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Confidence and positive childbirth experiences in U.S. hospitals: a mixed methods analysis

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Abstract

Objective—Research on maternity care quality in the U.S. often focuses on avoiding adverse events. Positive birth experiences receive less attention. This analysis used a mixed methods approach to identify factors associated with confidence and positive experiences during birth among a national sample of U.S. mothers.

Methods—Data are from a nationally representative survey of women who delivered a singleton baby in a U.S. hospital in 2005 ($N=1,573$). We explored the relationship between confidence, positive birth experiences and socio-demographic characteristics as well as factors related to the clinical encounter and health systems, including common obstetric procedures and interventions. Self-reported confidence during birth was the outcome in quantitative analyses. We used logistic regression analysis and qualitative analysis of open-ended survey responses.

Results—Approximately 42% of mothers reported feeling confident during birth. Confidence going into labor was the strongest predictor of confidence during birth (Adjusted Odds Ratio (AOR) 12.88 for nulliparous women, 8.54 for parous women). Black and Hispanic race/ethnicity (compared to white) and having partner support were positively associated with confidence during birth for nulliparous women. Qualitative analyses revealed that positive experiences were related to previous birth experiences, communication between women and their clinicians, perceptions of shared decision-making, and communication among clinicians related to the timing and logistics of managing complications and coordinating care.

Conclusion—For clinicians who care for women during pregnancy and childbirth, thoughtful, deliberate attention to factors promoting positive birth experiences may help create circumstances amenable to enhancing the quality of obstetric care and improving outcomes for mothers and infants.

Keywords

obstetrics; birth; mixed methods; patient satisfaction; patient communication

Introduction

While a large body of research has explored risk factors for poor birth outcomes and rare, catastrophic birth events (1), less attention has been paid to positive birth experiences and patient satisfaction in the U.S., where childbirth care has recently undergone substantial change (2). For example, cesarean delivery rates have increased from 20.7% in 1996 to 32.8% in 2010, and rates of induction of labor increased from 9.5% in 1990 to 23.4% in 2010 (3). Given these changes, understanding the relationship between positive experiences and childbirth care and the role of clinicians in cultivating positive experiences may be particularly important.

Confidence is related to positive birth experiences; women who report confidence during labor have a greater sense of control, feel more informed in making choices, and perceive their labor and delivery as less painful and more positive (4–6). For example, the finding that a woman's confidence in her ability to cope with labor contributes significantly to her perception of pain during labor has led to increased clinical and research attention to a mother's confidence and self-efficacy during childbirth (4). Conversely, fear and anxiety during labor and childbirth are associated with increased feelings of pain and need for medical pain relief, prolonged labor, and possibly increased risk of emergency cesarean section (7–11).

The individual and systems-level factors associated with confidence and positive experiences during childbirth have not been fully characterized in the U.S. Research in other contexts indicates that confidence and positive birth experiences are associated with patient involvement in decision-making during childbirth (12–14), having information on available options and feeling knowledgeable about childbirth (15,16), and clinician factors, such as familiarity with the delivery clinician (15,17), feeling supported by caregivers (14), and midwifery care (18,19). Other factors associated with positive birth experiences include fulfillment of expectations (14,20), partner support (21,22), being more aware during the birth, vaginal birth (21), and having a previous positive birth experience (4,6,23–25).

While certain factors that are related to positive experiences are independent of the healthcare system, others depend on the organization, financing, and management of healthcare and the structures and policies that guide clinical care for pregnant women, characteristics that may differ in important ways between other countries and the U.S. We used a mixed methods approach to 1) identify individual factors and clinical or systems-level factors associated with confidence (quantitative) and 2) explore themes related to positive childbirth experiences (qualitative) among a nationally representative sample of U.S. women. The goal of this analysis was to provide useful information to maternity care clinicians, program administrators, and policymakers that may help identify opportunities to increase maternity care quality and improve birth experiences for the nearly 4 million American women who give birth each year.

