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# Women's Perceptions of Childbirth Risk and Place of Birth

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## ABSTRACT

In the United States, clinical interventions such as epidurals, intravenous infusions, oxytocin, and intrauterine pressure catheters are used almost routinely in births in the hospital setting, despite evidence that the overutilization of such interventions likely plays a key role in increasing the need for cesarean section (CS).<sup>1</sup> In 2010, according to the U.S. Centers for Disease Control and Prevention, approximately 32.8 percent of births in the U.S. were by CS.<sup>2</sup> The U.S. National Institutes of Health has reported that CS increases avoidable maternal and neonatal morbidity and mortality.<sup>3</sup> To increase understanding of what might motivate the overuse of CS in the U.S., we investigated the factors that influenced women's decision making around childbirth, because women's conscious and unconscious choices about giving birth could influence whether they would choose or allow delivery by CS.

In this article, we report findings about women's decisions related to place of birth—at home or in a hospital. We found that choosing a place of birth was significant in how women in our study attempted to mitigate their perceptions of the risks of childbirth for themselves and their infant. Concern for the safety of the

infant was a central, driving factor in the decisions women made about giving birth, and this concern heightened their perceptions of the risks of childbirth. Heightened perceptions of risk about the safety of the fetus during childbirth were found to affect women's ability to accurately assess the risk of using clinical interventions such as the time of admission, epidural anesthesia, oxytocin, or cesarean birth, which has important implications for clinical practice, prenatal education, perinatal research, medical decision making, and informed consent.

## INTRODUCTION

The starting point for our study was to understand the factors that contributed to the overuse of CS in the U.S., specifically, what factors influence women's decisions around giving birth. Little is known about how women think about childbirth. We started from the assumption that the degree to which women might be amenable to the use of non-clinically indicated interventions could influence the rate of use of these procedures that, in turn, would affect the likelihood of birth by CS. We found that women's decisions around childbirth were motivated by their perceptions of the risks associated with giving birth. In particular we found that making a decision about the place of birth (home or hospital) was a significant way participants used to mitigate their perceptions of the risk of childbirth.

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In our study, women who elected to birth at home did so to avoid the use of childbirth technologies; conversely, women who chose to birth in a hospital environment did so because they did not believe that the female body was able to birth safely without the use of medical intervention. These findings have implications for clinical practice, prenatal education, perinatal research, medical decision making, and informed consent.

## METHODS

### Design

A purposive sampling method was used to enroll 49 low-risk primigravid women (that is, women having their first child). Each completed a projective test, participated in a focus group session, and completed a postpartum telephone interview in the first six weeks after birth. The data reported here are primarily from the projective test and focus groups, which were analyzed using the Consensual Qualitative Research method.<sup>4</sup> Details of the data collection and analytic methods are described briefly below and in full elsewhere.<sup>5</sup>

### Sample and Setting

Our study was conducted at a large urban academic institution in the mid-Atlantic region, in an ethnically and socio-economically diverse area. A convenience sample of low-risk primigravid women, 28 to 36 weeks pregnant, was recruited through word-of-mouth referral; advertisements in health-care clinics, medical offices, online childbirth listserves, and prenatal classes; and direct approach in public places by research team members. A member of the research team used a standardized screening tool to screen all potential participants by telephone to determine if they met the inclusion criteria for admission: primigravid women who had low risk for CS, between 21 to 36 years old, 28 to 36 weeks pregnant at the time of inclusion, conceived without the use of assisted reproductive technologies, and with no pre-existing health conditions that might have increased their risk of CS were eligible to participate. To ensure the absence of fetal anomalies, women were asked to self-report findings from prenatal screenings related to fetal health.

In total, 72 women were screened and 52 were eligible and provided informed consent. Ultimately data from 49 women were included in the study—technical difficulty resulted in data loss from two women and a third was lost to follow up. Details of the demographics of the sample are presented in table 1.

### Data Collection and Analysis

All 49 women completed the three phases of data collection. The first was a projective test that was designed to examine the extent of the women's understanding about birth and their perceptions of risk about the process. This was followed by a prenatal focus group, and finally a semi-structured postpartum interview. The intent was to gather information

**TABLE 1.** Demographic and birth characteristics, N = 49

Characteristic	Mean	SD
Age	28.8	3.88
Annual income	\$104,364.40	\$58,181.96
	<i>n</i>	%
Education		
Bachelor's degree or less	19	38.8
Post-graduate degree	30	61.2
Marital Status		
Not married	14	28.6
Married	35	71.4
Ethnicity		
Non-Caucasian	17	34.7
Caucasian	32	65.3
Type of birth		
Cesarean*	7	14.3
Vaginal	42	85.7
Place of birth		
Hospital	43	87.8
Home	6	12.2
Careprovider		
Physician	29	59.2
Midwife	20	40.8
Admission dilation**		
< 3 centimeters	20	43.5
>3 centimeters	26	56.5
Continuous electronic fetal monitoring**		
Yes	35	72.9
No	13	27.1
Oxytocin		
Induction	6	12.3
Augmentation	10	20.4
None	33	67.3
Epidural		
Yes	30	61.2
No	19	38.8

\* 2 cesareans were planned in advance of labor

\*\* decreased sample size due to missing data

prenatally regarding women's expectations and desires around giving birth and to compare this with their actual birth experiences, including the types and timing of the labor management strategies that were used such as admission in labor, use of epidural anesthesia, oxytocin, episiotomy, and type of birth (vaginal, surgical vaginal, or cesarean).

