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Does *CenteringPregnancy* group prenatal care affect the birth experience of underserved women? A mixed methods analysis

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Abstract

Background—We examined the birth experience of immigrant and minority women and how *CenteringPregnancy* (Centering), a model of group prenatal care and childbirth education, influenced that experience.

Methods—In-depth interviews and surveys were conducted with a sample of poor, racially diverse Centering participants about their birth experiences. Interview transcripts were analyzed thematically.

Results—Study participants (n=34) were primarily low-income, Spanish-speaking immigrants with an average age of 29.7. On a scale from 1 (not satisfied) to 10 (very satisfied), women reported high satisfaction with birth (9.0) and care (9.3). In interviews, they appreciated the choice to labor with minimal medical intervention. Difficulties with communication arose from fragmented care by multiple providers. Centering provided women with pain coping skills, a familiar birth attendant, and knowledge to advocate for themselves.

Discussion—High reported satisfaction may obscure challenges to childbirth care for marginalized women. Further study should examine the potential of Centering to positively impact women's birth experiences.

Keywords

group prenatal care; birth experience; Centering

Introduction

Approximately 10–15% of women report a negative birth experience,[1–3] and these experiences have long-term consequences for both mother and baby. Negative birth experiences are correlated with more postpartum anxiety,[4] future elective cesarean deliveries,[5] and may predict certain behavioral and emotional outcomes for children later in life.[6] Factors contributing to a negative birth experience include unexpected medical

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complications during birth, like cesarean section[7] or prolonged labor,[8] components of women's personal lives such as relationships with a partner,[2] and poor interaction with an intranatal care provider.[9] Certain predictors, such as fear of childbirth,[7,10,11] dissatisfaction with labor pain,[3] or feeling a lack of control during labor[8] could potentially be addressed by education or training in the antenatal period. Little research, however, has investigated how prenatal care or childbirth education affects women's birth experiences.

Poor and minority women in the United States are at higher risk of adverse birth outcomes and have lower utilization of prenatal care. Compared to non-Hispanic Whites and Asians, Hispanic, Black, non-Hispanic American Indian/Alaska Native, and Native Hawaiian/Other Pacific Islander women are less likely to initiate prenatal care in the first trimester or to receive adequate prenatal care.[12] Women with less than a high school education or a high degree of psychosocial risk are also less likely to access prenatal care.[13] Immigrant and migrant women, and undocumented women in particular, face additional challenges that include reduced access to health facilities, lack of health insurance, and language barriers with providers.[14–17]

CenteringPregnancy (Centering) is an innovative model of group prenatal care and childbirth education that has shown promise in addressing some of these obstacles. Centering consists of three components: healthcare delivery, health education, and peer support.[18] Women are placed into small groups by gestational age and meet regularly over the course of their pregnancies. They are dynamic participants in their own care, learning skills like measuring their blood pressure and determining gestational age. The educational curriculum spans topics from early pregnancy through caring for an infant, and the group support aspect of Centering includes formal sharing and informal conversation.[18] Centering is conceptually grounded in self-efficacy theory, with the idea that empowering women by actively involving them in their care will lead to better health outcomes.[19]

Originally piloted with ethnically diverse and Medicaid-eligible women,[19] research on the Centering model suggests benefit for low-income mothers, teen mothers and racial/ethnic minorities.[20,21] Studies of Hispanic women in Centering have found higher satisfaction with prenatal care[22] and greater likelihood of receiving adequate prenatal care,[23] lower rates of pre-term birth,[24] and higher odds of vaginal birth as compared with women in individual care.[25] A recent review of Centering research calls for qualitative research as a way to develop more meaningful outcome measures that are grounded in participant experience.[20] The objective of this analysis is to explore the childbirth experiences of racially and ethnically diverse, low-income women, and to investigate how participation in Centering may influence birth experience.

