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CenteringPregnancy in New Jersey: Results of a Mixed Methods Evaluation

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September 2025

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Suggested Citation
Kantor, L., Adams, C., Akhimien, C., Allibay Abdulkadir, F., Battle, C., Oluwayemi, M., Salimon, O., Dogbey-Smith, C., Merchant, E., Alspaugh, A., Won, S.H., Andrews, T., Francis, E. (2025). *CenteringPregnancy in New Jersey: Results of a Mixed Methods Evaluation*. (Report). Rutgers School of Public Health.

Ethics - IRB approval for this evaluation was obtained from the Rutgers University IRB (Pro2023001946).

Acknowledgments

A grant from the Burke Foundation supported the CenteringPregnancy evaluation. We are grateful for the Foundation's dedication to improving pregnancy experiences and health outcomes for women and children in New Jersey, and for their partnership throughout the evaluation process.

We extend our sincere gratitude to the CenteringPregnancy sites and the many health care providers, administrators, and staff who partnered with Rutgers University and the evaluation team on all aspects of the evaluation.

Our deepest thanks go to the CenteringPregnancy patients who took the time to participate in focus groups, fill out surveys, and offer their perspectives and suggestions about CenteringPregnancy.

Executive Summary

CenteringPregnancy is a group prenatal care model that brings together pregnant individuals with similar due dates for shared learning, support, and comprehensive prenatal care. Prior research has demonstrated that CenteringPregnancy can improve outcomes for patients, particularly among Black and Latina women. The Burke Foundation has played a significant role in expanding access to Centering in New Jersey, investing more than $2.1 million to fund 25 local CenteringPregnancy sites and collaborating with partners to strengthen its implementation, expansion, and sustainability.

To evaluate CenteringPregnancy in New Jersey, the Burke Foundation engaged the Rutgers School of Public Health. Led by Principal Investigator Leslie M. Kantor, PhD, MPH, the Rutgers team planned and conducted a statewide evaluation of the CenteringPregnancy model of care from 2023 to 2025. The research team examined CenteringPregnancy's implementation, acceptability, and satisfaction among patients and providers as well as select outcomes for patients.

The research team included multiple faculty and staff from the Rutgers School of Public Health as well as community researchers, some of whom were previous or current CenteringPregnancy patients, and all of whom are mothers with training and experience conducting research. Data was collected from CenteringPregnancy patients, health care providers, and health care administrators at multiple sites using focus groups with current patients, observations of CenteringPregnancy sessions, patient surveys at multiple sites, and in-depth stakeholder interviews. A subset of these sites also provided electronic medical record (EMR) data.

CenteringPregnancy in New Jersey: Results of a Mixed Methods Evaluation, presents the findings from this investigation, along with recommendations for further CenteringPregnancy improvement emerging from the insights gained.

Evaluation Objectives ~

The evaluation had five main objectives:

- Understanding factors that support or hinder the implementation of the CenteringPregnancy model of care.
- Understanding the experiences of care among patients.

- Investigating the experiences of CenteringPregnancy providers, staff, and stakeholders, including any barriers or facilitators to CenteringPregnancy sustainability.
- Identifying best practices.
- Examining health outcomes for CenteringPregnancy patients.

Evaluation Components ~

The evaluation included the following components:

- **Focus groups:** English-language focus groups were conducted with current CenteringPregnancy patients at each participating evaluation site. One additional focus group was conducted in Spanish at a single CenteringPregnancy site.
- **Observations:** One CenteringPregnancy session was observed at each participating site.
- **Patient surveys:** Surveys were distributed in both English and Spanish to patients from all participating sites who completed at least five CenteringPregnancy sessions.
- **In-depth interviews:** Four to five health care providers, staff, or other stakeholders (e.g., clinical managers, administrators) were interviewed at each participating site.
- **Electronic Medical Record (EMR) data analysis:** EMR data for patients at a subset of CenteringPregnancy sites was analyzed.

Community researchers were vital to the evaluation. These individuals were Black mothers from New Jersey with recent birthing experiences similar to those of CenteringPregnancy patients. The community researchers brought valuable experience and training from prior community-based participatory research (CBPR) studies led by the same Principal Investigator.

The community researchers were deeply involved in every step of this project. They helped design data collection tools, conducted observations, facilitated focus groups, and analyzed the findings. Their involvement ensured that the evaluation reflected lived experiences, providing valuable insights that enhance the evaluation's credibility, relevance, and depth.

Summary of Findings

Patients ~

An overall synthesis of the findings across all evaluation components found that patients and providers alike benefitted from CenteringPregnancy. For example, survey respondents—all of whom were current or past CenteringPregnancy patients who had completed at least five sessions—reported being "very satisfied" with their overall care, medical providers, and the information they received. The majority of respondents also reported feeling "very comfortable" sharing information in the group sessions.

Crucially, CenteringPregnancy patients reported that CenteringPregnancy provided them with additional social support and opportunities to get to know their health care providers during their pregnancies. Patients valued the relationships they developed with other patients in the group sessions, and with health care providers who shared information. As one survey participant explained:

> *"[CenteringPregnancy] really created a good support system for me and my husband and helped us prepare for all the things to come with the pregnancy and childbirth."*

Among women who had experienced both traditional one-on-one prenatal care and the CenteringPregnancy model, the latter was preferred. As one focus group participant commented:

> *"So, for me, I love my doctor. She's really nice. If I have to compare the doctor I have now in Centering and the one I had in traditional prenatal care, I'll pick this one over her because she's very detailed…She explains well. She has the time. She has the patience, she listens. She refers you to resources. I love her so much, and she's the best."*

Evaluation participants also valued the ability to share what they had learned with others and the recognition of their new expertise from family and friends. For women with fewer social connections in their communities, CenteringPregnancy was especially valued. As one focus group participant noted:

"It's funny because my cousin just gave birth a couple of weeks ago and I became a teacher with everything I learned here. I was coaching over the phone…. and my family were wondering like, 'Did you – when did you become a nurse?' I'm like, 'Oh, no,' and I said, 'It's just something I learned from my prenatal class.'"

Evaluation participants offered several recommendations to enhance the CenteringPregnancy model. For example, some evaluation participants suggested adhering strictly to the scheduled start time for the group session instead of waiting for latecomers. They also called for clearer communication about whether participating in the model was an elective choice or the standard of care and some patients suggested that separate groups be held for first time mothers.

Providers and Sites ~

The evaluation found that CenteringPregnancy was well-liked by health care providers and other professionals who deliver the model of care. According to stakeholder interviews, staff at the sites believe that group-based prenatal care provides important benefits for both patients and participating staff. As one interviewee explained:

"Through Centering[Pregnancy], we advocate for people being an advocate for themselves, for their own care. And I think giving them a voice really goes very far ... it empowers them to get what needs to get done the way they wanted it to, working very cohesively with their practitioner."

Providers reported high satisfaction with the opportunity to deliver the CenteringPregnancy model, indicating that the model of care contributed to job satisfaction and reduced burnout. As one clinician noted:

"[I]t's a return to medicine as many of them have trained to be, and that's having a relationship with the patient. So much of medicine now is sort of just processing patients through a treadmill, which leads to provider burnout. I think the connection that [providers] make with the patients and the time they spend with

them week after week, or session after session … has given them a great sense of accomplishment and has helped them love medicine again."

Suggestions from administrators included building more administrative time into the schedule to allow them to prepare and document. Expanding the number of trained providers is essential to mitigate the risk associated with over-reliance on a small group of health care providers. This will ensure the consistent provision of the Centering model, even when key personnel are absent. Several sites worried about the sustainability of the model due to reimbursement rates and the end of available grant funding.

Electronic Medical Record (EMR) Data Analysis ~

The Rutgers study team analyzed electronic medical record (EMR) data from nearly 1,000 CenteringPregnancy patients to evaluate its impact on select maternal and infant health outcomes. The data, provided by a sub-set of the participating sites, showed that CenteringPregnancy was linked to better health outcomes, even for higher-risk individuals.

While acknowledging some inherent limitations in the assessment, such as the absence of a comparison group and incomplete data**,** analysis of the EMR data revealed promising findings. Notably, women who had completed five or more CenteringPregnancy sessions experienced reduced rates of adverse pregnancy outcomes such as preterm birth and Cesarean deliveries and increased rates of breastfeeding initiation and postpartum care. The strong rates of postpartum care suggest that CenteringPregnancy can enhance patient engagement with health care providers and the health care system. This positive influence could have lasting effects on how patients interact with the health care system over time, potentially leading to better management of existing health conditions and better lifelong health.

Recommendations

CenteringPregnancy patients and health care providers offered several recommendations to enhance the group care model and move toward making group prenatal care the standard of care. These included training multiple providers at each site to help ensure that the model of care's

sustainability and the ability to provide Centering to a larger number of patients. Other recommendations focused on ensuring patients understand the components of each group session and making sessions more efficient.

More challenging areas for improvement noted by evaluation participants include inadequate space for group sessions and private consultations with health care providers, and current reimbursement rates for CenteringPregnancy through both Medicaid and private insurance. Opinions from patients differed on certain issues such as the appropriateness of having children present during group sessions making it difficult to implement changes that would be desirable to all patients.

Overall, the many positive findings in this evaluation demonstrate that CenteringPregnancy is clearly a prenatal care model valued by both patients and health care providers for its role in creating community, increasing social support and enhancing connectedness between providers and patients. Benefits reported by health care providers include deeper patient connections, greater job satisfaction, and a perception of decreased burnout among staff. In addition to these social and emotional benefits, CenteringPregnancy also demonstrated the potential to improve key patient health outcomes.

While the EMR data analysis had limitations, this aspect of the evaluation makes an important contribution to the existing literature because it includes a large proportion of higher-risk patients.

This evaluation demonstrates that the social and emotional benefits of CenteringPregnancy as well as its ability to deliver high quality care should be widely available as the standard of care. Finally, this comprehensive evaluation offers important insights that may extend beyond CenteringPregnancy to other types of health care and can guide improvements in quality of care and patient and provider experience.

Introduction

CenteringPregnancy is a group prenatal care model that gathers pregnant individuals with similar due dates for shared learning, support, and comprehensive prenatal care. Patients attend 10 prenatal visits, each lasting 90 to 120 minutes. During these visits, patients actively engage in their own care by taking their weight and blood pressure, recording their health data, and spending private time with their health care provider for a physical examination. Following these individual assessments, the provider and other Centering facilitators convene the participating mothers and any support persons (e.g. partners, relatives, friends) in a circle format for facilitated discussions and activities relevant to the group's stage of pregnancy.

Peer support is a cornerstone of CenteringPregnancy. The opportunity for patients to provide mutual support, both within and outside of group sessions, likely contributes to CenteringPregnancy's positive outcomes. Furthermore, the extended time with clinicians and other health care providers, along with ample time for questions and information exchange, fosters improved relationships between patients and their health care teams.

Prior research on the CenteringPregnancy model suggests multiple benefits for perinatal patients. These include a reduced incidence of six-month postpartum symptoms of depression (Liu et al., 2021), decreases in interpregnancy intervals of less than a year (Keller et al., 2023), and increases in participation in well-child visits over the first 15 months for those who participated in five or more group sessions (Heberlein et al., 2023). Some studies also show improved clinical outcomes, such as lower rates of preterm birth and low birthweight, although these results are inconsistent. Overall, the existing literature on group prenatal care—an innovative and evidence-backed perinatal care delivery modality—to positively influence maternal and child health outcomes (Heberlein et al., 2023; Keller et al., 2023; Liu et al., 2021) and experiences of care (Sadiku et al., 2024), especially for underserved or poorly served populations, including birthing people of color (Byerley & Haas, 2017).

Policy can play a critical role in shaping maternal and child health outcomes by influencing access to quality care, promoting healthy behaviors, and addressing social determinants of health (Katon et al., 2021). Effective policies can help ensure that both mother and baby receive timely and appropriate medical care, including prenatal care, childbirth services, and pediatric care. To support improvement in maternal and child health outcomes, the state of New Jersey has

established a number of policies such as expanded Medicaid coverage in 2019 (P.L. 2019, c. 237) to include group prenatal care services (Kantor et al, 2025).

In order to evaluate CenteringPregnancy in New Jersey, the Burke Foundation engaged the Rutgers School of Public Health. Led by Principal Investigator Leslie M. Kantor, PhD, MPH, the School of Public Health planned and conducted a statewide evaluation of the CenteringPregnancy model of care from 2023 to 2025.

Evaluation Overview

The CenteringPregnancy evaluation is a multi-component, mixed-methods study assessing the expansion of CenteringPregnancy at seven sites throughout New Jersey. The evaluation model is illustrated in **Figure 1**. Data was collected from CenteringPregnancy patients through surveys and focus groups. At the group level, a CenteringPregnancy session was observed at each study site. At the site level, a series of in-depth interviews were conducted with four to five key stakeholders at each location. The research team also analyzed CenteringPregnancy patient electronic medical record (EMR) data for a subset of the sites.

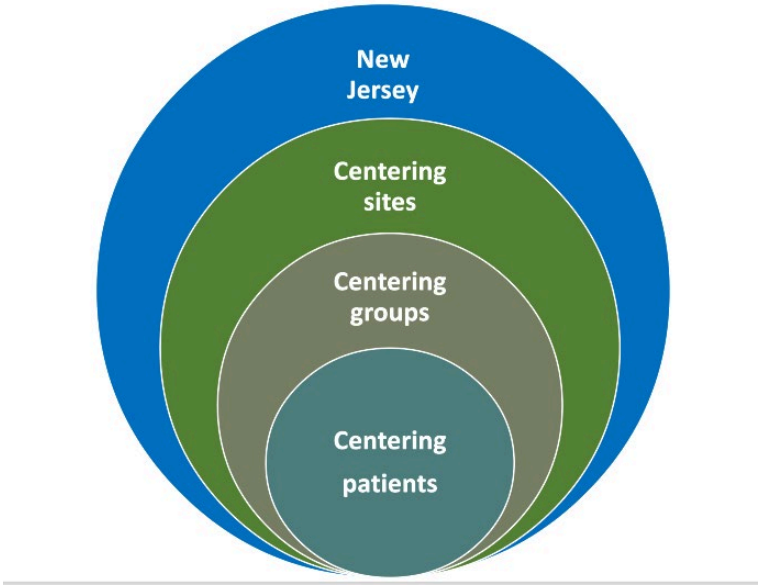

Figure 1. Model for CenteringPregnancy evaluation

The evaluation objectives were to:

- Understand factors that may support or hinder the implementation of the CenteringPregnancy model of care.
- Understand the experiences of care among patients.
- Investigate the experiences of providers, staff, and stakeholders, including any barriers or facilitators to CenteringPregnancy sustainability.
- Contribute to the understanding of best practices.
- Examine health outcomes for CenteringPregnancy patients.

The individual components of the overall CenteringPregnancy evaluation were as follows:

- One English-language focus group with current CenteringPregnancy patients at each site, and one Spanish-language focus group at a single CenteringPregnancy site.
- One observation of a CenteringPregnancy session at each site.
- Analysis of CenteringPregnancy patient surveys conducted at each site in both English and Spanish.
- In-depth interviews with four to five health care providers, staff, or other stakeholders (e.g., clinical managers, administrators) at each site.
- In-depth analysis of electronic medical record (EMR) data for CenteringPregnancy patients, received from a sub-set of the sites.

The initial administrative phase of the evaluation spanned over a year, with active data collection occurring between April 2024 and February 2025. During this period, sites requested survey responses from current and past CenteringPregnancy patients, and EMR records were obtained for CenteringPregnancy patients from select sites. The compiled survey and EMR data reflect CenteringPregnancy patient experiences and outcomes from 2020 to 2025.