Over a period of one year, we held a total of 13 focus groups; each group included between three and six participants. The principle investigator (PI), the co-PI, and a research assistant facilitated digitally recorded sessions lasting 60 to 90 minutes. Pre-defined questions and topics were used to guide the discussion. Focus group discussions centered on participants' expectations and desires around childbirth, as well as the influential factors and information sources they used during pregnancy to make decisions about birth. An experienced transcriptionist recorded the focus groups sessions verbatim; identifying information was removed during the transcription process. The PI randomly audited 10 percent of the transcriptions to ensure that they accurately represented the discussions. The Consensual Qualitative Research (CQR) method was used to categorize data from the focus groups.<sup>6</sup> This method requires an iterative process of transcription analysis, coding, and consensus building until a final set of core domains and categories is produced.

### Conceptual Framework

Snyder and Cantor contend that human cognition originates within an individual as a process formed by social and personal influences experienced over the span of a lifetime.<sup>7</sup> Social conditioning plays a pivotal role in the development of cognitive skill, and personality also makes crucial contributions to "knowing." In our study, we used this conceptual framework to support the assumption that pregnant women's prior experiences and social interactions about childbirth influenced the type of birth they chose or were willing to accept, particularly clinical interventions that might be used to manage labor and birth. Previous research suggests that the high rates of CS in the U.S. may be related to the "powerful influence [of] organizational culture"<sup>8</sup> that structures our social beliefs about what is "safe" or optimal for childbirth—birthing practices that are defined by hospitals and obstetrical (medical), midwifery, and nursing professional organizations. These socially endorsed standards are likely to have a direct bearing on how women think about childbirth and what specific types of clinical management they accept for birth.

To interpret our findings regarding women's perceptions of risk around childbirth and how their perceptions shaped their decisions about birth, we used Kahneman and Tversky's Prospect Theory.<sup>9</sup> This theory posits that individuals' perceptions of risk are systematically biased; that is, individuals typically overestimate the likelihood of critical but rare events, and/or underestimate the likelihood of more-common, less-critical adverse events. In the context of perceived risks around childbirth, we found that even though critical events such as maternal or neonatal death are extremely rare, women often chose to deliver by CS to mitigate their perceived risk, while they discounted the more-common risks of less-serious—but nonetheless disabling—adverse health outcomes, for example, infection or hemorrhage resulting from surgical birth. We report the details about our analytic method fully elsewhere.<sup>10</sup>

### Ethical Considerations

Institutional review approval was gained from the University of Maryland Institutional Review Board. The informed consent of all participants was obtained prior to participation in any of the three phases of data collection. Participants received a total of \$150 to compensate them for the time and effort of completing all phases of data collection. The stipend was paid at two points—\$50 for completing the projective test and focus group and \$100 after completing the postpartum interview.

### RESULTS

All of the women in this study were highly motivated to avoid any untoward event that could have resulted in death or significant morbidity for themselves or their child, although, based on what they believed increased or decreased the risk of an adverse birth outcome, the degree to which they recognized such an event as wholly avoidable varied slightly across the cohort. Their perceptions of risk about childbirth originated from their beliefs about the female body's physiological capacity to give birth, specifically to go into spontaneous labor, progress to full dilatation, and birth a child without the need for clinical—or medical—interventions such as oxytocin, amniotomy, or epidural anesthesia. In our study, we found that women's beliefs about their ability to give birth fell along a continuum, anchored at one end by the view that clinical and medical interventions were seldom needed to manage birth, and an opposing view that clinical interventions were always needed (see figure 1).

Based on the women's responses in the focus groups, we were able to locate them at the beginning, middle, or end of this continuum, which we labeled matricentric, gynocentric, and fetocentric. In analyzing our data, we associated each of the three groups with a specific set of beliefs about the physiological capacity of the female body to give birth, which in turn motivated a unique taxonomy of clinical care, that often set the stage for a particular type of birth (see table 2).

The members of the three groups differed in how they assigned "cognitive authority," that is, what individual or group they saw as an authority or expert. The women's approach to "knowledge discovery"—that is, how well informed they were and the types of information they sought out—and how they dealt with conflicting information on birth and risks of birth depended on who they designated as a cognitive authority. Finally, we found that, based on a woman's placement on the perception of risk continuum, the role that her significant other played in the process of labor and birth varied.

### Matricentric Women

We coded 13 of the cohort of 49 women (26.5 percent), as matricentric, meaning "centered upon the mother." We selected this term to denote the view that a woman and her unborn child were seen as an inseparable whole, and therefore the woman was thought to possess instinctive knowledge about her unborn child's well-being. The women coded at this end of the continuum displayed an unwavering belief that the female body is physiologically capable of performing birth without the need for clinical intervention to induce, augment, manage, or expedite the process. Of the 13 women in the cohort who fell in this range of the continuum, seven (53.8 percent) elected to have a home birth. None of the 13 women in this group had a CS or used any clinical intervention to manage birth. In the focus groups before giving birth, these women

were able to provide rich, in-depth descriptions of birth that demonstrated a deep understanding of the range of options for birth and the process itself, and had detailed birthing plans that they had discussed with their careproviders. For these women, birth was seen as a critically important life experience that marked their passage into parenthood.

Their descriptions of birth were often touched by the mystical, and were represented as low-risk, low-key events with limited opportunity or necessity for clinical intervention. For example, one reported, "I imagine the birth being just a very sacred space; it is a really unique symbiotic relationship happening between the mom and the baby. Allowing that process to unfold in an undisturbed environment is for me the safest way to give birth . . . having people there who are supportive and aligned with and being a protector of that sacred space. So that I can do what I feel like I need to do and want to do—trusting my body and the process . . ." (from the participant coded as 63M9). Embedded in this

