

Worries in expectant parents: Its relation with perinatal well-being and relationship satisfaction

SUSANNE N. BIEHLE AND KRISTIN D. MICKELSON

Kent State University

Abstract

Although much has been written about the impact of pregnancy on expectant parents, less is known about the worries couples experience during pregnancy. Sex differences in worries and the link between self and coparent worries on perinatal well-being and relationship satisfaction in 104 primiparous couples were examined. It was found not only do expectant mothers and fathers worry about different things, but also type of worry is related to different outcomes. Moreover, using structural equation modeling, childbirth worries and worry frequency indirectly predict lower relationship satisfaction through worse well-being. However, coparent's worries did not significantly relate to their partner's perinatal well-being or relationship satisfaction. This study suggests the importance of examining perinatal worries in parents, as well as the dyadic interaction between coparents.

Couples expecting their first child are typically filled with excitement and anticipation about the impending arrival of their baby (e.g., Feldman & Nash, 1984). Yet, because of all the unknowns surrounding pregnancy (especially with a first child), it can also be a stress-provoking time for both expectant mothers and fathers (e.g., Harville, Savitz, Dole, Herring, & Thorp, 2009; Hobbs & Cole, 1976). Expectant parents often worry about various aspects of the transition and pregnancy from baby's health, the childbirth process, money, and/or their coparent relationship (e.g., Öhman, Grunewald, & Waldenström, 2003; Petersen, Paulitsch, Guethlin, Gensichen, & Jahn, 2009). Although research has examined what expectant mothers (and to a lesser degree expectant fathers) worry about, it is less clear *how* worry during pregnancy impacts them individually and

how their worries are related to their coparent and coparent relationship. Moreover, despite the wealth of knowledge that has been gathered about the transition to parenthood in the last few decades, relatively few studies have systematically examined the combined perspectives of the expectant mother, father, and couple. In addition, no prior research exists on the impact of a coparent's worries on their partner's well-being. This study proposes to examine sex differences in the worries of expectant parent, as well as the differential impact of these worries on their well-being and relationship satisfaction. In addition, this study examines whether what one parent worries about, as well as how much they worry, will be related to well-being and relationship satisfaction in their coparent.

Sex differences in worries

Worry is considered a normal aspect of daily life associated with real-life triggers occurring presently or expected to occur in the near future (Tallis, Davey, & Capuzzo, 1994). Worry has alternately been defined in the literature as the emotional distress or arousal connected with an actual or perceived situation

Susanne N. Biehle and Kristin D. Mickelson, Department of Psychology, Kent State University.

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Correspondence should be addressed to Susanne N. Biehle, Department of Psychology, Kent State University, P.O. Box 5190, Kent, OH 44242-0001, e-mail: sbiehle@kent.edu.

or the recurrent thoughts associated with the event (cf. Borkovec, Robinson, Pruzinsky, & DePree, 1983). Although some of the prior literature has combined the concept of worries with anxiety, we, and others, argue that worry is different from anxiety. Specifically, worry is the cognitive aspect, whereas anxiety is the emotional signal of impending danger (Bruhn, 1990; Morris, Davis, & Hutchings, 1981). In other words, worry consists of the thoughts about what may or may not occur, whereas anxiety is the feelings of nervousness, distress, or fear about those actual or possible events. Although many may view the process of worrying as negative, it can be an important step in dealing with perceived stressors as a form of inner preparation used prior to coping with a situation (Affonso, Liu-Chiang, & Mayberry, 1999; Janis & Leventhal, 1965). For instance, if an expectant mother is worried about the child-birth process she may be motivated to prepare a birth plan to help her cope with the delivery experience when it occurs. Despite these potential benefits of worry, excessive worry has been shown to be detrimental to an individual's well-being, including increasing anxiety and depression (e.g., Andrews & Borkovec, 1988; Nolen-Hoeksema, 1996).

With respect to sex differences in worry, research has consistently found women to worry more than men (e.g., McCann, Stewin, & Short, 1991; Robichaud, Dugas, & Conway, 2003). Potential reasons for this sex difference range from worry being considered a feminine trait (Stavosky & Borkovesc, 1988) to women holding lower status positions that may create more stress and worries (Gove, 1980) to women internalizing their problems, which leads to more worrying (Rosenfield, 2000). Despite all these potential explanations for sex differences, it is unclear if there are certain situations where men worry as much as or more than women. Wood, Conway, Pushkar, and Dugas (2005) found that individuals *perceive* men as having more financial and achievement worries and women as having more interpersonal worries. These perceptions of worries being differentiated by sex mirror stereotypes that men are more concerned with work and money, whereas women

are more concerned with their relationships. However, when Robichaud and colleagues (2003) studied actual reported worries in male and female college students, they found no sex differences in the worry categories of money, workplace, relationships, or the future. Perhaps these results are dependent on the sample studied; during college not only are sex differences fewer, but also college students are likely more liberal and nontraditional in their future expectations than the general population, potentially altering the pattern of worries that may be seen for these individuals (e.g., Tavis & Wade, 1984). Thus, these contradictory findings make it unclear if sex differences in worry *type* actually exist. During an event where expectations are different for men and women, such as pregnancy, it may be reasonable to assume that men and women will worry about different aspects of the transition to parenthood. For example, one of the most consistent findings during the transition to parenthood is a decrease in relationship satisfaction following the birth of a couple's first child (e.g., Belsky & Kelly, 1994). Researchers have found that compared to matched nonparent couples, parent couples experience more of a decline in relationship satisfaction from pregnancy through the first years after the birth of their baby (Lawrence, Rothman, Cobb, & Bradbury, 2008). Moreover, women have been found to experience greater declines in relationship satisfaction than men during the transition to parenthood (Belsky, Spanier, & Rovine, 1983). Thus, because of women's greater attention to relationships in general, women may have more worries than men during pregnancy about potential changes in the relationship once the baby is born due to the new responsibilities and increased focus on the baby.

