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Brief Report

The Mexican Experience Adapting CenteringPregnancy: Lessons Learned in a Publicly Funded Health Care System Serving Vulnerable Women

Ileana B. Heredia-Pi, MD, MSc, PhD, Evelyn Fuentes-Rivera, MSc, Zafiro Andrade-Romo, MD, MSc, María de Lourdes Bravo Bolaños Cacho, CPM, Jacqueline Alcalde-Rabanal, PhD, Laurie Jurkiewicz, CNM, MS, Blair G. Darney, PhD, MPH

Group antenatal care is an innovative model of health care in which all components of antenatal care—clinical, educational, and supportive—happen in a group context with health care professionals as facilitators. CenteringPregnancy is the most studied model of group antenatal care, now widely implemented in the United States. This model has been shown to be effective in improving health and behavioral outcomes in the United States, but there is less known about the experience adapting group antenatal care in settings outside the US health care system. This article describes the adaptation of the CenteringPregnancy model to a Mexican context. We describe the Mexican health care context and our adaptation process and highlight key factors to consider when adapting the content and modality of the CenteringPregnancy model for diverse populations and health systems. Our findings are relevant to others seeking to implement group antenatal care in settings outside the US health care system.
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INTRODUCTION

Traditional antenatal care typically refers to a single patient receiving individual care from a maternity care provider during brief encounters at 1- to 4-week intervals depending on gestational age and pregnancy risk factors.[1,2] There is conflicting evidence about the effectiveness, acceptability, patient satisfaction, and quality of the standard individual antenatal care model.[3] The traditional individual antenatal care model is sometimes supplemented by group prenatal classes, which facilitate support networks and social interaction, improve education, and provide additional peer support.[4]

CenteringPregnancy is an innovative group model of antenatal health care that occurs in a group context with multiple health care professionals as facilitators.[5] CenteringPregnancy is currently incorporated in more than 500 clinics in the United States. The model includes 3 broad components, health assessment, interactive learning, and community building, and adheres to 9 essential elements (Table 1). In the CenteringPregnancy model, 8 to 12 women at a similar gestational age (12-14 weeks) receive all their antenatal care in a group that is facilitated by 2 health care providers. Usually, the groups meet for 10 sessions that generally last 2 hours each.[6] The facilitated (as opposed to didactic) format means that women become the center of care and the guides of the group. The model favors empowerment, involvement, and participation of women; a collaborative, inclusive approach to the provision of health care; and an emphasis on shared information and decision making. Women learn how to take their own blood pressure and weight measurements and determine gestational ages; they become active participants in care, with access to their own clinical information. The group format allows them to build relationships with their health care providers and with other pregnant women.[7,8]

Other models of group antenatal care exist, but CenteringPregnancy is the most studied to date. CenteringPregnancy has been shown to be effective in increasing antenatal[1,9–11] and postpartum attendance[2,11] and reducing cesarean births.[11] There is also some inconclusive evidence about increasing rates of breastfeeding[2,6] and reducing preterm births and low birth weight.[2,10] Other models of group antenatal care have demonstrated similar results.[4,12] CenteringPregnancy has also been found to be associated with other important patient-centered outcomes such as knowledge[2] about pregnancy and childbirth, feeling more prepared for labor and birth, and satisfaction with care.[9,12]

Within the United States, CenteringPregnancy has proven effective for women from low-income populations,[13] and although there is some evidence that CenteringPregnancy has benefits for specific population groups, such as Latinas living in the United States[11] and African Americans,[9] little is known about this model outside of the United States.[8] More evidence is needed about the health and behavioral effects of group antenatal care in diverse populations as well as experiences implementing the group care model in diverse health system settings.[14]

The group antenatal care model has also been adapted outside the United States. In Iran, a randomized controlled trial found significantly higher birth weight in newborns of women in group antenatal care compared with individual care.[3] Currently, CenteringPregnancy is being implemented or adapted in Africa,[15] Australia,[16] Asia,[17] and Haiti.[8,18]

Address correspondence to Blair G. Darney, PhD, MPH, Department of Obstetrics & Gynecology, Oregon Health & Science University, Mail Code UHN-50, 3181 SW Sam Jackson Park Rd., Portland, OR 97239. Email: darneyb@ohsu.edu