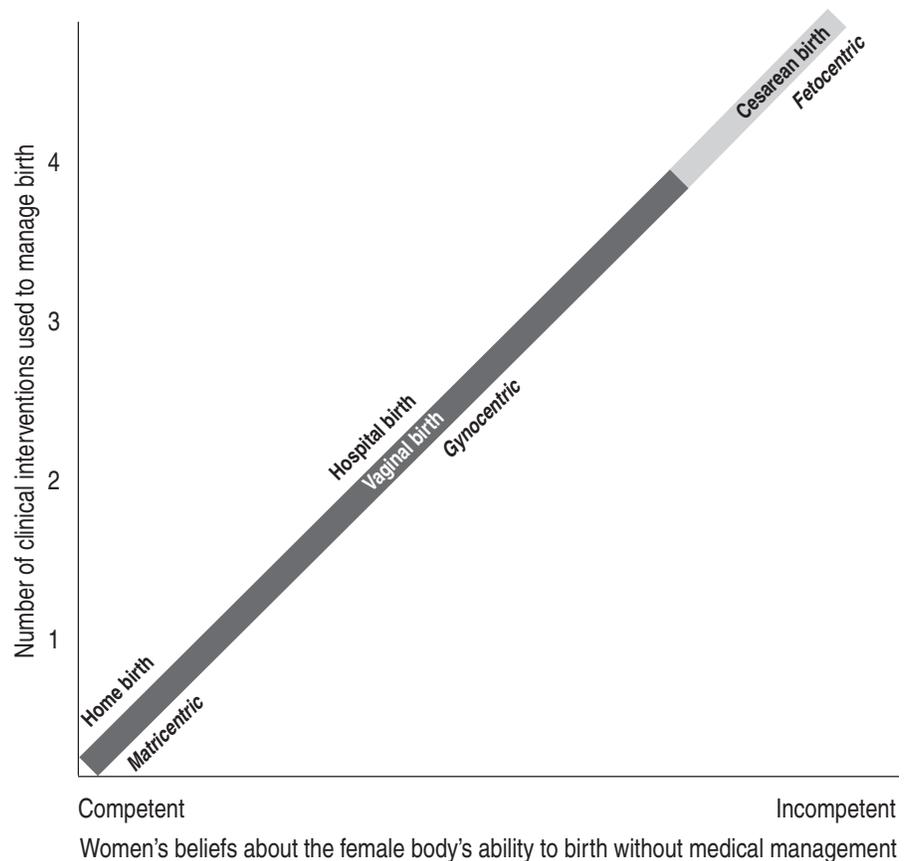


FIGURE 1. Study groups on a continuum of perceived risk and rate of c-section

**TABLE 2.** Characteristics of women in the three study groups (N = 49)

Characteristic	Matricentric group (n = 13; 26.5%)	Gynocentric group (n = 11; 22.4%)	Fetocentric group (n = 25; 51.1%)
Definition:	“Centered upon the mother,” i.e., woman and child seen as one inseparable whole; woman has instinctive knowledge of the needs of her fetus	“Concerned with women only,” i.e., woman desired natural child birth only if it did not impinge on the perceived needs of the child; mother and child might be seen as having competing needs	Preoccupied with possibility of critical events such as maternal death or the loss of the child during birth
Number selecting home birth:	7 of 13 elected home birth	0 of 11 elected home birth	0 of 25 elected home birth
Rate of CS:	0% (n = 0)	18% (n = 2)	20% (n = 5)
Beliefs about birth:	Woman is capable of giving birth without the need for clinical intervention to induce, augment, manage, or expedite	Birth is normal physiological process, but medical intervention is needed to manage labor and ensure the safety of the baby	Giving birth is seen as high risk; mother is pre-occupied with possibility of maternal death or losing child in birth
Cognitive authority held by:	Mother and partner	Mother and obstetrician or midwife	Obstetrician is the expert
Dealt with perception of risk by:	Seeking out evidence and advice from informed and experienced persons	Other women and anecdotal sources, being open to clinical interventions	Anecdotes/internet, rejecting evidence /experience not confirming beliefs
Flexibility of mother:	Less flexible about place of birth, fearing loss of autonomy in hospital	Flexible in expectations and preferences regarding giving birth	Less flexible about place of birth, fears medical emergencies outside hospital
Role of partner:	Central to the process: primary support person	Central to the process/potential source of concern: during birth may panic or need care from woman	Rarely mentioned
Perception of giving birth:	Critically important life experience: marks passage to parenthood	Unavoidably disappointing means to get to one’s baby	Means to an end: delivery of healthy baby

viewpoint was the notion that the female body knows instinctively how to birth, and therefore, to enable that capacity, a woman must be able to do what it tells her to do—such as get up and move about, rock, or immerse herself in water. The mysticism seemed to be rooted in a “mind-body connection.”

For matrocentric women, perceptions of childbirth risk centered on the use of clinical interventions that were seen as interfering with optimal body function, and the perceived risks of using interventions were seen to outweigh the benefits. For example, one woman said, “there are definitely effects on the baby with an epidural and with pitocin,” and “one intervention usually leads to another intervention being utilized because you’ve interrupted that natural feedback system” (63M9). For women in this group, clinical interventions were recognized to subsume the body’s physiological capacity to birth and therefore lead to additional interventions. The cumulative nature of clinical interventions was frequently addressed: “I . . . see how one intervention can lead to a more serious intervention which leads to even more serious intervention, which causes more risk that you don’t necessarily have to take” (72M3). More-natural approaches were seen as beneficial, such as “having [a] woman to lay [*sic*] on her back to push is bad for her. Squatting opens your pelvis by around 15 percent. The size of your pelvis actually grows” (55M8). Women in this group understood the secondary or cumulative nature of interventions commonly used in delivery, and were well informed regarding their balance of risks and benefits.

Another interesting common phenomenon was the lack of time pressure these women expressed about labor. They saw labor as a progressive process and planned activities to occupy themselves during early labor. They had no sense of urgency and were more confident that they would recognize they were in labor and had a sense of how it would progress. For example: “I would like to go into labor at home and go about my day stopping for contractions. I’m planning things to do and I have lots of projects for early labor” (21M5). The lack of time pressure extended to when the women expected or preferred the care providers to attend to them during labor. All of the women in the matricentric group elected to receive care from midwives and many also

had doulas (a trained, experienced professional who provides support during and after childbirth), but none expected a careprovider to come immediately or stay by their side throughout labor and birth.