Worries during pregnancy

Although pregnancy has been found to be an anxiety-provoking time period for both expectant mothers and fathers (e.g., Entwisle & Doering, 1981), research on worries during pregnancy is scarce. The limited literature examining worries during pregnancy has found the most frequent worry for expecting

women is their baby's health and the delivery (Öhman et al., 2003). However, as with the majority of the parenting literature, men have been understudied despite research suggesting that fathers play a critical parenting role in a child's life (e.g., Bogels & Phares, 2008). Researchers have found that, for men, anxiety is highest during pregnancy and then declines after the birth of the baby, suggesting that increased anxiety for men may be a result of concerns about the transition to parenthood (Glazer, 1980). One study that examined expectant fathers found their most common worry was being able to provide financially for their family (Heinowitz, 1982). Two limitations of these prior studies are that they only sampled one sex in each study and are descriptive in nature. In other words, no sex differences were tested and they provide an understanding of *what* expectant parents worry about but not *how* the worries are related to one's well-being. The first aim of this study was to examine if expectant mothers and fathers differ in the types of worries they report during pregnancy. Specifically, based on the literature reviewed above, we hypothesized that expectant fathers will report more security worries (e.g., financial and job), whereas expectant mothers will report more baby-related (e.g., baby's health, labor and delivery, and preparing for the baby) and relationship (e.g., with a coparent or family and friends) worries. In addition, we hypothesized that the relation of worries to well-being and relationship satisfaction will differ between expectant mothers and fathers. Specifically, security worries will be more important for fathers, whereas baby and relationship worries will be most important for mothers.

Another limitation in prior research on pregnancy worries is the absence of the coparent—in other words, it is unclear how the coparent's worries might be associated with their partner's well-being and relationship satisfaction. There are two ways in which a coparent's worries may be linked with the partner's well-being. First, what a coparent worries about and how much the coparent worries may be negatively related to the partner's well-being and relationship satisfaction. For instance, if a coparent is worried

about the marital relationship (regardless of whether the partner is), the partner may report less relationship satisfaction as the coparent may be making his or her worries known. Moreover, the more a coparent is worried in general about the pregnancy may be related to higher distress in the partner through a contagion effect (e.g., Westman, 2001; Westman & Etzion, 1995). A second way in which coparent worries may be related to their partner's well-being is whether the coparent's worry matches the partner's worry or not. It may be beneficial for both partners to have the same concerns so they can commiserate about their fears, or it may be better if they have unique worries from their partner so they can each focus on different aspects of the transition to parenthood and comfort each other. However, as stated above, the literature is silent on the role of coparent worries. Therefore, the second aim of this study was to examine the role of coparent worries on partner's well-being and relationship satisfaction. Specifically, we propose that what a coparent worries about as well as how much they worry will be negatively related to their partner's well-being and relationship satisfaction. However, due to the lack of prior research on the topic, our analyses on coparent worries and matching of worries will be exploratory.

Worries about the childbirth process

In addition to having general worries, one specific worry for first-time parents is about the upcoming childbirth process. For new parents, this situation can be especially worrisome because it is an unknown, unpredictable event with potential complications during delivery that could affect the health of the baby or mother. Additionally, some expectant parents worry about the pain they (or their coparent) will encounter and the type of care they will receive while in the hospital. The childbirth process also involves giving up control, which may be difficult for some individuals. Although a few researchers have examined childbirth worries, to our knowledge, they have only been assessed in expectant mothers. Lowe (2000) found that expectant mothers were worried most about (a) losing control

during the delivery, (b) the birth experience, and (c) something being wrong with the baby. It seems reasonable to assume that expectant fathers will have similar worries related to the childbirth process, albeit to a lesser degree than the expectant mother who will actually be experiencing childbirth directly. Moreover, it is unclear if childbirth worry is related to well-being and relationship satisfaction over and above one's general level of worry. The third aim of this study examines self and coparent worries about childbirth, as well as the frequency of worry. As seen in Figure 1, we hypothesize that both self and coparent's reported childbirth worries and frequency of worry will be linked to anxiety which will, in turn, be negatively related to well-being (defined in this study as positive affect and depression). Finally, reduced well-being will be associated with lower levels of relationship satisfaction. We will examine the proposed model separately for expectant mothers and fathers to determine whether it differs by sex.

Present study

To test the three aims proposed above, first-time expectant couples were interviewed during the third trimester of the pregnancy. The prior literature focusing on the postpartum period is incomplete without an understanding of how perinatal well-being is related to issues experienced during the pregnancy. Studying the relationship of worries on perinatal

well-being is an important precursor to understanding how to prevent postpartum distress and relationship deterioration. In this study, we specifically hypothesize that worries will be related to perinatal anxiety, depression, positive affect, and relationship satisfaction. Although the literature on the transition to parenthood has examined anxiety and depression in expecting and new parents, the literature on positive affect in parents is relatively scarce. Researchers have found that parents report less happiness than nonparents (Alesina, Tella, & MacCulloch, 2004); however, little is known about how pregnancy is related to an expectant parent's level of reported happiness. Despite the lack of literature on positive affect during pregnancy, the importance of positive affect is well established (e.g., Salovey, Rothman, Detweiler, & Steward, 2000). And, as with other emotions, women experience more positive affect than men (e.g., Larsen, Diener, & Emmons, 1986). Thus, we felt it was important to include this aspect of well-being in this study.

Method

Participants

The sample was composed of 104 heterosexual married or cohabitating couples (208 individuals) expecting their first child (i.e., primiparous) and in their third trimester of pregnancy. Other eligibility requirements included that both the expectant mother and

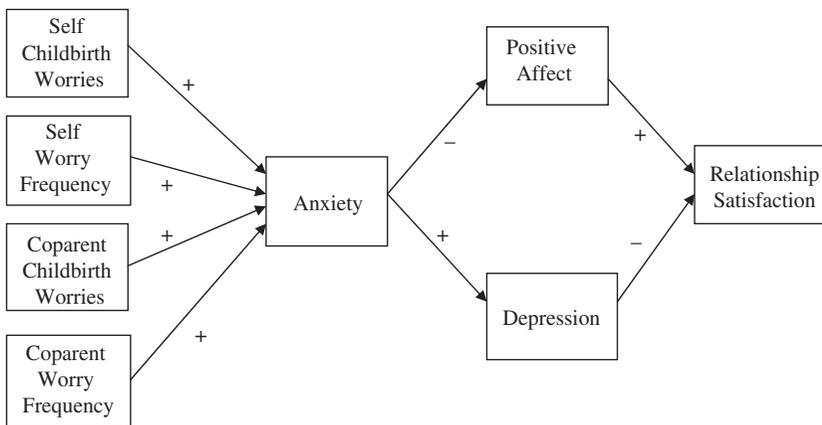


Figure 1. Proposed model for childbirth worries and worry frequency.