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Quick Points

- We adapted CenteringPregnancy, retaining most essential elements and adapting as needed to fit our population of women and health care providers as well as health system constraints.
- Implementing group antenatal care in Mexico is a challenging but feasible process; some lessons appear to be common and have been documented in other settings, whereas others may be more specific to the Mexican context.
- We found space and recruitment to be key challenges, as previously documented in US settings.
- We identified challenges that may be specific to Mexico but should be kept in mind when adapting in diverse health systems: for example, ensuring group antenatal care follows government guidelines and aligning group antenatal care with restrictions on who can provide and document care.

In Mexico, improving the quality of maternal health care, including both maternity and antenatal care, is a government priority.[19] The Secreteria de Salud (Ministry of Health) serves the self-employed, the unemployed, the nonsalaried, and informal-sector workers. Overall, this is a vulnerable population (eg, low socioeconomic status and/or at risk of poor physical, psychological, or social outcomes, including adverse perinatal outcomes).[20] Despite major, innovative health system reform to increase financial protection for households,[21] the Secreteria de Salud, like many publicly funded health care systems, faces financial and organizational challenges to meet the needs of its population.[22] Significant gaps in the adequacy and quality of maternal care remain in Mexico.[23]

In Mexico, as in many other countries, conventional individual antenatal care is often of low quality, including in the domains of access, timeliness, equity, and continuity,[24] whether measured by frequency of visits or by having the same health care provider.[25] In Mexico, disparities persist in the continuity of maternal care (a composite of antenatal care initiation, frequency, content of care, institutional birth, and postpartum contraception), especially among women of lower socioeconomic status, 74.1% of whom report continuity, compared with 85.7% among wealthier women.[23] The group antenatal care model of care has the potential to improve the quality and continuity of antenatal care in Mexico. This article describes our experience adapting CenteringPregnancy to a setting in Mexico. We describe the preparation and pilot phase of this process and the 6 steps taken to adapt CenteringPregnancy for implementation in Mexico. The overall goal of our project is to assess the feasibility and acceptability of group antenatal care in primary care facilities, within the Secretaria de Salud of 2 different states in Mexico—Hidalgo and Morelos.

ADAPTATION PROCESS

The project team followed the process of preparation, pilot, and expansion described by Rising and Quimby[26] to adapt CenteringPregnancy for implementation in settings outside the United States. Preparation includes engaging stakeholders, adapting the model to the context, and preparing the setting for implementation; piloting is necessary to identify initial difficulties and involves evaluation to provide evidence of benefits; expansion follows.[26]

Our multidisciplinary team is led by a Mexico-based health care systems researcher, midwife, and group of physicians, with the benefit of collaboration with a US-based CenteringPregnancy expert and reproductive health services researcher. We decided as a team, a priori, that the core elements of the CenteringPregnancy model (Table 1) should be maintained as much as possible, whereas content, design of materials, and format could be adapted as needed. Table 2 summarizes the 6 steps and adaptation process summarized below.

Ministry of Health Buy-In and Training of Mexican Team

The adaptation process began with a discussion with stakeholders and decision makers within the 2 state ministries of health. The goal of discussions was to obtain buy-in and the appropriate administrative approvals to be able to recruit clinics and begin group antenatal care. At the same time, 2 members from the team, a midwife and a physician, were selected to become local trainers and attended a 2-day intensive training workshop in CenteringPregnancy in the United States to increase their understanding of the model. We also began working with a CenteringPregnancy expert in the United States to begin planning the model adaptation. She led an initial one-day meeting to raise awareness with Ministry officials, potential health care provider participants, and pregnant women. She reviewed the experience implementing CenteringPregnancy in the United States and summarized the evidence about health outcomes and participant satisfaction. A group exercise gave meeting participants the opportunity to experience a facilitated leadership style similar to the one used during the group prenatal sessions. The final phase of the meeting was devoted to eliciting reactions from participants to determine if they thought group antenatal care was an appealing idea and if they felt it could work in Mexico and to have them identify potential barriers to adapting and implementing the model. Team members documented all feedback to inform adaptation. For example, during this initial workshop we noted that blood pressure cuffs were a topic of much discussion among the meeting participants, which highlighted lack of resources as one barrier to implementation. Participants also discussed if and how group antenatal care met the federal clinical guidelines for antenatal care, and