Methods

This project was conducted as a secondary data analysis of data from a larger mixed-methods trial examining the benefits of incorporating mindfulness practice into group prenatal care curriculum [K01 AT005270]. The Committee on Human Research (Institutional Review Board) at the University of California San Francisco reviewed and approved all study procedures.

Subjects and Setting

Participants were recruited from Centering groups at San Francisco General Hospital (SFGH). SFGH is owned and operated by the San Francisco Department of Public Health, and as the city's safety net hospital provides care for the its most vulnerable populations. It is also a teaching site for University of California, San Francisco (UCSF) health professional trainees. On the labor and delivery service at SFGH, Centering participants are primarily cared for by midwives unless they develop a high-risk complication. Other providers in the labor and delivery ward include resident and attending physicians in obstetrics and family medicine, as well as medical students, midwife trainees, registered nurses, and volunteer doulas.

Approximately half of women with low-risk pregnancies at SFGH choose a nurse-midwife as their prenatal provider and receive Centering group prenatal care.[26] Centering is offered in English or Spanish at community clinics accessible to low-income residents. Eligible women were receiving prenatal care through Centering, above the age of 18, and fluent in English or Spanish. Exclusion criteria included high-risk pregnancy (these mothers receive prenatal care in a high risk clinic) or previous formal training in mind-body practices.

Data Collection and Measures

Data for this study were collected at a post-natal study visit. As part of the procedures for the larger study, semi-structured individual interviews were conducted to assess women's experiences with labor and delivery. The interviewers were two bilingual female research team members, fully trained in the research protocol. The portion of the interviews analyzed for this study asked participants to "tell the story" of their childbirth experience. Follow-up questions pertained specifically to how hospital staff communicated during labor and birth, how they coped with pain, any medical problems experienced by mother or infant, and overall satisfaction with the birth experience and with care received.

Demographic information was collected by a survey in the first trimester of pregnancy. Participants also completed questionnaire assessments at the post-natal study visit, including items rating birth and care satisfaction (response range from 1–10, not satisfied to very satisfied). On another measure they rated the helpfulness of Centering in learning various skills, from having a healthy pregnancy to taking care of a newborn (0–5, not at all helpful to extremely helpful), as well as the effectiveness of the Centering providers in providing prenatal care and facilitating the group (0–5, not at all effective to extremely effective).

Analysis

Audiorecorded interviews were transcribed verbatim, and Spanish-language interviews were translated into English. Qualitative analysis was done using a phenomenologic approach[27] to explore the lived experience of childbirth. Interpretative phenomenological analysis (IPA) draws on detailed first-person accounts from research participants to record and interpret their main claims and concerns.[28] Guiding research questions for the IPA included: How do participants describe their birth experience? What factors influence women's birth and/or care satisfaction? How do participants characterize the role of Centering in the context of childbirth?

Two study team members (RL, AJ-L) independently used an open coding framework on five interviews, and then developed a codebook with guidance from the primary investigator (LD). One (RL) applied these codes to an additional 12 interviews, a random five of which were verified by the second (AJ-L). The codebook was revised by consensus and previous transcripts were re-coded to reflect these changes. This process was repeated with the remaining 17 interviews. Coding was documented using the online qualitative software program Dedoose.[29] Once all interviews were coded, codes were arranged into broader themes pertaining to the study questions. These themes were organized to describe the core elements of the birth experience of the participants.

Descriptive statistics, including frequencies, percentages, means, and standard deviations, were calculated from survey data.

Results

Demographic Characteristics

Over 90% of the 34 participants were racial/ethnic minorities; 70% were Spanish-speaking Latina immigrants (Table 1). Two thirds of the sample had less than a high school education, and reported an annual household income of less than $30,000 (in an area with a median income of $75,604).[30] Half were unemployed, and over a quarter were homeless. Most women (76%) were in a relationship, and approximately a quarter had no other children.

