year postpartum.

Strengths and Limitations

Key strengths of this study included a relatively large sample of couples with high study retention from mid-pregnancy through 12 months postpartum. Our measurement of expectations was particularly strong given that we calculated separate scores for unmet and exceeded expectations to distinguish their unique effects, controlling for levels of both expectations and our outcomes in pregnancy to ensure that observed effects were beyond the initial levels, and measuring expectations prior to experiences (i.e., temporally separated). Our results extend interdependence theory (Arriaga, 2013; Rusbalt & Arriaga, 1997) by providing evidence that unmet expectations and exceeded expectations may each predict a distinct set of outcomes.

Our sample was predominantly heterosexual, White, educated and of higher income, and had an average age of 30. Sexual expectations might look different in younger, less educated and more diverse couples. We also focused only on first-time parents because, theoretically, the transition to parenthood happens only once and we thought that prior experiences would influence expectations in a different way for couples who already have children. Future research might test this possibility by recruiting a comparison sample of couples who have additional children. Depressive symptoms have previously been linked to postpartum sexual concerns in new parents (Dawson et al., 2022) and may contribute to the observed effects; we were unable to control for depressive symptoms in our statistical models due to their existing complexity.

The sexual expectations scores calculated for use in the current study have not previously been validated. Although the current results provide preliminary evidence of the validity of the scores, further studies of the psychometrics of this measure and its uses are needed. Moreover, our measurement of unmet and exceeded expectations was rooted in prenatal expectations and 3-month postpartum sexual experiences, which does not take into account the fact that expectations and experiences will continue to evolve across the entire transition to parenthood. This analysis provides a rigorous analysis of how unmet and exceeded expectations around the time when couples resume sexual activity impacts couple outcomes, but additional insight would be gained by considering unmet and exceeded expectations as they change throughout the transition to parenthood. For example, people might expect their postpartum sexuality to be poorer at 3-months relative to 12-months postpartum, and this could have implications for their subsequent experience of unmet and exceeded expectations. Future research might ask participants to complete multiple measures of expectations in pregnancy to reflect this possibility. Finally, our unmet and exceeded expectations variables were based on a difference score (i.e., pregnancy sexual expectations were subtracted from postpartum sexual experiences). Difference scores have been critiqued due to an increased risk of measurement error (Cronbach & Furby, 1970). However, recent work suggests that concerns about difference scores may be exaggerated (Castro-Schilo & Grimm, 2018; Gollwitzer et al., 2014). For example, difference scores are more reliable when the correlation between the time points is low to moderate, as was the case in the current study. As such, difference scores can be an appropriate method of measuring unmet and exceeded expectations (e.g., Biehle & Michelson, 2012; Gross & Marcussen, 2017; Lawrence et al., 2007). However, future studies may consider alternative approaches that offer advantages over discrepancy scores, such as using residualized scores or calculating latent change scores (Castro-Schilo & Grimm, 2018; Gollwitzer et al., 2014).

Conclusions

Our findings suggest that targeting sexual expectations via prevention or intervention efforts might be helpful for promoting new parent couples' sexual and relationship well-being across the transition to parenthood. Sexual topics have been a limited focus of prenatal and postnatal interventions, even within relationship-enhancing interventions (e.g., Darling et al. 2021). The limited efficacy of these interventions coupled with evidence that new parents wish they had been more prepared for the sexual challenges they faced (Barrett et al., 2000;

Pinquart & Teubert, 2010), suggests that expanding the scope to include sexual expectations could be beneficial. These programs might help couples to foster more realistic expectations for their sexual relationship during this vulnerable period, to communicate those expectations clearly to each other, and to manage unmet expectations more effectively if and when they arise.

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