This evaluation integrated community researchers into the research team. These community researchers are Black mothers from New Jersey with recent birthing experiences similar to CenteringPregnancy patients. Their expertise was developed through prior experience on a community-based participatory research (CBPR) study headed by the same Principal Investigator (Cruz et al., 2024). The community researchers were deeply involved in designing and testing data collection tools, conducting the observations and focus groups, and analyzing the data. By including community researchers in both the study's design and data analysis, we ensured the evaluation truly reflected lived experiences. Their ability to reveal insights that typical research teams might miss was invaluable, adding immense credibility, relevance, and depth to the findings.

This report summarizes the methods and findings of each evaluation component as well as summarizing the findings overall and providing recommendations.

Focus Groups with Current CenteringPregnancy Patients

Introduction

Focus groups with current CenteringPregnancy patients were conducted at six of the seven participating sites. One site did not participate due to the temporary discontinuation of CenteringPregnancy services due to a staffing change. These focus groups provided rich data regarding factors that facilitate or hinder CenteringPregnancy enrollment, insights into group dynamics and social support, and patient recommendations for the Centering model.

Methods

Study Design ~

Six focus groups were conducted in English between April and December 2024 and included between two to six participants in each group. Focus groups were conducted with current CenteringPregnancy patients and were facilitated by a community researcher and one additional member of the research team.

An additional focus group was conducted at one location in Spanish in February 2025. The results of this focus group are in the following section of this report.

Sample ~

The Rutgers research team worked directly with CenteringPregnancy sites to identify and schedule the consent process and focus groups. Efforts were made to avoid scheduling focus groups during patients' initial CenteringPregnancy session. This approach ensured that the evaluation did not disrupt initial group formation and allowed the observation and focus group conversations to effectively gather information about the social connections and support gained from the sessions.

At a CenteringPregnancy group prior to the planned focus group date, research team members explained the evaluation and upcoming focus group to eligible patients, and potential participants were given written consent forms to sign. The research team subsequently attended the following CenteringPregnancy session to conduct the focus group with patients who chose to participate. Focus group participants were informed that the information shared would remain

confidential and that their names would not be associated with any reports, presentations, or papers resulting from the evaluation. Each participant received a $50.00 gift card for their participation.

Data Collection ~

The focus groups were conducted on the same day as the observations of the CenteringPregnancy sessions and generally involved the same patients. However, some patients only participated in the observation and did not attend the focus group, while others were part of both.

A semi-structured interview guide was used to explore the following domains (1) enrollment in CenteringPregnancy, (2) group dynamics and social support, (3) benefits and challenges of CenteringPregnancy, (4) barriers to participation, and (5) recommendations for improving the model of care. The interviews were conducted in person by two members of the research team (one community researcher and one full-time member of the research team).

Each focus group lasted for 45 to 90 minutes and was audio and video recorded. All interviews were transcribed by a professional transcription service based on the recordings. For clarity, vocal fillers, such as “uh” and “um,” as well as duplicated speech, were removed, and grammatical errors were corrected.

Data Analysis ~

A deductive thematic analysis was performed using Dedoose software to analyze the data, following a six-step process: (1) becoming familiar with the data, (2) generating initial codes, (3) generating initial themes, (4) reviewing themes, (5) defining the themes, and (6) writing the report.

Each focus group was coded by two community researchers and an additional member of the research team. The full research team engaged in data synthesis and agreed upon the final themes and subthemes. Responses to the open-ended questions in the debrief memo were summarized and included in the results section.

Results

In total, six English-language focus groups were conducted with 31 total participants. (Please note: the Spanish-language focus group data is presented in the following section of this report). All participants were actively enrolled in CenteringPregnancy at the time of their focus

group. Individuals were between the second trimester of their pregnancy and early postpartum when the focus group took place.

Findings are organized in two primary domains (**Figure 2**: (1) what patients enjoy and value from CenteringPregnancy, including community building, improved experience with health, and patient-centered learning; and (2) areas for improvement, including the enrollment process, ensuring privacy and individualized care, and barriers to accessibility.

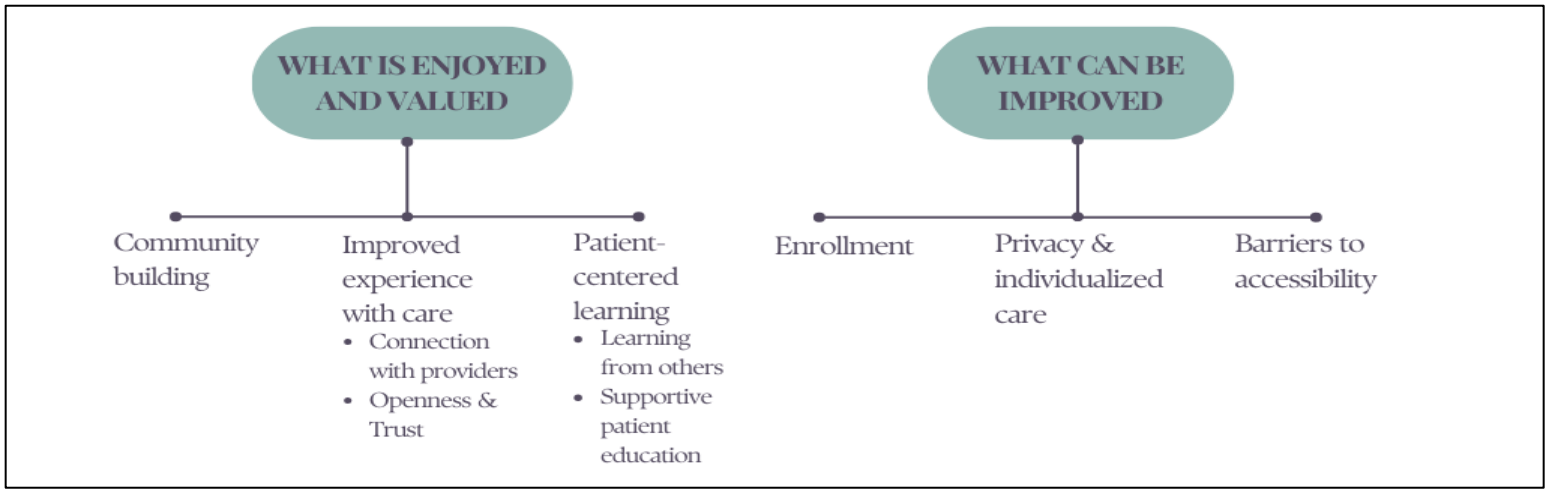

Figure 2. Thematic organization depicting what patients enjoyed and what could be improved

What is enjoyed and valued about CenteringPregnancy care

Community Building ~

CenteringPregnancy patients felt a sense of fulfillment and community in their groups. By hearing about each other's pregnancy and birth experiences, CenteringPregnancy patients experienced a supportive community during their pregnancies. Many women expressed that the communal nature of CenteringPregnancy was what attracted them to this new type of prenatal care. Some focus group participants noted that they were involved in group prenatal care in another country during prior pregnancies and desired a similar experience for their current pregnancy. Those participants often shared that they had a less-developed network of friends or family in the area, either because of moving within the United States or immigrating from another country. The group-based care model was an especially important opportunity for these patients to gain support and build community in their new homes:

"Then, of course, here we don't have so many friends or family. Then it's nice to have a kind of group. Then the kids can grow up together, and we have a strong connection between mommies and kids in the future."

Some CenteringPregnancy patients had experience with the traditional care model, either earlier in their current pregnancy or in a prior pregnancy. When asked if they preferred the CenteringPregnancy model compared with traditional care, all focus group participants reported that they preferred the CenteringPregnancy care model. Women reported that the connections and relationship building with fellow CenteringPregnancy patients contributed to their preference for the group-care model:

"I think it's actually better because, … from the last pregnancy, if I compare, I feel all the time you come here, yes, it's nice, you hear the baby's heart, but … that's it … I felt kind of empty when I left. Okay, yes, I came, I did what I had to do, and that's it. I left. But now when we come here, it's kind of a recharge of energy."

Improved Experiences with Health Care ~

CenteringPregnancy patients reported several factors that improved their experiences of health care. Small gestures such as personalization (e.g., name tags), waiting for someone running a little late, and snacks created a warm and welcoming environment for pregnant women and their support people (e.g. partners, relatives, friends) who accompanied them. In addition, seeing the same health care providers and other CenteringPregnancy patients over time fostered a meaningful relationship between the group members and their care team. One mother reported that this contributed to a sense of well-being:

"Love, happiness. Then you leave, I tell you 'Wow, I'm happy.' I came here for just an appointment, and when you leave, I feel different."

This improved experience of care was rooted in two main sources: enhanced connection with their health care team and the ensuing openness and trust that came with this connection to providers and other women in similar stages of pregnancy.

Connection with Providers

The relationships fostered between patients, CenteringPregnancy facilitators, and providers were especially meaningful to CenteringPregnancy patients. One mother noted that in prior prenatal experiences, she felt she was easily forgotten. However, in her experience with CenteringPregnancy, she felt a much greater connection and a kind of familiarity that had been lacking from prior experiences:

> *"But with [the provider] I'm pretty sure in two years, three years, four years, that if I come back with [my son], she is going to remember my face."*

Focus group participants agreed that their CenteringPregnancy providers and facilitators showed kindness and openness and created a warm and open environment. Over the course of their participation in CenteringPregnancy, many started to feel that their groups were almost familial:

> *"Because more and more we come here, you kind of feel like family. …You are not strangers anymore."*

Individuals with experience with traditional prenatal care were especially aware of the difference the CenteringPregnancy model offered:

> *"So, for me, I love my doctor. She's really nice. If I have to compare the doctor I have now in Centering and the one I had in traditional prenatal care, I'll pick this one over her because she's very detailed. So, the other ones, you do your urine, and they just say everything is good. They don't tell you something is somewhere, but this one will tell you what is good, what is bad, what you need to watch, and she's very detailed. She explains well. She has the time. She has the patience, she listens. She refers you to resources. I love her so much, and she's the best."*

Participating in CenteringPregnancy made patients feel heard. The providers respected their right to make their own decisions. Many focus group participants shared stories of stressful times in which having the support of their providers helped their mental health and made them feel seen:

"I think, you know, they care. There was one time I wasn't feeling so good, and, while the group was going on, [the provider] kept checking on me to make sure, 'Are you okay?' Because I felt my blood pressure was going to go down. Because I do have a little bit of anxiety. So, you know, the fact that she was always checking on me, and I was like, yeah, they are always taking care of me."

Openness and Trust

As a result of these relationships, CenteringPregnancy patients expressed that they trusted their CenteringPregnancy providers more than they had other health care providers in the past. One participant noted that having a deeper relationship with her provider made her more comfortable expressing her concerns. She felt that she was really heard, with solutions proposed differently than in her experience with the traditional care model:

"I had a bladder infection, and I mentioned it to the midwife, and she told me, 'Oh, do you want to do a test to see if you have an actual infection?' I liked that because, in the past, that would be just, 'Okay, it's over.' But with [the midwife], since we had a connection, I thought, 'You know, I was worried,' then she gave me a solution. And I can compare from today my experience with the last pregnancy, and it's actually a better experience."

Another CenteringPregnancy patient shared that the relationships built over time helped her learn to be open and trust her provider with personal questions.

"I feel the connection is there. I feel more comfortable talking to them about my pregnancy than I would feel if I was seeing someone different every single time."

The consistency of providers offered with CenteringPregnancy facilitated relationship building for many in our study. For patients, having their preferences considered and the ability to have a support person with them during CenteringPregnancy groups also helped them build trust and have a positive experience.

Many CenteringPregnancy patients shared that they were much more hesitant to ask questions in prior health care interactions. For them, the extended time and continuity with their providers and seeing other patients asking questions created a more comfortable atmosphere to be open:

"Yes, because before this I barely asked some kind of question because I was so uncomfortable to ask. But since I've been here…it really made me so comfortable to ask [the provider] whatever I want to know about it."

Patient-Centered Learning ~

Many focus group participants shared how much they enjoyed the learning environment they experienced during CenteringPregnancy. CenteringPregnancy patient-facing education was strengthened by the experienced and knowledge shared by other patients, and patients felt supported by what they were learning.

For example, CenteringPregnancy patients discussed how meaningful it was to learn from the health care team and from one another throughout their pregnancies. Many focus group participants discussed how they navigated the ups and downs of pregnancy through the support and mentorship of other participants. For CenteringPregnancy patients, knowing that they were not alone in their experiences, fears, and hopes was a source of comfort. For some people, learning from other patients enabled them to connect and transition acquaintances into long-term friendships.

"And we can come out of this, you know, with new friends. New moms that are going through the same thing that we're going through at the same time."

Patients becoming parents for the first time felt that they had a lot to learn. Many CenteringPregnancy patients inherently understood the importance of knowledge shared by women with previous experience with pregnancy, childbirth, and parenting. First-time parents felt there was a lot that they could learn from group care:

"I'm going to be a mother for the first time, so I have a lot of other colleagues who have been mothers before that I can learn from. So, it was a no-brainer for me… I don't care how many hours we've got to travel, this is very good for me. It's an opportunity for me to learn so many things that I've never even heard before. I just had to participate."

The group dynamic, coupled with increased time with a health care provider, meant that education went deeper and addressed concerns individuals may not have been comfortable asking about in a traditional one-on-one appointment:

"*You can piggyback off with other people, and stuff that didn't even cross your mind that they're mentioning comes to light. And then you have a midwife there to expand on it, which is awesome because we can talk about stuff all day and share symptoms. But when a midwife can explain, this is why it's happening, and this is why, and this is what you can expect. It makes it so much better. And it eases the anxiety."*

Supportive Patient Education

Focus group participants reported that they found much of the information gleaned in CenteringPregnancy useful. For example, the information they received about labor and delivery in general, as well as specific breathing techniques, strategies for dealing with pain, and in-depth information about Cesarean birth provided patients with a breadth of practical knowledge. CenteringPregnancy patients also valued the fact that their support person received the information at the same time as they did, which provided an opportunity for the two of them to discuss the topics outside of the group. Repetition of information was also helpful. Some people commented that they became resources for other relatives, friends, or people in their community, as a result of the knowledge gained in CenteringPregnancy. Focus group participants also shared that they felt very well prepared for labor and delivery because they were CenteringPregnancy patients:

"Yeah, I also feel really prepared, I feel I know everything that I could want to know…. And you're here so often that I feel I'm going to come back here to give birth. Fear is not in my vortex right now."

Focus group participants shared how CenteringPregnancy has helped relieve some of their pregnancy-related anxieties. They mentioned that it is helpful to know that they have a place to go if they are depressed or need support:

"I think for me being that first-time mom, I had a lot of – could I say misconceptions, and I had this anxiety – fear. And then, I mean, I already had two miscarriages so, it's been a journey, but being in CenteringPregnancy, I have this peace of mind, to the point that sometimes when I'm at home and I feel something is wrong I go 'at CenteringPregnancy, [the doctor] said,' and then that just gives me some sort of calmness."

One participant shared how important it was to her that the information and education were presented in an evenhanded manner. She liked that the providers did not push her in one direction but simply provided information and let her drive the decision-making:

> *"Like that's your choice. If that's what you want to do, I'll provide you more information. But if at the end of the day, that's not what you want to do, we're not pushing it. And I appreciate that so much because I feel pressure … especially as a new mom, it's a lot, weighs very heavy. So, I like that they provide you with a lot of information, but at the end of the day, it's your choice and they're OK with that and they will support you throughout the whole thing."*

In addition, patients who received the CenteringPregnancy workbook early appreciated having an outline of information from the start, and others reported that it was very helpful to know the full schedule of appointments from the beginning of the process, as this helped them to plan.

What can be improved

This section discusses suggestions for ways CenteringPregnancy could be improved, as reported by patients who participated in CenteringPregnancy. Additionally, it highlights key themes that community researchers noted in the memos they wrote following their facilitation of the focus groups.