Methods

Data

Data for this analysis came from the Listening to Mothers II survey, a nationally-representative sample of women who gave birth in 2005 to a singleton baby in a U.S. hospital ($N=1,573$). Commissioned by Childbirth Connection and conducted by Harris Interactive, this survey used a validated methodology, which included both web-based and telephone modalities (26,27). Survey questions comprehensively addressed the labor and birth experience, including women's views and choices about childbirth-related care and perceptions of the experience. The survey also included open-ended questions, and 97% of respondents ($N=1,522$) provided answers to these questions. Quantitative data from this survey have previously been used in public health and maternal health services research (28–33), but the open-ended response components of the survey have not been previously analyzed.

The data used in this analysis were de-identified existing records; the study was therefore granted exemption from review by the University of Minnesota Institutional Review Board (Study Number 1011E92983). This research was conducted in accord with prevailing ethical principles.

Variable measurement

In the quantitative analysis, the primary outcome was whether women reported feeling confident while giving birth (yes/no). The following three open-ended questions provided data for the qualitative analysis: 1) “Apart from meeting your new baby, and knowing that your baby had no serious health concerns, what was the best part about your experience of giving birth?,” 2) “What’s the worst thing that happened to you during your labor and birth?,” and 3) “Is there anything else you would like to tell us about any aspect of your maternity experience?” Responses to each question were typically 1–3 sentences long.

We identified two broad categories of interest (individual/maternal and clinical/systems) for both analyses. Quantitative measures in the individual/maternal factors category were parity (nulliparous vs. parous women), socio-demographic characteristics, pregnancy-related factors (childbirth education, pregnancy intention, and views on medical intervention during childbirth). Variables related to the clinical/systems components included delivery type (planned cesarean, unplanned cesarean), labor induction, epidural analgesia, prenatal care clinician type (obstetrician-gynecologist, midwife, or other) and whether the woman had met her delivery attendant before giving birth. Women also reported whether or not they felt confident prior to the onset of labor, which we included as a covariate. Information on partner support during labor, a factor which previous studies have linked to positive birth experiences (21,22), was available for web respondents only ($n = 1,382$). In quantitative models, we controlled for missingness in this covariate among phone respondents.

Analysis

Quantitative—As prior research indicates that first-time mothers and experienced mothers have distinct birth experiences (4,5,7,30,34), respondents were stratified by parity. We

characterized the study population through descriptive statistics, both overall and by report of confidence while giving birth, and assessed bivariate statistical significance using chi square tests. When the results from chi square tests indicated significant variation, we used pairwise t-tests to identify which groups were significantly different from one another. For each parity group, we used logistic regression to examine the independent association of each predictor with confidence during birth. Analyses were conducted in Stata12 and weighted to be nationally representative.

Qualitative—The two broad categories described above (individual/maternal and clinical/system factors) formed the basis of our initial coding scheme for the qualitative analysis. We developed sub-codes based on extant literature and variables in the quantitative analysis, and created a coding definition book to help build inter-rater reliability. As an initial step, we randomly selected a 5% sample of responses, which were then independently coded by two of the authors (LA, MEM). We compared responses for inter-rater reliability, and refined the coding scheme and definitions through an iterative process to arrive at a final codebook. Finally, we analyzed the full sample (100% of responses), dividing responses for independent coding by two researchers (LA, MEM). Each coder recorded emergent themes and reflections based on coding and research team conversations through written memoranda.

Results

Quantitative analysis

Descriptive statistics for nulliparous (n=548) and parous (n=1,025) women in the study population are available in Appendix 1. Socio-demographic characteristics broadly reflect the U.S. childbearing population. Approximately 42% of women reported feeling confident while giving birth, which was similar among both first-time (nulliparous) and experienced (parous) mothers (Table 1). Confidence going into labor was strongly positively associated with confidence while giving birth for both parity groups. Among nulliparous women, race/ethnicity was also associated with confidence, with higher proportions of black (54%) and Hispanic women (58%) reporting confidence during birth than white women (34%). Among parous women, having an unintended pregnancy and having a planned cesarean were negatively associated with confidence while giving birth, and agreeing that childbirth is a process that should not be interfered with unless medically necessary was positively associated with confidence during birth.

