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New Mothers Feelings of Disappointment and Failure Following Cesarean Delivery

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INTRODUCTION

Before first childbirth women may have unrealistically rosy expectations for the labor and delivery process and expect to have an easy, uneventful labor culminating in a spontaneous vaginal delivery.^{1–2} The reality of childbirth, at least in the US, is that nearly a third of women deliver by cesarean and an additional three percent may undergo instrumental vaginal delivery.³ Women who do not have a spontaneous vaginal delivery at first childbirth may have mixed feelings after the delivery – happy about their new baby, but sad or disappointed about the labor and delivery process.^{4–5} Family and friends may have difficulty understanding a new mother's feelings after cesarean or instrumental vaginal childbirth.^{4–5}

Many of the previous studies of childbirth experience have been small sample qualitative investigations.⁵ These studies have provided valuable insights about women's thoughts and feelings after cesarean delivery. However, they generally do not take into account relevant confounders, such as women's pre-delivery mental state. Women who are depressed during pregnancy are at higher risk for a negative childbirth experience.⁶ Other pertinent confounders that previous studies of childbirth experience have generally not addressed include whether the cesarean was planned or unplanned, whether the vaginal delivery was spontaneous or instrumental, and maternal and newborn complications. Maternal complications such as vaginal tearing at instrumental delivery or uterine infection after cesarean delivery may have negative effects on women's feelings about their childbirth. Newborn complications such as a low Apgar score, assisted ventilation, or serious infection may also affect how women feel about their childbirth.

The primary aim of this study was to investigate mode of delivery in relation to women's postpartum feelings about their first childbirth, taking into account a variety of potential confounders including pre-delivery depression and social support, pregnancy intendedness, and maternal and newborn childbirth complications. Our focus on mother's feelings, as opposed to cognitions, builds on recent advances in the understanding of the importance of affect in human judgment and decision-making.⁷ For this study we developed a new birth experience scale that focuses on mother's feelings about their childbirth, including several

items to measure aspects of self-esteem. In addition, we investigated the association of scores on this scale with postpartum depression, maternal-child bonding, and plans to have additional children.

METHODS

Participants

The First Baby Study was a prospective, longitudinal cohort study designed to investigate the association between mode of first delivery and subsequent childbearing. Participant recruitment began in early 2009 and continued until the spring of 2011. Participants were eligible if they were pregnant and expecting their first child, aged 18 to 35, English or Spanish-speaking and planning to deliver in a hospital in Pennsylvania. Women were excluded if they had a prior pregnancy of 20 weeks gestation or longer, planned to have a sterilization procedure during their delivery hospitalization, planned to deliver at home or in a birthing center not attached to a hospital, or planned to have their child adopted.

This study was approved by the institutional review board (IRB) of the College of Medicine, Penn State University, as well as the IRBs of all hospitals and other institutions involved with participant recruitment. Participants were recruited from a variety of settings throughout the state of Pennsylvania, including childbirth education classes, hospital tours and low-income clinics.

Measurement

Participants completed the baseline interview when they were at least 30 weeks pregnant and were then interviewed at 1, 6, 12, 18, 24, 30 and 36 months postpartum. There were 3,080 women who were enrolled and completed the baseline interview and 3,006 women who completed both the baseline and 1 month postpartum interviews. Women lost to follow-up were more likely to be low-income and minority, as described previously.⁸ There were 3 women who suffered a stillbirth after the baseline interview and were not retained as study participants. The resulting sample was generally more educated, more likely to be married, and less ethnically diverse than women aged 18 to 35 delivering their first child in the state of Pennsylvania as a whole.⁸ All participants delivered at 34 weeks gestation or later.

The FBS Birth Experience Scale was developed based on focus groups and qualitative studies of women shortly after childbirth. During the 1-month postpartum interview respondents were asked “Thinking back to right after you had your baby (or if unconscious, after you woke up), please tell me how you felt, using the following scale – extremely, quite a bit, moderately, a little bit and not at all.” There were 16 feelings - such as “exhausted”, “disappointed”, “like a failure” and “proud of myself”. Total scores could range from 16 to 80, with higher scores indicating a more positive experience. The overall Cronbach’s Alpha was 0.74. The corrected item-total correlations for the 16 items ranged from .27 to .52. The Cronbach’s alphas-if-item-deleted were all lower than the overall Cronbach’s alpha, indicating that all of the items contributed appropriately to the overall Cronbach’s alpha.