Because they believed they were uniquely positioned to know what was best for their child, women in this group claimed cognitive authority for decisions about birth. This was evident in comments such as, “I will be in control and be able to listen to my own body and be able to call the shots (72M3),” and “what I’ve appreciated the most is that through each step I’ve been the one to make the decisions. And sometimes that can be a scary place because then you’re responsible for that decision, but it’s something that I was able to take ownership of instead of having it made for me” (26M4). Their comments related to decision making implied that not only did they prefer to make decisions about the birth, but that they understood the responsibility that they assumed by taking on this vital function.

In modern-day obstetrics it is not common for women to be the primary decision makers about what they want for birth or to be able to clearly define why they chose as they did. Furthermore, demanding cognitive authority for birth also meant that the women accepted responsibility for the outcome. This had particular importance for women who chose to birth at home, because while they saw it as the safest place for themselves and their unborn child, they also understood that if they experienced an adverse outcome, it would be attributed to having birthed at home. Women who chose to birth at home, or even at a birthing center, were cognizant that their choice put them on the margin of currently accepted social norms. This understanding was particularly well articulated by one woman who said:

I think it’s a difference between a passive risk or taking an active risk. If [you are having a hospital birth and] the baby starts going into distress or the heartbeat is slightly irregular you go and get a c-section [and it’s clear that] you’ve actively done all that you can. So maybe [if you’re in the hospital] you’re not going to have the same sense of guilt about doing everything you could. There’s not very many situations where it’s so critically important that the baby needs that kind of care immediately, but if that were to happen at home, then I could see how the effect of that would be judged, like, we didn’t do all that we can, that it’s my fault that tragedy happened because we had a home birth [55M8].

Situations that are critical enough to require immediate lifesaving interventions are extremely rare, but

when they happen during a home birth and the woman is not close enough to a hospital to obtain immediate care, the blame for a bad outcome may be levied against the woman who chose to birth at home, because if she had really “done all she could” to avoid a bad outcome, she would have chosen to birth in a hospital.

Conversely, the women in this group stated that when adverse events occurred in the hospital setting, the same judgments of blame and guilt would not apply, because “once you’re in the hospital and under their care even if things didn’t work out it’s all right because they did everything that they could” (55M8). One key finding of our study is that most of the women supported the idea that if a woman gave birth in a hospital setting, then no one could be held culpable if an adverse event occurred. Regardless of the outcome, it would be assumed that everything that could have been done had been done, and therefore an adverse outcome could not be attributed to the types of care that were used to manage the birth in the hospital. The women in the matrocentric group recognized this logic as flawed, and were prepared to assume responsibility for the decision to birth at home because they believed so strongly that it would ensure optimal health outcomes for their baby.

Cognitive authority requires demonstration of expert knowledge, and in this study the women in the matricentric group demonstrated remarkable knowledge of evidence about birth. They were able to clearly articulate the risks and benefits for the options they elected, but also for those that they rejected. Their choice to take control making decisions was rooted in a desire to manage the process of birth and select care options that, in their view, ensured the best outcome for their baby. This was expressed in ideas such as, “I think I’ll have more control over things at home and I will be able to listen to my own body . . . if I feel like I need to walk, I want to walk. If I feel like I need to squat, I want to squat” (17M4). Since birth was seen as a natural physiological process, the types of care these women chose were intended to optimize their body’s capacity to birth efficiently and provide the best environment for their unborn child. This could be seen in commentary such as, “I want to dim the lights. I have a birth ball. And they have squatting stools [at the hospital where I’m birthing. I will be able to] walk around. We’ve also been practicing a lot of guided imagery and relaxation. So I really want to practice trying to relax as much as possible and saving energy in between contractions with massage and things like that” (35M6); and, “I want to be mobile. I want to be able

to move around. . . . eventually the contractions will come closer and closer together and then I'll try to use some things like taking a shower, listening to music, or some of the other relaxation techniques to get me through" (52M8).

Women in this group implicitly trusted their midwives and saw them as "a trained eye who notices that something's not going well and can intervene" (72M3). They universally expressed a belief that their careprovider would act in their best interests if anything went wrong. For example: "I trust my midwife enough to know that she knows if something were to happen during the birth she would inform us when we need to make changes. She would make the appropriate decisions that need to be made and that we could be a part of and trust those decisions" (72M3). This group did not express concern that clinical intervention might be needed, and said they were comfortable laboring without the direct observation of a midwife.

Conversely, hospitals were seen as places where things were done for the convenience of the clinicians and the institution. The matricentric women expressed a belief that the information provided by physicians and nurses was "heavily weighted to one direction" (26M4) to persuade them to take a certain path. The lack of faith in hospital-based birthing was striking, and comments such as, "there are many reasons why it starts to make you suspicious. Maybe they're not really acting in my best interests" (55M8), were common among this group. This lack of trust was focused on the use of interventions and practices that are common in hospital birthing that were considered to be done for the convenience of the staff, rather than for the benefit of the laboring woman. "During my research about when and why epidurals came to be, I learned they make it easier for the doctor. The same thing is true with positioning in labor" (72M3). While these sentiments are not reported in the scientific literature, there is considerable anecdotal evidence that supports the contention that both epidurals and especially supine positioning during the second stage of labor are done for the convenience of clinicians (nurses and physicians). Unnecessary use of invasive clinical interventions was the primary reason cited by this group for choosing to birth at home. For example, "I made my decision to have a home birth because I actually feel safer and more confident at home than I do in a hospital because of the rate of intervention use. It feels to me that they're used too often as a safety measure" (72M3).