Multivariate logistic regression results are shown in Table 2. Among both nulliparous and parous women, confidence going into labor was the strongest predictor of confidence during birth (Adjusted Odds Ratio (AOR) 12.88 [95% Confidence Interval (CI): 6.36, 26.06] for nulliparous women; AOR 8.54 [4.93, 14.81] for parous women). Among nulliparous women, black (AOR 4.00 [1.63, 9.80]) and Hispanic race/ethnicity (AOR 3.33 [1.24–8.91]) (vs. white) and partner support during labor (AOR 3.76 [1.43, 9.94]) were associated with higher odds of confidence while giving birth. Nulliparous women who had never met their provider before the delivery (AOR 0.50 [0.26, 0.98]) and who had planned cesarean deliveries (AOR 0.28 [0.09, 0.88]) had lower odds of reporting confidence during birth.

Among parous women, none of the factors that we examined were positively associated with confidence while giving birth in adjusted models; however, unintended pregnancy (AOR 0.66 [0.44, 1.00]), planned cesarean (AOR 0.36 [0.21, 0.61]), and medical induction (AOR 0.56 [0.36, 0.88]) were associated with lower odds of confidence during birth.

Qualitative analysis

Qualitative results are presented within the two broad categories of individual/maternal factors and clinical/system factors, highlighting the key themes that emerged within each category. Table 2 shows the final qualitative coding framework. Overall, women who reported confidence in the quantitative survey tended to describe more positive birth experiences in the open-ended responses. Results are discussed in detail below, and Table 3 presents additional illustrative quotes for each theme.

Individual-level maternal factors—A few individual-level factors emerged as important in the labor and birth experience. Women frequently mentioned whether they had given birth before (parity) in describing their current birth experience (i.e., the one described in the survey). In some cases, women reported having had previous experiences with medical complications or babies with serious health problems, which they noted caused them high levels of anxiety during their subsequent labor and delivery. Other women had experiences during delivery which differed from their previous deliveries in ways that undermined their confidence or were frightening:

I expected it to be a little more similar to my first labor - my first labor, I had no pain at the time I was supposed to push. This labor, I did and the pain didn't go away. So I felt like I wasn't strong enough to push with the pain.

Women reported that experiences during labor and delivery were related to their plans or intentions for that delivery. For example, women who had planned cesareans described feeling more in control of their birth experiences than women who had emergency cesarean deliveries. Support during labor from a partner or family member was often mentioned as an important, positive aspect of the birth experience. Overall, however, individual maternal factors arose in the data less often and less systematically than factors related to the clinical encounter, environment, or health care system.

Clinical encounter and systems factors—Many women described the best and worst parts of their labor in relation to things that happened in the hospital during labor and delivery. The three most commonly identified codes in clinical/systems category were procedures, complications or unforeseen issues that arose during labor, and the role of clinicians.

Obstetric procedures, particularly epidural analgesia, were one of the most frequently-mentioned aspects of the labor and delivery experience, though whether they were perceived as positive or negative varied widely. Women's experiences regarding obstetric procedures were strongly related to how positively they reported experiencing the delivery overall. For some women, the epidural was a vital aspect of a positive experience, keeping pain to a manageable level so that she could tolerate or enjoy the labor and delivery process:

The epidural made it possible to push calmly and get through contractions easily which in turn made the whole experience much more easy [*sic*] to deal with.

Women reported negative experiences with epidural analgesia for a variety of reasons. Some felt pressured to get undergo the procedure, while others reported problems with the timing of epidurals, which could be anxiety-producing. In some cases, there were delays in getting a desired epidural because of the availability of hospital staff to administer it or miscommunications between clinicians:

By the time I asked for the epidural, the anesthesiologist was with someone else, and I was told that it would be awhile. Several hours passed and I asked for it again. By this time, there was a new nurse on staff. She turned to me and said ‘You want an epidural?’ I asked her if she was kidding, which she wasn’t. She went to go get the anesthesiologist, and when she returned, she told me that he had gone home for the night.