Covariates included maternal age, race/ethnicity, education, insurance coverage, marital status, pregnancy intendedness, depression during pregnancy, social support during

pregnancy and maternal and newborn complications. As part of the baseline interview participants completed the Edinburgh Depression Scale, which has been validated for use during as well as after pregnancy.^{9–10} The Edinburgh Depression Scale is a 10 item instrument which asks respondents to report how they have been feeling in the past 7 days, including today. We changed the last item “The thought of harming myself has occurred to me” to “The thought of harming myself or others has occurred to me” because there have been instances in which women suffering from postpartum depression have harmed others, rather than themselves.¹¹ The overall Cronbach’s Alpha was 0.81. Total scores could range from 0 to 30. We used a cutoff score of 12 or higher as indicative of probable depression during pregnancy. Participants also completed a 5-item shortened version of the Medical Outcomes Study Social Support Scale.¹² The Cronbach’s Alpha for this measure was 0.88. Total scores could range from 5 to 25, with higher scores indicating higher levels of social support. Total scores were categorized as follows; 5–19 (low social support), 20–23 (medium social support), and 24–25 (high social support).

As part of the 1-month postpartum interview participants were asked “Did you have any complications as a results of your delivery?” and “Did your baby have any complications?” Respondents answered “yes” or “no” to each of these questions. The Edinburgh Postnatal Depression Scale was re-administered at the 1-month postpartum interview. A score of 12 or above was used to indicate probable postpartum depression.⁹ In addition, the participants completed a measure of maternal-child bonding, which contained 13 items from the Postpartum Bonding Questionnaire.¹³ We used a shortened version of this instrument to reduce respondent burden. Total scores could range from 13 to 65, with higher scores indicating higher levels of maternal reported mother-child bonding. The corrected item-total correlations ranged from .24 to .63 and all of the items contributed appropriately to the overall Cronbach’s alpha. The overall Cronbach’s Alpha for this scale was 0.77. The mean was 60.3 (SD = 3.8), the median was 61.0 and the mode was 65. Women who scored at or above the median (53.5%) were compared to those who scored below the median (46.5%). Participants were asked several questions about plans for subsequent childbearing - including “Looking to the future, would you, yourself, want to have another baby at some point in the future?”.¹⁴ Responses to this question were dichotomized as “yes” in comparison to “no” or “don’t know”.

Analysis

We used one-way analysis of variance (ANOVA) to measure the association between mode of delivery and women’s total score on the FBS Birth Experience Scale, and one-way ANOVA and t-tests to measure the associations between the covariates and total scores on the FBS Birth Experience Scale, as seen in Table 1. We investigated associations between mode of delivery and each of the items in the scale via chi-square analyses (Table 2. Because the women tended to be very positive about their birth experience, our aim was to distinguish the women who answered the negative items by reporting feeling even a little bit: “like a failure”, “sad”, “angry”, “upset”, “worried”, “disappointed”, “in pain”, “sick”, “traumatized”, and “exhausted”, in comparison to the women who answered “not at all”. For the same reason, the positive items were dichotomized in order to distinguish the women who reported feeling “extremely” or “quite a bit”: “thankful”, “excited”, “delighted”,

“calm”, “proud of myself”, and “on cloud nine”, in comparison to the women who reported these positive feelings to a lesser degree (“moderately”, “a little bit” or “not at all”). These cut points were chosen to identify the women who reported feeling at least a little bit negative in comparison to not at all negative, in response to the negative items, and the women who were less positive in comparison to those who were very positive on the positive items.