These women described their partner as central to the process. The dyad was presented as a team in

which the woman's partner was the primary support person who, along with the woman, made decisions about the type of birth planned for their child. This phenomenon could be seen in comments such as, "I expect my husband to be my number one support during this childbirth. When I'm hurting, when I'm scared, the main person I want touching me, holding me, and making me feel better immediately is my husband" (17M4), or "my husband and I have definitely talked about what his role is going to be and how he can help me. I've showed him different things that he can do and I've said to my midwife and my doula that I kind of see just the two of us in our room, and they only come in when they need to" (26M4). The place of birth and the type of careprovider appeared to be selected to ensure that both partners could be comfortable to fulfill the role they envisioned. For example, one couple chose a home birth because the partner "is a very shy, introverted person. That's why we chose a home birth because in the hospital, he would be so self-conscious that he wouldn't be able to let go and be what I need him to be" (26M4).

In summary, women at the matricentric end of the belief spectrum envisioned birth as normal physiological event, requiring minimal intervention, optimized by activities that supported and enhanced the body's natural physiological function. For these women, birth was seen as "sacred . . . a rite of passage for me and for my baby, preserving a particular atmosphere for the baby's first experiences of life, of you, of its world" (63M9).

There were no CSs in the women in the matricentric group.

### **Gynocentric Women**

Women coded as gynocentric were mixed in their approach. Among the 49 women in the study, 11 (22.4 percent) were in this group. We used the term gynocentric to mean "concerned with women only," denoting the women's desires to birth naturally, but only to the degree that it did not impinge on the perceived needs of the unborn child. As such, the woman and her child were seen as sometimes having competing needs. Their perception of risk was related more to doubts about their own ability to birth without medical support of some kind, and while the women in this group tended to endorse birth as a physiological process, they preferred to birth in the hospital setting in order to have access to pain management and other childbirth technologies that might be needed. Of particular concern for them was access to emergency services for the neonate.

Women at this range on the spectrum believed that birth was a natural process and that the female body could birth without medical supervision, but they were not confident in their own ability to go through the process without the use of pain management. Their descriptions of birth were not carefully considered and were largely based on anecdotal evidence, as quotations from the interviews provided below illustrate. They typically were uncertain about the process of birth and what resources they would need, so they sought to have “a support system, somebody who’s there to comfort me just in case. Who can calm me down because I wouldn’t really stick to a plan because if I had a certain plan in my head and it doesn’t go that way, then I’m frantic and panicking” (47M6).

Labor pain was seen as an unavoidable part of birth “I just see pain—that’s the natural birthing experience” (47M6). The women said it was possible that they might become marginally hysterical and would need to be actively managed, because “the best thing to do while you’re giving birth and going into labor is to stay calm. You don’t want to raise your heart rate or the baby’s heart rate” (47M6). Birth was seen as being infused by the potential for harm, and therefore it was best managed in the hospital environment, where “if there’s a problem the doctors can do everything and anything necessary” (47M6).

Among this group the risks associated with clinical interventions were often underestimated, for example: “I didn’t want a c-section because it’s going to leave this horrible scar” (47M6). This statement indicates a failure to recognize that the real risks of having major abdominal surgery include hemorrhage, infection, and even maternal death. Minimizing the actual risk of adverse outcomes that could result from invasive interventions such as CS was common across this group and indicated a significant gap in their knowledge. For these women, there was a belief that if things went wrong, there would be no time for negotiation or choice, and that immediate action would be required to ensure that the baby would “be born healthy.” In order to achieve that goal, they assigned decision-making authority to a careprovider who could “do whatever. If you have to knock me out, do it, I don’t care. If I can take the pain or whatever comes, then I’ll just take it. But if I can’t at that time, then hey, give me whatever” (47M6). However, despite endorsing this viewpoint, it did not extend to averting the more common—albeit less severe—adverse outcomes associated with many of the clinical interventions they endorsed using to optimize the outcomes for their baby.

For these women, their partners as central to the process of giving birth, but as a potential source of concern. This was expressed as, “I’m worried that my spouse will panic and in turn, make me nervous” (FG1D). Their own fear of becoming frantic and panicked by the process of labor seemed to be transferred to how they believed their partner would cope. They saw the hospital environment as an option that would help alleviate their concern about their partner’s coping capacity, so they planned to “go into the hospital a little earlier than anticipated” (FG1D). Many women said that, while in labor, they might need to care for their partner, suggesting that they did not feel very well supported by their significant other or see that person as someone who could support them through labor and birth effectively.

Their tendency to take precautionary action was reflected in their choice to birth in the hospital, because, if needed, that setting would provide immediate access to equipment and trained personnel. Hospitals were thought of as “the safer option because you have all the interventions and staff there so you can call in xyz doctor if it’s necessary” (FG3C). Some women who fell along this range of the continuum chose a midwife to provide care, but the majority received care from an obstetrician. Their perceptions of risk were focused on rare critical events that could result in death or significant morbidity. This persuaded them that birth in a hospital was necessary because “if the doctor has to operate, it’s right there. Or the medicine is right there if something goes wrong. And I think that anything can go wrong. I just feel that if I was at home—I mean, I only live five minutes from the hospital, but would that five minutes mean the death of me or my child?” (FG3C). Such notions of immediacy do not reflect the reality of childbirth, for which critical events are extremely rare, and modern surveillance systems identify when a critical event may be possible—for example, ultrasound diagnosis of a low-lying placenta that reduces the risk of hemorrhage.

The unknown nature of birth and potential for disaster seemed to make women in the gynocentric range feel that it was essential to be “flexible”—that is, open to the use of clinical interventions for labor and birth. “Flexibility” was motivated by the belief that labor and birth were highly changeable states, and therefore it was unlikely that a woman would be able to achieve the type of birth she wanted. To avoid being disappointed, these women believed they should simply accept the care that was provided. This was often stated as “flexible, go with the flow. You think you know what’s going to happen but you don’t, you never know so you have to

embrace the unknown” (FG3B). Being flexible meant that women in this group relinquished cognitive authority to others—primarily to their careproviders, but also to significant others or family members—to make decisions about labor and birth. For example, one woman stated that she was planning to have an epidural because her husband had told her to not “even think that you’re not going to have an epidural” (FG3C), because he thought she had a low threshold for pain.