Many women who had a negative experience related to epidural use identified this procedure (or delays in receiving it/miscommunications regarding it among providers) as the worst part of their experience, citing problems such as numbness of various body parts, numbness that inhibited pushing, pain and difficulties with the procedure itself, or the epidural wearing off or not providing effective pain relief.

Many respondents described moments of fear and anxiety during the labor and birth process, particularly regarding complications or unforeseen issues that arose suddenly. Such an unanticipated event was often noted by women as the worst thing that happened during labor and delivery. The way in which women experienced such complications was often influenced by plans prior to labor, such as strongly desiring to have a vaginal birth, or expectations of labor and delivery based on their previous experiences. For women who described more positive overall experiences, complications tended to be a brief occurrence, such as a temporary abnormal fetal heart tracing, and the women experienced this as a “near miss” – something that could have gone wrong but did not. Women who reported less positive experiences described an intensified version of the “near miss,” in which a complication would cause the threat of a cesarean delivery or other outcomes associated with anxiety and fear to loom for a longer period of the labor:

I experienced an intense sharp pain in my abdomen, and they feared my uterus had ruptured. It didn’t, but from that point on I felt REALLY out of control and had no idea what was going. I feared that I would need a c-section, but was really incapable of talking to anyone. ... I felt very out of control the entire time.

Many women mentioned the clinicians who cared for them when they described the best and worst aspects of their childbirth experiences. Themes in this category included the perception of informed consent and shared decision-making with clinicians, as well as the caring and empathy of clinicians, particularly nurses:

I had bad nurses during my first delivery; this time I had amazing nurses who treated me/us like a person, not just a patient whose needs are an irritation. They were caring, spent lots of time explaining (without condescension), and made us feel very comfortable.

Some women expressed the importance of having clinicians listen to what they were saying and the cues of their own bodies and personal experiences:

When I told my nurse that I felt the need to push, she told me it would still be a while and then she left the room. This made me feel that the one person who knew my body best (ME) was overlooked in the process of reading charts and monitors.

In addition to the above themes, several environment and system-level factors that influenced women's experiences also emerged. Many women mentioned being able to remain in the same room for labor, delivery and the immediate postpartum period as a very positive aspect of their experience. Problems with the logistics of coordinating various types of clinicians were related to more negative experiences. For example, several women mentioned feeling the urge to push, but being instructed to wait until the attending clinician arrived.

Discussion

The quantitative analysis revealed that confidence prior to the onset of labor was the single strongest predictor of confidence while giving birth. Other associations between measured individual and clinical encounter covariates and self-reported maternal confidence were much smaller in magnitude, but included race/ethnicity, partner support, and delivery mode. Qualitative analysis illuminated key themes of the patient experience of giving birth in U.S. hospitals. Women's descriptions of the best and worst aspects of their birth experiences indicated that a woman's perceptions of her experience were related to the expectations she brought to childbirth and by communication with her clinician, as well as among clinicians. Communication regarding procedures and medical decisions for the management of labor and delivery was essential, particularly when there were rapid or unexpected changes in clinical circumstances.

Among first-time mothers, women with partner support during labor reported confidence with greater frequency than those without such support, consistent with prior research (21,22); however, black and Hispanic women were also more likely to report confidence compared to white women, which is, to our knowledge, a new finding that may warrant further study. For both first-time and experienced mothers, women with planned cesareans were less likely to report confidence than women with vaginal deliveries. This may be related to the results of a recent study, which found that while women with planned cesareans reported satisfaction, only about half felt fully informed, only a quarter knew exactly what was going to happen during the procedure in advance, and many had fairly high levels of anxiety both before and after the cesarean (35). Our qualitative analysis, meanwhile, revealed the centrality of women's intentions and goals for the labor and delivery as well as the context in which procedures occurred.

