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Authors

Congdon, Jayme L

Adler, Nancy E

Epel, Elissa S

et al.

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A Prospective Investigation of Prenatal Mood and Childbirth Perceptions in an Ethnically Diverse, Low-Income Sample

Jayme L. Congdon, MD, MS, Nancy E. Adler, PhD, Elissa S. Epel, PhD,
Barbara A. Laraia, PhD, MPH, RD, and Nicole R. Bush, PhD

ABSTRACT: Introduction: Few studies have examined prenatal mood as a means to identify women at risk for negative childbirth experiences. We explore associations between prenatal mood and birth perceptions in a socioeconomically diverse, American sample. **Methods:** We conducted a prospective study of 136 predominantly low-income and ethnic minority women of mixed parity. Prenatal measures of perceived stress, pregnancy-related anxiety, and depressive symptoms were used to predict maternal perceptions of birth experiences 1 month postpartum, using the childbirth experience questionnaire (CEQ; 1). **Results:** After adjusting for sociodemographic variables and mode of delivery, higher third-trimester stress predicted worse CEQ total scores. This association was predominantly explained by two CEQ domains: own capacity (e.g., feelings of control and capability), and perceived safety. Pregnancy-related anxiety and depressive symptoms correlated with perceived stress, though neither independently predicted birth experience. An unplanned cesarean delivery was associated with a worse CEQ total score. Vaginal delivery predicted greater perceived safety. Altogether, sociodemographic covariates, mode of delivery, and prenatal mood accounted for 35 percent of the variance in birth experience ($p < 0.001$). **Discussion:** Our finding that prenatal stress explains a significant and likely clinically meaningful proportion of the variance in birth experience suggests that women perceive and recall their birth experiences through a lens that is partially determined by preexisting personal circumstances and emotional reserves. Since childbirth perceptions have implications for maternal and child health, patient satisfaction, and health care expenditures, these findings warrant consideration of prenatal stress screening to target intervention for women at risk for negative birth experiences. (BIRTH 2016)

Key words: birth, prenatal stress, pregnancy-related anxiety, prenatal depression

Childbirth is the leading reason for hospitalization in the United States, and maternal perceptions of this experience have important implications for women and their offspring. Empirical data on the prevalence of

negative birth experiences is lacking, though we know that it predicts poor mental health outcomes, including postpartum depression (2) and post-traumatic stress disorder (3). Following a traumatic birth, women are

Jayme L. Congdon is a Resident Physician in the Department of Pediatrics at Stanford University, Stanford, CA, USA and was a Medical Student at the University of California Berkeley–University of California San Francisco Joint Medical Program, Berkeley, CA, USA, at the time this research was conducted; Nancy E. Adler is a Professor of Psychiatry at the University of California San Francisco; Elissa S. Epel is an Associate Professor of Psychiatry at the University of California San Francisco; Barbara A. Laraia is an Associate Professor of Community Health and Human Development in the School of Public Health at the University of California Berkeley, CA, USA; Nicole R. Bush is an Assistant Professor of Psychiatry and Pediatrics at the University of California San Francisco.

Address correspondence to Jayme L. Congdon, MD, MS, Department of Pediatrics, Stanford University, Lucile Packard Children's Hospital, 725 Welch Road MC 5906, Palo Alto, CA 94304, USA; email: pedsres@stanfordchildrens.edu.

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more likely to fear subsequent childbirth (4) and have lower future fertility rates (5). These effects on perinatal mood have the potential to influence offspring outcomes, as perinatal mood predicts intention to breastfeed (6), maternal–infant attachment (7), offspring emotion regulation and social engagement (8), and child cognitive function (9). Health outcomes aside, negative obstetric experiences have an economic influence as well. Perceived poor provider–patient communication, a key component of birth experience (10), leads to higher rates of malpractice suit intention after perceived adverse events (11). Mental health service provision for women and support services for their children constitute additional fiscal burden. Collectively, the maternal and child health burden and the economic burden support the need to further characterize and minimize negative birth experiences.