Table 1. Descriptive statistics of demographic and major study variables

	Fathers			Mothers		
	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range
Age (years)	29.99	4.77	19–52	28.06	3.80	18–41
Years married (years)	3.29	2.10	0–12	3.38	2.23	0–12
Positive affect	26.82	5.53	10–36	26.60	5.15	10–36
Anxiety	4.29	4.16	0–22	5.03	3.95	0–18
Depression	8.78	6.71	0–40	11.52	7.50	1–38
Relationship satisfaction	43.61	4.30	33–49	43.27	4.96	19–49

father (hereafter referred to as simply mothers or fathers) be fluent in English and employed at the time of the interview. Participants were recruited from local birthing classes and online message boards. Institutional Review Board approval was obtained before conducting the study, and all participants gave their informed consent before participating. The sample was primarily composed of married couples (91%). Couples on average had been married or cohabitating for 3 years (fathers: $M = 3.29$, $SD = 2.10$; mothers: $M = 3.38$, $SD = 2.23$). The mean participant age was 34 years, ranging from 18 to 52 years, with expectant fathers being slightly older than expectant mothers (fathers: $M = 29.99$, $SD = 4.78$; mothers: $M = 28.06$, $SD = 3.80$). The majority of the sample was White (fathers: 91%, mothers: 94%), and approximately 70% of the participants reported having a college education or an advanced degree and a household income of \$60,000 or more. Additional sample characteristics are presented in Table 1.

Procedure

Couples who agreed to take part in this study completed interviews in their third trimester (between 24 and 32 weeks of pregnancy). Participants were asked first to complete on their own an online questionnaire (which they did from their home or work) and, second, to complete within 24 hr of the online survey, the final portion of the interview over the telephone with a trained interviewer. Participants completed both the online and phone questionnaire independent of their partner,

and the majority of couples completed their interviews within the same 24-hr period of time. The combined online and phone interview took each participant approximately 1 hr to complete; couples were compensated \$25 for their time.

Materials

Sociodemographics

Demographic characteristics believed to be related to one or more of the major study variables were collected including age, education, household income, and race/ethnicity. Age range in this sample was from 18 to 52 years and was represented as a continuous variable. Education consisted of five categories: some high school, high school, some college, college, or an advanced degree. Household income represented a total family income at the time of the interview and was categorized as less than \$20,000, \$20,000–\$40,000, \$40,000–\$60,000, \$60,000–\$80,000, \$80,000–\$100,000, \$100,000–\$120,000, or more than \$120,000.

Potential covariates

Potential covariates in the current analysis included questions about prior miscarriages and pregnancy symptoms. Of the mothers in this study, 22% had experienced a prior miscarriage.¹ Pregnancy symptoms (including

1. The current analyses were also conducted with prior miscarriages as a separate covariate; however, this change did not significantly impact the results. Therefore, the current results reflect analyses with prior miscarriages as part of the control variable pregnancy risk.

preeclampsia, bleeding, bed rest, and contractions in the second trimester) were rated on a 4-point Likert scale from 1 (*not at all*) to 4 (*a lot*). For the current analyses, a control variable of *pregnancy risk* was created by taking the mean score of the four pregnancy symptoms and prior miscarriages, with higher numbers indicating more pregnancy risk.

Worries

Participants were asked to list their worries ("What did you worry about [in the past 6 months]? Please be as specific as possible and list them in order of intensity"; adapted from the National Comorbidity Survey; Kessler et al., 1994). The open-ended responses to this question were coded into nine categories: transition to parenthood, money, baby's health, mother's health, relationship with partner, family and friends, job, preparing for baby, and miscellaneous (the breakdown of each of these categories can be seen in Table 2). Because not all participants reported the same number of worries (with reported worries ranging from one to four), for this study, we only examined the top worry for each expectant parent. Two raters coded each of the open-ended responses, and interrater reliability among the two raters was high, $\alpha = .90$. In other words, the two coders agreed on 90% of the worry coding. The remaining 10% disagreement was then resolved by a third rater. All the disagreements were satisfactorily resolved by the coders. For analytic purposes, the original eight categories (minus the miscellaneous category) were further reduced to create three major categories of worry: (a) baby issues (baby's health, mother's health, transition to parenting, and preparing for baby), (b) relationship issues (marriage and family and friends), and (c) security issues (money and job).

Worry frequency

To assess the degree to which participants worried *in general* during pregnancy, they were asked the following question: "People differ a lot in how much they worry. Considering how things have been going in your

Table 2. Breakdown of worry coding

Baby's health	Baby's health, problems during delivery, pregnancy concerns
Family and friends	Relationship with family, relationship with friends
Job	Balancing work and baby, job or school stress
Transition to parenthood	Uncertainty about future, coping with baby's needs, being a good mom or dad, transition to having a baby, meeting demands of parenthood, bonding with baby
Relationship	Relationship with spouse or partner
Money	Money and childcare issues
Mother's health	Mother's health, labor and childbirth anxiety, being present during delivery

life over the PAST 6 MONTHS, how much did you worry as compared to other people expecting their first child?" with potential responses of 1 (*a lot less than other expectant parents*) to 4 (*about the same*) to 7 (*a lot more than other expectant parents*). There was no significant correlation between worry frequency and the number of actual worries the participant's reported for the total sample; however, when examined separately by sex we found that number of worries was significantly correlated with worry frequency for women, $r(102) = .23$, $p < .05$, but not men, $r(102) = .14$, $p = .16$.