Our analysis points to several important facets of positive birth experiences that are directly under the control of the clinicians caring for a woman giving birth. Intrapartum obstetric care is characterized by rapid changes in patient status and by interprofessional care teams; these factors may lead to stressful, strained communications, which impact patient perception of the childbirth experience. Specifically, the role of communication between

clinicians around the timing and logistics for needed procedures or actions – including epidural analgesia, additional fetal monitoring, the urge to push, or cesarean delivery – is important for high reliability obstetric care (36–38). In addition, communication with the patient during critical junctures of care or when there are changes in maternal or fetal health status is central to perceptions of the childbirth experience. The paradigm of patient-centered medical decision-making has much to offer women and clinicians by way of tools for approaching these crucial conversations (39,40). In addition, there has recently been increased attention to informed consent during obstetric care, and our findings indicate that improving this process would likely also improve patient experiences during childbirth (41,42).

Several individual- and systems-level factors that are not directly controlled by clinicians were important for how women experienced childbirth. Nevertheless, such factors should be understood as important to the type of birth experience that women report. One notable finding that emerged from our analysis was the association between confidence during labor and delivery and race/ethnicity among nulliparous women. Otherwise, individual-level characteristics did not have a clear and consistent association with confidence, but may play a part in generating personal expectations, intentions, and plans, which were important foundational factors for positive or negative experiences.

At an environmental or systems level, women highlighted the importance of their physical environment and the impact of certain hospital- or practice-specific policies or processes on their experience. Women cited the importance of the physical environment where they labored and gave birth – including privacy, space, and accommodations for their partner – as enhancing their well-being during this time. In addition, familiarity with the attending clinician was cited as a factor promoting a positive experience by several women in our analysis. To the extent that clinicians can influence these factors, they may be able to enhance the childbirth experience for the patients and families for whom they provide care.

Limitations

There are several limitations to our analysis. The Listening to Mothers survey did not collect information on prenatal care or clinical conditions that may affect the course of pregnancy and management of labor and delivery. Additionally, data were self-reported and do not include information from clinicians or clinical records. The measure of confidence used in the quantitative analysis is one-dimensional. In the qualitative data, women were not asked directly about confidence or positive birth experiences *per se*; as this was a secondary data analysis, we had no opportunity to follow up with women or interpret beyond what was available in the survey. Thus, our analysis was not able to capitalize on the richness of fully contextualized qualitative data.

Despite these limitations, our analysis offers two important contributions. First, by using a mixed-methods approach, we combined qualitative analysis of women's own words and descriptions with quantitative data on their experience to offer a more complete picture of the correlates of confidence and positive birth experiences. Secondly, we present findings that are relevant and actionable for clinicians who care for women during childbirth.

Conclusion

Understanding the relationship between positive birth experiences and individual, clinical and health system-level factors may be helpful in informing ongoing national dialogue regarding the development of quality measures for perinatal care and allow for the inclusion of relevant measures for both increasing positive outcomes and decreasing negative events. For clinicians who care for women during pregnancy and childbirth, thoughtful, deliberate attention to patient communication and to factors at either the individual or health systems levels that are related to positive labor and delivery experiences may help create circumstances amenable to enhancing the quality of obstetric care, and improving outcomes for mothers and infants.

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Table 1

Reported confidence during birth among nulliparous and multiparous women, by selected characteristics.