Most studies examining the components of childbirth perceptions have focused specifically on intrapartum factors. For instance, an unplanned cesarean delivery and other medical complications reliably predict negative experiences (4,12,13). Another commonly cited predictor is the magnitude of discrepancy between expected and actual experiences (14,15), with emergency cesarean delivery and medical complications as examples of deviations from expectations. The same may be true for pain, as a review on obstetric patient pain concluded that the discrepancy between anticipated pain and postnatal pain recall was a better predictor of birth experience than was the postnatal pain score alone (10). Remarkably, the practitioner–patient relationship has been demonstrated to be an even more powerful predictor of patient satisfaction than both pain and medical complications (10). Interventions that enhance social support have been effective at improving birth experience (16), even when compared with analgesia interventions (10). Observational studies provide additional evidence for the social support role of medical practitioners (17,18). One facet of the patient–provider relationship is the degree to which laboring women participate in medical decision-making. Perceptions of involvement in clinical decisions contribute to a sense of control over labor, another important aspect of birth experience (12,14,15,17,19). Overall, psychosocial characteristics such as perceived support and sense of control appear to be prominent intrapartum predictors of birth experience. Many studies suggest that psychosocial factors in the months preceding delivery may be relevant as well (4,17,18,20,21).

Anxiety and depressive symptoms have been shown to be relatively stable from pregnancy through postpartum (22) and are thus likely to color women’s perceptions and memories of childbirth. Yet there has been relatively little investigation into the contributions of prenatal mood or preexisting psychological distress to

birth experiences. In one study, overall psychological health in early pregnancy predicted types of dissatisfaction and emotional reactions during labor (17). Others have explored various measures of antenatal anxiety. High levels of generalized worry (18) and fear of childbirth (4,20) during pregnancy predicted a negative birth experience in primiparous women. Additionally, women with higher antenatal state anxiety more frequently recalled birth as a traumatic experience (21). Given evidence that prenatal mood may predict birth perceptions, pregnancy may be an appropriate time for interventions designed to improve birth experiences. However, for women reporting high fear of childbirth, prenatal group therapy and guided relaxation training have yielded mixed results (23–25). Prenatal mindfulness training shows promise in improving birth experience (26) and postnatal mood (27,28), though these studies have generally included small samples comprised of predominantly white, middle-to-upper socioeconomic status (SES) women, thus limiting generalizability. There is a need to broaden this limited literature to further elucidate the relation between prenatal mood and birth experience, particularly given the high prevalence of dysphoric mood during pregnancy.

Symptoms of anxiety and depression are pervasive among pregnant women, with estimated rates of 54 percent for anxiety and 37 percent for depressive symptoms (29). Clinically diagnosed mood disorders are less prevalent though still relatively common during pregnancy (30). Little is known about the epidemiology of prenatal mood in vulnerable populations such as ethnic minorities or low-income women, though one study of 166 pregnant African-American and Latina women found that more than half of the women reported symptoms that were consistent with a clinical diagnosis of depression (7). Minorities are more likely to live in poor communities, where they are exposed to a range of chronic stressors. They may also experience more frequent or stressful life events and have fewer social supports to buffer the effects of stress on mental health (31), both of which are associated with worse perinatal mood (32). In summary, limited data suggest that ethnic minorities and women of low SES experience a higher risk of dysphoric prenatal mood. Yet data on childbirth perceptions in these women is sparse, making it imperative that women from diverse backgrounds be included in investigations of prenatal mood and birth experience.

American women as a whole represent an additional understudied group with regard to birth experience, with only a few published studies on American samples (15,21,33). Our current understanding of birth experience is almost entirely based upon Northern European or Australian studies. Although the literature suggests that birth experiences across the developed world do not significantly differ, better characterizing the

experiences of socioeconomically vulnerable American women could have implications for clinical quality improvement (10).