Satisfaction with birth, care, and Centering

Participants rated their satisfaction with birth, care, and Centering highly (Table 2). They rated their birth satisfaction as a 9.0 (SD 1.6) and their care satisfaction as a 9.3 (SD 1.3). Most considered Centering helpful for learning how to have a healthy pregnancy, skills for managing labor pain, taking care of a newborn, and reducing stress. The majority of women rated the nurse-midwives who led the groups as effective in providing prenatal care and facilitating discussion, and were able to build relationships with other group members.

When asked explicitly about birth and care satisfaction by the interviewer, many women gave a short affirmative response such as “the care was very good” without elaborating. These responses were coded as “brief positive answer” and applied to 15 interviews (44%). The following themes were derived from the entirety of the interviews. Many women identified (1) choice regarding medical intervention and (2) their relationship with birth attendants as important to their overall experience.

Medical Intervention in Childbirth

In general, women appreciated having the choice to limit medical intervention during labor and birth. Rates of various medical interventions in childbirth and mode of delivery are shown in Table 3. Notably, half of study participants labored without any pain medication, and 88% delivered vaginally. They frequently used the term “natural,” such as “I wanted it to be as natural as possible,” or “I was able to have the natural birth that I wanted.” Most reported movement during labor, standing and walking or doing exercises on a yoga ball, and several delivered in positions other than prone on the bed. Some participants tried to

follow a birth plan that avoided “medication” (epidural anesthesia), and felt that providers supported them in this goal. Others felt hospital staff helped them avoid a cesarean section, and “let the process of labor happen naturally.” Overall, women liked having options in terms of positioning during labor and birth, a birth plan, and mode of delivery. Additional illustrative quotes related to this theme are presented in Table 4.

Relationship with Birth Attendants

Women received care from many different providers, many of whose roles were unclear to them (Table 4). They identified providers only by the term “they” (such as, “they checked me”) in 24 (71%) interviews. These transient interactions with multiple attendants were challenging and made women feel ignored or misunderstood. It seemed like providers would “just leave and come back,” or that “no one paid attention.” Several women also felt that the presence of students or other trainees was uncomfortable and unhelpful. Many also received conflicting instructions from different providers, and remembered feeling “frustrated with the different responses” or that “it’s not fair that they say one thing and then another.” There was also frequently tension between signals from providers and women’s own bodies, often about when to push. The fragmented care delivered by multiple anonymous birth attendants contributed to overall dissatisfaction with care.

Minor themes: language of care, supportive persons, and complications

Less prominent themes influencing birth experience included whether women were able to receive care in their preferred language, the presence of a non-hospital support person, and birth complications. A few of the Spanish speakers reported the presence of a formal interpreter, but most relied on a member of the medical team or on a partner or family member to translate. Only one was unable to understand events of the birth because she did not speak English.

Women were almost universally accompanied by a supportive person during labor and birth; most commonly a partner, followed by a family member. Only 2 women described being alone with the hospital staff. The supportive person(s) played a variety of roles during the birth experience, including helping women to identify the onset of labor and reach the hospital, assisting with various pain management techniques, and facilitating communication with care providers.

A majority of women (68%) reported a maternal or fetal complication. Most were fairly minor; maternal dehydration, vaginal tearing, and neonatal jaundice were each mentioned by several participants. How providers explained and responded to these situations had a greater impact on women’s overall birth experiences than the complications themselves.

CenteringPregnancy

In the interviews, women discussed Centering in terms of 3 main areas: pain coping skills gained in Centering, the presence of Centering providers at the birth, and applying knowledge gained from Centering during labor. Representative quotes are shown in Table 5.

Women used a wide range of techniques for coping with the pain of labor and giving birth, and most ascribed their knowledge of at least some techniques to Centering. Most commonly mentioned were breathing methods: ” I remember[ed] that from Centering, push and breath, push and breath and it will feel better if you push instead of trying to hold the baby in.” Other frequently cited techniques were movement and the use of hot water. Women called these methods “helpful” and “relaxing.”