Remarkably, even though physicians were given the authority to intervene in whatever manner they saw fit, this group questioned the clinical necessity of their physician’s choices and reported that they found their physician inaccessible and hurried. For example:

. . . the physician was very quick, at the end of the appointment, she said, well, do you have any questions? And at this point . . . yeah, I have questions. I have a million. Do you have an hour? And I said to her, you know, I’m kind of feeling uncomfortable about this perineum thing—about the episiotomy. And I said, I’ve heard about massages or oil, what’s your take on it, what can I expect? And this is her response to me. I’m like giving my heart out. I’m almost crying. And she’s like, honey, you are so leaving with stitches [67P11].

Physicians were frequently seen as acting in a manner that was not in the best interest of the women: “I feel as though some doctors want what’s best for them and not what’s best for you. It’s like they’re having the baby, and you’re not” (61P11). However, regardless of this recognition or the view that interventions were commonly routine and done for the convenience of careproviders and staff, these women still believed that they were doing everything possible to avoid an adverse event by delivering in a hospital.

For this group, birth was seen as a natural physiological process, up to a point, beyond which they were uncertain about what labor would be like, and they doubted that they would be able to go through it without an epidural. While they endorsed the body’s capacity to birth and espoused the value of natural birth, they were very conscious of the pain associated with labor that they believed was inherent to the process. They would express this idea in statements such as, “I’m not against having something for the pain, but I would like to try to go naturally as long as I possibly can” (71M2), and, “I would also say having false labors or whatever I had before, I had a little bit of contractions, they’re so pain-

ful. . . . And when I asked my doctor, when I asked if that’s going to be the same as contractions, he’s like no, contractions are worse. So, it’s from the doctors and I believe doctors. It’s painful” (29P4).

Women in this group were very open to learning about birth, but they did not demonstrate a deep understanding about the process or risks and benefits of particular approaches to the management of labor. The primary source of information about labor and birthing were described as “other women” and “anecdotal sources.” This limited their knowledge to more-mainstream ideas, and they were not able to articulate the risks and benefits of the options they chose. This resulted in gaps in their knowledge that were at times significant. For example: “I just attended a childbirth class a month, a month and a half ago. And they were talking about [episiotomies]. And I left there thinking that getting the episiotomy would be better. The baby would have more time trying to come out when it’s crowning” (61P11), and, “I’m going to have it at the hospital. There wasn’t any preference. I didn’t even know there was a difference between hospitals and birthing centers” (68P8). This lack of deep knowledge extended to their understanding of what labor was or how it would progress. This was seen in their concerns about getting to the hospital on time in labor. Their sense of time pressure created significant tension for them. For example: “I would want to be in the hospital [for the entire labor]” (28M4), and “I’ll be calling my OB and seeing when would be a good time for me to go into the hospital. So whenever my OB tells me to go in, that’s when I’ll go in. Because I don’t want to miss the time. I know there’s a certain time to get the epidural” (18P5).

In summary, women in the gynocentric range of the risk spectrum believed that birth was a normal physiological process up to a certain point, but that medical intervention was needed to manage the laboring process, to access pain management techniques, and to ensure the safety of their baby. Central to this approach was a perceived need for women to be flexible and open to whatever interventions others felt were necessary. For gynocentric women, birth was an unavoidably disappointing means to get to their baby. Birth was an uncertain event that would never be what they wanted, and one in which they would have to accept whatever care was provided, because it was structured by “procedures and policies that [the careproviders] follow and that they don’t deviate from” (09P4). Those procedures were intended to ensure the safety of birth, and so these women accepted them, and while the women may have questioned the clinical necessity of the inter-

ventions, they still accepted them without a fight: “I desire for my baby to be immediately put on my chest next to me before they take her to clean her off. But I know in talking to my doctors that that is ultimately not going to happen. They’re going to take her away and clean her up, monitor her, do all the assessments that they need to do. And then within an hour, hopefully, they’ll get her back to me. That part makes me a little sad” (09P4).

The CS rate for the women in the gynocentric group was 18 percent.

### **Fetocentric Women**

We coded women who saw birth as a high-risk affair, marked by extreme uncertainty and danger, as fetocentric. For these women, birth was portrayed as “a disastrous scenario that included emergency c-section, IV, blood everywhere. . . .” (08P4). Of the 49 women in the study, 25 (51.1 percent) were in this group. Fetocentric women were preoccupied with the possibility of maternal death or of losing their child during birth. They sought care from an obstetrician and chose to give birth in a hospital and to use multiple clinical interventions to manage labor, including prescheduled CS.

Women at this end of the spectrum were wedded to the notion that the female body is incapable of birthing without active medical management to correct and redirect the flaws and omissions of human physiology. Medical science was seen as essential to the process, and without it labor was thought to be impossible to bear. Interventions such as epidurals were presented as key to managing the process, and essential to allow women to enjoy birth as much as possible. Without an epidural, women could be rendered “unconscious with the pain” (57P8). These women endorsed a robust belief in obstetrical science and saw clinical interventions as “tools that lead the way, that will not damage you but will help you go through the process” (57P8).

Physicians were considered the experts, and fetocentric women willingly ceded their cognitive authority to them, for example, one said,

As much as I’ve tried to make myself an expert on the birthing process, I’m not one. So I place trust in the hands of who I think are experts. I think that’s really important, that’s their job—mine is something else. They do this every single day, so I just feel comfortable in the hospital even if I don’t want to seek all of the various interventions that are open to me. And it’s interesting that they call them interventions: I don’t think doctors call them interventions, they call them routine procedures [5M5].