Multivariable linear regression was used to investigate the association between mode of delivery and the total score on the FBS Birth Experience Scale, controlling for all of the covariates shown in Table 3 in one model. Three separate multivariable logistic regression analyses were conducted to investigate the association between mode of delivery and feeling “disappointed” (“extremely” to “a little bit” in comparison to “not at all”), “like a failure” (“extremely” to “a little bit” in comparison to “not at all”) and “proud of myself” (“extremely” and “quite a bit” in comparison to “moderately”, “a little bit” and “not at all”), controlling for maternal age, race/ethnicity, education, insurance, pregnancy intention, probable depression during pregnancy, social support, maternal complications and newborn complications, as seen in Table 4.

Three separate multivariable logistic models were constructed to measure the associations between total scores on the FBS Birth Experience Scale and the following outcomes: 1.) Probable postpartum depression (a score of 12 or above on the Edinburgh Depression Scale at 1-month postpartum), 2.) Scoring at the median or above on postpartum bonding, and, 3.) Plans to have subsequent children reported 1-month postpartum (“yes” versus “no” or “don’t know”). In each of these models we controlled for mode of delivery, maternal age, race/ethnicity, education, insurance coverage, marital status, pregnancy intendedness, probable depression during pregnancy, social support during pregnancy, and maternal and newborn childbirth complications.

We conducted sensitivity analyses to investigate the extent to which the global measures of maternal and newborn complications adequately captured both maternal and newborn complications that were reported in the birth certificate and hospital discharge data. We also conducted sensitivity analyses to see if it would be better to exclude the women who experienced relatively serious complications for themselves or their newborn. Relatively serious complications was defined as maternal intensive care admission (ICU) and/or hospital stays of 7 days or more, or newborn admission to the neonatal intensive care unit (NICU) and/or hospital stays of 7 or more days.

RESULTS

There were 33 women who answered “don’t know” to one or more of the items in the FBS Birth Experience Scale and were not included in the analyses involving the total score. Total scores on the FBS Birth Experience Scale ranged from 28 to 80, with a mean of 68.7 (SD = 6.4). The median and mode were both 70.0 and the distribution was not highly skewed. Mode of delivery was strongly associated with total scores on the FBS Birth Experience Scale and women who had an unplanned cesarean delivery had the lowest average score, while women who had spontaneous vaginal delivery had the highest (Table 1). Maternal age, race/ethnicity, insurance coverage, and marital status were not strongly associated with total

scores on the scale (Table 3.), but women with a college degree or higher had a lower score on average than women without college degrees. Women who scored in the probable depression range on the Edinburgh Depression Scale during pregnancy had lower scores on the FBS Birth Experience Scale. Social support during pregnancy was also associated with total scores on the FBS Birth Experience Scale, such that women who reported less social support during pregnancy also reported having less positive feelings about their childbirth than women with higher levels of social support. Both maternal and newborn complications were also associated with less positive feelings.

As seen in Table 4., 22.5% of the women who underwent unplanned cesarean delivery reported feeling “extremely” to “a little bit” disappointed in comparison to only 4.5% of the women who had spontaneous vaginal delivery. Both women who had planned and unplanned cesarean delivery were more likely to report feeling sick after the delivery (29.0% and 32.1%, respectively) in comparison to 14.7% for women who had spontaneous vaginal delivery and 18.4% of women who had instrumental vaginal delivery. Women who had unplanned cesarean were considerably more likely to report feeling like a failure (15.7%) than those who had spontaneous vaginal delivery (3.4%). The women who had instrumental vaginal delivery were the most likely to report feeling traumatized (23.1%), although 21.5% of the women who had unplanned cesarean delivery also reported feeling traumatized. Women who had unplanned cesarean delivery were the most likely to report feeling sad after the delivery (24.2%), as well as angry (6.9%). While 82.4% of the women who had spontaneous vaginal delivery reported feeling “extremely” or “quite a bit” proud of themselves, only 64.5% of the women who had unplanned cesarean delivery reported feeling “extremely” or “quite a bit” proud of themselves.

The results of linear regression analysis (Table 3) indicated that mode of delivery was the variable most strongly associated with the total score on the FBS Birth Experience Scale, and women who had unplanned cesarean scored significantly lower than women who had spontaneous vaginal delivery, instrumental delivery and planned cesarean, even after controlling for the confounding factors. Among the confounding variables, both maternal and newborn complications adversely affected women’s feelings about their childbirth. In addition, women who were depressed and reported low social support during pregnancy had less positive birth experience.