A few women had a Centering nurse midwife present at their birth, and they found this to be extremely positive. As one said, “I was very happy that it was her since I already knew her.” They trusted the Centering providers, communicated well with them, and felt supported by them. They were able to focus on instructions from a person they knew, in contrast to others who were distracted or frustrated by having multiple unfamiliar providers.

In several interviews women recalled making a decision or being able to advocate for themselves based on something they learned in Centering. One remembered how to orient her body for optimal delivery; another Spanish speaking woman recalled learning that she could ask for an interpreter. Another explained that because Centering covered cesareans, when she needed one, she knew “what they were going to do and understood how [her] C-section was going to go.” In these specific cases, Centering education directly impacted women’s understanding and actions during childbirth.

Discussion

The themes from the interviews demonstrate important ways in which the birth experiences of women in this sample compare to those of women nationally. Over half (64%) of women in the United States have their prenatal care provider as their primary birth attendant.[31] Only 6% of women (n=2) in our study reported the presence of their Centering nurse-midwife at their birth, while the rest had providers who they had never met before labor. This is likely related to the multidisciplinary structure of the labor and delivery service at SFGH, as well as the institution’s role as a teaching hospital. The women who delivered with their Centering leader felt supported by their birth attendant, whereas for other women in the study the multitude of unknown providers was a source of confusion and distress.

Medical intervention during labor and birth is more common nationally in the United States than it was for our study participants (Table 3). A third of American women give birth via cesarean section, and many more receive intervention combinations that may include synthetic oxytocin, epidurals, or artificial rupture of membranes.[31] Only about one third of our sample received oxytocin and/or epidurals. Although this was a low-risk group of women, many reported some kind of maternal or fetal complication. Despite this, only 4 women (12%, comparable to the overall local hospital rate of 17%) in our study gave birth by cesarean. Participants reported high rates of using non-pharmacological methods for pain relief, and generally perceived providers as supportive of their decisions to attempt vaginal delivery.

The most important factors to women in determining the quality of their birth experience were whether they felt listened to and able to make their own choices. They responded

positively when given the freedom to progress through labor with options for positioning and pain control and when with providers who worked with them to limit medical intervention. In contrast, negative feelings emerged when they felt misunderstood or ignored by providers unknown to them. Concrete phenomena like degree of pain, birth complications, or mode of delivery had less impact on women's overall birth experiences. These findings are consistent with at least one prior study that found the degree to which women felt their expectations of birth were fulfilled outweighed level of pain in determining overall birth satisfaction, and that higher perceived control lessened the effect of pain.[32]

Centering was mentioned by virtually all participants during their interviews in relation to some aspect of their birth experience, most commonly in reference to strategies learned for coping with the pain of labor and birth. It is evident that Centering successfully provided this group of women with a wide range of feasible approaches. When Centering providers were able to serve as the primary birth attendant, this continuity of care had a clear positive impact on women's perception of support. However, this was a rare occurrence due to the volume of births and scheduling practices in this teaching hospital. Several women related important ways in which they were able to advocate for themselves based on knowledge they had gained in Centering. This is consistent with prior research that Centering can increase women's feelings of control and empowerment during labor and birth.[33] Taken together, this data suggest that participation in Centering may increase women's self-efficacy surrounding birth, which may in turn predict increased birth satisfaction.[32] This could be an especially significant benefit of Centering participation for marginalized women.

An important lesson learned from this study was that asking women directly to rate satisfaction with their birth or care yielded limited, though positive, responses. This challenge has been noted in other research, particularly with multicultural populations.[34] Our results point to the value of using an approach proposed by others of a more complex framework for understanding birth satisfaction that includes concepts like relationships and individualized care.[35] Extrapolating from these findings, surveys such as ours that ask women to rate their birth satisfaction on a Likert-type scale may be inadequate, hence our use of in-depth semi-structured interviews.