To fill the gaps in these literatures, we examined the relation between prenatal mood and birth perceptions within a sample of ethnically and socioeconomically diverse American women. To understand the range of factors involved in childbirth perceptions, we analyzed the relative contributions of three common types of negative mood during pregnancy: stress, pregnancy-associated anxiety, and depressive symptoms. Based on the limited but consistent literature that generalized anxiety and fear of birth relate to birth experience, we hypothesized that both global stress and pregnancy-associated anxiety would predict birth experience in our sample. Little is known about prenatal depression as it pertains to birth experience, though women with depressive disorders report lower levels of satisfaction with care (34), and women with worse depressive symptoms are likely to have lower self-efficacy (35). In the context of the peripartum period, we expected this relation to manifest as more negative birth experiences, such as a lower sense of control.

Methods

Participants

Participants were drawn from the Maternal Adiposity, Metabolism, and Stress study, a controlled trial of a mindfulness-based small-group intervention to reduce stress and prevent excess weight gain during pregnancy. This sample was recruited from prenatal clinics and community centers throughout the San Francisco Bay Area in California, USA. As a result of the study focus on weight gain in populations experiencing high stress levels, participants were overweight or obese and predominantly low-income. Inclusion criteria were that women were 18–45 years of age, 8–23 weeks pregnant with a singleton gestation, had a BMI greater than 25 kg/m², and had household incomes less than 500 percent of the federal poverty level, a U.S. indicator of low- to middle-income. Medical conditions that may interfere with baseline body composition (e.g., polycystic ovarian syndrome, preexisting diabetes, active substance abuse) were exclusionary.

Participants with live births were contacted postpartum for recruitment into the stress, eating, and early development follow-up study of offspring. The subset of enrolled women who completed the third trimester and the early postnatal questionnaires were included in these analyses. Of the 190 women who completed third trimester questionnaires, 145 (76%) enrolled in the postnatal follow-up study, and 136 (72%) completed postnatal

questionnaires. There were no differences in baseline characteristics or prenatal mood between the women who consented to postnatal follow-up as compared with those who declined or who were lost to follow-up. Table 1 provides a detailed description of this study's sample demographic and obstetric characteristics, and details are described below in the Results section.

Measures

Participants completed prenatal questionnaires on paper. The postnatal questionnaire was administered verbally and in person at a target timeframe of 1 month postpartum.

Table 1. Sociodemographic and Delivery Characteristics of MAMAS-SEED Study Participants (N = 136), California, 2010–2013

	Mean [SD] or n (%)
Maternal age (years)	28.2 [5.6]
Primiparous	57 (41.9%)
Married or partnered	92 (67.6%)
Maternal education	
Less than high school	13 (9.6%)
High school grad	23 (16.9%)
Some college/vocational	73 (53.7%)
College degree or higher	27 (19.9%)
Household income (\$1,000/year)	\$23.6 [20.0]
Race/ethnicity	
African American	55 (40.4%)
Latina	41 (30.1%)
White	20 (14.7%)
Other/Multi-ethnic	17 (12.5%)
Asian	3 (2.2%)
Mode of delivery	
Vaginal	100 (73.5%)
Cesarean delivery	36 (26.5%)
Planned cesarean delivery	17 (47.2%)
Unplanned cesarean delivery	19 (52.8%)
Delivery location	
Private hospital	74 (54.4%)
University-affiliated hospital	33 (24.3%)
Public hospital	27 (19.9%)
Home	2 (1.5%)
Maternal BMI (kg/m ²)	30.7 [5.0]
Birthweight (kg)	3.36 [.43]
Gest. age at birth (weeks)*	39.5 [1.6]
Weeks postpartum at survey	5.4 [2.7]

*Nine (7%) delivered preterm (i.e., before 37 weeks); two of whom delivered in the early preterm period (i.e., before 32 weeks); MAMAS = Maternal Adiposity, Metabolism, and Stress; SEED = Stress, Eating, and Early Development.