Worries about childbirth

To examine worries about the childbirth process, participants responded to the following seven items adapted from the Childbirth Attitudes Questionnaire (Areskog, Kjessler, & Uddenberg, 1982): (a) "I fear losing control of myself (or feeling helpless) at the delivery," (b) "I fear something being wrong with the baby," (c) "I fear needing to have a Cesarean section," (d) "I fear being torn during the birth

of the baby,” (e) “I fear painful labor contractions,” (f) “I fear not getting the kind of care that I want,” and (g) “I have overall anxiety about childbirth.” Potential responses ranged from 0 (*never had that fear*) to 3 (*it worries you a lot*). For the last three items, “my wife” was inserted after “I fear” for expectant fathers (e.g., “I fear my wife having painful labor contractions”). A mean score was created from the responses (fathers: $\alpha = .72$, mothers: $\alpha = .68$), with higher scores indicating greater levels of childbirth worries.

Anxiety

Participants’ anxiety was assessed through self-report questions from the Symptom Checklist-90R (Derogatis, 1994). Participants were asked to report how they felt in the last week in regards to 10 different items (e.g., “felt nervous,” “felt so restless you could not sit still”). Possible responses ranged from *most* (5–7 days) = 3, *moderate* (3–4 days) = 2, *a little* (1–2 days) = 1, or *none/rarely* (< 1 day) = 0 that week. A sum score was created from the responses (fathers: $\alpha = .83$, mothers: $\alpha = .77$), with higher scores indicating higher levels of anxiety.

Depression

To assess depressive symptomatology, the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) was used. Participants were asked to report how they had felt in the past week in regards to 20 different items (e.g., “felt sad,” “felt lonely”). Possible responses ranged from *none/rarely* (< 1 day) = 0, *a little* (1–2 days) = 1, *moderate* (3–4 days) = 2, or *most* (5–7 days) = 3. A sum score was created from the responses (fathers: $\alpha = .87$, mothers: $\alpha = .88$), with higher scores indicating higher levels of depression.

Positive affect

Participants were asked to report how they had felt in the last week in regards to feeling six different positive emotions (e.g., “happy,” “cheerful”), which was adapted from the Profile of Mood States (McNair, Lorr, & Droppleman, 1981). Potential responses ranged

from 0 (*not at all*) to 6 (*daily*). A sum score was created from the responses (fathers: $\alpha = .83$, mothers: $\alpha = .85$), with higher scores indicating higher levels of positive affect.

Relationship satisfaction

The Relationship Assessment Scale (Hendrick, 1988) was used to determine relationship satisfaction (e.g., “How well does your partner meet your needs?” “How good is your relationship to most other couples?”). The measure consisted of seven questions with potential responses ranging from 1 (*never*) to 7 (*very often*). Two questions were reverse coded, and a sum score of the seven items was created (fathers: $\alpha = .77$, mothers: $\alpha = .81$), with higher scores indicating greater relationship satisfaction.

Results

With respect to the major study variables, the sample was not highly distressed as participants reported only moderate levels of anxiety ($M = 4.66$) and depression ($M = 10.15$). Traditionally, a score of 16 or higher on the CES-D has been used as a marker for individuals who may suffer from a clinical level of depression (see McDowell, 2006, for a review). Based on the analysis of variance (ANOVA), analyses, mothers were found to have significantly higher levels of depression than fathers, $F(1, 206) = 7.71, p < .01$, but similar levels of anxiety, positive affect, and relationship satisfaction (see Table 3 for study variables, means, standard deviations, and ranges).

Sex differences in worry type and relationship on well-being

We first examined the prevalence of various types of worries during pregnancy to determine if they differed by sex. As shown in Table 3, when examining the three major categories of worries, expectant mothers were more likely to report baby and relationship worries, whereas expectant fathers were more likely to report security worries. When further examining the worries that constitute each of

Table 3. Breakdown of worries by type

	Fathers	Mothers	χ^2
Baby worries	51.9%_b	67.3%_a	5.54*
Baby's health	26.9% _b	43.3% _a	6.37*
Preparation for baby	10.6% _a	9.6% _a	0.04
Mother's health	9.6% _a	7.7% _a	0.22
Transition	4.8% _a	6.7% _a	0.38
Security worries	45.2%_a	26.0%_b	8.12*
Money	30.8% _a	23.1% _a	1.46
Job and work and home balance	14.4% _a	2.9% _b	8.64**
Relationship worries	1%_a	4.8%_a	2.79[†]
Marriage	1.0% _a	2.9% _a	1.04
Family and friends	0% _a	1.9% _a	2.04
Miscellaneous (e.g., transportation)	1.9%_a	1.0%_a	1.33

Note. Different subscripts indicate that fathers and mothers significantly differed in worry type at $p < .05$. Numbers in bold add to 100% in each column, and numbers that are not in bold also add to 100% and represent the breakdown within each category of worries.

[†] $p < .10$. * $p \leq .05$. ** $p \leq .01$.

the three major categories, mothers' top worry under the category of baby concerned the baby's health and their top worry under the category of relationship concerned the marriage and relationship, while fathers worried most about issues involving money under the category of security.

We next examined the relation of worry type (i.e., baby, security, relationship) on an individual's anxiety, depression, and positive affect. Multivariate analysis of covariance (MANCOVA) analyses were conducted separately for mothers and fathers. Note that for fathers, we deleted the category of relationship worry as only one father reported it as a top worry. For each model, pregnancy risk was entered as a control variable. For fathers, the multivariate test was significant for worry type, $F(3, 96) = 3.29$, $p < .05$, $\eta^2 = .09$. Specifically, fathers who worried about security issues reported higher levels of anxiety than fathers who worried about baby issues (security worries: $M = 5.60$, $SD = 4.97$; baby worries: $M = 3.22$, $SD = 3.04$; $p < .01$, $\eta^2 = .08$). No differences were found for worry type on depression or positive affect for fathers. For mothers, the multivariate test was also significant for worry type, $F(6, 190) = 2.41$, $p < .05$, $\eta^2 =$

.07. Specifically, mothers who worried about their relationships had significantly higher levels of depression than mothers who worried about baby issues (relationship worries: $M = 20.17$, $SD = 16.80$; baby worries: $M = 11.05$, $SD = 7.02$; $p < .05$, $\eta^2 = .07$). No differences were found for worry type on anxiety or positive affect for mothers.