This study has several limitations. This is a small sample of women with low socioeconomic status at a single hospital, which may limit generalizability. However, prominent themes in the interviews reflect issues that have been noted at the national level. The self-reported nature of the data may limit its accuracy regarding various medical interventions, but the focus of this study is to describe women's lived experiences. Lastly, when working with underserved populations, an important concern is that participants may feel reluctant to give critical responses for fear of losing access to services. Every attempt was made to minimize this by emphasizing confidentiality, developing trusting relationships between the interviewers and the participants, and conducting interviews in participants' native languages by study staff not connected to the provision of healthcare.

New Contribution to the Literature

Despite these limitations, this study paints a unique picture of the birth experiences of a sample of poor and minority women, and provides insight into how participation in group prenatal care using the Centering model may have influenced that experience. Overall, women reported high levels of satisfaction with their birth experiences. They valued giving birth in an environment that offered them options to limit medical intervention in childbirth, and participation in Centering successfully equipped them with a variety of pain coping methods. Increasing the presence of known prenatal care providers at births could reduce the feelings of marginalization women experienced from a lack of continuity of care with birth attendants. Further consideration should be given to the potential of Centering to empower underserved women in making decisions regarding their care during childbirth.

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Table 1

Sociodemographic characteristics of participants

Demographic Characteristic	Participants (N=34) N (%)
Age *	29.7 (± 4.0)
Race/Ethnicity	
American Indian/Alaska Native	3 (9)
African American	3 (9)
Latina	23 (68)
White	2 (6)
Multi-racial	3 (9)
Primary language	
English	10 (29)
Spanish	24 (71)
Country of birth	
U.S.	10 (29)
Outside the U.S.	24 (71)
Relationship status	
Single	9 (26)
Dating or in a relationship	23 (68)
Married or partnered	2 (6)
Living arrangements	
Apartment or house	24 (71)
Homeless or group quarters	10 (29)
Other children in the home[a]	
0	8 (24)
1–3	11 (32)
>3	5 (15)
Education level	
Less than H.S.	26 (76)
H.S. or GED	3 (9)
Greater than H.S.	5 (14)
Employment Status	
Working (full or part time)	10 (29)
Unemployed	17 (50)
Other	7 (21)
Annual household income	
<$10,000	13 (38)
$10,000–$30,000	12 (35)
>$30,000	6 (18)

*Data in this row presented as mean (± standard deviation)

[a]Missing data for 10 participants

Table 2

Satisfaction with birth, care, and *CenteringPregnancy*

Satisfaction	**Participant rating Mean (SD)**
Birth satisfaction (response range: not at all to very, 0–10)	9.0 (1.6)
Care satisfaction (response range: not at all to very, 0–10)	9.3 (1.3)
CenteringPregnancy satisfaction (response range: not at all to very, 1–5)	
Centering was helpful for learning how to have a healthy pregnancy	4.2 (1.3)
Centering was helpful for learning skills for managing labor pain	4.2 (1.5)
Centering was helpful for learning to care for a newborn	3.8 (1.5)
Centering was helpful for learning skills for reducing stress	3.2 (1.7)
Leaders were effective providers of prenatal care	4.5 (1.5)
Leaders were effective facilitators of group discussion	4.5 (1.4)
Women felt close with other group members	3.0 (1.7)

Table 3

Medical interventions used during childbirth and mode of delivery

Intervention	**Participants (N=34) N (%)**
Synthetic oxytocin	12 (35)
Fetal heart rate monitoring	25 (74)
Pain medication *	
Epidural	12 (35)
Narcotics	14 (41)
Tranquilizers	4 (12)
None	17 (50)
Vaginal delivery	30 (88)
Episiotomy	8 (24)
Forceps/Vacuum	2 (6)
Cesarean section	4 (12)

* Participants may have received more than one medication; percents do not total to 100.