Women reported age, BMI, parity, marital/partnered status, race and ethnicity, education, and annual household income. Household income was converted into a percent rate of the U.S. federal poverty level, which adjusted for household size, which we approximated from the number of children in the household and marital/partner status, assuming those with partners were cohabitating. Assignment to the prenatal intervention or control group was coded as a dichotomous variable. Although intervention effects were not the focus of the present analyses, we expected that group participation might relate to birth experience and thus included it in our multivariate model.

Women reported on three measures of prenatal mood. Cohen's Perceived Stress Scale (36), a widely used and well-validated assessment, was used to measure generalized stress and coping over the previous month. It consisted of 10 items on a 5-point Likert scale. Positively worded items were reverse coded so that a higher score indicated worse symptomatology. The Pregnancy-Related Anxiety Scale assesses worry about a woman's own health, her baby's health, labor and delivery, and newborn care (37,38). Participants responded to ten items on a 4-point Likert scale. The Patient Health Questionnaire (39), a depression screening tool commonly used in primary care settings, has been validated in pregnant women (40). The nine questions are drawn from the Diagnostic and Statistical Manual Fourth Edition criteria for depression. Each item assesses how often participants were bothered by various problems, with responses ranging from 0 to 3 (*not at all, several days, more than half the days, or nearly every day*). Mean scores were computed for each of the prenatal mood questionnaires as long as more than 75 percent of the items in the respective scale were answered.

Birth experience was measured using the Childbirth Experience Questionnaire (CEQ; 1), a 22-item assessment of four birth experience domains. The *own capacity* subscale assessed feelings of control or internal strength and pain (e.g., "I felt capable"), and hereafter will be referred to as "sense of control." *Professional support* items assessed practitioner care and communication (e.g., "my provider understood my needs"). *Perceived safety* items assessed sense of security and memories (e.g., "I felt scared"). *Participation* assessed choice and personal influence (e.g., "I could choose the delivery position"). Nineteen of the twenty-two items consisted of 4-point Likert scale response options. The three items assessing memory of labor pain, level of control, and sense of security were measured on 100-mm visual analog scales, which were transformed to categorical values using cutoffs (0–40 mm = 1, 41–60 mm = 2, 61–80 mm = 3, 81–100 mm = 4) published by Dencker et al (1).

Positively worded items were reverse coded so that a higher score indicated a more positive experience. Mean scores were computed for each of the birth experience subscales as long as more than 75 percent of the items in the respective subscale were answered.

The CEQ was originally validated in Sweden and has not been utilized in a primarily English-speaking sample. The authors provided us with an unvalidated English version, which we modified slightly for our sample (i.e., "midwife" was replaced with "provider" and "during the dilation stage" was simplified to "during labor"). Internal consistency of the *sense of control*, *professional support*, and *perceived safety* subscales was good (Cronbach's alpha = 0.71, 0.91, and 0.72, respectively; see Table 2). In contrast, the three-item subscale, *participation*, had poor internal consistency ($\alpha = 0.50$) in our sample.

We further tested scaling assumptions by exploring the CEQ's ability to discriminate between groups known to differ with regard to birth experience: spontaneous vaginal compared with operative vaginal and cesarean deliveries. Women with nonoperative deliveries reported higher scores on the *own capacity* ($t(135) = 2.2, p < 0.05$), *perceived safety* ($t(135) = 4.8, p < 0.001$), and *participation* ($t(135) = 4.1, p < 0.001$) subscales. As in the original validation study, visualization of the *professional support* score distribution revealed a substantial ceiling effect, limiting its sensitivity to these known group differences ($t(135) = 1.67, p = 0.10$). Keeping in mind the limitations of low internal consistency for *participation* and lack of discrimination by delivery type for *professional support*, we proceeded with our analyses utilizing the subscales as they were originally published.