As seen in Table 4, women who had an unplanned cesarean delivery were significantly more likely to report feeling disappointed in comparison to those who had spontaneous vaginal delivery (AdjOR = 6.21, 95% CI 4.62–8.35); significantly more likely to report feeling like a failure in comparison to those who had spontaneous vaginal delivery (AdjOR = 5.09, 95% CI 3.65–7.09); and significantly less likely to report feeling extremely or quite a bit proud of themselves than women who had spontaneous vaginal delivery (AdjOR = 2.70, 95% CI 2.20–3.31), controlling for the confounding variables.

Total scores on the FBS Birth Experience Scale were significantly associated with postpartum depression (Table 5) such that for each point higher on the FBS Birth Experience Scale, the risk of probable postpartum depression (a score of 12 or higher on the Edinburgh Depression Scale at 1-month postpartum) was decreased by 9.0%. Total scores on the FBS

Birth Experience Scale were also significantly associated with maternal-child bonding such that for each point higher on the FBS Birth Experience Scale, women were 12.0% more likely to score at the median or above on the postpartum bonding questionnaire. Finally, the FBS Birth Experience Scale scores were significantly associated with plans for subsequent childbearing, such that for each one point increase in the total score, women were 5.0% more likely to report 1-month postpartum that they did want to have additional children (as opposed to “no” or “don’t know”).

For the sensitivity analyses we investigated the association between the global measure of newborn complications (answering “yes” to the question “Did your baby have any complications as a result of the delivery?”) and NICU admission, hospital length of stay of 7 or more days, 5-minute Apgar score of less than 7, assisted ventilation, birth asphyxia and newborn infection. All of these measures were strongly associated with the global measure of newborn complications, such that for at least 75% of the newborns with each of these complications the mother had answered “yes” to the question about newborn complications. We found similar results when we investigated the association between the global measure of maternal complications (answering “yes” to the question “Did you have any complications as a result of the delivery?”) and the complications of postpartum hemorrhage, perineal tearing, cesarean wound infection, anesthesia complications, fever, hospital length of stay of 7 or more days and maternal admission to the intensive care unit. The results shown in Tables 3 and 4 were nearly the same whether we used the global measures of maternal and newborn complications or adjusted for the specific complications. Therefore we used the global measures of maternal and newborn complications. In addition, the results were nearly the same whether we excluded or included the women who experienced relatively serious complications and/or whose newborns experienced relatively serious complications (n = 160).

DISCUSSION

Women who had spontaneous vaginal delivery reported the most positive feelings about their delivery, while the women who had unplanned cesarean delivery were the least positive. Women who had unplanned cesarean were more likely to feel disappointed, upset, sad, angry, and like a failure in comparison to women who delivered vaginally (spontaneous or instrumental) or by planned cesarean. Women who had spontaneous vaginal delivery were the most likely to report feeling extremely or quite proud of themselves (82.4%), and those who had a planned or unplanned cesarean were the least likely (67.1% and 64.5%, respectively).

Mode of delivery was the variable that was most strongly associated with women’s feelings about their first childbirth, even after controlling for multiple confounders. These results are in accord with previous research indicating the importance of mode of delivery in determining how women feel about their childbirth in retrospect.^{15–16} Women’s families, friends and perhaps even their providers may have little understanding or empathy if they report feeling sad, disappointed or like a failure after a cesarean childbirth.^{4–5} After cesarean delivery women may be told “You’ve got a healthy baby and that’s all that matters!”.¹⁵ This

statement communicates to the woman who has had a cesarean delivery that she has reason to feel bad, but she should not feel that way.