Enrollment ~

Most focus group participants described the enrollment process as one in which they had both sufficient information about CenteringPregnancy and were given a choice in the decision. Typically, patients discuss CenteringPregnancy at their first prenatal appointment, often with a nurse but sometimes with a midwife, physician, or staff member at the hospital or health center. While many focus group participants reported that they felt they had sufficient information to opt into CenteringPregnancy, some expressed a desire for materials to take home and review, such as a pamphlet. The primary mode of information exchange appeared to be verbal discussion. This could be difficult for individuals who wish to consult with family or friends after their appointment, or for those who don't fully recall all the details shared:

"I was kind of confused. I didn't understand what – what [it] was at that point. Maybe, if I would get a brochure or something, I would receive more [information], but at that time she just mentioned, it's a group, and she described [it], and in my mind, in reality, I didn't have an idea. But I like the point that you're gonna see or you're gonna meet more pregnant woman. Then I was like okay, I can go."

However, some focus group participants described an enrollment process that did not sufficiently center the CenteringPregnancy option as a decision the patient could make on their own. In some instances, participants reflected that enrollment in CenteringPregnancy felt like a decision their provider had already made. Others described a process that lacked sufficient detail:

"When I had my first prenatal checkup, I found out I was pregnant, a nurse had mentioned it to me and she, like, said, 'It's recommended. Do you want to try it?' And I was like, 'Sure. Why not?'"

Ensuring Privacy and Individualized Care ~

A common critique of CenteringPregnancy care was the lack of privacy and one-on-one time with a health care provider. Participants in this evaluation overwhelmingly found the lack of completely private time with a provider a challenge. In many instances, the clinical exam portion was not held in a separate space, and patients knew other group members could overhear them. Some patients were concerned about being able to speak freely about concerns without being overheard by other patients:

"I would preferably have my doctor and just me in a room. Having all of [the care] private 'cause sometimes I'm not like that, but usually I tend to ask questions specifically to that doctor, if I'm a little bit more comfortable."

Barriers to Accessibility: Transportation, Scheduling, and Childcare ~

Participants in this evaluation noted many barriers to attending CenteringPregnancy visits. Some of these barriers were not specific to enrolling in CenteringPregnancy and would have been true of any type of prenatal care, such as difficulty getting to a health care office or problems dealing with heavy traffic. One participant shared a story where she learned about transportation vouchers, which greatly eased the transportation burdens for her:

"I had challenges with transportation because I recently was in a car accident and didn't feel really comfortable driving. So, it's like 20 minutes from my home, I don't want to drive that far. And I asked the social worker. I don't know what to do because I cannot drive – and it's expensive to call an Uber every time I come here. And then I have to pay for him for the daycare for that day. So, she gave me a phone number for the transportation, and I called them today. We get it for free. Which was amazing. I didn't know that."

Sometimes, however, the time commitment of CenteringPregnancy appointments created challenges. Some participants expressed that the appointment length meant they had to take the entire day off work. Additionally, many CenteringPregnancy groups are scheduled for the same day and time for consistency of scheduling, which was noted as a benefit for some. However, for others, the lack of flexibility regarding appointment timing was a burden. Indeed, several people noted that they wanted to more options in terms of when they could attend. For example, one participant shared:

"You know, say timing would be a little issue. I know when we were first learning about CenteringPregnancy, they said, you know, your partner is welcome to come, and my husband was excited about the idea of it. But he works until five, and this starts at four, and his workday is not over, so [he] can't really come."

While some CenteringPregnancy sites allowed children at sessions, this forced mothers to divide their attention, impacting their ability to fully engage in the group and posed a distraction to others. On the other hand, for many parents, the absence of childcare was a significant barrier to participation. This included parents at sites where children were not allowed, as well as those who did not want to bring their children. When childcare could be obtained through a babysitter, it occurred an additional cost burden for the patients. The lack of childcare at CenteringPregnancy was also a barrier to partners being able to attend and gain education and information for themselves:

"Yeah, for me, yes that was a challenge and is a challenge because, since I'm actually full-time mom, then I have to get someone who take care of my daughter. I don't have family and friends around me, and I have to pay. And I'm paying like

20 per hour. That's why I count, 'Okay, I can do till three [hours],' [which is] $80. Just to go to an appointment."

Summary

Focus groups with current CenteringPregnancy patients revealed various aspects of CenteringPregnancy that patients enjoyed and areas they believe could be improved. CenteringPregnancy patients enjoyed building community with women of similar gestational periods, connecting with their providers in an open and trusting space, and learning from each other in a space that supported their individual decision-making. Patients reported that the enrollment process could be improved by providing written information for patients to take home and ensuring they were able to make informed decisions about their care modality. Additionally, focus group participants reported that the lack of privacy with health care providers was a deterrent. While not unique to CenteringPregnancy, addressing barriers to accessibility (e.g., transportation, scheduling, and childcare) could improve prenatal care. Recommendations include providing potential patients with information to review at home before enrolling in CenteringPregnancy, offering private clinical assessment spaces, and providing alternative days and times for group sessions.

Limitations

Community researchers reported several limitations to conducting the focus groups, such as low engagement (both number of participants and/or depth of responses) among certain participants. This low engagement could contribute to an overall hesitancy to negatively comment on CenteringPregnancy. The community researchers also noted that asking questions about group dynamics in a group setting may limit the scope of responses. Additionally, the number of CenteringPregnancy sessions attended before the focus group was not standardized between the groups and, therefore, could influence participants' responses. Initially, all of the sites that completed the focus groups were in English, with participants who spoke English as a first or second language. A Spanish-speaking focus group was subsequently added; this analysis can be found in the chapter titled *Spanish-Language Focus Group with Current CenteringPregnancy*

Patients chapter included in this report. Lastly, CenteringPregnancy was discontinued at one site, limiting data collection.

Spanish-Language Focus Group with Current CenteringPregnancy Patients

Introduction

This chapter provides insight into the experiences of Spanish-language CenteringPregnancy patients based on a focus group conducted at a CenteringPregnancy site. The Spanish-language focus group was conducted by a researcher from the Rutgers team who is a midwife and has sufficient fluency in Spanish to conduct the group. The group was held in February 2025 with five women attending their second CenteringPregnancy session.

The methods for the Spanish-language focus group were similar to those used for the English-language focus group described in the chapter *Focus Groups with Current CenteringPregnancy Patients*. The Spanish-language focus group script was expanded to include questions regarding culturally competent care. The script was then translated into Spanish using Google Translate and reviewed by a Spanish-speaking member of the research team.

Results

Overall, the participants in the CenteringPregnancy Spanish-language focus group spoke very highly about their experience with CenteringPregnancy. Many had participated in CenteringPregnancy during prior pregnancies and felt positive about the experience.

Community Building ~

Spanish-language CenteringPregnancy patients appreciated the community-building aspects of CenteringPregnancy. Many focus group participants described looking forward to being with other people for their prenatal appointments. Some participants noted that the group was especially helpful because they did not have a well-developed social network outside of CenteringPregnancy. One participant, who was participating in CenteringPregnancy for the second time, reflected on how close her CenteringPregnancy group became during her first pregnancy:

> *"El Grupo realmente nos sirvió de mucho porque en este tiempo habíamos muchas que no tenemos familia o usted sabe que somos muchas inmigrantes, y pudimos*

llevar, o sea, una relación tan bonita que todavía tenemos un grupo de WhatsApp, compartimos, los niños comparten juntos, celebramos cumpleaños juntos y de verdad fue de mucho beneficio, para mí fue de mucho beneficio."

[English translation: The group really helped us a lot because, at that time, there were many of us who didn't have a family or were immigrants, and we were able to build such a beautiful relationship that we still have a WhatsApp group. We share, the children share together, we celebrate birthdays together, and it was truly very beneficial.]

Other focus group participants spoke about the loneliness and depression they felt early during their pregnancy, and how CenteringPregnancy had been a source of enjoyment and motivation. As this was only the second time this particular CenteringPregnancy group had met, the participants may not have communicated with one another outside of their scheduled sessions. One participant mentioned that she thought it was time to initiate a group chat.

Positive Aspects of CenteringPregnancy ~

Overall, patients in the Spanish-language CenteringPregnancy group were enthusiastic about this model of care and happy that they had connected with each other and their care team. Everyone agreed that they preferred this model of care over traditional prenatal care. Several participants wished they met more frequently or for longer periods:

"*Me agrada más aquí porque podemos estar en contacto, ¿no? contarnos experiencias, contarnos cosas nuevas. A diferencia de cuando uno está esperando que lo pueda atender el doctor y pasar al consultorio, es como que un poquito más estresante. Estás allí esperando tu turno. En cambio, aquí estas como que socialmente mejor, ¿no? Este es mejor, para mí."*

[English translation: I like it better here because we can stay in touch, right? Share experiences, tell each other new things. Unlike waiting for the doctor to see you and go into the office, that's a little more stressful. You're there waiting for your turn. Instead, here you are socially better, right? For me, this one is better.]

Another participant said that, because of her experience with CenteringPregnancy, she felt like:

"Va a ser más divertido el embarazo. Va a ser más dinámico." [English translation: Pregnancy is going to be more fun. It's going to be more dynamic.

Many participants praised their CenteringPregnancy experience. They cited CenteringPregnancy's efficiency, noting the absence of lengthy wait times associated with traditional appointments, from check-in to clinic room. While CenteringPregnancy sessions were longer, participants reported that they enjoyed the time to talk with one another, instead of distracting themselves with their phone. Others enjoyed learning to take part in their assessment, including checking their blood pressure and weight. Additionally, they appreciated the group aspects of care, learning from each other, and the snacks. Several participants spoke of bringing their children to groups and how comforting it was to have children welcomed.

Experiences with the Health Care Team ~

While these focus group participants had not spent a lot of time with their health care team yet, they spoke highly of their interactions to date. Many already felt that they could trust the doctor, having approached her with somewhat sensitive questions related to sex and engaging in exercise during their pregnancy. They felt they were receiving high-quality care and had no issues with the care team thus far:

"*Yo creo que es a una la atención aquí. Porque están contigo, te acompañan, yo por ejemplo, yo tuve una consulta directamente, ya que ayer tuve un mi primera prueba de ultrasonido. Entonces yo tenía algunas dudas. Y la doctora muy amablemente me atendió. Entonces yo creo que todo es aquí a una."*

[English translation: I think attention is focused on you, here. Because they are with you, they accompany you. For example, I had a consultation…yesterday. I had my first ultrasound test. I had some doubts, and the doctor very kindly attended to me. So, I think everything here is focused on you.]

Culturally Competent Care ~

This group was conducted exclusively in Spanish. All recruitment flyers were in Spanish, and participants indicated they received sufficient information from the clinic. They appreciated that their care team spoke fluent Spanish without the need for a translator. This linguistic

concordance ensured that patients' concerns and questions were understood and addressed appropriately:

> *"Claro, es excelente porque me cae mejor, ¿no? Hablamos el mismo idioma. Es mejor porque te entiende perfectamente. A veces alguien entiende solamente un poquito de español tu le dices algo y te pueden decir OK, pero en realidad no comprendieron tu pregunta. Pero los doctores aquí, las enfermeras entienden y te satisfacen siempre las preguntas que tu le puedes hacer."*
>
> [English translation: It's great because I like them better, right? We speak the same language. It's better because she understands you perfectly. Sometimes, someone only understands a little bit of Spanish, you tell them something, and they might say OK, but they didn't really understand your question. But the doctors and nurses here understand and always answer any questions you may have.]

Focus group participants reported that receiving care in their native language increased their comfort, enhanced their understanding, and made them feel safe. When comparing their CenteringPregnancy interactions with those in the Emergency Room, many expressed greater trust in the CenteringPregnancy providers and a preference for engaging in care with their Spanish-speaking CenteringPregnancy team.

Reflections from Patients Who Had Previously Participated in CenteringPregnancy ~

For those who had previously participated in CenteringPregnancy, a hospital tour near the end of their pregnancies served as another mechanism for building trust:

> *"Por ejemplo, que lo que ustedes han opinado, para mí eso facilita mucho, que ya tú estás preparada mentalmente, a donde tú vas a dar a luz porque viste la habitación."*
>
> [English translation: For me [the hospital tour] makes it much easier, that you are already mentally prepared about where you are going to give birth because you saw the room.]

Others found the relaxation techniques and pain management discussions helpful.

Areas for Improvement

While CenteringPregnancy has demonstrated outcomes justifying the model as the standard of care, some patients may be surprised to be enrolled in the model without a prior choice:

> "*A mí, bueno, no me hablaron específicamente que vendría al grupo. Me programaron la cita y cuando yo vine a ventanilla, me dijeron que era aquí.*"
>
> [English translation: Well, they didn't specifically tell me that I would be joining the group. They scheduled the appointment for me and when I came to the counter, they told me it was here.]

Summary

Participants in the Spanish-language focus group reported that CenteringPregnancy fostered a strong sense of community and offered a valuable support network extending beyond the typical clinical setting. Patients appreciated the opportunity to connect with others sharing similar experiences, potentially leading to lasting friendships and reducing isolation. The group setting provided a space for shared learning, emotional support, and practical advice, making the pregnancy journey feel less isolating and more manageable.

Focus group participants also valued the extended time with health care providers, which allowed for more in-depth discussions and personalized care within the supportive group environment. However, ensuring patients have full choice in selecting their prenatal care modality remains an area of improvement at CenteringPregnancy sites.

Focus group participants highly valued the Spanish-language CenteringPregnancy group, reporting that the Spanish-speaking care team fostered comfort, clear understanding, and greater trust compared to experiences with non-Spanish-speaking providers. While further research is needed to fully examine the experiences of Spanish-language CenteringPregnancy patients, this focus group provides insights that can inform the improvement and scaling of the model of care. Several sites reported to the evaluation team that uptake of CenteringPregnancy was greater among their Latina and Spanish-speaking patients. Future evaluations would benefit from teams with bilingual capacity.

Limitations

In addition to the limitations noted in the chapter *Focus Groups with Current CenteringPregnancy Patients*, the Spanish-language focus group had a small sample size. This prevents these findings from being generalized to the broader Spanish-language CenteringPregnancy patient population.

Observations of CenteringPregnancy Sessions

Introduction

The CenteringPregnancy evaluation included observations of CenteringPregnancy sessions at six of the seven participating sites across New Jersey. These observations were conducted by a community researcher who participated in the Rutgers School of Public Health evaluation team. Each of these community researchers was a Black mother who had given birth in the last five years and shared similarities with the CenteringPregnancy patients. The observations were designed to record key aspects of the CenteringPregnancy model of care, including the engagement of the group and evidence of social support. Other aspects of the observation guide related to fidelity to the CenteringPregnancy model, such as the room setup, posting of proper signage, other measures of model fidelity.

Methods

Study Design ~

Six CenteringPregnancy sessions were observed between April and December 2024. An observation checklist was developed to evaluate the sites on the 9 essential elements of CenteringPregnancy:

- Health assessment happens in the group space
- Patients engage in self-care activities
- Each session has a plan, but emphasis may vary
- Groups are facilitated to be interactive
- There is time for socializing
- Groups are conducted in a circle
- Group members, including facilitators and support people, are consistent
- Group size is optimal for interaction
- There is ongoing evaluation

Sample ~

The Rutgers research team worked directly with six of the seven participating CenteringPregnancy sites to identify potential CenteringPregnancy groups for observation. One observation was conducted at each of the six sites. An observation was not conducted at the seventh site due to the discontinuation of CenteringPregnancy there. Efforts were made to ensure that the observations were not conducted during patients' initial CenteringPregnancy visit, as such a visit would not demonstrate much social support or connection to the providers, given that the group was just forming.

At a CenteringPregnancy session prior to the designated observation date, research team members explained the upcoming observation to eligible patients, who were then provided with written consent forms containing information about the evaluation. The research team subsequently attended the following CenteringPregnancy session to conduct the observation. Observation participants were informed that the information would remain confidential and that their names would not be associated with any reports, presentations, or papers resulting from the evaluation. The research team conducted the observation only if every participant in the group consented.