Table 2. MAMAS-SEED Study Participants' Birth Experience and Prenatal Mood Scores; Reliability of CEQ Subscales (N = 136); California, 2010–2013

	Mean	SD	Cronbach's α
CEQ total score*	3.1	0.48	0.86
CEQ sense of control*	2.8	0.55	0.71
CEQ prof. support*	3.6	0.58	0.91
CEQ perceived safety*	3.2	0.59	0.72
CEQ participation*	3.1	0.76	0.50
PSS [†]	1.6	0.67	
PRA*	2.0	0.61	
PHQ [‡]	0.6	0.48	

*Possible range 1–4. [†]Possible range 0–4. [‡]Possible range 0–3. MAMAS = Maternal Adiposity, Metabolism, and Stress; SEED = Stress, Eating, and Early Development; CEQ = Childbirth Experience Questionnaire; PSS = Perceived Stress Scale; PRA = Pregnancy-related Anxiety; PHQ = Patient Health Questionnaire.

Statistical Analysis

Analyses were performed, using IBM SPSS Statistics Version 22 (IBM Corp., Armonk, NY, USA) after data were assessed for normal distribution and outliers. Bivariate correlations between all potential covariates, independent variables and birth experience variables were assessed before model building. One-way ANOVA was used to identify differences in birth experiences between women who delivered by way of planned versus unplanned cesarean delivery. Finally, sociodemographic covariates, mode of delivery, and prenatal mood variables were entered into a multiple linear regression model in stepwise fashion to determine their relative contributions to the overall prediction of birth experience. The multivariate regression model was tested separately for five dependent variables: the CEQ total score and four CEQ subscale means.

Results

Table 1 shows sample descriptive statistics and delivery details. Participants were 18–42 years of age. The majority were married or partnered and multiparous. Approximately 27 percent had completed high school or less, 54 percent had some college or vocational training, and 20 percent had earned a college degree. Annual household income was \$0–\$86,000 (Median = \$19,000) with the majority of the sample falling below the U.S. poverty level for a family of four at the time of data collection (\$22,550 in 2013; 41). Eighty-five percent of women self-reported as ethnic or racial minorities. The cesarean delivery rate was 27 percent, which was below the 2012 U.S. and California rates of 33 percent but representative of the county regions we sampled (range 26–29%; 42). Average delivery timing was at 39.5 weeks.

Bivariate associations between primary predictors and outcomes are presented in Table 3. Of note, prena-

tal stress, pregnancy-related anxiety, and depressive symptoms were at least moderately inter-correlated. An unplanned cesarean delivery was associated with a worse birth experience as compared with a planned cesarean delivery. Mode of delivery was therefore included in regression models as two dummy coded variables; a planned cesarean delivery was the reference group. Participation in the study intervention was associated with one domain of birth experience, *sense of control*, and was thus included as a covariate in the final model. Race/ethnicity was coded and analyzed as three separate dummy coded variables (i.e., African American, Latina, and Caucasian, with Other as the reference group).

Linear regression results for the full model including covariates and prenatal mood predictors are shown in Table 4. Race, age, parity, and BMI were not related to birth experience. An unplanned cesarean delivery was associated with worse *sense of control*, and a vaginal birth predicted higher *perceived safety* during childbirth. Within this fully adjusted model, after accounting for covariates and mood, intervention group assignment predicted lower *sense of control*. Elevated third trimester perceived stress uniquely predicted both the *sense of control* and *perceived safety* domains of birth experience. Although bivariate correlations suggested that anxiety and depression were related to birth experience, neither accounted for unique variance in childbirth experience. Altogether, sociodemographic covariates, mode of delivery, and prenatal stress and mood accounted for 35 percent of the variance in total CEQ scores.