Women with less positive total scores on the FBS Birth Experience Scale were significantly more likely to experience postpartum depression, less likely to plan to have additional children, and more likely to score below the median on maternal-child bonding as measured at the 1-month postpartum interview, controlling for the confounding variables. These results underscore the importance of women's feelings about their first childbirth. Longitudinal research indicates that women continue to remember their first childbirth vividly and to have strong positive and negative feelings about the event even 15 to 20 years later.¹⁷

We developed a new measure of birth experience for this study because we wanted to focus specifically on women's emotional reactions to childbirth. In addition, we sought to measure the effect of mode of delivery on women's self-esteem, using the terms that women verbalized in the qualitative studies that we conducted to guide our development of the survey instruments for the First Baby Study. In a previous study using the FBS Birth Experience Scale,¹⁸ we identified women in the lowest quintile in the distribution of total scores (defined as a negative birth experience) and compared them to the women with higher scores. In that study, we found that women who had unplanned cesarean were considerably more likely to have a negative birth experience (32.3%) than the women who had spontaneous vaginal delivery (13.9%), adjusted OR 3.14, 95% CI 2.50–3.95. In the current study, we used the continuous variable of the total score of the FBS Birth Experience Scale as our primary outcome and also investigated responses to the individual items. The results of the previous study and the current study provide strong evidence for the construct validity of the FBS Birth Experience Scale, particularly in terms of the association of scores on this scale with mode of delivery, as well as postpartum depression, plans for subsequent children, and maternal-child bonding.

Few studies of birth experience by mode of delivery have measured the percent of women who report specific positive and negative feelings. While previous qualitative research has reported that women may feel like a failure after cesarean delivery,¹⁹ it is not clear how often this occurs. In this study we found that 15.7% of the women who had unplanned cesarean reported feeling at least a little bit like a failure and 35.5% felt only moderately to not at all proud of themselves. Quantification of the percent of women who experience specific negative feelings after childbirth, such as loss of self-esteem, provides a better understanding of the scope of the problem.

This study has several limitations that must be considered. The participants in this study were residents of one state, aged 18 to 35 at study entry and were more likely to be married, Caucasian, have private insurance and college degrees than women in the same age range at first childbirth in the state as a whole,⁸ limiting the generalizability of the results. In addition, the study participants were interviewed by telephone. This is an important limitation because there is strong evidence that people tend to report higher levels of mental and psychosocial health via telephone interview than they would had they completed the survey via a self-administered mode²⁰ - as well as higher levels of subjective well-being,²¹ and more positive ratings in general.²² Therefore, we delineated women who reported

negative feelings, even a little bit, in response to the negative items, and less than extremely positive feelings (“moderately” to “not at all”) in response to the positive items.

In this study participants were interviewed one month after childbirth, but were asked to report how they felt right after the childbirth. Had we interviewed the women right after childbirth the results might have been different. In the interim month between the delivery and the first postpartum interview, women were likely coming to terms with their experience of childbirth. Studies of birth experience have interviewed women at a wide range of intervals after the delivery, ranging from within a day or two²³ to a year or more after.^{24–25} It is not clear how the time lapse between delivery and assessment of birth experience affects the study results.

CONCLUSIONS

As health systems strive to improve the quality of patient-centered maternity care, the results of this and similar studies may help providers identify women in need of extra emotional support in the postpartum period. It’s important that providers understand that “how the baby gets out” matters to women, and to some women more than others. In the US most deliveries are performed by physicians, and all cesarean deliveries are. Women and their families may look to their physician for guidance as to how to make sense of the birth process in retrospect. The physician has an opportunity to listen to women’s thoughts and feelings after the birth, to provide empathy and understanding, to explain why cesarean or instrumental vaginal delivery was necessary (without using such terms as “failure to progress” or in any way implying that it was the woman’s fault), and particularly to encourage women to feel successful and proud of themselves, regardless of the mode of delivery.

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TABLE 1

Characteristics of study participants by total score on the FBS Birth Experience Scale (higher score indicates more positive birth experience), Pennsylvania, USA, 2009–2011