Data Collection ~

The observations were conducted on the same day as the focus groups and generally involved the same patients. However, some patients participated only in the observation, while others were part of both the observation and the focus group. A community researcher conducted the observations using a checklist to explore the following domains: (1) CenteringPregnancy session logistics (e.g., number of patients in attendance, individuals facilitating the CenteringPregnancy session or providing clinical care and their job titles, and the setup of the CenteringPregnancy space), (2) facilitator engagement with the group, and (3) patient engagement during the session and with one another. Additionally, a debrief memo was completed by the community researcher and any other research team members present after each observation. The debrief memo was designed to capture key themes and any challenges.

Community Researchers ~

Community researchers collected data for this evaluation component. They previously received training in research skills, completed the required Rutgers University human subjects

training, and participated in customized training to conduct the observations and focus groups for this evaluation.

Data Analysis ~

Data recorded in the observation checklist was analyzed using summary statistics. Responses to the open-ended questions in the debrief memo were summarized and added throughout the results section, using verbatim quotes when appropriate.

Results

Six CenteringPregnancy sessions were observed between April and December 2024. On average, the sessions included five patients. CenteringPregnancy sessions had 1 (n=3), 2 (n=2), or 3 (n=2) facilitators. CenteringPregnancy facilitators were typically nurses or midwives. However, other roles included social workers, doulas, and physicians. Half of the sites had appropriate CenteringPregnancy signage present.

Table 1 summarizes the observed frequency of CenteringPregnancy session components. All sites maintained a separate, designated space for CenteringPregnancy sessions. At some sites, this was a separate room within the health center or hospital, while other sites utilized the health center's waiting room after hours (e.g., before or after office hours). All sites allocated space for clinical assessments; half conducted these assessments in a smaller area of the CenteringPregnancy room, while the other half used a completely separate space. Some sites performed clinical assessments after the CenteringPregnancy session, while others conducted them during the session. All sites adhered to the basic structure of CenteringPregnancy as designed (e.g., seats were in a circle, snacks and water were provided, and the facilitators were warm and inviting). All sites welcomed children and partners to attend the CenteringPregnancy sessions. Debrief memos reported that at all sites, the spaces felt warm and inviting, and there was a clear presence of "joy" in the space.

Table 1. Frequency of select components of CenteringPregnancy sessions

Observation	Response tabulated across sites
Number of CenteringPregnancy Patients: average (range)	5 (3-6)
Support person was present (%)	33.3
Children were present (%)	16.7

Sign or label for CenteringPregnancy was present (%)	50.0
Separate space for CenteringPregnancy (%)	100
Space for clinical assessment in the same room (%)	50.0
Space for clinical assessment in another room (%)	50.0
Seats in a circle (%)	100
Space was warm and inviting (%)	100
Snacks and water were provided (%)	100
Facilitators greeted patients (%)	100
Facilitators answered questions "very well"* (%)	100
Facilitators balanced questions and concerns "very well"* (%)	100

*"very well" was a selection category on the observation form

Table 2 summarizes observed provider engagement in CenteringPregnancy sessions. Most of the time, providers "never" (50.0%) or "rarely" (16.7%) talked at the entire class, while at one third of the sites (33.3%), providers "always" talked at the class. Most of the time providers "always" or "often" encouraged active participation, kept all patients actively engaged, linked patients' interests and goals, and strongly supported patient autonomy. In the debrief memo for one site, a community researcher reported that the CenteringPregnancy patients "expressed deep trust in the clinical team."

Table 2. Observed provider engagement in the CenteringPregnancy sessions

	Never (%)	Rarely (%)	Sometimes (%)	Often (%)	Always (%)
Talked at the entire class[1]	50.0	16.7	0	0	33.3
Encourage active participation of entire group	0	0	0	16.7	83.3
Kept all patients actively engaged	0	0	0	16.7	83.3
Linked together patients' experiences, interests, or goals	0	0	16.7	16.7	66.7
Strongly supported patients' autonomy	0	0	0	0	100

[1]This is defined as a provider talking at the class without providing opportunities for questions or dialogue.

Table 3 summarizes observed patient engagement in CenteringPregnancy sessions. Most of the time, patients "always" actively shared within their group (66.7%), were highly supportive of other group members (66.7%), and demonstrated a strong sense of solidarity with one another (83.3%). Most of the time, CenteringPregnancy patients were "never" engaged in non-CenteringPregnancy material, such as on their cellphones (83.3%). In the debrief memo from one site, a community researcher reported that the CenteringPregnancy patients appreciated the "opportunity to learn from other mothers and build community." However, regarding group dynamic challenges, the community researchers reported that in some sessions, there were "some quieter members of the group who need to be prompted to speak up, but once they [speak up], they offer great insights."

Table 3. Observed patient engagement in the CenteringPregnancy sessions

	Never (%)	Often (%)	Sometimes (%)	Always (%)
Actively shared perspectives, feelings, initiated sharing and shared deeply	0	33.3	0	66.7
Highly supportive and affirming of each other's experiences despite differences	0	0	33.3	66.7
Strong sense of solidarity and belonging	0	0	16.7	83.3
Patients were engaged in non-educational material such as their cell phone	83.3	0	16.7	0

Summary

CenteringPregnancy sessions were observed at six of the seven CenteringPregnancy sites participating in the evaluation across New Jersey. During the CenteringPregnancy session, all observed sites followed the basic structure of CenteringPregnancy as designed (e.g., seats were in a circle, snacks and water were provided, the facilitators were warm and inviting, there was time for socializing). Additionally, community researchers reported that the spaces felt warm and inviting at all sites. CenteringPregnancy sessions were often facilitated by nurses or midwives. All

sites had separate spaces for CenteringPregnancy; however, half of the sites utilized the health care waiting room before or after office hours. Some sites conducted the clinical assessments in private spaces, while others performed these assessments behind a screen in the CenteringPregnancy room. Both CenteringPregnancy facilitators and patients were highly engaged during the group sessions.

Limitations

While this study offers valuable insights, it is important to acknowledge its inherent strengths and limitations. A notable strength was the rigorous application of a detailed checklist anchored in the 9 essential elements of the CenteringPregnancy group care model, which significantly enhanced consistency in data collection across various sites. Furthermore, the active engagement of community researchers, a few of whom were former or current CenteringPregnancy patients, provided an invaluable lived experience perspective, enriching the depth and authenticity of the observations.

Despite these strengths, several limitations warrant consideration. Firstly, a lack of consistency regarding the number of CenteringPregnancy sessions that occurred prior to observation at each site could potentially influence the dynamics and maturity of the groups, making direct comparisons more challenging. Secondly, the discontinuation of CenteringPregnancy services at one study site during the research period introduced an unforeseen challenge, impacting the completeness of data collection from that specific location. Lastly, the limited Spanish-language proficiency among research team members constrained the observation of a Spanish-language CenteringPregnancy session. Future research endeavors would benefit from addressing these limitations to further enhance the robustness and generalizability of findings.

CenteringPregnancy Survey

Introduction

The CenteringPregnancy evaluation included a survey distributed to current and former CenteringPregnancy patients who attended at least five of the CenteringPregnancy's 10 group sessions. The survey was designed to capture several important aspects of the patient experience with the CenteringPregnancy model of care, including reasons for and convenience of participating, satisfaction with various aspects of care, health conditions of the mother and baby, and postpartum experiences.

Methods

Study Design ~

Six of the seven CenteringPregnancy sites participating in this evaluation distributed surveys to their current or former patients.

Survey Dissemination and Evaluation Participants ~

Rutgers University provided each site with suggested language for distributing the survey. The suggested language and survey were available in both English and Spanish. The link to the Qualtrics survey was distributed to eligible patients (e.g. CenteringPregnancy patients who had completed at least five CenteringPregnancy sessions at any time) using several modalities: email, EMR platform, standard text-message, and in-person.

When sites distributed surveys electronically, each site sent an initial survey invitation followed by three reminder emails or text messages, with a cadence of sending the email once a week over the following three weeks. When the surveys were distributed in person, a flyer with the survey invitation and a QR code to the Qualtrics survey was given to each eligible participant. To ensure eligibility, the surveys were only distributed in person to groups who had completed at least five of the CenteringPregnancy sessions.

The survey was distributed between May 2024 and January 2025 to a total of 192 CenteringPregnancy patients. A total of 72 surveys were completed (n=21 Spanish, n=51 English). Survey respondents received a $25.00 electronic gift card for participating in the survey.

Survey Instrument ~

The CenteringPregnancy Patient Survey instrument gathered information about respondents' experiences in CenteringPregnancy and self-reported health outcomes. The survey included two screening questions to determine eligibility to take the survey: (1) Have you attended at least five CenteringPregnancy Sessions and (2) Selection of a CenteringPregnancy site located within the scope of the study.

The survey then requested information on patients' enrollment into CenteringPregnancy (seven questions); satisfaction and comfort with CenteringPregnancy (nine questions); health conditions or outcomes experienced by the women and their babies (three questions); birth type, breastfeeding status, and attendance of a postpartum medical visit (seven questions); and socio-demographic data (eight questions).

In addition to these sections, the survey instrument for this evaluation included the 26 point Person-Centered Prenatal Care Scale (PCPC scale) (Afulani et al., 2021). This validated tool measures "person-centered prenatal care." The survey includes 62 questions that ascertain information on a range of prenatal experiences including labor and delivery, which may or may not have been with health care providers from CenteringPregnancy. The full survey took an average of ten minutes to complete. Psychometric testing of the scale was conducted with a large sample of Black women, making this scale particularly appropriate for the population of interest in this evaluation (Afulani et al., 2021).

Data Analysis ~

An analysis between the Spanish-language and English-language surveys, as well as responses from those who identified as Hispanic and those who did not, revealed no meaningful differences. Therefore, the data were analyzed in the aggregate.

Quantitative data were analyzed using descriptive statistics (means and frequencies) using SPSS (IBM SPSS Statistics version 26; IBM Corporation). The PCPC scale and subscale scores were calculated according to instructions provided by Afulani et al (2021). Scores ranged from 0 to100, where 0 is the worst score and 100 represents the best score for person-centered health care. Only respondents who completed all PCPC scale questions (n=69) were included in the analysis. Responses to the open-ended questions in the survey were open coded into themes, and the most salient quote was selected to represent the theme. Spanish responses are reported in their original Spanish, followed by an English translation.

Results

Demographic Data ~

Table 1 summarizes the sociodemographic data of the 72 survey respondents. On average, survey respondents were 25–34 years old (63.9%, n=46), non-Hispanic (58.3%, n=42), White (45.8%, n=33), and had at least one live birth (70.8%, n=51).

Table 1. Socio-demographic data of survey respondents

Demographic Characteristic	Percentage (%)	N
Age		
Under 18 years old	8.3	6
18-19 years old	1.4	1
20-24 years old	8.3	6
25-29 years old	34.7	25
30-34 years old	29.2	21
35-44 years old	15.3	11
Missing	2.8	2
Ethnic identity		
Not Spanish, Hispanic, or Latino	58.3	42
Mexican, Mexicana Americana, Chicana	4.2	3
Puerto Rican	2.8	2
Cuban	1.4	1
Spanish, Hispanic, or Latino	29.2	21
Prefer not to answer or missing	4.2	3
Race		
Black or African American	20.8	15
White	45.8	33
Asian	2.8	2
American India or Alaskan Native	0	0
Native Hawaiian or other Pacific Islander	0	0
Two or more races	1.4	1
Another race	19.4	14
Prefer not to answer or missing	9.7	7
Highest Level of Education		
Less than high school	1.4	1
High school graduate	23.6	17
Some college or trade school	23.6	17
Graduated from college	33.3	24
Graduate degree	13.9	10
Missing	4.2	3
Current age of child		
0-3 months	51.4	37
4-6 months	11.1	8
7-9 months	9.7	7
10-12 months	16.7	12
Older than 12 months	6.9	5

Missing	4.2	3
Number of live births		
0	4.2	3
1	70.8	51
2	9.7	7
3	4.2	3
4	1.4	1
More than 5	0	0
Prefer not to answer or missing	9.8	7

Enrollment in CenteringPregnancy ~

Many survey respondents (87.5%, n=63) reported being given a choice between group or individual prenatal care (**Table 2**). Survey respondents cited several factors influencing their decision to participate in CenteringPregnancy, including a doctor's referral (43.1%, n=31), prior experience with CenteringPregnancy (40.3%, n=29), and the financial convenience of CenteringPregnancy (e.g., insurance acceptance, low or no cost) (22.2%, n=16) (**Figure 3**). On average, the women were 11.9 ± 4.9 weeks pregnant (range of 3–26 weeks) when they joined CenteringPregnancy. A majority of survey respondents (93.1%, n=67) reported participating in 7–10 of the 10 CenteringPregnancy sessions (**Table 2**).

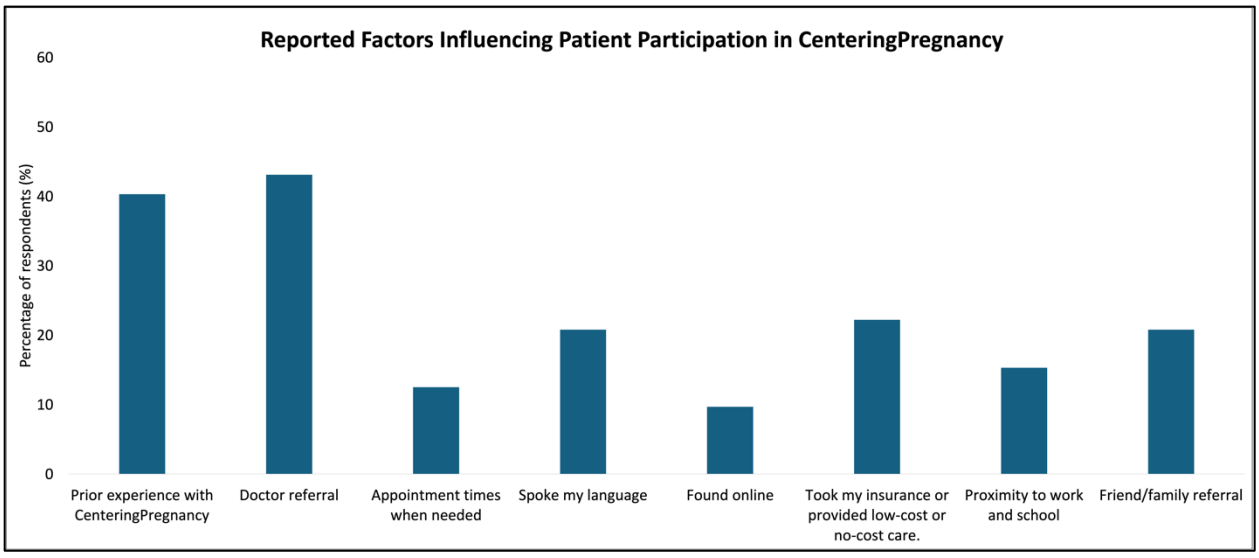

Figure 3. Reported factors influencing participation in CenteringPregnancy

Table 2. Participation in CenteringPregnancy sessions

CenteringPregnancy Participation	Percentage (%)	N
Number of CenteringPregnancy sessions attended		
All 10 sessions	50.0	36

7-9 sessions	43.1	31
4-6 sessions	5.6	4
I don't know	8.3	1
Choice given between group or individual care		
Yes	87.5	63
No	6.9	5
Missing	5.6	4

CenteringPregnancy Experiences ~

When asked to summarize what they liked about being a patient in CenteringPregnancy, survey respondents reported the warm and welcoming environment, meeting friends, and the information and knowledge gained (**Table 3**):

> "*The environment was very welcoming and made me feel confident enough to ask [questions] and share within the group.*"
>
> "*It really created a good support system for me and my husband and helped us prepare for all the things to come with the pregnancy and childbirth."*

Table 3. Various aspects of the CenteringPregnancy care model that patients enjoyed

Theme	Quote
Welcoming environment Comfort asking questions	The environment was very welcoming and made me feel confident enough to ask and share within the group.
Group support	It really created a good support system for me and my husband and helped us prepare for all the things to come with the pregnancy and childbirth.
Group setting Information gained Meeting other moms	I liked the knowledge I gained and being in a group with other moms going through the same journey as me.
Being able to bring other children	Bringing my toddlers and talking to people in a similar situation.
Everything	Todo desde la atencion hasta la humanidad y calidad profesionalismo del personal. English translation: Everything from the attention to the humanity and quality professionalism of the staff.
Gained feeling of empowerment	I loved the information and also the empowerment I felt from it because I was able to make my own educated choices regarding my prenatal care and birth plan.