Influence of coparent worries on partner's well-being and relationship satisfaction

For the second aim, we examined the role of coparent's worries on partner's well-being and relationship satisfaction using the MANCOVA analyses described above but with coparent worry type as the main factor of interest. None of the results we found to be statistically significant; in other words, what one's coparent worried about was not related to their partner's anxiety, depression, positive affect, or relationship satisfaction. Next, we examined whether matching of partners on their primary worry was related to one's well-being and relationship satisfaction. To explore this idea, we first created a dichotomous variable of matching versus mismatching for the top worry. Specifically, if expectant mothers and fathers both reported baby or relationship

or security as their top worry, they were coded as matching (0), but if coparents reported different top worries (e.g., the mother reported relationship worries and the father reported security worries) they were coded as mismatching (1). MANCOVA analyses were conducted separately for expectant mothers and fathers for the four possible outcomes (anxiety, depression, positive affect, and relationship satisfaction). None of the multivariate tests were significant. However, for fathers, there was one marginally significant finding for positive affect, such that fathers who mismatched with their coparent on the type of worry reported marginally *higher* levels of positive affect than fathers who matched with their coparent on the top worry (mismatch: $M = 27.88$, $SD = 5.70$; match: $M = 25.83$, $SD = 5.25$; $p = .058$, $\eta^2 = .04$). A similar but not significant trend was found for father's depression and relationship satisfaction. Expectant mothers showed no differences on the outcome variables based on matching with their coparent on worry type.

Childbirth worry and worry frequency

The third aim of this study was to examine childbirth worries and worry frequency. Results indicated that expectant mothers reported both more childbirth worry (mothers: $M = 1.35$, $SD = .47$; fathers: $M = 1.13$, $SD = .50$) and more worry frequency than fathers (mothers: $M = 4.12$, $SD = 1.65$; fathers: $M = 3.74$, $SD = 1.51$). Next, we

examined the roles of anxiety, positive affect, and depression in the link between childbirth worry and worry frequency on relationship satisfaction. Specifically, we proposed that both self and coparent childbirth worry and worry frequency would be related to greater perinatal anxiety, which, in turn, would be related to higher depression and lower positive affect, both of which would be negatively related to relationship satisfaction during pregnancy. On a more exploratory level, we investigated whether this proposed model worked similarly for mothers and fathers.

To test the model proposed in Figure 1, structural equation modeling (SEM) was utilized (EQS 6.1; Bentler, 2006). SEM allows for the testing of all components of the mediational model simultaneously while also modeling measurement error. Preliminary examination of the data revealed that all the assumptions of linear regression and SEM (e.g., linearity, random residuals, multivariate normality) were met with the current data set. Examination of the bivariate correlation matrix also did not reveal any problems with multicollinearity (Table 4). Prior to conducting SEM, preliminary analyses were conducted to identify potential variables that should be included as covariates. Based on the results of these analyses, age, education, and pregnancy risk were initially entered into the models as free-to-float variables. Separate models were tested for expectant mothers and fathers given that coparent scores were a part of each model.

Table 4. Correlations for individual-level study variables for fathers (N = 104 individuals)

	1	2	3	4	5	6	7	8
1. Childbirth worries	—							
2. Worry frequency	0.18	—						
3. Partner childbirth worries	0.01	-0.17	—					
4. Partner worry frequency	0.14	-0.07	0.19	—				
5. Anxiety	0.25*	0.36***	-0.08	-0.15	—			
6. Depression	0.28**	0.23*	-0.10	-0.07	0.64***	—		
7. Positive affect	-0.10	-0.21*	-0.11	0.11	-0.49***	-0.54***	—	
8. Relationship satisfaction	-0.13	-0.09	-0.09	-0.26**	-0.18	-0.39***	0.40***	—

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

Table 5. Correlations for individual-level study variables for mothers (N = 104 individuals)

	1	2	3	4	5	6	7	8
1. Childbirth worries	—							
2. Worry frequency	0.19	—						
3. Partner childbirth worries	0.01	0.14	—					
4. Partner worry frequency	-0.17	-0.07	0.18	—				
5. Anxiety	0.32**	0.42***	0.07	-0.23*	—			
6. Depression	0.23*	0.44***	0.05	-0.23*	0.61***	—		
7. Positive affect	-0.19	-0.39***	-0.04	0.09	-0.37***	-0.62***	—	
8. Relationship satisfaction	-0.08	-0.31**	-0.07	0.12	-0.07	-0.36***	0.29**	—

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

Expectant mothers' model

To test the model on expectant mothers, the data were analyzed using a structural path model. The maximum likelihood (ML) estimation method was used for the current model as there was no violation of the multivariate normality assumption. Bentler (2006) suggests that an $N:q$ ratio between 5:1 and 10:1 (where N equals the sample size and q equals the number of free parameters to be estimated) provides sufficient power. The $N:q$ is a good measure of power because it factors the complexity of the model, instead of simply considering the number of variables in the model (Jackson, 2003). The present sample represents an $N:q$ of 6:1, suggesting adequate power to test the proposed structural path model.

The participant's age, education level, and pregnancy risk were initially put in as exogenous free-to-float variables. In the mothers' model, paths were retained for (a) age with relationship satisfaction, (b) age with education, (c) education with childbirth worry, and (d) pregnancy risk with worry frequency. Including these variables in the current model ensured that any initial inequalities with participants would be accounted for by the model, which allowed for the assessment of the unique associations of the main variables in this study. Although the above paths were retained in the final model, for ease of presentation, they are not shown in Figure 2. In addition, we correlated the error terms between positive affect and depression, as we assumed that the error in self-report of both would be related. Additionally, the model with the

covariate paths was properly overidentified, with 66 known parameters to 24 unknown parameters.