When women in the fetocentric group encountered views that called their ideals into question, they vehemently defended them, often denying scientifically validated evidence and overlooking the obvious. For example, one participant recalled a situation in which a prenatal instructor informed the class that the risk of maternal mortality was higher with CS. The woman was incensed because she felt that the comment was inaccurate and engendered fear in one woman in the class, whom she described as:

. . . so scared she couldn’t even introduce herself without crying. When she heard from the prenatal instructor that c-section increases your chances of dying! I said, no, you can absolutely not say that, because the professional that made that decision [to perform a cesarean] has many degrees and I cannot imagine that a doctor would make that decision taking that much risk for just the fun of it. She tried to convince me that the more medical interventions was more risk, and I tried to convince her that the medical professional would not take more risk than necessary” [08P4].

Among this group, the women demonstrated a remarkable capacity to dismiss the evidence in order to uphold their own belief system. That capacity blocked their ability to be fully aware of the risk and benefits of the clinical interventions that they might receive during labor and birth.

All of the women in the fetocentric group gave birth in the hospital setting under the care of an obstetrician. Typically, they relied on anecdotal reports regarding the process of labor and the risks and benefits of various care options, rather than seek information from persons with knowledge and experience. They would say things such as, “I try to look for unbiased sources usually on the internet because it’s accessible” (11P6). However, when they encountered viewpoints that did not align with their own, they dismissed the ideas that were presented as irrelevant or incorrect. Few of these women talked about their partners, which suggests that they considered them to be inconsequential in terms of having a vested interest in the outcome or a say in the type of birth.

In summary, for these women the experience of birth itself was not relevant—it was instead simply a means to an end. “Childbirth doesn’t have to be scary but in my opinion it is. It’s going to hurt. It’s not going to be the best thing in the world. But it doesn’t matter in the end; you won’t even be able to remember what happened” (12P5).

The rate of CS in this group was 20 percent—the highest of the three groups in this study.

### DISCUSSION

In this study, women's perceptions about child-birth risk were rooted in their ideas regarding the female body's competence to perform birth and the need to control that process to ensure safe passage of the unborn child. Choices around the place of birth were a way to manage perceived risk, in the sense that the place of birth either gave access to clinical medical interventions or limited that option. The degree to which the women determined what was desirable for birth and how feasible it was to achieve their desires was highly personal. The majority of the participants knew what type of birth they wanted from an early stage in pregnancy and their choices were aligned with their conceptualization of birth.

We used Das and Teng's Risk Perception Model,<sup>11</sup> which integrates personal traits and cognition, as a way to explain why women in our study made such different choices for birth. In this model, personal traits include attributes such as assuming responsibility for outcomes and maintaining control over one's options.<sup>12</sup> Such traits were obvious in our study in the women who elected to have a home birth.

Allinson, Chell, and Hayes's Cognitive Approach<sup>13</sup> provided a means to examine the ways that women in our study collected, sorted, and evaluated information about options for birth and what they preferred. Using the Trait Approach, we could see how each woman constructed a reality that was comprised of risks and ways to avoid or limit those risks.<sup>14</sup> There were various approaches across the cohort, but matricentric women in particular demonstrated remarkable sophistication in this regard, as their decisions were motivated by limiting the perceived risks of childbirth for themselves and their unborn child. Women in the other groups had similar motivation, but limited their inclusion of evidence to information that validated their choices.

The ability of a woman to choose the type of birth that she wants is a relatively new innovation. The practice originated in the middle of the last century in response to pressure from birthing activists who publicly rallied against the highly medicalized models of care common to the era.<sup>15</sup> However, since as early as the 1980s, a common theme in the literature is that women are not really free to choose at all.<sup>16</sup> This opinion is supported by research-based evidence reporting that while women's preferences do influence the birth process, generally it is obstetricians' evaluation of the clinical indicators that de-

fine what choices are available.<sup>17</sup> Obstetricians report routinely informing women of the risks of interventions such as CS,<sup>18</sup> although in this study very few women could share an instance of being informed about the risks and benefits of any of the most commonly used clinical interventions. Furthermore, there is evidence that the information women are given is highly variable and insufficient to constitute full information.<sup>19</sup> Other studies report that information-based strategies to reduce incidence of CS have not been effective,<sup>20</sup> although it is not clear why or how the strategies could be improved. What is clear is that rates of morbidity and mortality have not demonstrably decreased, despite the high rates of CS in the U.S., suggesting that the rate of CS could be safely lowered to improve outcomes.

Our findings support previous research that reports that women's fear of birth is positively associated with maternal request for CS without medical indication.<sup>21</sup> In our study, the women's fear of childbirth influenced their willingness to be admitted to the hospital early in labor and to request or permit the use of clinical interventions regardless of medical necessity. The etiology of women's fear is not entirely understood, but one factor known to influence their resolve is a bad birthing experience in a prior delivery.<sup>22</sup> More research is needed to understand what constitutes a bad birthing experience and to identify ways to help women manage the fears that originate from them. This has significant implications for many of the women in this study whose births were not what they desired. Dissatisfaction with the birthing experience is reported to be as high as 7 percent in select samples, and in this study 14 percent of the women reported being dissatisfied with the process and said that in their next birth they would find a different careprovider and/or environment for birth.<sup>23</sup> Studies report that women feel violated by their birthing experience and some even suffer from post-traumatic stress syndrome.<sup>24</sup> In this study, some of the women's birth reports include experiences that are shocking in terms of the disregard shown to them. For example, one woman's obstetrician suggested that she have an epidural catheter placed "just in case" she decided she wanted it later in her labor for pain control. At that point the woman was five centimeters dilated and in active labor, but did not feel that she needed anything for pain. She explained this to the anesthetist, who administered the anesthesia anyway, disregarding her preference not have an epidural (14P6).