When survey respondents were asked to summarize what they disliked about CenteringPregnancy, many reiterated that they enjoyed all aspects. However, several respondents did report aspects they disliked, including limited private space for check-ups and distractions from children present during the CenteringPregnancy sessions (e.g., if another participant brought a child to the group). In addition, survey respondents reported that the wait time—often from waiting to start CenteringPregnancy when others are late or waiting while others complete the check-ins before or after the CenteringPregnancy sessions—was a challenge (**Table 4**).

Table 4. Various aspects of the CenteringPregnancy care model that patients disliked

Theme	Quote
Timing of clinical check-ups with the doctor	I did not like how after the group [meeting] we started seeing the doctor. I would much rather have them start as soon as the group started so I wouldn't have to wait so long.
Distractions from other children	Too noisy with little ones.
Starting the session late because waiting for a patient	Sessions started late because of other patients coming in late.
Limited one-on-one time with the clinician Lack of private space	Not much time for one-on-one with the midwives and not a private setting for the discussions with the midwives.
Distance between health care facility and home	Distance of 57 minutes to and from offices.
Inability to make decisions for oneself during labor	I was told that I would be able to do things during my labor at the hospital then when it came time, I was not able to do any of it.
Repeated topics	Some repetition with topics.
Limited postpartum care	Que el grupo termina en 10 sesiones y me hubiese gustado seguir recibiendo apoyo posparto. English translation: That the group ends in 10 sessions, and I would have liked to continue receiving postpartum support.

Overall, survey respondents reported being either "very satisfied" or "somewhat satisfied" with all aspects of CenteringPregnancy (**Figure 4**). Specifically, they reported being "very satisfied" with overall care (90.3%, n=65), medical providers (88.9%, n=64), and the information provided (86.1%, n=62). Additionally, a majority of survey respondents reported being "very comfortable" sharing information in the group session and that the CenteringPregnancy sessions were held at a "very convenient" time (84.7%, n=61; 73.6%, n=53; respectively) (**Table 5**).

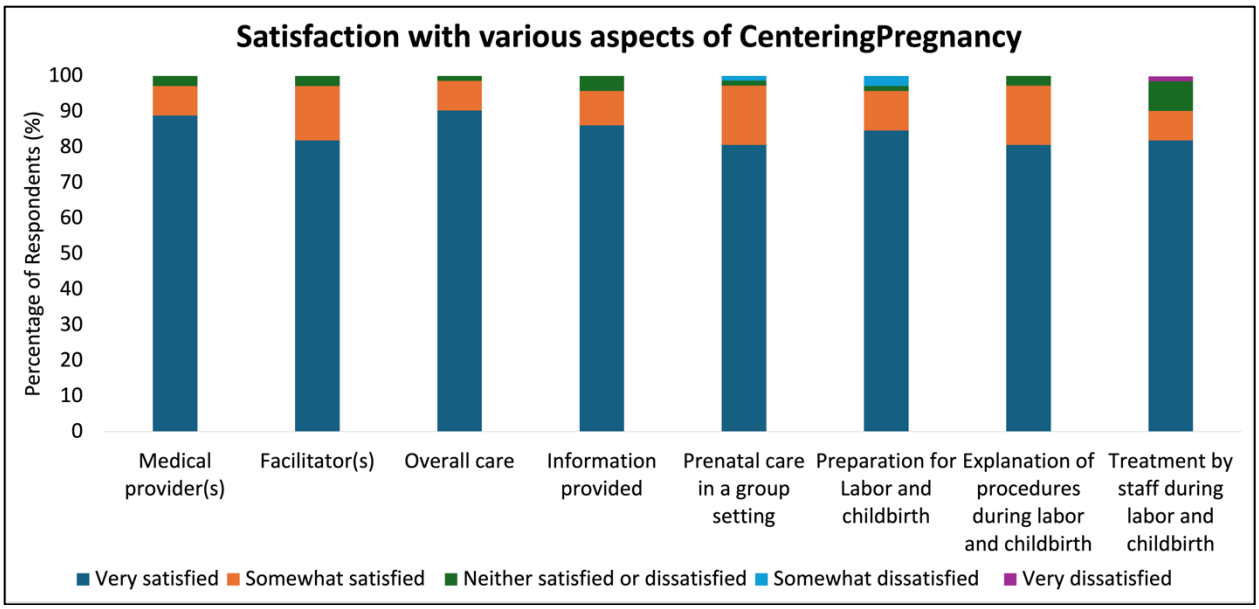

Figure 4. Satisfaction with various aspects of the CenteringPregnancy care model

Table 5. Comfort and convenience of CenteringPregnancy sessions

Comfort in sharing pregnancy experience with CenteringPregnancy group	Percentage (%)	N
Very comfortable	84.7	61
Comfortable	13.9	10
Neither comfortable nor uncomfortable	1.4	1
Uncomfortable	0	0
Very uncomfortable	0	0
Convenience of CenteringPregnancy Time		
Very convenient	73.6	53
Somewhat convenient	20.8	15
Neither convenient nor inconvenient	1.4	1
Somewhat inconvenient	2.8	2
Very inconvenient	1.4	1

Table 6. Person-Centered Prenatal Care Scale (PCPC) and Sub-Scale Scores

	Mean[1]	STD Dev
Total Score	94.2	9.2
Communication and Autonomy Score	95.3	8.9
Dignity and Respect Score	93.6	13.4
Responsive and Supportive Care	93.4	14

[1]PCPC and sub-scale scores ranges from 0-100.

Table 6 summarizes the PCPC scale and subscale scores. In total and in all subscales, survey respondents reported receiving person-centered prenatal care during their pregnancy. In

addition to the overall scale scores, **Tables 7 and 8** summarize the responses to individual questions. When asked about their perceptions regarding the amount of time with their providers during the CenteringPregnancy sessions 88.9 percent (n=64) reported that it was "just right" (**Table 7**). A majority of survey respondents (76.4%, n=55) reported that "yes, all of [the providers]" introduced themselves upon entering the room (**Table 7**).

Table 7. Perception of time with provider and if providers introduced themselves to patients*

Amount of time with the provider	Percentage (%)	N
Extremely rushed	1.4	1
Somewhat rushed	5.6	4
Rushed	4.2	3
Just Right	88.9	64
Providers introduced themselves		
No, none	0	0
Yes, a few	9.7	7
Yes, most	13.9	10
Yes, all	76.4	55

*Questions 1 and 2 from the 26-point Person-Centered Prenatal Care Scale

Table 8 summarizes the perceptions of prenatal care as ascertained by the Person-Centered Prenatal Scale. A majority of survey respondents reported that "yes, all of the time" they felt they were treated with respect by providers (91.7%, n=66), their knowledge and experience were valued (88.9%, n=64), they felt heard and listened to by providers (87.5%, n=63), they were involved in decision making (87.5%, n=63), and their family and companions were respected (93.1%, n=67).

A majority of survey participants reported that "yes, all of the time" providers asked about their emotional well-being and provided resources to support emotional well-being (81.9%, n=59 and 86.1%, n=62, respectively).

Some survey respondents reported that "yes, all of the time" providers handled them roughly, held them down, or physically restrained them (11.1%, n=8). Additionally, some survey respondents reported that "yes, all of the time" providers avoided, ignored, or otherwise neglected them (8.3%, n=6), shouted, scolded, insulted, threatened, or talked negatively to them (9.7%, n=7), and felt they were discriminated against for any reason (9.7%, n=7).

Table 8. Perceptions of prenatal care as ascertained by the Person-Centered Prenatal Care Scale*

	No, never		Yes, a few times		Yes, most of the time		Yes, all of the time		No answer	
	Percentage (%)	N	Percentage (%)	N	Percentage (%)	N	Percentage (%)	N	Percentage (%)	N
Treated with respect by providers	0	0	2.8	2	4.2	3	91.7	66	1.4	1
Your experience and knowledge was valued	0	0	1.4	1	8.3	6	88.9	64	1.4	1
Felt heard and listened to by providers	0	0	2.8	2	8.3	6	87.5	63	1.4	1
Providers knocked on door and waited for response before entering	0	0	2.8	2	5.6	4	90.3	65	1.4	1
Covered during exams	0	0	0	0	1.4	1	97.2	70	1.4	1
Health information kept confidential	1.4	1	1.4	1	5.6	4	91.7	66	0	0
Involvement in decision-making	0	0	4.2	3	6.9	5	87.5	63	1.4	1
Asked consent before being touched during procedures and examinations	0	0	0	0	4.2	3	94.4	68	1.4	1
Providers explained examinations and procedures	0	0	0	0	5.6	4	90.3	65	4.2	3
Felt could ask questions to providers	0	0	1.4	1	9.7	7	86.1	62	2.8	2
Encouraged to ask questions	0	0	2.8	2	8.3	6	86.1	62	2.8	2
Providers ensured you understood information	0	0	1.4	1	13.9	10	83.3	60	1.4	1
Felt questions were answered	0	0	0	0	11.1	8	86.1	62	2.8	2

Providers demonstrated care when providing information	0	0	4.2	3	8.3	6	84.7	61	2.8	2
Providers asked about emotional well-being	1.4	1	2.8	2	11.1	8	81.9	59	2.8	2
Providers provided resources to support emotional well-being	2.8	2	5.6	4	2.8	2	86.1	62	2.8	2
Providers respected family and companions	0	0	1.4	1	4.2	3	93.1	67	1.4	1
Felt providers avoided, ignored, or otherwise neglected you	83.3	60	5.6	4	1.4	1	8.3	6	1.4	1
Felt providers shouted, scolded, insulted, threatened, or talked negatively you	84.7	61	2.8	2	1.4	1	9.7	7	1.4	1
Providers handled you roughly, held you down, physically restrained you	86.1	62	1.4	1	0	0	11.1	8	1.4	1
Providers took the best care of you	0	0	2.8	2	12.5	9	81.9	59	2.8	2
Felt could completely trust providers with your care	0	0	5.6	4	8.3	6	83.3	60	2.8	2
Felt discriminated against for any reason	86.1	62	2.8	2	0	0	9.7	7	1.4	1
Felt physically safe in and around the clinic(s)	1.4	1	2.8	2	5.6	4	88.9	64	1.4	1

*Questions 3 through 26 from the 26-point Person-Centered Prenatal Care Scale

Pregnancy Outcomes ~

A majority of survey participants reported that they did not experience a medical complication during their most recent pregnancy (70.8%, n=51), were between 37 and 40 weeks pregnant when they gave birth (61.1%, n=44), and had a vaginal birth (75.0%, n=54) (**Table 9**).

A number of patients reported postpartum visits to the emergency room (37.5%, n=27), depression and/or anxiety (27.8%, n=20), and infections (22.2%, n=16) (**Figure 5**). Only a few survey respondents reported health complications with their infant following delivery, namely time in the neonatal intensive care unit (NICU) (13.9%, n=10) and respiratory issues (5.6%, n=4) (**Figure 6**).

Table 9. Medical complications, weeks pregnant at delivery, and type of delivery

	Percentage (%)	N
Medical complications experienced		
Yes	15.3	11
No	70.8	51
No answer	13.9	10
Weeks pregnant when gave birth		
more than 40 weeks	23.6	17
Between 37-40 weeks	61.1	44
Less than 37 weeks	5.6	4
I do not know	5.6	4
No answer	4.2	3
Type of delivery		
Vaginal	75.0	54
Planned Cesarean/C-section	2.8	2
Unplanned Cesarean/C-section	13.9	10
I do not know	5.6	4
No answer	2.8	2

**This was reported under a question separate from the data reported in Figure 4 and used to triangulate and gain a deeper understanding of patient health perspectives*

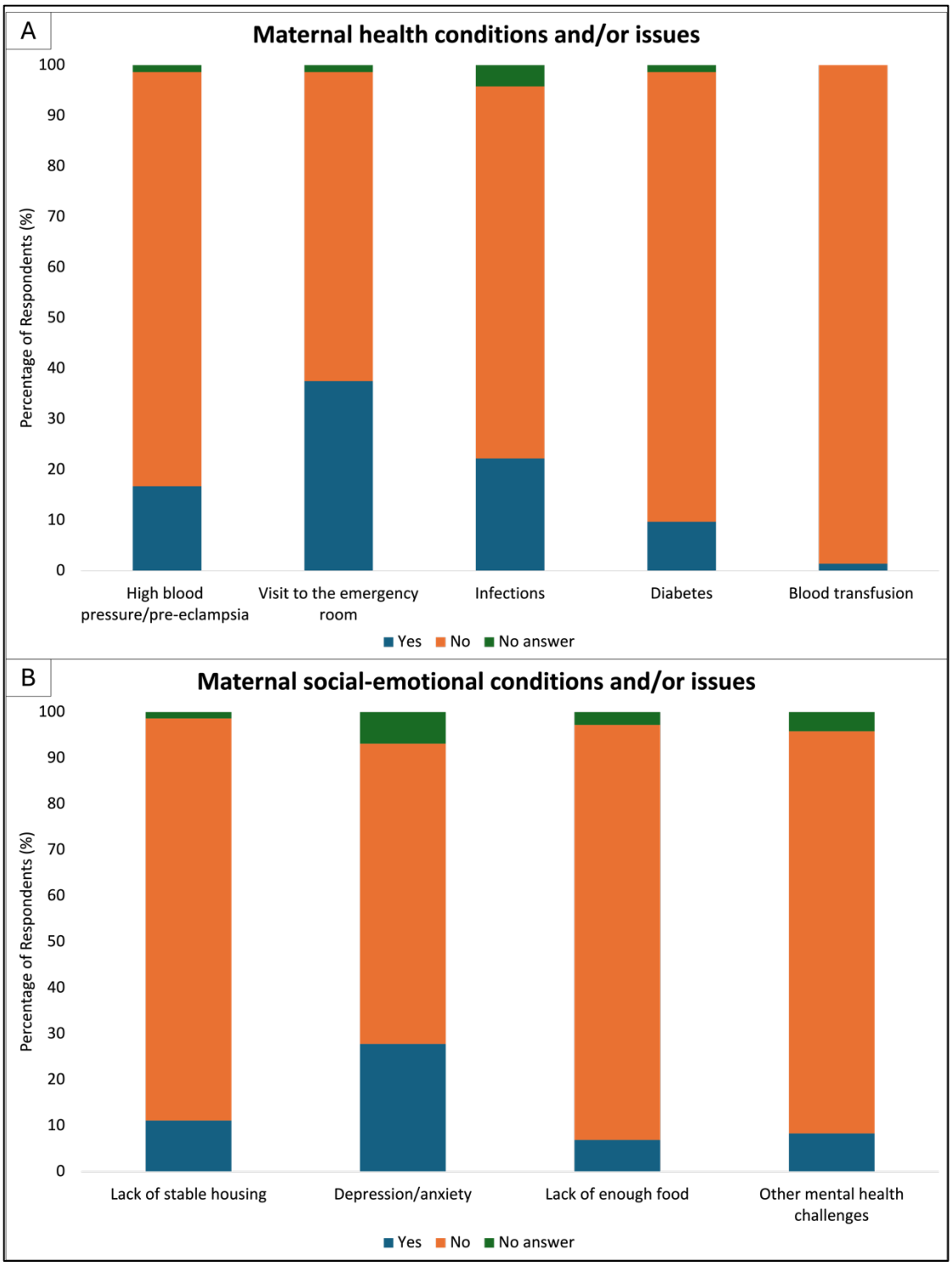

Figure 5. Health conditions and/or issues during survey respondents' prenatal, labor and childbirth, or postpartum period. (A) Physical conditions and/or issues and (B) social-emotional conditions and/or issues.