	Nulliparous women			Parous women		
	Confident during birth		p	Confident during birth		p
	Yes (n=215)	No (n=304)		Yes (n=450)	No (n=603)	
Confident going into labor						
Yes	58.8	41.2		52.8	47.2	
No	14.5	85.5	<0.001	11.9	88.1	<0.001
Individual-level Maternal Factors						
Age category						
18–24	46.6	53.4		48.9	51.1	
25–29	39.3	60.7		39.1	60.9	
30–34	33.5	66.5		38.8	61.2	
35 +	45.6	54.4	0.380	45.6	54.4	0.279
Race/ethnicity						
White	33.5	66.5		40.3	59.7	
Black/African American	53.8	46.2		45.8	54.2	
Hispanic	58.4	41.6		48.0	52.0	
Other/Multiple race	37.5	62.5	0.002	44.3	55.7	0.550
Education Attainment						
High school or less	44.8	55.2		43.0	57.0	
Some college or college degree	41.2	58.8		43.1	56.9	
Some graduate or graduate degree	31.9	68.1	0.390	38.3	61.7	0.811
Married						
Yes	38.3	61.7		40.7	59.3	
No	46.1	53.9	0.213	49.0	51.0	0.119
Childbirth education, current preg.						
Yes	39.9	60.1		53.0	47.0	
No	43.4	56.6	0.572	41.7	58.3	0.141
Childbirth education, prior preg.						
Yes	NA	NA		43.6	56.4	0.669

	Nulliparous women				Parous women			
	Confident during birth		p		Confident during birth		p	
	Yes (n=215)	No (n=304)			Yes (n=450)	No (n=603)		
No	NA	NA	--		41.7	58.3		
Unintended pregnancy								
Yes	38.4	61.6			36.6	63.4		
No	43.8	56.2	0.368		47.2	52.8	0.015	
Views childbirth as natural process								
Yes	39.1	60.9			48.6	51.4		
No	43.1	56.9	0.492		35.7	64.3	0.003	
<i>Clinical Encounter and System Factors</i>								
Provider type (prenatal care)								
OB/GYN	44.7	55.3			42.9	57.1		
Midwife	30.7	69.3			38.3	61.7		
Other	32.7	67.3	0.227		45.1	54.9	0.783	
Met provider before delivery								
Yes	43.2	56.8			42.7	57.3		
No	35.7	64.3	0.293		43.2	56.8	0.927	
Mode of birth								
Vaginal birth	44.7	55.3			47.3	52.7		
Planned cesarean	25.5	74.5			30.6	69.4		
Unplanned cesarean	36.9	63.1	0.193		37.0	63.0	0.007	
Medical induction	40.2	59.8	0.685		40.8	59.2	0.482	
Epidural								
Yes	40.6	59.4			42.2	57.8		
No	45.7	54.3	0.525		44.0	56.0	0.704	

Note: Ns and percents are weighted.

Table 2

Odds of confidence during birth by parity.

	Nulliparous women ^d (n = 519)		Parous women ^d (n = 1054)	
	AOR	95% CI	AOR	95% CI
Confident going into labor	12.88	(6.36 – 26.06)	8.54	(4.93 – 14.81)
<i>Individual-Level Maternal Factors</i>				
Race/ethnicity				
White	Ref		Ref	
Black/African American	4.00	(1.63 – 9.80)	0.87	(0.45 – 1.71)
Hispanic	3.33	(1.24 – 8.91)	0.61	(0.31 – 1.19)
Other/Multiple race	1.57	(0.58 – 4.26)	1.60	(0.54 – 4.75)
Work status during pregnancy				
Not employed	Ref		Ref	
Part-time	2.00	(0.79 – 5.04)	1.39	(0.76 – 2.53)
Full-time	1.48	(0.68 – 3.21)	0.99	(0.63 – 1.57)
Self-employed	3.00	(0.85 – 10.57)	0.74	(0.32 – 1.74)
Childbirth education in current pregnancy	0.69	(0.38 – 1.28)	1.44	(0.76 – 2.74)
Childbirth education in a previous pregnancy	NA		1.08	(0.72 – 1.64)
Unintended pregnancy	0.70	(0.34 – 1.43)	0.66	(0.44 – 1.00)
Views childbirth as natural process	0.77	(0.45 – 1.34)	1.44	(0.97 – 2.14)
<i>Clinical Encounter and System Factors</i>				
Provider type (prenatal care)				
OB/GYN	Ref		Ref	
Midwife	0.43	(0.17 – 1.08)	0.67	(0.32 – 1.42)
Other	0.44	(0.19 – 1.04)	0.93	(0.51 – 1.69)
Never met provider before delivery	0.50	(0.26 – 0.98)	0.63	(0.36 – 1.09)
Husband or partner provided labor support ^b	3.76	(1.43 – 9.94)	1.44	(0.79 – 2.61)
Planned cesarean delivery	0.28	(0.09 – 0.88)	0.36	(0.21 – 0.61)
Unplanned cesarean delivery	0.81	(0.40 – 1.66)	0.44	(0.18 – 1.06)
Medical induction	0.84	(0.47 – 1.48)	0.56	(0.36 – 0.88)
Epidual	0.86	(0.39 – 1.92)	1.33	(0.83 – 2.11)