Discussion

To our knowledge, this is the first study to prospectively examine multiple dimensions of prenatal mood to understand their relative contributions to perceptions of labor and delivery. Our hypothesis was partially

Table 3. Bivariate Correlations Between Prenatal Mood and Birth Experience in the MAMAS-SEED Study (N = 136), California, 2010–2013

	CEQ-T	CEQ-C	CEQ-PS	CEQ-S	CEQ-P	PSS	PRA
CEQ-C	0.86***						
CEQ-PS	0.76***	0.48***					
CEQ-S	0.88***	0.66***	0.60***				
CEQ-P	0.61***	0.35***	0.36***	0.43***			
PSS	−0.34***	−0.42***	−0.19*	−0.25**	−0.14		
PRA	−0.24**	−0.20*	−0.15†	−0.20*	−0.22**	0.35***	
PHQ	−0.19*	−0.19*	−0.18*	−0.13	−0.09	0.61***	0.27**

†p < 0.10, *p < 0.05, **p < 0.01, ***p < .001. MAMAS = Maternal Adiposity, Metabolism, and Stress; SEED = Stress, Eating, and Early Development; CEQ = Childbirth Experience Questionnaire with subscales, T = Total Score, C = Sense of Control, PS = Professional Support, S = Perceived Safety, P = Participation; PSS = Perceived Stress Scale; PRA = Pregnancy-related Anxiety; PHQ = Patient Health Questionnaire.

Table 4. Multiple Linear Regression of Birth Experience, Prenatal Mood, and Sociodemographic Covariates from the MAMAS-SEED Study (N = 136), California, 2010–2013

<i>CEQ</i> (β)	<i>Total score</i>	<i>Sense of control</i>	<i>Prof. support</i>	<i>Perceived safety</i>	<i>Particip.</i>
Income ^a	−0.16 [†]	−0.11	−0.16	−0.12	−0.12
African American	0.12	0.04	0.07	0.17	0.12
Latina	0.03	0.02	−0.04	0.06	0.07
Caucasian	0.10	0.05	0.03	0.06	0.22*
Parity ^b	−0.10	−0.17*	0.04	−0.08	−0.06
Age	0.00	−0.04	0.03	0.01	0.01
BMI	−0.07	−0.10	0.06	−0.11	−0.05
Group ^c	−0.14 [†]	−0.23**	−0.04	−0.09	0.01
Vaginal	0.15	−0.02	0.10	0.26*	0.20 [†]
Unplanned cesarean	−0.24*	−0.28**	−0.08	−0.16	−0.21 [†]
PSS	−0.32**	−0.47***	−0.09	−0.25*	−0.07
PRA	−0.05	0.04	−0.07	−0.05	−0.13
PHQ	−0.03	0.03	−0.10	0.02	−0.01
Total R ²	0.35***	0.37***	0.12	0.29***	0.24**

[†] $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. ^aPercent of the U.S. poverty level. ^bMultiparous coded as 0; primiparous coded as 1. ^cControl coded as 0; intervention coded as 1. MAMAS = Maternal Adiposity, Metabolism, and Stress; SEED = Stress, Eating, and Early Development; CEQ = Childbirth Experience Questionnaire; PSS = Perceived Stress Scale; PRA = Pregnancy-related Anxiety; PHQ = Patient Health Questionnaire.

supported. We had expected that all three mood variables (i.e., perceived stress, pregnancy-associated anxiety, and depression) would relate to birth experience, yet when considered together, only stress predicted a worse experience. The perceived stress construct differs from objective measures of stress that query about the occurrence of specific stressful events (e.g., trauma, divorce). *Perceived stress* may indicate more frequent or severe stressful events, or a heightened sensitivity to environmental stressors. The *reserve capacity model* provides potential rationale for our findings, positing that increased exposure to stress incrementally diminishes intrapsychic and interpersonal resources needed to cope with subsequent stressors, increases negative emotion, and decreases positive emotion (43). Applying this model to our findings, women who were exposed to greater stress prenatally may have had less emotional reserve to cope with the stress of labor and delivery. Furthermore, they may have had more negative effect, which could influence how they perceive and recall emotions and events from childbirth. Drawing upon the concept of individual variation in stress sensitivity, we also consider the possibility that women who reported poorer ability to cope with stressors during pregnancy might be more susceptible or reactive to stressful circumstances—suboptimal labor support or delivery complications as examples.