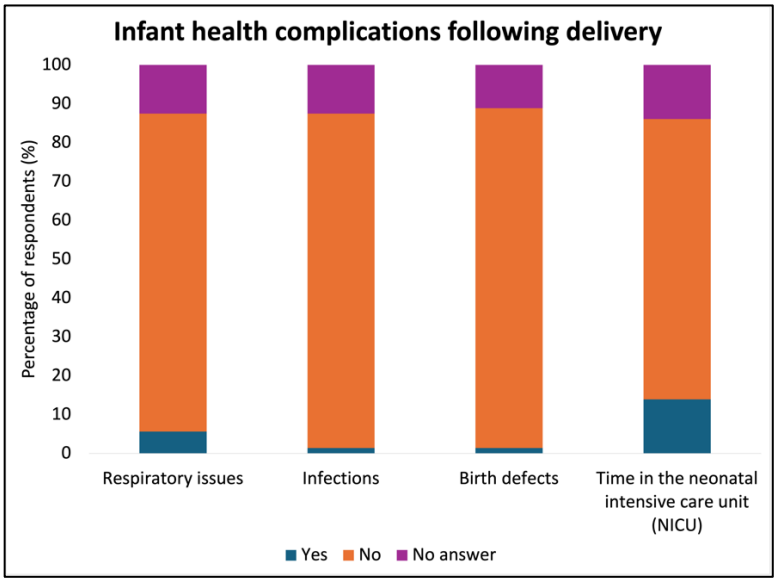

Figure 6. Infant health complications following delivery

Postpartum Visits and Experiences ~

A majority of survey respondents (81.9%, n=59) reported that they attended at least one postpartum visit (**Table 10**). **Table 11** provides an overview of the feeding strategies employed by survey respondents, with a majority reporting breastfeeding (76.4%, n=55) and that they were currently breastfeeding at the time of the survey (44.4%, n=32). While a majority reported breastfeeding, 43.1% (n=31) reported that they were not exclusively breastfeeding and that they were using breastmilk substitutes like formula (16.7%, n=12).

Table 10. Postpartum visit summary

	Percentage (%)	N
Attend one postpartum visit		
Yes	81.9	59
No	8.3	6
No answer	9.7	7
Reason for not attending a postpartum visit		
Lack of time	0	0
Lack of health insurance	4.2	3
Unsure of where to go	0	0
Lack of childcare	0	0
Lack of transportation	0	0
Other	4.2	3
Missing	91.7	66

Table 11. Infant feeding methods

	Percentage (%)	N
Breastfed baby		
Yes	76.4	55
No	19.4	14
Missing	4.2	3
Length of time baby was breastfed		
0-3 months	15.3	11
4-6 months	2.8	2
7-9 months	2.8	2
10-12 months	4.2	3
Longer than 12 months	1.4	1
I am currently breastfeeding	44.4	32
I don't know	4.2	3
Missing	25	18
Exclusive Breastfeeding		
Yes	31.9	23
No	43.1	31
Missing	25	18
Other means of feeding baby		
Breastmilk substitutes like formula	16.7	12
Other: baby not born yet	2.8	2
Missing	80.6	58

Summary

A majority of survey respondents reported high satisfaction with the many features of the group-care model. Overall, survey participants enjoyed the warm and welcoming environment, meeting friends, and gaining information and knowledge. Additionally, a majority of the survey respondents reported person-centered prenatal care, including feeling respected, that their knowledge was valued, and that they trusted their health care provider. Areas of dissatisfaction included wait time and distractions from children brought by other patients to the group. A small percentage of survey respondents reported disrespectful behavior, such as discrimination due to their race, being spoken to harshly, or being handled roughly. Furthermore, a small percentage reported a lack of mental health support. Most survey participants did not report health problems. Among those who did, emergency room visits, depression, and anxiety were reported.

Limitations

While the survey has multiple strengths, such as the overall response rate and use of validated survey tools, the different distribution modalities employed by each site influenced the participation and, potentially, the demographic responses, thereby posing a limitation. Eligibility for the survey included all CenteringPregnancy patients with at least five completed sessions. A limitation, however, was that the survey didn't differentiate between individuals who had already delivered and those still pregnant. Consequently, the postpartum experiences reflected in the data may not be fully comprehensive. Additionally, the amount of time since participating in CenteringPregnancy varied between respondents. Lastly, the PCPC scale ascertained information from a range of prenatal experiences and therefore may represent experiences that occurred outside of the CenteringPregnancy.

In-Depth Individual Interviews with Key CenteringPregnancy Stakeholders

Introduction

A component of the CenteringPregnancy evaluation involved in-depth individual interviews with key stakeholders engaged with CenteringPregnancy at all seven sites participating across New Jersey. These interviews with current providers, staff, and stakeholders gathered rich data about perceived patient, provider/staff, organizational, and community benefits and challenges related to the CenteringPregnancy model of care.

Methods

Study Design~

The aim of the in-depth individual interviews was to investigate the experience of providers, staff, and/or stakeholders with CenteringPregnancy and any barriers and facilitators of CenteringPregnancy sustainability**.** A total of 30 individual interviews were conducted between April 2024 and January 2025 with providers, staff, and stakeholders at seven CenteringPregnancy sites throughout New Jersey. Interviews were conducted by a member of the research team.

Sample ~

A staff member at each site recruited four to five eligible providers, staff, and/or stakeholders to participate in an in-depth individual interview. Potential participants were eligible if they were employed at the health care site at the time of the interview and were working directly with CenteringPregnancy. The staff member then provided the names and contact information of these individuals to the Rutgers research team. A member of the research team invited these professionals to participate in an interview at a mutually convenient time. Prior to the interview, a member of the research team sent a copy of the consent form. Before the start of the interview, a member of the research team requested verbal consent to be interviewed and audio recorded. CenteringPregnancy providers, staff, and/or stakeholders participated in the interviews in their professional roles and did not share any personal health information. In-depth interview participants were informed that the information would remain confidential and that their names would not be associated with any reports, presentations, or papers resulting from the evaluation.

Data Collection ~

A semi-structured interview guide was used to explore barriers and facilitators to CenteringPregnancy implementation, current job function, perceived efficacy, job satisfaction, and CenteringPregnancy sustainability. The interviews were conducted over Zoom, lasted between 30 to 45 minutes, and were audio and video recorded. All interviews were transcribed by a professional transcription service based on the recordings. For clarity, vocal fillers such as "uh' and "um," as well as duplicated speech, were removed, and grammatical errors were corrected.

Data Analysis ~

Interviews with providers, staff, and stakeholders underwent deductive thematic analysis using Dedoose software, employing Braun and Clarke's (2006) six-step process: (1) becoming familiar with the data, (2) generating initial codes, (3) generating initial themes, (4) reviewing themes, (5) defining the themes, and (6) writing the report. Each transcript was coded by one member of the research team and reviewed by another to check for consistency and accuracy. Any discrepancies in coding were discussed and resolved through consensus between the coder and reviewer.

Results

Participants in the in-depth interviews held various positions within CenteringPregnancy at their sites, including coordinators, facilitators, administrators, clinical providers (e.g., registered nurses, midwives, obstetrician-gynecologists), and clinical managers. Interview participants had been in their roles between six months to four years and reported spending approximately 10 to 50 percent of their time per week working on CenteringPregnancy. Most sites had one to two CenteringPregnancy groups running, with the majority having only one group running at a time.

Interview participants identified numerous benefits and some challenges of CenteringPregnancy across four different levels: (1) patient, (2) provider/staff, (3) organizational, and (4) community. **Table 1** presents the level and type of benefits and challenges that participants identified.

Table 1. Level and type of CenteringPregnancy benefits and challenges that stakeholders identified

Level	Benefit	Challenge
Patient	Increased education	Language barriers
	Empowerment	Transportation
	Better quality of care	Childcare
	Improved health outcomes	
	Community building	
Provider/Staff	Enhanced provider/staff satisfaction	Staffing challenges
	Better way to provide health care	Schedules
	Reduced burnout and stress	
Organizational	Standardization of care	Physical space limitations
	Patient recruitment	Financial Viability
		Organizational challenges
Community	Bridge to communities	

Patient Level

Increased Education ~

Interview participants reported that CenteringPregnancy enhanced understanding of pregnancy and childbirth among its patients. They also reported that CenteringPregnancy's format and group setting fostered knowledge-sharing among the patients:

> "*There's a much better, bigger opportunity for information sharing, knowledge sharing, trust building*."

Participants reported that the group setting enabled patients to learn from each other and access more information and resources than they would have received in traditional prenatal care:

> *"[S]ometimes people think of questions that you haven't thought of yet, but then when they ask, you're like, 'Oh, yeah, I would want to know that, too.'"*

Empowerment ~

According to interview participants, CenteringPregnancy fostered greater autonomy and empowerment for the patients, teaching them to be better informed and prepared for labor and childbirth:

"I think people become really empowered during Centering; they really learn so much about their bodies, about the pregnancy journey, about parenting, and they really build that community."

Interview participants stated that the curriculum taught patients how to voice their opinions and advocate for themselves, thus fostering greater ownership of their care. This empowerment enable patients to better advocate for themselves and improved patient-provider collaboration on care:

"Through Centering[Pregnancy], we advocate for people being an advocate for themselves, for their own care. And I think giving them a voice really goes very far ... it empowers them to get what needs to get done the way they wanted it to, working very cohesively with their practitioner."

Better Quality of Care ~

Interview participants reported that CenteringPregnancy delivered a higher quality of care, largely due to its comprehensive team approach. This model, which often involved multiple providers overseeing a patient, offered enhanced supports and facilitated better checks and balances, ultimately resulting in improved patient care:

"I like it because there's multiple eyes looking at that patient. So, when you're discussing that patient, there's different people looking, 'Oh, don't forget, they need this or that.' So you have multiple staff members researching that chart and looking to make sure that everything that's supposed to be done at that point, as far as testing, has been done. And it seems like they get a better level of care to me because you have so many eyes looking at it that it's hard to miss something."

Interview participants also reported better continuity of care for patients. They noted that having the same provider consistently throughout pregnancy enabled patients and providers to build relationships and rapport, which led to more individualized care for patients:

"I think the main advantage is the same provider [for patients], so consistency of your provider and your nurse. Cause knowing what time your appointments are, I think that's a great advantage for the patients. Knowing that someone is truly focused on you during your appointment, that's an advantage for the patient and

for the provider and the co-facilitators, it's just getting to know the patients and spending the time with them."

In addition to clinical care, interview participants reported that CenteringPregnancy offered enhanced social support to the patients. CenteringPregnancy staff and providers cultivated strong relationships and rapport with the patients, facilitating the identification of and referrals to much-needed resources:

"It helps just kind of support patients better, connect them to the resources that they need, provide better support and services, and just allow the patients to kind of have ongoing support and really build a family within the office."

Improved Health Outcomes ~

Anecdotal reports from interview participants suggest that CenteringPregnancy can lead to improved maternal and infant health outcomes, including fewer Cesarean sections and preterm births, increased vaginal childbirths, and higher breastfeeding rates:

"Overall, statistically, the [site] has done better in terms of reducing C-section rates, and I think with the CenteringPregnancy you're increasing your chances of reducing your preterm rates, having full-term birth, full-term vaginal deliveries, and successful breastfeeding."

Interview participants also reported that CenteringPregnancy facilitated earlier recognition of postpartum mood disorders. One interview participant anticipated a reduction in postpartum depression rates:

"I think over time you would probably even see a lower rate of postpartum depression just because they feel like they already have that built-in network of support and there's just less of that negative energy or anxious energy going into the delivery. That just helps support, I think, a better outcome, whether or not we have the data to show it yet."

Community Building ~

Interview participants reported that CenteringPregnancy fostered community-building among patients. They highlighted the social support and sense of community CenteringPregnancy

provided, particularly for vulnerable populations (e.g., recent immigrants, people with limited English proficiency) who had little external support:

> *"I think the main benefit is the amount of time that they get to spend with providers and also the group support that they receive, especially with my groups. Mine are a little different, [given] most of them are immigrants, [they] don't have family here, or very little support in family, and then they begin to have each other, and they will form groups. They will form text [messaging] groups."*

CenteringPregnancy facilitated social connections for its patients both within and outside the scheduled sessions, many of whom stayed in touch and provided support and resources to each other after childbirth. One interview participant underscored the value of CenteringPregnancy by stating:

> *"[The patients] come to these classes, and they have this team rallying behind them and building those relationships. And they get to build friendships essentially with people who are at the same stage [of pregnancy] as them, who then even after delivery, stay in contact, and they have children the same age…the biggest benefit is [*CenteringPregnancy*] provides a level of support that you would not get [in] an individualized program or traditional prenatal care. And for people in certain situations, that is so invaluable because they may not have that village behind them, so to speak."*

Transportation Challenges ~

Transportation emerged as a critical barrier to participation in CenteringPregnancy across multiple health care settings. Patients frequently struggled with transportation logistics, especially those relying on public transportation or Medicaid-provided transportation services. As one provider succinctly stated:

> "*Transportation is a big challenge*."

These difficulties were often compounded for undocumented patients who might not have a driver's license and those with limited financial resources. Some facilities implemented solutions to address transportation barriers, including partnerships with rideshare services, bus tickets, and special transportation funds:

> "*I know in the past, the 2021-2022 group that I was a part of, had Lyft. There was a program with Horizon NJ Health, so the patients who had transportation issues were able to use Lyft to schedule back and forth.*"

Other health care centers report implementing "Project My Ride" services similar to Uber or maintaining small transportation funds through grants that staff can access for patients in need.

Transportation challenges often intersect with other barriers, particularly childcare needs, creating multifaceted obstacles for pregnant patients attending group sessions. Despite these challenges, providers note that once patients overcome the transportation hurdles and experience CenteringPregnancy, they typically value it highly. One provider observed that some patients are so committed they travel significant distances:

> "*We had one young lady who was Spanish speaking who moved. She ended [up] moving to Parsippany, but she liked the program [so] much that her husband brought her and she made [it to] her session*."

Childcare Challenges ~

Childcare presents a persistent and significant barrier to attendance and participation in prenatal group care, particularly for women with multiple children or complex work schedules. Many CenteringPregnancy sites do not officially offer childcare due to liability, space, and cost constraints, though they often allow children to attend sessions if they are not disruptive. Pointing to the need for informal solutions, one participant stated:

> *"We don't really want to market it as childcare … but essentially someone to entertain them,"*

Other interview participants described how staff work to accommodate these challenges by allowing flexibility, providing small play areas, and even advocating to reschedule medical appointments to avoid childcare conflicts. Despite these efforts, childcare remains a major unmet need that limits accessibility and engagement, particularly when sessions are inflexible or held during times when caregivers lack support:

> *"That's probably the most limiting thing I can think of."*

Language Barriers ~

Language barriers represent a significant challenge for CenteringPregnancy, particularly for sites serving predominantly Spanish-speaking populations. Many facilities struggle with staffing limitations:

> "*Spanish speaking [staff] is one that it's very difficult to find. That's what our issue is*."

When bilingual staff leave, CenteringPregnancy often cannot sustain Spanish-language groups:'

> "*Unfortunately, I don't see too many Spanish groups in our future at this point.... We have no facilitators that speak Spanish*."