A common theme across the cohort was the need to control the birthing experience. Concern for the safety of the baby was a central factor driving deci-

sions about childbirth<sup>25</sup> that heightened conceptions of childbirth risk.<sup>26</sup> Research about risk perception identifies several important factors particularly relevant to how risk perception might influence women's decisions about childbirth. There is compelling evidence that experts and the lay public perceive risk differently. An expert's evaluation of risk is informed by applying population-level statistics to estimate the likelihood of occurrence of an adverse event in a particular individual. Alternately, an individual's judgments about risk often originate from her or his assessment of the localized effect.<sup>27</sup> For example, obstetrical healthcare providers evaluate childbirth risk based on clinical indices contrasted against national morbidity and mortality rates, while pregnant women's perception of childbirth risk is often filtered by social context, in combination with an intuitive evaluation of the likelihood of an undesired outcome for themselves or their unborn child. In other words, when women consider the likelihood of a particular outcome, it is filtered through what it would mean for them within the context of their life.

We found in this study that women's conceptions of risk about childbirth were formed over time from personal experiences, including information from friends and family, and representations in the popular media.<sup>28</sup> While each woman and each pregnancy is unique, sensationalistic media representations of childbirth risk may cause women to overestimate the probability of experiencing a negative birth outcome.<sup>29</sup> Research describes how these biases influence an individual's ability to assess probabilistic risk accurately,<sup>30</sup> how cognitive biases may influence a non-expert individual's ability to assess probabilistic risk accurately,<sup>31</sup> and how they are highly resistant to change.<sup>32</sup> This may explain why women in the gynocentric and fetocentric spectra of our continuum, when faced with evidence that was contrary to their beliefs, elected to discredit or ignore the information.

Decision making in uncertain circumstances can cause considerable stress, but this cognitive discomfort can be contained by choosing to act in a particular way. Simon, Houghton, and Aquino report that when individuals choose a specific path of action, that action disables their ability to process the risk associated with it.<sup>33</sup> That would suggest that even when women are fully informed of the risks of using a particular clinical approach to birth, in order to limit their perception of risk, if they have already chosen a course, it is probable that they will be incapable of accounting for the risks associated with their choice. For example, one woman in our

study opted to schedule CS to deliver her baby, even though there were no clinical indications for the surgery, and this was against the express recommendations of her physician. She was informed of the risks of having unnecessary surgery, but chose to proceed anyway. Many women in our study reported not being informed about the risks and benefits of the clinical interventions that were used, but they still agreed to them. It is clear there is an urgent need for research to build our understanding about how to inform women about their options for birth in a way that they can hear, understand, and apply to their own choices for birth.

In conclusion, in this study, choosing the place of birth became a way for women to control their perceptions of risk about childbirth. The place of birth that these women chose was selected to either limit or gain access to the use of invasive clinical interventions such as epidural anesthesia. Women who chose to birth at home did so because they felt that clinical interventions used in the hospital setting carried iatrogenic risks that could harm their unborn child. This perception is supported by the literature, and in many cases there is compelling evidence that commonly used clinical interventions are associated with increased risk of maternal and neonatal morbidity and mortality, particularly if they are used without clear medical indication.<sup>34</sup> Among the women in our cohort who birthed at home, none experienced complications or required transfer to the hospital for any reason. In addition, there were no CS among this group, while 16.7 percent ( $n = 42$ ) of the women who birthed in the hospital environment had CS. The home birthers also expressed satisfaction with their birthing experience and said they would birth at home again in any future pregnancy.

In a recently published opinion paper, Chervenak and colleagues call on perinatal care providers "not to support planned home birth when there are safe and compassionate hospital based alternatives and to advocate for a safe-as-home-birth-like experience in the hospital."<sup>35</sup> Based on the findings in our study, that call fails to account for maternal and neonatal morbidity stemming from the routine use of nonmedically indicated and highly invasive childbirth technologies. For example, in feasibility testing currently being done in preparation for a grant submission, we found that more than 70 percent of low-risk primigravid women who were admitted to the study site in labor were started on oxytocin, despite evidence that their labor was progressing normally. In addition, intrauterine pressure catheters were used almost routinely for women receiving oxytocin, intravenous infusions and epidural anesthe-

sia were used in the vast majority of cases, and episiotomies and CS were common events. Chervenak and colleagues discuss the ethical obligation of obstetricians to disclose risk about planned home birth when they obtain women's informed consent, but we found that the women we studied were not informed until they were in labor of the risks and benefits of the clinical interventions routinely used in hospitals to manage birth. To compare neonatal mortality and morbidity in relation to place of birth, we suggest that Chervenak and colleagues compare the short- and long-term prevalence of neonatal mortality and morbidity associated with the nonclinically indicated invasive interventions currently used to manage birth in low-risk women. If, in order to optimize maternal and neonatal morbidity and mortality, the intent is to curb the "recrudescence" of planned home birth, then hospitals should examine the routine use of interventions to better understand their association with adverse outcomes. More research is needed to demonstrate how best to use clinical interventions to optimize outcomes. Moreover, women who want natural childbirth or who state a desire not have interventions such as epidurals should be provided compassionate, supportive care by skilled perinatal practitioners.

We wholeheartedly support an improved and unbiased informed consent process that facilitates shared decision making, that will provide women with the data necessary to judge the risks and the benefits of the clinical interventions used to manage birth. In this study, many of the women commented that the information they received about birth was deeply polarized, seeming to fall on one of two extremes: adamantly supporting absolutely natural (physiologic) birth, or referring to the routine use of invasive interventions as the "gold standard" of obstetrical care. The findings of this (and other) studies on the management of childbirth suggest it is time for both sides of the debate to step back, review evidence supporting clinical practices, and find a more moderate stance that provides women the information they need, in a way they can comprehend, to choose the type of birth they desire.

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#### NOTES

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