The finding that pregnancy-associated anxiety and depression were unrelated to birth experience was unexpected given evidence that greater fear of child-

birth predicts negative birth experiences (18) and theory suggesting depression would play a role in birth experience (34,35). However, findings suggest that stress is most predictive of birth experience. Notably, scores on our three mood measures were moderately correlated, demonstrating that many women who reported depressive symptoms or expressed pregnancy-related worry also felt generally stressed. It may be that pregnancy-related anxiety is more specific to the perinatal period, whereas our findings suggest that perceived stress more broadly predicts risk for a negative birth experience.

Women of lower SES bear an increased burden of stressors during pregnancy (31). We found that greater stress predicted worse birth experiences within our predominantly low-income sample, after adjusting for individual income. Individual income did not uniquely predict birth experience in our sample, although this may have been because of the limited range of income for our participants. The relation between SES and patient expectations is controversial and confounded by methodological challenges (44), although some studies have shown that people of lower SES are less likely to file malpractice claims (11,45). Findings from our study may be useful for understanding the unique roles of income and stress on birth experience, particularly within diverse samples.

The generalizability of these findings may be limited due to the relatively small sample size and sample characteristics. We oversampled racial/ethnic minority

and low-income women, yet our sample is more representative of U.S. women in that regard as compared with the existing birth experience literature. Our study also included only overweight or obese women, and prepregnancy BMI has been associated with factors that could influence birth experience (e.g., pregnancy complications, cesarean deliveries, macrosomia) (46,47); however, BMI was unrelated to birth experience in our models. In the context of an estimated overweight/obesity rate of 42 percent for pregnant women in the United States (48), these findings have a strong potential to inform work with nearly half of the U.S. population of pregnant women. The inclusion of primiparous and multiparous women revealed that parity was not related to birth experience in our sample. We did not have information on women's previous birth experiences, thus future research could build on our study by exploring both the number of prior births and prior birth experiences.

Most interventions designed to improve birth experience and patient satisfaction have narrowly focused on intrapartum clinical support. Broadening the scope to the prenatal period reveals a need for long-term policy objectives (e.g., maternity leave policy) designed to alleviate common stressors for pregnant women, particularly low-income women. On an individual level, there is a need to investigate interventions to improve coping with chronic stress and adversity. An intervention that improves emotion regulation and mood in expectant mothers may have benefits beyond the birth experience, as demonstrated by evidence that prenatal psychosocial stress affects a variety of important health outcomes for mothers and children, such as timing of delivery (49) and labor complications (50). Likewise, we urge researchers investigating prenatal stress reduction interventions for outcomes other than birth experience to include a measure of birth experience as a potential moderator of maternal mental health, birth, or offspring developmental outcomes.

These results have clinical implications as well. Prenatal care practitioners routinely screen for depressive symptoms to identify women at risk for postpartum depression. Our findings strengthen the rationale for prenatal mood screening and point to the possibility that expanding screening to include global perceived stress may help identify women who could benefit from an intervention designed to improve coping with stress during pregnancy and delivery. In addition, our data were consistent with the well-documented relation between mode of delivery and birth experience, supporting the need to reduce the number of medically unnecessary cesarean deliveries.

In conclusion, our finding that prenatal stress explains a significant and likely clinically meaningful proportion of the variance in birth experience suggests that women perceive and recall childbirth through a

lens that is in part determined by preexisting personal circumstances, mode of delivery, and emotional reserves. Since birth experience has implications for maternal and child health, patient satisfaction, and health care expenditures, we recommend further characterization of the prenatal period as it pertains to birth experience. We also suggest consideration of perceived stress screening to identify women at risk for negative birth experiences.

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