Translation services that work well in traditional clinical settings prove problematic in group environments— "*It's difficult to use that in there without other patients being able to hear. And there would be music in the background*"—forcing facilitators to translate materials themselves despite concerns about their proficiency:

> "*Our Spanish is not at a professional level but we get by*."

Some providers have attempted adaptations like recruiting community members as staff or creating separate language-specific groups, yet the lack of Spanish-language CenteringPregnancy materials remains an ongoing challenge:

> "*It would be nice if more [was in Spanish], like even the facilitator's workbook is only in English ... having a lot more in Spanish would be helpful*."

Provider Level

Enhanced Provider/Staff Satisfaction ~

Enhanced provider satisfaction was another benefit of CenteringPregnancy. Interview participants said CenteringPregnancy was fun to work on, and they looked forward to coming to work. CenteringPregnancy enabled providers to spend more time with their patients, to get to know them better, and build rapport with them compared to traditional prenatal care:

"[CenteringPregnancy] gives [providers] a chance to again, foster deeper relationships ... you're really establishing a much deeper connection. You're really truly getting to know somebody. I think for the staff, it's eye-opening."

The ability to build relationships was a major benefit of CenteringPregnancy for providers and patients alike. Participants spoke about how rewarding it was to see their patients learn and grow throughout their pregnancy. One interview participant spoke about how CenteringPregnancy fostered a sense of meaning and purpose in them:

"[CenteringPregnancy] gives us meaning. You know, after the Centering day is done, the staff comes to me and they are like, 'Oh my gosh, it was so amazing to see the interactions that happened today.' It gives them such, like, a deeper meaning to their work."

Better Way to Provide Health Care ~

Some interview participants felt the group prenatal care model allowed providers to provide better care more akin to how they were trained, creating a "return to medicine":

"[I]t's a return to medicine as many of them have trained to be, and that's having a relationship with the patient. So much of medicine now is sort of just processing patients through a treadmill, which leads to provider burnout. I think the connection that [providers] make with the patients and the time they spend with them week after week, or session after session … has given them a great sense of accomplishment and has helped them love medicine again."

Interview participants felt that the group prenatal care model provided a more humane way of providing medicine, which improved interactions between patients and providers. They felt they were providing a better level of care, which was patient centered, not rushed, and responsive to the needs of the patients:

"I find satisfaction in that I feel we're delivering a better level of care. I feel like it's delivered in a calm, relaxed manner instead of rushing, like 'Oh, I gotta hurry up and get all this out. I've only got 20 minutes. I gotta get this patient out and get the next one in.' It's not like that, and you can get multiple people the same information at one time. They have a chance to ask you questions; you don't feel rushed to answer [them]. It just, to me, it's just a better quality of care."

Interview participants also felt that the group prenatal care model prepared patients better for labor and childbirth. They felt that patients were better informed and prepared, which in turn made it easier for providers to care for their patients:

> *"I think if the providers have better-educated patients, it makes your job easy. And when things don't go as planned, patients are more understanding and willing to listen because you've had discussions with them before, as opposed to now."*

Reduced Burnout and Stress ~

Participants spoke about how CenteringPregnancy helps reduce provider burnout by allowing providers to focus more on individual patients. They felt that the group prenatal care model focused on quality over quantity of the patients, which made the practice of medicine more fulfilling. One interview participant spoke about how their site was looking into the relationship between CenteringPregnancy and provider burnout:

> *"One of the other things we struggle with is provider burnout, and it's been hard given that we've been short-handed, short-staffed, underfunded ... but we are looking to see if burnout is affected by this, that when you interact with people on a more personal level, when you find joy in their joy, does that protect you a little bit from burnout?"*

Providers said the group model of teaching also alleviated pressure on the providers who then did not have to constantly repeat information individually or who may not have had all the answers to the questions that come up for discussion in the group:

> *"It takes some of the stress off the provider to feel like they have to have all the answers to everything because some of the patients kind of offer their input on things that aren't really medical. And then being able to give one answer to a lot of people one time instead of going through, you know, if you have seven people in a class and you would have had seven visits back-to-back."*

Staffing Challenges ~

Participants described a range of organizational challenges that impacted the delivery of care and staff morale. Staffing shortages were a persistent issue, with several noting that insufficient cross-training and a reliance on the same individuals created strain for staff and

CenteringPregnancy as a whole. The difficulty of sustaining new initiatives in an already stretched environment was a recurrent theme:

> *"It's not just that we're short-staffed, it's that no one is being trained to fill the gaps we know exist."*

Scheduling Challenges ~

Scheduling emerged as another major challenge for both patients and staff. Many interview participants reported that the rigidity of group session times made it difficult to accommodate patients' varied work and family responsibilities, while evening sessions often clashed with staff availability. Several sites experimented with different times but struggled to identify a universally workable option:

> *"We're asked to be flexible, but the schedule never flexes for us."*

In addition, sites reported that additional time was needed to prepare for and conclude the CenteringPregnancy sessions. This time was often used for preparing the lessons, setting up the room, and taking notes after the CenteringPregnancy session:

> *"We give [the providers] ...3 to 4 hours…to prepare for the Centering [session]and do the Centering [session] and then write notes afterwards. So, it's about a 3-to-4-hour time slot for the 2-hour class."*

Organizational Level

Efficiency ~

Interview participants felt that CenteringPregnancy was more efficient for both the site and its providers/staff, as well as its patients. The curriculum's set schedule made scheduling easier for the site and the patients, who could have their entire schedule of visits for their whole pregnancy in advance:

> *"I think it's nice for scheduling because we schedule out the whole group. So, I think the consistency is nice."*

The group format also enabled more patients to be seen, which increased efficiency for the site, as the following interview participant stated:

"It allows us to bring in a lot of women to receive care and provide that care in a very efficient manner that we [wouldn't] otherwise be able to provide without the program."

Patient Recruitment ~

Offering CenteringPregnancy helped recruit new patients to the various sites. They felt the group prenatal care model was a unique offering to the community that drew patients to their site:

"I think it kind of brings the community to [our hospital] as well…. And I think getting [CenteringPregnancy] helps get our name out there. It's something that's different than a lot of the other organizations."

CenteringPregnancy patients tended to give birth and receive postpartum care at the site, which one interview participant noted was another source of patient recruitment:

"Centering moms tend to deliver in the hospital, so that's a benefit for us. And they tend to come back for their postpartum visits more, I think, at a higher rate than moms that have not been through Centering."

One interview participant also noted that the scheduling was good from a marketing perspective for patients since it enabled them to coordinate their work and childcare schedules in advance through their whole pregnancy:

"We kind of have our schedule way ahead of time, of when the dates are. So that was a good marketing point for the patient, that they would know all of their prenatal dates and times for the entire pregnancy ahead of time. So, if they needed to coordinate childcare or they needed to coordinate with their work schedule, they already had that."

Standardized Care ~

Interview participants felt that CenteringPregnancy standardized patient care in a way that benefited the organization, its providers, and patients. Interview participants noted that having a set curriculum reduced "deviations in care" and helped the organization better control how the information was being disseminated, regardless of the provider:

"There's a lot of variability in the information based on the provider. When you have a curriculum-based program, you kind of know this is always gonna be given in this sort of format."

Limitations of Physical Space ~

Issues related to physical space were also widely reported. Some interview participants described conducting groups in waiting rooms or multipurpose spaces, which required frequent setup and takedown and offered little privacy. Others noted that while having a dedicated space made a significant difference, it was often difficult to secure or maintain. The limitations of the physical environment contributed to logistical challenges and affected patient experiences:

"When your space feels like an afterthought, it's hard not to feel like you are too."

Financial Viability ~

The CenteringPregnancy model faces significant financial sustainability challenges across multiple practices. Most providers reported that CenteringPregnancy is resource-intensive and struggles to cover its costs, particularly with smaller cohort sizes:

"*I think the program, as we see it right now, doesn't really pay for itself*."

The financial viability appears to improve somewhat with larger groups, but even then, it remains challenging. Additionally, providers express frustration about limited reimbursement:

"*I was shocked when I found out [that all] we were going to get was $7.40 per session for doing the Centering. That's not enough of an incentive to even make up the cost of some of the things that you're doing*."

Some providers note that other states offer significantly higher reimbursement rates approaching $50 per session.

CenteringPregnancy requires substantial upfront investment and ongoing expenses that create barriers to implementation and expansion. These include licensing fees, staff time, materials, space requirements, and refreshments:

> "*I want to do another site, but we have to do it all over. We have to spend all the money all over again ... we have to figure out the space and figure out all the stuff and do another licensing fee and do all this*."

Staffing costs represent a major portion of the financial burden, with dedicated coordinator positions being particularly expensive to maintain:

> "*I'm just hearing anecdotal stories from other people, that [the] coordinator role is just expensive and they just couldn't afford it after a while*."

The additional time commitment required from clinical staff further strains the financial model.

Organizational Challenges ~

The implementation of CenteringPregnancy faces significant organizational challenges, primarily around staffing, funding, and administrative support. Clinics often struggle with reallocating nurses and medical assistants to run CenteringPregnancy sessions, which increases pressure on remaining staff:

> "*You're pretty much taking a nurse or a medical assistant away ... that means that there's more pressure on the other staff*."

Additionally, the lack of administrative time means facilitators often prepare for sessions on their own time, further straining capacity and potentially contributing to burnout.

Financial sustainability is another major barrier. CenteringPregnancy is described as resource intensive, requiring dedicated staff, space, supplies, and consistent patient follow-up, but often lacks institutional budget support:

> "*We're trying to do this off the fringes of everything else that we do*."

While grants like those from the Burke Foundation have temporarily helped, long-term funding remains uncertain. Moreover, many staff aren't trained due to the high cost and time demands of certification, and rotating leadership often lacks understanding of CenteringPregnancy's value, contributing to inconsistent institutional buy-in.

Community Level

Bridge to the Community ~

Interview participants spoke about how CenteringPregnancy helped build a bridge between the site, its providers, and the communities they served. The group-care model facilitated improved relationship-building with patients, which meant that providers really understood what type of additional resources and assistance their patients needed:

> *"I think when you're in a larger community, it kind of builds gaps and bridges where there's a lapse in care. It helps us identify and what and recognize what's really needed within the community."*

Interview participants spoke about how there was a gap in the availability and knowledge of services and resources between patients and the community. Patients were not aware of the available resources in their community, and organizations providing the resources did not know how to connect with patients to get them the resources. Thus, CenteringPregnancy helped sites bridge that gap:

> *"Through Centering, it was my way to build a sort of bridge between [the] community organizations and the clinic population itself, 'cause they're all out there, but they don't interact with us."*

Recommendations to New CenteringPregnancy Sites ~

CenteringPregnancy providers offered several recommendations that they would give new sites when establishing CenteringPregnancy. The most commonly provided recommendation was training a group of dedicated providers. In addition, sites recommended establishing a warm and welcoming dedicated space, acquiring adequate technological support for effective communication between moms and CenteringPregnancy providers, establishing a system for tracking patient medical data, expanding language capacities, and patience as providers promote CenteringPregnancy:

> *"I think just to have patience, because it all can get done. You have to get all the players on board. Everybody from registration to the nurses, to the providers, to the patients, to the admin staff. The whole thing. It's a much bigger. You need more*

buy-in than you think you do. But have patience, because once it takes off, it's really an incredible program."

In addition, CenteringPregnancy sites noted the importance of shadowing existing sites and reported that they would welcome a formal mechanism that allowed CenteringPregnancy providers at different sites to learn from one another. This model of peer-support applies to CenteringPregnancy providers as well as patients.

Summary

Participants in the CenteringPregnancy in-depth interviews identified several benefits and challenges, which were grouped into patient, provider/staff, organizational, and community levels. For patients, the reported perceived benefits were increased education, empowerment, better quality of care, improved health outcomes, and community building, while challenges included language barriers, transportation, and childcare. Providers and staff experienced enhanced satisfaction, a better approach to health care delivery, and reduced burnout and stress, though they faced staffing and scheduling issues. At the organizational level, standardization of care and patient recruitment were seen as benefits, but physical space limitations, financial viability, and organizational challenges were noted. Lastly, CenteringPregnancy served as a community bridge, particularly for vulnerable populations that had limited personal networks of support.

Limitations

This study, which provides valuable insights into CenteringPregnancy, was conducted with several strengths that aimed to enhance the quality and reliability of its findings. A primary strength was the meticulous development and consistent application of a detailed interview script. This standardized approach ensured that all participants were asked the same core questions, thereby promoting consistency across interviews and minimizing researcher bias. Furthermore, the decision to limit the number of researchers conducting the interviews significantly contributed to methodological consistency. This approach helped to ensure a uniform interviewing style, interpretation of responses, and overall data collection process, bolstering the comparability of the qualitative data gathered.

Despite these methodological strengths, several limitations warrant acknowledgment. Firstly, significant challenges arose from scheduling conflicts and the limited availability of potential interviewees. While efforts were made to include a diverse range of participants, the inherent difficulties in coordinating schedules with practitioners meant that some valuable voices might have been inadvertently excluded. In addition, certain stakeholders, by virtue of their specific roles or involvement, were unable to comment on the entire breadth of the CenteringPregnancy model. For instance, a clinician might offer deep insights into clinical aspects but less on administrative processes. Based on stakeholders' availability and their specific range of engagement in the services, some sites may not have proposed individuals for interview who could speak to all facets of CenteringPregnancy.

A Case Series Observational Analysis of EMR Data from CenteringPregnancy Patients

Introduction

Prior studies of CenteringPregnancy have shown that CenteringPregnancy can improve select health outcomes (Heberlein et al., 2023; Keller et al., 2023; Liu et al., 2021). To inform the Electronic Medical Record (EMR) review portion of the evaluation, the team conducted a literature review of studies on CenteringPregnancy and generated a list of variables utilized in those prior analyses. The initial list generated by the study team was shared with clinicians from multiple study sites to ensure that clinically relevant variables and variables of interest to CenteringPregnancy sites were included.

Further, while initially a case-control methodology was contemplated (matching each CenteringPregnancy patient with another patient at the site with similar demographic and health variables), participating sites communicated that administrative burden was too high to merit that methodological approach. Ultimately, a case series observational study of CenteringPregnancy patients was undertaken with analyses focused on patients who received five or more CenteringPregnancy sessions compared to those who attended fewer than five sessions.

The health status of a woman can influence her risk of pregnancy complications and adverse outcomes. Similarly, the development of pregnancy complications influences the frequency and type of prenatal care that women receive. For example, women who develop gestational diabetes during pregnancy may need more frequent one-on-one appointments with a specialist, or for someone who develops preeclampsia, it may be recommended that the woman deliver her baby early. A woman who delivers her baby early would not be expected to complete as many CenteringPregnancy sessions as someone who carried to term. These examples illustrate why it is important to provide context for women's health status when evaluating outcomes based on the number of CenteringPregnancy sessions women completed. This is because pre-existing medical conditions, medical complications, and adverse outcomes (e.g., delivering a baby early) are all interrelated with how many sessions a woman might be able to complete.

Methods

Study Design ~

Using electronic medical record (EMR) data, the study team evaluated CenteringPregnancy and assessed patterns of select maternal and infant health outcomes. EMR data were provided to the Rutgers University evaluation team by each of the participating sites following the execution of a data use agreement (DUA). A list of preselected study variables was provided to each of the participating sites. Based on the preselected list of variables, each study site abstracted data for CenteringPregnancy patients from their EMR.

Data Collection ~

Seven DUAs were executed across evaluation sites between June 2023 and September 2024. Participating sites uploaded the requested data to a password-protected folder or created a secure portal that allowed the Rutgers study team to securely transfer the data.

Data Analysis ~

For the analysis, CenteringPregnancy patients were categorized based on the frequency of completed sessions. Given the 10-session curriculum of CenteringPregnancy and prior work indicating that five or more sessions resulted in improved CenteringPregnancy group cohesion and satisfaction with the model of care, we categorized the sessions as fewer than five versus five or more (4 vs. ≥5).