The hypothesized model fit the data well, $\chi^2(41, N = 104) = 57.96$, $p = .04$, comparative fit index (CFI) = .91, root mean square error of approximation (RMSEA) = .06, CI [.01, .10]. The fit indices demonstrate this model to be a good fit of the data because the p value for the chi square is marginally significant, the CFI is above .90, the RMSEA is below .08, and the confidence interval lowest number is close to 0 and the highest number is close to 0.10. However, two modifications were suggested by the program: (a) removal of the path between positive affect and relationship satisfaction and (b) removal of the path between coparent's childbirth worry and anxiety. Making these modifications did not significantly improve the fit of the model, $\Delta\chi^2(2, N = 104) = 1.57$, $p > .05$; thus, they were retained even though the individual paths were not significant. The model suggests that mothers who reported more childbirth worry and greater worry frequency had higher anxiety level, which was, in turn, related to less positive affect and more depression, and higher reported depression was related to lower relationship satisfaction. A test of the indirect associations on relationship satisfaction was significant for both childbirth worry ($b = -.75$, $SE = .33$, $t = -2.25$, $p < .05$) and worry frequency ($b = .26$, $SE = .10$, $t = -2.76$, $p < .05$). Finally, one surprising result was that husband's worry frequency was related to lower levels of anxiety for mothers (Table 5).

Expectant fathers' model

To test the model for fathers, the data were analyzed using a structural path model. The participant's age, education level, and pregnancy risk were initially put in as exogenous free-to-float variables. In the model, a path was retained for pregnancy risk with coparent's worry frequency. Age and education were not significantly associated with any of the study variables and were removed from the model. Although the above path was retained in the final model, for ease of presentation, it is not shown in Figure 3. The

maximum likelihood (ML) estimation method was used for the current model as there was no violation of the multivariate normality assumption. In addition, the model with the covariate path was properly overidentified, with 45 known parameters to 19 unknown parameters.

The hypothesized model did not fit the data well, $\chi^2(25, N = 104) = 45.97, p = .01, CFI = .87, RMSEA = .09, CI [.05, .13]$; based on modifications suggested by the program, coparent's childbirth worry and coparent's worry frequency were both removed from the model, and a direct path was added between

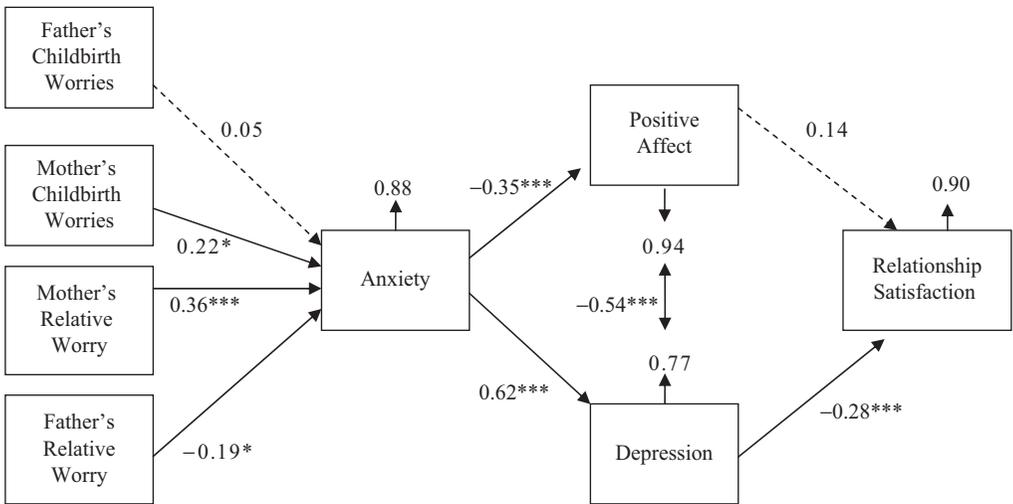


Figure 2. Final model for expectant mothers.
 * $p < .05$ ** $p < .01$ *** $p < .001$.

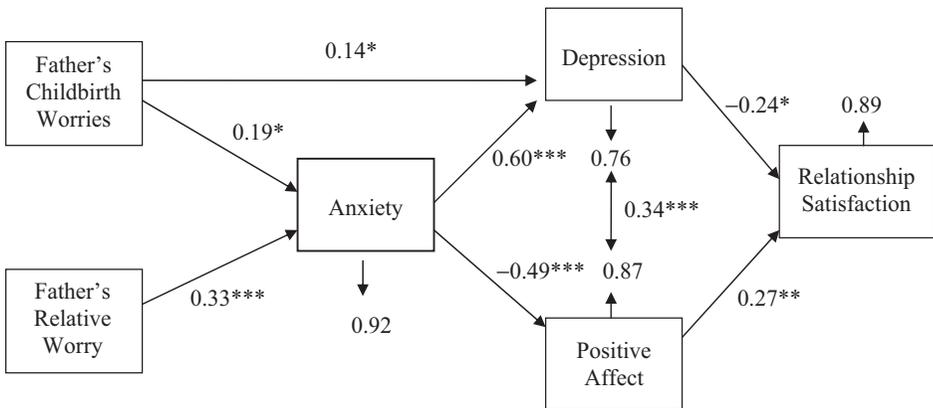


Figure 3. Final model for expectant fathers.
 * $p < .05$ ** $p < .01$ *** $p < .001$.

father's childbirth worries and depression. As shown in Figure 2, the modified model was a good fit to the data, $\chi^2(7, N = 104) = 6.92$, $p = .44$, CFI = 1.00, RMSEA = .00, CI [.00, .12]; furthermore, examination of the model revealed that all the individual pathways were significant at $p < .05$. As the initial and modified models were not nested, the Akaike information criterion (AIC) values were compared, with the lowest value suggesting that the modified model was the better fitting of the two models (AIC initial model = -4.03 ; AIC modified model = -7.08). The modified model suggests that expectant fathers' childbirth worry and worry frequency were both related to more anxiety, which was, in turn, related to less positive affect and more depression, and subsequently less relationship satisfaction. A test of the indirect association on relationship satisfaction was significant for worry frequency ($b = .23$, $SE = .09$, $t = -2.65$, $p < .05$). In addition, a direct link was found with expectant fathers' childbirth worries being related to more depression (Table 6).