	Overall N (%)	Total Score Mean $\pm$ SD	P*
Mode of delivery			< .001
Spontaneous vaginal	1861 (62.6)	69.7 $\pm$ 5.6	
Instrumental vaginal	259 (8.7)	67.6 $\pm$ 6.8	
Planned cesarean	155 (5.2)	68.6 $\pm$ 6.8	
Unplanned cesarean	698 (23.5)	66.2 $\pm$ 7.4	
Maternal age			.027
18–24	792 (26.6)	69.2 $\pm$ 5.7	
25–29	1186 (39.9)	68.5 $\pm$ 6.7	
30–36	995 (33.5)	68.4 $\pm$ 6.5	
Race/ethnicity			.169
White non-Hispanic	2488 (83.7)	68.7 $\pm$ 6.4	
Black non-Hispanic	216 (7.3)	68.5 $\pm$ 6.5	
Hispanic	157 (5.3)	69.2 $\pm$ 5.5	
Other	111 (3.7)	67.5 $\pm$ 7.4	
Education			< .001
High school degree or less	487 (16.4)	69.2 $\pm$ 5.6	
Some college or technical school	796 (26.8)	69.2 $\pm$ 6.3	
College degree or higher	1690 (56.8)	68.3 $\pm$ 6.5	
Insurance			.055
Private	2297 (77.3)	68.5 $\pm$ 6.4	
Public	674 (22.7)	69.1 $\pm$ 6.3	
Marital status			.094
Married	2104 (70.8)	68.5 $\pm$ 6.4	
Not married	869 (29.2)	69.0 $\pm$ 6.3	
Pregnancy intended			.002
Yes	2008 (68.2)	68.9 $\pm$ 6.3	
No	935 (31.8)	68.1 $\pm$ 6.6	
Edinburgh Depression Scale during pregnancy			< .001
< 12	2742 (91.5)	68.9 $\pm$ 6.2	
12 or higher (probable depression)	256 (8.5)	66.2 $\pm$ 7.7	
5-item Medical Outcome Study Social Support during pregnancy			< .001
Low	498 (16.7)	67.0 $\pm$ 7.3	
Medium	1222 (41.1)	68.4 $\pm$ 6.2	
High	1251 (42.1)	69.6 $\pm$ 6.0	
Maternal complications			< .001
Yes	423 (14.2)	65.6 $\pm$ 7.9	
No	2549 (85.8)	69.2 $\pm$ 6.0	

	Overall N (%)	Total Score Mean $\pm$ SD	<i>P</i> *
Newborn complications			< .001
Yes	432 (14.5)	66.7 $\pm$ 7.6	
No	2541 (85.5)	69.0 $\pm$ 6.1	

* Analyses were one-way ANOVA for variables with 3 or more categories and t-tests for dichotomous variables.

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TABLE 2

Mode of delivery by responses to the items in the FBS Birth Experience Scale, Pennsylvania, USA, 2009–2011

Item	Overall N (%)	Spontaneous Vaginal %	Instrumental Vaginal %	Planned Cesarean %	Unplanned Cesarean %	P*
Positive items						
Proud of myself	2298 (76.5)	82.4	72.0	67.1	64.5	< .001
Delighted	2774 (92.4)	93.2	93.1	91.0	90.2	.072
Excited	2816 (93.7)	94.8	91.2	93.5	91.7	.009
On cloud nine	2102 (70.4)	72.0	68.1	74.2	66.4	.022
Calm	1133 (37.3)	39.6	35.2	36.8	33.9	.052
Thankful	2901 (96.5)	96.6	97.3	98.1	95.6	.345
Negative items						
Disappointed	279 (9.3)	4.5	8.0	9.0	22.5	< .001
Sad	449 (14.9)	11.7	14.6	12.9	24.2	< .001
Angry	110 (3.7)	2.7	3.4	0.6	6.9	< .001
Upset	457 (15.2)	10.7	15.7	17.4	26.6	< .001
Like a failure	209 (7.0)	3.4	9.6	5.8	15.7	< .001
Traumatized	477 (15.9)	12.8	23.1	15.5	21.5	< .001
Sick	597 (19.9)	14.7	18.4	29.0	32.1	< .001
In Pain	2361 (78.5)	78.6	84.3	78.7	76.3	.063
Worried	1962 (65.3)	63.8	69.3	72.3	66.2	.059
Exhausted	2830 (94.2)	93.7	97.3	89.0	95.3	.002

Note: Positive items were dichotomized, “extremely” and “quite a bit” versus “moderately”, “a little bit” and “not at all”; Negative items were dichotomized, “extremely”, “quite a bit”, “moderately” and “a little bit” versus “not at all”;