Patients' medical history data were used to construct a four-tiered variable to categorize women's pregnancy risk. In addition to general pregnancy risk, pregnancies were grouped into mutually exclusive categories based on preconception health status, the occurrence of pregnancy complications, and the occurrence of an adverse pregnancy outcome. To resolve overlap among women who met criteria for multiple groups, we applied a hierarchical classification: adverse outcome > pregnancy complication > pre-existing condition.

Pregnancy Risk Categorization

1. General pregnancy risk
2. Pre-existing conditions (e.g., sexually transmitted infections, fatty liver, overt diabetes prior to pregnancy, advanced maternal age (≥ 35 years), and high pre-pregnancy body mass index [BMI kg/m^2] ≥30)

3. Pregnancy complications (e.g., gestational diabetes, preeclampsia)
4. Adverse outcomes (e.g., placental abruption, very preterm delivery (delivering a baby less than 34 weeks of pregnancy), and NICU admissions)

Outcomes evaluated included rates of preterm birth (< 37 completed gestational weeks), Cesarean section, postpartum return visits, and breastfeeding initiation at delivery among neonates without NICU admission, ventilation, or respiratory distress.

Summary statistics, including frequencies with percentages for categorical variables and medians with interquartile range for continuous variables, were prepared for all variables of interest. There was unequal distribution of missing data across the data fields. Percentages do not account for missing data.

Results

There were 965 CenteringPregnancy patients included in the analysis. Sociodemographic data of these patients are presented in **Table 1.** Women who participated in five or more sessions (n=485), in general, had similar characteristics to all women included in the analysis. Most of the women were between 20 to 29 years of age (69%) and Hispanic (78%). Approximately a third of the women did not have insurance, were self-pay, and/or received charity care. More than 75 percent of the women were overweight or obese.

Several clinical risk factors for worse preconception health, pregnancy complications, and adverse outcomes differed by the three-level pregnancy risk category (**Table 1**). For example, the proportion of women over 30 years of age was greater among women with preexisting conditions (42%) and adverse outcomes (25%) compared to women in the general risk group (20%). In addition, there was a greater proportion of women who reported being of a minority racial/ethnic group among those categorized with a pregnancy complication or adverse outcome.

Table 1. Sociodemographic data of the 965 CenteringPregnancy patients by number of CenteringPregnancy sessions attended and pregnancy risk category

		Number of CenteringPregnancy Sessions Attended		Pregnancy Risk Category			
	All Women	Fewer than 5	5 or More	General Risk	Pre-existing condition	Pregnancy Complication	Adverse Outcome
Sample Size	N=965	N=481	N=484	N=304	N=87	N=501	N=73
Age (median [IQR])	25 (21-29)	24 (21-27)	26 (22-30)	25 (22-28)	28 (24-32)	24 (21-28)	25 (22-29)
Age							
15-19	92 (10%)	51 (11%)	41 (8%)	23 (8%)	5 (6%)	58 (12%)	6 (8%)
20-24	383 (40%)	219 (46%)	164 (34%)	120 (40%)	21 (24%)	213 (43%)	29 (40%)
25-29	280 (29%)	128 (27%)	152 (31%)	97 (33%)	25 (29%)	138 (28%)	20 (27%)
30-34	145 (15%)	55 (12%)	90 (19%)	38 (13%)	25 (29%)	69 (14%)	13 (18%)
35+	59 (6%)	22 (5%)	37 (8%)	20 (7%)	11 (13%)	23 (5%)	5 (7%)
Race/Ethnicity							
Hispanic	700 (78%)	337 (76%)	363 (79%)	238 (84%)	51 (60%)	365 (79%)	46 (67%)
Non-Hispanic Asian	13 (1%)	6 (1%)	7 (2%)	3 (1%)	3 (4%)	4 (1%)	3 (4%)
Non-Hispanic Black	118 (13%)	69 (16%)	49 (11%)	23 (8%)	8 (9%)	72 (16%)	15 (22%)
Non-Hispanic Other	34 (4%)	21 (5%)	13 (3%)	13 (5%)	4 (5%)	16 (3%)	1 (1%)
Non-Hispanic White	37 (4%)	11 (2%)	26 (6%)	7 (2%)	19 (22%)	7 (2%)	4 (6%)
Insurance							
Medicaid	372 (62%)	200 (67%)	172 (56%)	132 (62%)	23 (56%)	192 (62%)	25 (64%)
None/Charity Care	186 (31%)	74 (25%)	112 (37%)	64 (30%)	16 (39%)	96 (31%)	10 (26%)
Private	45 (7%)	24 (8%)	21 (7%)	17 (8%)	2 (5%)	22 (7%)	4 (10%)
BMI (median [IQR])	31 (27-34)	30 (27-34)	31 (28-34)	30 (27-34)	33 (29-37)	31 (27-34)	30 (27-33)
Prior Preterm Birth	81 (9%)	47 (11%)	34 (8%)	10 (4%)	5 (8%)	42 (9%)	24 (38%)
Nulliparous	63 (8%)	26 (8%)	37 (8%)	16 (8%)	23 (27%)	15 (3%)	9 (13%)

Among all women, the median (IQR) number of CenteringPregnancy sessions was six (2–9) (**Table 2**). For women who completed five or more sessions, the median was eight (2–9). As expected, the median number of CenteringPregnancy sessions decreased across pregnancy risk categories, which is partially due to factors such as earlier delivery and the need to supplement CenteringPregnancy sessions with more specialized prenatal services such as visits with Maternal Fetal Medicine (MFM) doctors. However, despite their higher-risk profile, women remained engaged with the CenteringPregnancy, as evidenced by the high median number of sessions across pregnancy risk categories.

Table 2: Summary of prenatal visits and CenteringPregnancy sessions attended by pregnancy risk category

		Pregnancy Category			
	All women	General Risk	Pre-existing condition	Pregnancy Complication	Adverse Outcome
Sample Size (N)	N=965	N=304	N=87	N=501	N=73
Total Prenatal Visits (median [IQR])	22 (18-27)	20 (17-24)	22 (18-27)	23 (18-28)	22 (15-28)
Total CenteringPregnancy Sessions (median [IQR])	6 (2-9)	7 (2-9)	8 (4-10)	6 (2-9)	5 (2-8)

Improvements in Health Outcomes ~

There was a pattern of positive health outcomes among patients who completed five or more sessions (**Figure 7**. Compared to women who completed fewer than five CenteringPregnancy sessions, those that completed five or more had lower rates of preterm delivery and Cesarean section, and higher rates of breastfeeding initiation and completion of post-partum care.

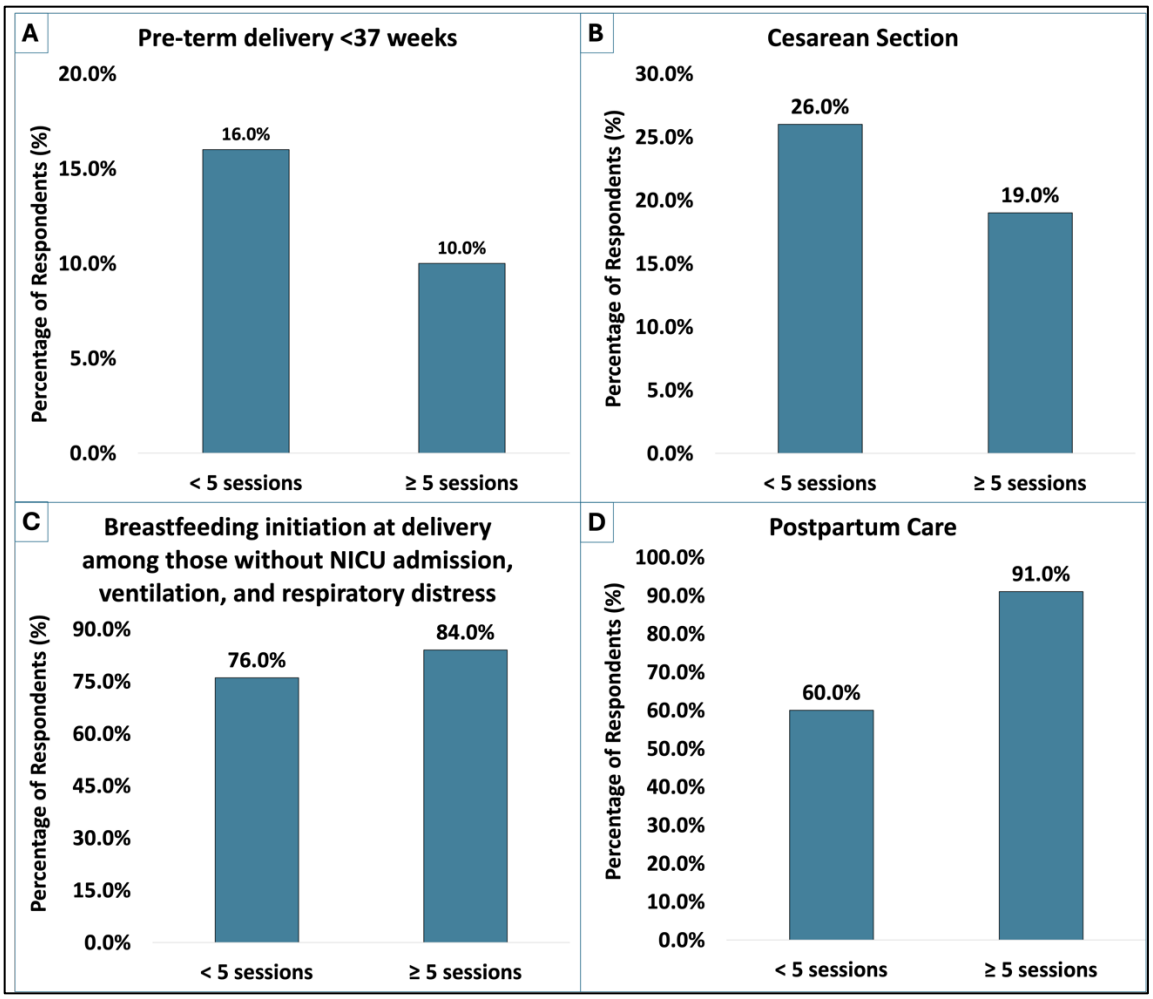

Figure 7. CenteringPregnancy health outcomes for patients who completed <5 or ≥5 sessions: A. preterm birth, B. Cesarean section, C. Breastfeeding initiation, and D. postpartum care initiation

For example, there was a six-percentage point decrease in preterm births among patients who attended five or more CenteringPregnancy sessions compared to those who attended fewer than five sessions. There was a seven-percentage point decrease in Cesarean delivery among those who attended five or more CenteringPregnancy sessions compared to fewer than five sessions. There was an eight-percentage point increase in breastfeeding initiation at delivery among babies without NICU admission, ventilation, and respiratory distress among patients who attended five or more CenteringPregnancy sessions compared to those who attended fewer than five sessions.

There was an impressive 31 percentage point difference in receipt of postpartum care among CenteringPregnancy patients who attended five or more sessions compared to those who attended fewer than five sessions. This large difference suggests continued engagement in health

care after pregnancy which may influence continued engagement with the health care system and health status for women and infants both immediately and in the future.

Summary

This evaluation continues to support CenteringPregnancy as a model for delivering the standard of prenatal care acceptable to patients, as demonstrated by the large number of sessions attended. Further, while subject to limitations (see below), this analysis supports the idea that CenteringPregnancy is associated with improved outcomes, even for higher-risk populations. For example, this data analysis of EMR records demonstrates lower rates of some adverse pregnancy outcomes (e.g., preterm birth) and higher rates of important positive outcomes (e.g., breastfeeding initiation) among women who completed five or more CenteringPregnancy sessions compared with those who received fewer than five. Given the high rates of postpartum care, this evaluation supports that CenteringPregnancy may positively influence patient engagement with health care providers. This positive influence may have lasting impacts on long-term health system engagement, with implications for improved management of health conditions and prevention.

Limitations

While this component of the evaluation posed several strengths, such as the large sample size, there were some important limitations that should be noted. First, the DUAs were a large administrative burden for the hospital staff and evaluation team. Even after the DUAs were finalized, sites often lacked the capacity (e.g., time), expertise (e.g., knowledge of how to extract CenteringPregnancy patient data), or technical capabilities (e.g., EMR data-recording software) to provide a complete data set for each patient. Missing data followed a complex, non-random pattern, which limits the findings. Additionally, limited administrative support at some sites hindered their capability to collect key quantitative data for this evaluation, reducing their ability to contribute to the overall dataset, so that the EMR data analysis is based on fewer sites than the overall evaluation. Transitions to new EMR systems created challenges in extracting data records prior to the system change. Lastly, the case-series observational design lacked a non-CenteringPregnancy comparison group, which prevents the evaluation team from drawing any causal conclusions from the data.

Summary of Findings and Recommendations

This evaluation of CenteringPregnancy at seven sites across the state of New Jersey utilized multiple qualitative and quantitative methods to gather data from CenteringPregnancy patients, health care providers, administrators, and staff. Evaluation approaches included observation of a CenteringPregnancy session at each site, focus groups with current patients, surveys of current and former patients who had completed at least five CenteringPregnancy sessions, and an analysis of EMR records from patients at a subset of sites.

The overall synthesis of the findings across evaluation components demonstrates that CenteringPregnancy has high acceptability among both patients and CenteringPregnancy providers. Pregnant women highly value the relationships they develop with other patients in the groups and with the health care providers who provide the education and care. For women who had experienced both traditional one-on-one prenatal care and CenteringPregnancy, group prenatal care was preferred. Evaluation participants also valued the ability to share the information they learned with other people and the recognition of their expertise from family and friends. For women who had fewer social connections in their communities, CenteringPregnancy was particularly valued.

Patients had several recommendations for ways that CenteringPregnancy could be improved. In particular, clear communication about whether the model is a choice or is the standard of care, timely running of the groups, the opportunity to meet with health care providers privately, and potentially separate groups for those experiencing their first pregnancy versus subsequent pregnancies would enhance CenteringPregnancy. Patients were mixed in their feelings about having the same health care providers throughout (compared to meeting many different clinicians) and in having children present at the groups.

CenteringPregnancy sites believed that group based prenatal care had important benefits for both patients and health care providers and other involved staff. There was high satisfaction associated with the opportunity to provide this model of care and a perception that it contributed to job satisfaction and reduced burnout. CenteringPregnancy providers need additional administrative time to prepare and handle the various follow-up activities that are part the model. Challenges to implementation sometimes mirror broader difficulties in health care such as the ability to hire and retain providers. When CenteringPregnancy was provided by only a subset of

providers or relied on a particular champion, the model was vulnerable to that person leaving or having schedule or responsibility changes that interfered with their ability to continue.

Site challenges include adequate space to accommodate group care and financial viability. Several sites were worried about the sustainability of the model even with the enhanced reimbursement rate offered through New Jersey Medicaid and worried that losing grant funding would make offering the CenteringPregnancy materials and snacks to patients impossible.

The EMR data analysis of close to 1,000 patients shows that CenteringPregnancy has added benefits for those patients who complete five or more sessions compared to fewer than five, consistent with previous studies on CenteringPregnancy. Among those patients who participated in more than five sessions, there were lower rates of preterm and Cesarean deliveries, higher rates of breastfeeding initiation, and a high rate of return for postpartum care.

While there are important limitations in the data analysis due to missing data, this evaluation is an important contribution to the existing literature on CenteringPregnancy as a large proportion of the patient records analyzed were from people who had a higher risk profile. These patients are often enrolled in traditional care and not given the option of participating in group prenatal care. The session completion and combination of EMR data with patient and health care provider insights in this evaluation suggests that CenteringPregnancy can be an appropriate method of delivering or supplementing prenatal care that could be safely expanded among some higher-risk populations. The social and emotional benefits of CenteringPregnancy should be available more broadly and not confined to low-risk patients.

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