Notes:

- ^a Model adjusts for age, education, marital status, income, insurance type, and census region and is weighted to be nationally representative.
- ^b Questions about support during labor were asked for web-based respondents only (n = 1382). This variable was included as a covariate with phone respondents coded to a “missing” category.
- Statistically significant associations (p<0.05) are shown in boldface.
- AOR adjusted odds ratio, CI confidence interval

Table 3

Qualitative analysis code book.

Code	Definition
<i>Confidence</i>	
Confidence	Explicit mention of feeling confident or not confident e.g., fearful, anxious
<i>Individual-level maternal factors</i>	
Parity	Mention of prior births or labors
Prenatal education or information factors not from clinician	Including mentions of knowing what was happening, feeling informed or not, information from friend or textbook
Plans / intentions	Having planned or not for the baby or pregnancy, fulfillment of intentions for not as part of birth experience.
Views on childbirth	Including mentions of views on natural childbirth, medical childbirth, and how childbirth relates to being a woman
Medical issues in pregnancy	Either pregnancy-related such as hypertension or gestational diabetes, or pre-existing conditions such as a seizure disorder affecting attitudes/feelings going into labor and delivery
<i>Clinical encounter factors</i>	
Medical procedure / type of care	E.g. pharmacological pain management strategies, electronic fetal monitoring, artificial rupture of membranes
Delivery type	Vaginal, including vacuum or forceps delivery, or cesarean
Pain	Experience of pain in labor and delivery (pain management strategies coded elsewhere)
Speed	Speed of delivery or timing of things happening as expected versus not (more quickly or more slowly)
Natural	References to natural birth experience, non-pharmacological strategies for pain relief, or non-medical procedures such as skin- to-skin contact immediately postpartum
Support (non-clinician)	Presence/support of friends, family, partner, doula
Complications/issues arise during labor	Encompasses a variety of examples, including meconium, fetal heart deceleration, baby getting stuck, shoulder dystocia
<i>Environment and health systems factors</i>	
General mention of clinician(s)	Discussion of doctors, nurses, midwives, hospital staff; receiving instructions from clinician; clinician's demeanor or behavior; trust or familiarity (or lack thereof) with clinicians; communication among clinicians
Clinician structure/policy	Size of a clinician's practice; whether "my clinician" will do the delivery; hospital policies (e.g., on VBAC, eating, walking around, support person presence, other procedures); insurance/ cost concerns
Physical environment	Mention of physical space for labor & delivery, either the room or the facility

Table 4

Sample quotations for identified themes.