Discussion

Every first-time expectant parent will tell you that pregnancy is a time filled with excitement and worry. Although worry is a natural part of the experience, the literature provides us with little more than what expectant parents worry about. In addition, of the sparse literature that has been conducted on worries, the focus has

primarily been on the expectant mother. This study is unique in the examination of worries during pregnancy in both mothers and fathers, and the potential implications that worries can have for the well-being and relationship satisfaction of soon-to-be parents. We found that overall mothers worried more about relationship and baby issues, whereas fathers worried more about security issues. Type of worry was also found to be an important predictor of well-being for both expectant mothers and fathers. However, what a partner worries about was not found to be related to any of the coparent's outcomes. Surprisingly, only one marginal result emerged for mismatch of worries between partners. Finally, expectant parents' childbirth worries and worry frequency were also examined. As expected, mothers were found to worry more about childbirth issues and reported greater worry frequency than fathers. However, childbirth worries and worry frequency were found to be important for both expectant mothers' and fathers' well-being and relationship satisfaction. We discuss the implications and future directions of the main study findings below.

Sex differences in worries

In support of the first hypothesis regarding sex differences in pregnancy worries, we found that mothers and fathers worry about different things, although the majority of both mothers and fathers reported worrying about the baby as their top worry. Expectant mothers

Table 6. Correlations for individual-level study variables for fathers and mothers (N = 208 individuals)

	Expectant fathers					
	Childbirth worries	Worry frequency	Anxiety	Depression	Positive affect	Relationship satisfaction
Expectant mothers						
Childbirth worries	0.01	-0.17	-0.08	-0.10	-0.11	-0.10
Worry frequency	0.14	-0.07	-0.15	-0.07	0.11	-0.26**
Anxiety	0.07	-0.23*	0.06	0.05	-0.09	-0.16
Depression	0.05	-0.23*	-0.07	0.05	-0.02	-0.22*
Positive affect	-0.04	0.09	0.09	-0.03	0.06	0.21*
Relationship satisfaction	-0.07	0.12	-0.09	-0.05	0.10	0.38***

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

were found to worry more about their baby's health, whereas fathers worried more about the financial implications of having a baby. As this study demonstrates, pregnancy is a period of time that is still experienced differently by expectant mothers and fathers. They have their own unique concerns about the impending arrival of the new baby, despite the emerging view of pregnancy and parenthood as an event that couples experience together. For expectant fathers, pregnancy may highlight the need to become more responsible, especially financially, for their expanding family. For expectant mothers, pregnancy may highlight potential changes in the marital relationship as they transition to parenthood and her focus shifts to caring for the baby. Moreover, where the prior literature has primarily been descriptive with reports of what expectant mothers (and less often fathers) are worried about, this study found that mothers and fathers were differentially impacted by their worries. As hypothesized, fathers who worried about security issues had higher anxiety than fathers who worried about baby issues, and mothers who worried about relationship issues reported more depression and lower positive affect than mothers who worried about baby or security issues. This study is the first to examine both worry type in expecting couples and its association with perinatal well-being.

Taken together, these sex differences in pregnancy worry are consistent with gender stereotypes about men being focused on achievement and finances, whereas women are focused more on relationships (e.g., Broverman, Vogel, Broverman, Clarkson, & Rosenkrantz, 1972). These results also expand the literature on worries during pregnancy by suggesting that it is not only important *how much* you worry but also *what* you worry about that is linked to your perinatal well-being. One reason this result is important is that well-being during pregnancy has been found to be a precursor to postpartum well-being in both mothers and fathers (Green, 1998; Morse, Buist, & Durkin, 2000; O'Hara, Schlechte, Lewis, & Varner, 1991). Thus, an important future direction will be to examine

the longitudinal impact of pregnancy worries and perinatal well-being on postpartum distress.

Relationship of spousal worries

Our study is the first, to our knowledge, to investigate the relationship of coparent's worries on their partners. Contrary to our hypothesis, however, there was a lack of findings for coparent's worry—there was no relation between coparent's worry type and partner's well-being or relationship satisfaction, and only one marginal finding for mismatch between partners on worry type and well-being. Specifically, we found that fathers reported marginally more positive affect when they mismatched with their wife on worry type. Does this relative lack of results suggest that coparent worries play no role in a partner's well-being? We think not; rather, we believe that coparent worry may play a greater role in partner well-being postpartum. After the baby is born, it may be more important for parents to “be on the same page” in terms of what their focus is—parenting the baby. However, due to the lack of literature investigating this aspect of the transition to parenthood, little is known about postpartum worries in fathers and mothers. Future studies need to examine the potential implications of coparent worries in the postpartum period.

Childbirth worries and worry frequency

In addition to overall pregnancy worries, this examined the role of childbirth worries and worry frequency. As predicted, expectant mothers reported more worries about the childbirth process and higher levels of worry frequency than fathers. However, through SEM, we found that the overall models were similar for both expectant mothers and fathers. Specifically, as individuals worry more about childbirth their anxiety increases, their well-being decreases, and, as a consequence, fathers and mothers report less satisfaction with their coparent relationship. The only major difference in the two models is that coparent's worry frequency was related to *less* anxiety for mothers—whereas neither

coparent childbirth worry nor coparent's worry frequency was related to any of the outcomes for fathers. The prior literature provides little explanation for why expectant mothers may have less anxiety if they have fathers who feel as though they worry more frequently than other expectant parents. One potential explanation may be that as fathers worry more, they are taking on more of the responsibilities and are more involved during pregnancy, which allows their wives to have lower levels of anxiety as they realize they are not alone. Additional studies are needed to explore this relationship more in-depth across the transition to parenthood.