Table 4

Illustrative comments on factors influencing birth and care satisfaction

Minimizing medical intervention in childbirth	
Birth positions	I didn't know that you could give birth in other positions because I thought that the woman had to be lying down and to open her legs and that the baby would be born. That was in my head. I had never heard other things. Or maybe I had heard them but I didn't believe how true they were. But as it turns out, with my baby I had to use another technique, another position to give birth, because if not I felt I wouldn't be able to.
Avoiding cesarean delivery	I told my husband, "I liked it. I can't imagine being in Guatemala because there it's not like here." Here they asked me why I had the baby Cesarean and I requested the papers [from Guatemala] and they didn't want to give me any information. Nothing. So they [here] said, "well let's see how we can try [vaginal birth]."
Following a birth plan	They weren't offering me an epidural, because, in my birth plan, I had said I didn't want an epidural… they followed it as closely as they could, and that's one thing I really appreciated about the hospital, is that they respected my birth plan… at one point I was like 'well give me anything' and they were like 'well you know we're trying to go according to your birth plan'. You know they would at least talk to me about it.
Relationship with birth attendants	
Multiple anonymous providers	…well I don't know if it was normal but I felt like because I was pushing and it wasn't coming out yet, they would go away and then when another would say, 'oh yes, yes' and then they would all come back. And so this was uncomfortable because they weren't paying attention to, they weren't giving me the support that I needed. They were thinking, "no this will take longer" or "she's still taking longer," and so they would go away, and then they would come back.
Uncomfortable presence of trainees	I had one [nurse] but then about 30 came all at once when I was giving birth. That was something else that I didn't like. I thought it was just going to be the ones that were there but then the students came. I didn't like that because everyone was watching me…
Conflicting signals	Because when the baby starts to come out and vulva is little and afterwards it starts opening and so that hurts. It starts stretching and so since the doctor was attending another patient, I wanted to get her out, I didn't want her inside because I couldn't stand the pain anymore. And so they had me in the bed and so when I pushed they said, "no! no push yet! The doctor's not here" And I said, "I want to get her out! I want her out of me!" … I pushed and so one of the nurses … said, "don't push!" And I pushed harder to get her out of me. I said, "I can't stand it anymore. I'm gonna do it."

Table 5

Illustrative comments on the impact of CenteringPregnancy on birth experience

Knowledge of pain management techniques	P: When I got to 9 [cm dilation], they said, "You still need 1.5 more" so I did exercises. I sat on the ball, I sat on the bed, I went to the bathroom. I: Did you do anything that you learned in Centering? P: Yes, I got into the tub, sitting and relaxing. Sometimes I felt so frustrated that I wanted to be alone but that helped. I would get into the tub and poured water on myself and that relaxed me a lot.
Known Centering provider as birth attendant	Yes, it was very good, really. I was very happy that it was her since I already knew her…And she helped me a lot….She said to push when the contraction came. But since I had the epidural, I felt pain but at the same time, I wasn't sure if it was the contraction or the pain I was feeling up front…And I liked that it was [known Centering midwife] because she didn't try to rush me but rather she gave me advice. And she would touch me in certain places and say, "Push from here" because they say that many times people push incorrectly. They don't put the pressure where they need to and she would say, "From here. And now relax, don't strain yourself."
Advocating for oneself	
Body positioning	But now when I'm pushing all the way trying to get the baby out…plus the contractions and then the midwife trying to talk to you plus everything going on all around you it's just a whole experience all in itself, and then I was just like I have to black everybody out and concentrate on pushing and pressing my bottom down, trying to lie like 'cause I know she had showed us in the Centering group when we're on our back with our legs up the baby's head is actually hitting on the bottom of our bone and not going straight like that.
Requesting an interpreter	I requested an interpreter and that they speak in Spanish and so thank god, the whole time I had someone who could explain to me in Spanish….Because in the group they tell us that if you speak in English, they can give you someone who speaks English but I always ask for an interpreter. I don't speak English and I won't understand.