*
Chi-square analyses

Table 3

Results of multivariable linear regression analysis of the association between participant characteristics and total scores on the FBS Birth Experience Scale, Pennsylvania, USA, 2009–2011

	<i>t</i>	<i>P</i>
Mode of delivery		
Spontaneous vaginal	12.57	< .001
Instrumental vaginal	3.50	.001
Planned cesarean	3.92	< .001
Unplanned cesarean	Reference	
Maternal age (years)		
18–24	.43	.666
25+	Reference	
Race/Ethnicity		
White	.62	.533
Non-white	Reference	
Education		
Less than college degree	3.21	.001
College degree or higher	Reference	
Insurance		
Private	Reference	
Public	1.35	.179
Marital status		
Married	Reference	.100
Not married	1.65	
Pregnancy intended		
Yes	4.85	< .001
No	Reference	
Edinburgh Depression Scale during pregnancy		
< 12	5.72	< .001
12 or higher (probable depression)	Reference	
Social support in pregnancy		
Low	Reference	
Medium	3.11	.002
High	5.82	< .001
Maternal complications		
Yes	Reference	
No	9.34	< .001
Newborn complications		
Yes	Reference	
No	5.18	< .001

* Multivariable linear regression model included all variables shown in this table.

TABLE 4

Odds ratios and 95% confidence intervals for the association between mode of delivery and feeling disappointed, like a failure and proud of myself, Pennsylvania, USA, 2009–2011 *

	No. (%)	Adjusted OR (95% CI)
Feeling Disappointed (Extremely to a Little Bit vs Not at All)		
Spontaneous vaginal	85 (4.5)	Reference
Instrumental vaginal	21 (8.0)	1.60 (0.97–2.72)
Planned cesarean	14 (9.0)	2.29 (1.25–4.19)
Unplanned cesarean	159 (22.5)	6.21 (4.62–8.35)
Feeling Like a Failure (Extremely to a Little Bit vs Not at All)		
Spontaneous vaginal	64 (3.4)	Reference
Instrumental vaginal	25 (9.6)	2.81 (1.72–4.60)
Planned cesarean	9 (5.8)	1.61 (0.78–3.33)
Unplanned cesarean	111 (15.7)	5.09 (3.65–7.09)
Feeling Proud of Myself (Extremely and Quite a Bit vs Moderately to Not at All)		
Spontaneous vaginal	1550 (82.4)	2.70 (2.20–3.31)
Instrumental vaginal	188 (72.0)	1.47 (1.06–2.03)
Planned cesarean	104 (67.1)	1.25 (0.85–1.83)
Unplanned cesarean	456 (64.5)	Reference

* Multivariable logistic regression models (separate models for each of the 3 outcomes), adjusted for maternal age, race/ethnicity, education, insurance, pregnancy intention, depression during pregnancy, social support during pregnancy, maternal complications and newborn complications; OR: odds ratio; CI: confidence interval

TABLE 5

Odds ratios and 95% confidence intervals for the association between total scores on the FBS Birth Experience Scale and postpartum depression, maternal-child bonding and plans for subsequent childbearing, Pennsylvania, USA, 2009–2011 *

	No (%)	Adjusted OR (95% CI)**
Edinburgh Depression Scale 1-month postpartum		
<12	2850 (95.0)	0.91 (0.89–0.93)
12 or higher (probable depression)	151 (5.0)	Reference
13-Item Postpartum Bonding Questionnaire		
Median or above	1608 (53.5)	1.12 (1.10–1.14)
Below median	1397 (46.5)	Reference
Plans to have another child		
Yes	2504 (83.3)	1.05 (1.04–1.07)
No or don't know	502 (16.7)	Reference

* Multivariable logistic regression models (separate models for each of the 3 outcomes), adjusted for maternal age, marital status, race/ethnicity, education, insurance, pregnancy intention, depression during pregnancy, social support during pregnancy, maternal complications and newborn complications; OR: odds ratio; CI: confidence interval.

** Adjusted OR values indicate the effect of each 1-point increase of the total score on the FBS Birth Experience Scale.