Theme	Sample Quotation(s)
<i>Individual-level maternal factors</i>	
Previous birth experiences	I had an easier time with this labor. Since my previous pregnancy ended in C-section birth, I was pleased with the fact that I successfully attempted a VBAC, resulting in a much more pleasant birth and postpartum. I knew of all the things they had to do to prepare me for the c-section but all at once overwhelmed me and I began to cry and get scared. I had a BAD experience with epidural with my second baby. I thought it was going to happen again.
Plans and intentions	I was induced with both babies, mainly because everything was ready and on schedule, the babies were just moving slowly. So for me, the best part was being able to be prepared for the actual delivery in regards to day, time, family, etc. It went right along my birth plan and I was able to incorporate all my desires into the process. (best part)
<i>Clinical encounter and health systems factors</i>	
Procedures (especially epidurals)	I was 7 cm dilated when I arrived at the hospital and was afraid that I wouldn't be able to have an epidural since I was so far along. The fear of having to go through the delivery without pain medication was very strong. I had wonderful caregivers to support me during labor and delivery. Initially, I was scared to get the epidural (fear of needles) and was not pressured in any way to decide one way or the other. I have had friends that were basically forced the drugs whether they wanted them or not because that was hospital policy to deal with long labor. I did choose the epidural (eventually) and found it made my experience much more enjoyable.
Complications or unforeseen issues	During the labor the baby was facing the wrong direction, and she got stuck on my pelvic bone. The doctor could not get her to turn around so they gave me pitocin to make the contractions stronger, and push the baby down more. I had to stop pushing because my baby's heart rate had dropped and it wasn't coming back up. So the doctor had to give me oxygen and we had to wait until his heart rate was good again. That was scary for me.
Role of providers	Knowing that my doctor that I'd been with since the beginning of my pregnancy was the one to deliver him and be with me. He helped prepare me for each step and made sure I understood and supported me. I liked feeling comfortable with my doctor, he made me feel like I mattered and wasn't just another pregnant woman. (Best part) The doctor who delivered the baby was known to us, she was very calm throughout the process, thus keeping me calm...I was a little scared when I saw some of the instruments being prepared in front of me, but the nurse covered them up and said they take them out and have them prepared in case of an emergency.
Physical environment	I have a 20 [year] gap between my 4th and 5th child. There were no birthing suites back then. I enjoyed the personal comfort of giving birth [without] being rolled away to some delivery room. I liked the labor and delivery room at the hospital I was in...it was big and comfy and had room for anyone who wanted to be there and it had a cd player
Logistics of coordination with providers and space	I think the worst thing was the wait for the doctor before I could actually push the baby out. I had to wait 10 minutes because the doctor was in the middle of a delivery across the hall. That 10 minutes felt like 10 hours.

Appendix 1

Characteristics of study population, a national sample of women who gave birth to a singleton baby in 2005, by parity (n=1573).

	Nulliparous (n=519)	Parous (n=1054)
	%	%
<i>Confidence</i>		
Confident going into labor	60.8	75.5
Confident during birth	41.4	42.8
<i>Individual-level maternal factors</i>		
<i>Age category</i>		
18–24	38.8	22.2
25–29	27.3	27.5
30–34	23.2	26.4
35 +	10.6	24.0
<i>Race/ethnicity</i>		
White	62.4	62.3
Black/African American	11.9	12.3
Hispanic	21.5	20.6
Other/Multiple race	4.2	4.8
<i>Education Attainment</i>		
High school or less	38.1	46.6
Some college or college degree	50.0	47.3
Some graduate or graduate degree	11.9	6.1
Married	59.9	75.1
<i>Work status during pregnancy</i>		
Not employed	26.8	48.5
Part-time	17.6	12.7
Full-time	52.4	33.2
Self-employed	3.2	5.5
<i>Annual family income</i>		
Less than \$50,000	51.4	53.7
\$50,000 to 99,999	29.3	34.0
\$100,000 or more	19.3	12.3
<i>Pregnancy-related characteristics</i>		
Unintended pregnancy	43.6	41.7
Childbirth education in current pregnancy	56.1	9.1
Childbirth education in prior pregnancy	NA	53.8
Views birth as a “natural process”	41.3	54.8
<i>Clinical encounter and health systems factors</i>		
<i>Provider type (prenatal care)</i>		
OB/GYN	74.7	80.8

	Nulliparous (n=519)	Parous (n=1054)
	%	%
Midwife	10.6	8.6
Other	14.7	10.6
Never met provider before delivery	23.5	16.5
Medical care during childbirth		
Planned cesarean	5.9	22.1
Unplanned cesarean	27.4	8.6
Medical induction	47.3	38.0
Epidural	83.3	71.9

Note: All Ns and percents are weighted.