Limitations and future directions

Several caveats of this study should be addressed. One potential concern is the operationalization of worry solely in terms of the cognitive process and separating out the emotional process of anxiety as an intermediate mechanism. Some may argue that worry and anxiety should be combined. However, as bivariate correlations in this study revealed, worry frequency and childbirth worry were only moderately correlated with anxiety. Thus, in concurrence with other researchers (e.g., Affonso et al., 1999; Bruhn, 1990), we believe that worry and anxiety are separate, distinct constructs. Another potential limitation of this study is the possible confounding of well-being in women during pregnancy. It may be that expectant mothers were experiencing heightened anxiety or depression because of the hormones associated with pregnancy—in other words, pregnant women may be more reactive to worries during pregnancy because of the hormonal changes they are experiencing. However, as recent studies have shown less support for the importance of hormones as influential predictors of postpartum depression (e.g., Righetti-Veltama, Conne-Perreard, Bousquet, & Manzano, 1998), one can assume that the women's well-being cannot be completely explained by hormonal changes. A potential strength of this study, in fact, is the examination of multiple dimensions of well-being: depression, anxiety, and positive affect. The dimension of positive affect has been

especially neglected in the literature on the transition to parenthood and worries. Positive affect is an important aspect of an individual's well-being such that positive emotions can broaden an individual's range of coping strategies, which is important to expectant parents preparing for a stressor such as the transition to parenthood (e.g., Aspinwall, 2001). Therefore, it is important to understand potential factors that could impact positive affect during pregnancy in soon-to-be mothers and fathers.

A third limitation is the cross-sectional nature of the study design. As a result, causal relationships between the predictors and outcomes cannot be determined and the structural path models need to be replicated with longitudinal data. It is possible that problems in a marriage could lead to marital worries or that worries could lead to marital problems. However, given the constraints of this study, the temporal nature of these relationships is unclear. Although this study was one of the first to examine the perinatal implications worries during pregnancy have on mothers and fathers, additional research is needed to expand this work. Because this study only examined worries during the pregnancy period, it would be beneficial for future studies to investigate how the process of worrying changes across the transition to parenthood. For example, we found that expectant mothers worried about the baby's health, but expectant fathers' top worry concerned money. After a couple's baby is born, little is known about how worries affect the couple. It may be that worries become more differentiated between fathers and mothers as they encounter different experiences in parenting, or they may become more similar as they are both dealing with the needs of the baby. In addition, during pregnancy a majority of the worries that parents are concerned with are about potential unknowns that could happen with the baby, delivery, or with adjustment to parenthood. However, after the baby is born, less of the worries that parents are confronted with are about unknown possibilities and more about real concerns they are facing. Therefore, it is possible that due to the nature of worries during pregnancy compared to the

postpartum period, the impact of worries on parent's well-being could play out differently. A final limitation concerns the nature of the sample used. Because the study consisted primarily of White, middle-class couples experiencing their first pregnancy, it is unclear how much these results would generalize to other couples. It may be that middle-class couples have more resources to deal with the transition than those with lower incomes or education and therefore may experience fewer worries or worries of a different nature than other demographics. Therefore, additional studies are needed to examine the impact of social context on worries during pregnancy.

In addition, although there is much literature on the transition to parenthood and postpartum depression, it is unclear if worrying during pregnancy or in the postpartum period could lead to more postpartum distress. However, one recent study has found that perinatal levels of distress in both mothers and fathers were predictive of postpartum distress (Morse, Buist, & Durkin, 2000). Despite the fact that the literature suggests worrying can be beneficial because of the potential to evoke coping responses, it may be that worrying about things out of your control could lead to worse outcomes. It is also unclear how discussion of worries within the couple could relate to marital satisfaction. Perhaps knowledge about a partner's worries (albeit different from one's own worries) could be an indicator of communication between the partners, and being able to comfort a partner who is worried about an issue could represent a specific type of spousal support that is important during stressful situations. Further expansion in the examination of coparent worries is needed. One potentially interesting future direction would be to examine the coparent's perspective of what (and how much) they believe their partner worries about to determine whether they are aware of their partner's worries. Relatedly, it would be fruitful to examine the impact of one coparent's mental health on their partner's well-being—as it may be that the topic of a coparent's worries is less important than how much distress they experience from their worrying. Finally, in the future it will be useful to examine what role,

if any, is played by agreement versus disagreement on worries. In other words, does it matter if partners worry about the same things or different things? As our study and these ideas for future research suggests, more systematic dyadic research is needed on the role of coparent effects.

Another important aspect of future research on worries would be to examine worries in a more systematic way. For example, it would be helpful to have more specific information from participants about their worries. Instead of only getting a list of the participant's top worries, it might be beneficial to have information about the amount of worry on different types of issues and how much of a threat they perceive each type of worry to be. In addition, it would also be helpful to have participants rate how much control they felt they had over each type of worry. For example, a participant who is worried about their baby's health may feel that it is completely out of their control, but an expectant parent who is worried about preparing for the baby may feel that is a situation that is under their control. Perceived controllability of worries may help to clarify which types of worries could be detrimental to the mental health of an expectant parent.

Conclusion

This study is the first, to our knowledge, that has systematically examined the role of pregnancy worries on well-being and relationship satisfaction in both expectant mothers and fathers. Although there is an abundant literature on the transition to parenthood, a majority of the studies have focused primarily on the postpartum period with less attention on perinatal well-being and relationship satisfaction. Therefore, this study adds to the literature by examining the potential factors that could be related to first-time parents during the pregnancy period. We found that while both personal worries and childbirth worries were important, coparent's worries did not play a major role in their partner's perinatal well-being or relationship satisfaction. Furthermore, our models suggest that the cognitive aspect of worry is related to the

emotional response, which in turn is related to relationships. These findings support and extend the prior literature that suggests that personal well-being, specifically depression and anxiety, can be related to relationship satisfaction (e.g., Whisman, Uebelacker, & Weinstock, 2004). The next step is to determine if these processes carry over to the postpartum period of the transition to parenthood.

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