Table 1. The Essential Elements of CenteringPregnancy Maintained or Adapted in the Mexican Experience of *Consulta Prenatal en Grupo*

Essential Elements	Rationale	Maintained or Adapted
Health assessment happens in the group space.	This promotes pregnancy as a normal event in a woman's life.	Adapted: Although the health assessment happened in the same room, in some clinics, because of cultural aspects, we had to adopt a screen dividing the circle and the assessment and not use a mat on the floor for individual checkups.
Patients engage in self-care activities.	It fosters engagement in one's own health care and improves health literacy.	Maintained
Groups are facilitated to be interactive.	Facilitated leadership style of education is based on adult learning theory. It is well supported by the literature as a more effective way to educate adults.	Maintained
Each session has an overall plan, but emphasis may vary.	Time is given to key topics related to pregnancy and childbearing. However, attention is given to more specific areas of members' interest.	Adapted: We had a curriculum that addresses topics that are mandatory for the official Mexican norm; nevertheless, it was flexible enough to give attention to specific areas of interest of the women.
There is time for socializing.	Socializing helps to build community.	Maintained
Groups are conducted in a circle.	Circles help to promote egalitarianism. Every member in the circle is an equal participant.	Maintained
Group members, including facilitators and support people, are consistent.	Consistent members promote trust and relationship building.	Adapted: In some clinics we had 2 facilitating teams, and in some sessions, because of administrative or scheduling problems, another facilitating team had to intervene.
Group size is optimal for interaction.	8-12 members is an optimal cohort size based on group dynamic theory. With more than 12 members, not everyone will have the opportunity to share. Fewer than 8 members will greatly decrease experience shared within the group and create more of an imbalance between health care providers and patients.	Adapted: Because of recruitment challenges, sometimes we had more than 12 members and up to 15 in a cohort.
There is ongoing evaluation.	Changing a model of care necessitates evaluation to ensure quality of care.	Maintained: Evaluated by the study team; some work with participating health care providers to self-evaluate.

Source: Adapted from Rising et al[5] and Abrams et al.[18]

they discussed poor attendance at a federal health program called *Clubs de Embarazadas* (Pregnant Women's Clubs), an educational series offered in addition to individual antenatal care. This was important for us to address in terms of highlighting how group antenatal care was different from this add-on education. We also noted that participants, although dressed formally, participated readily and actively in all activities, moved and laughed, and seemed to enjoy the meeting. This indicated to us a good fit between the model and Mexican culture.

Adaptation of Content and Format of the CenteringPregnancy Model

Informed by feedback at our initial one-day workshop, we next worked to adapt CenteringPregnancy materials and processes to the Mexican context. This process included creating a curriculum (Table 3) that reflected content mandated by the Secretaria de Salud.[27] We learned during our initial workshop that having a standardized curriculum was crucial to implementing the group antenatal care model. Health care providers expressed that it made them feel more secure conducting group care. In addition, Ministry staff were more open to group antenatal care once they could see the content and organization of care explicitly documented, which could reassure them that group antenatal care met the Ministry standard for antenatal care. The team had some concerns that providing a written curriculum would impede a facilitative leadership style, but we also realized that without a curriculum, we would not be able to implement group antenatal care in the Mexican setting. Our concerns were not about the curriculum per se but about overly rigid adherence to the

Table 2. Phases for Adapting, Piloting, and Implementing the Group Antenatal Care Model in Mexico

Phases/Steps	Activities	Lessons Learned
Phase 1. Ministry of Health buy-in and training of Mexican team	Discussion with stakeholders and decision makers Initial training to raise awareness among health system administrators; meetings with local Ministry of Health leadership Training Mexican team	Training in multidisciplinary teams is not the norm, but people like it. Discuss the elements or components of the model that must remain and which must be changed or modified according to the local context but that do not alter the essential content of the model. For example, the curriculum could be modified (see Phase 2), but self-assessment by women was a core element of the model and not negotiable.
Phase 2. Adaptation of content and format of the CenteringPregnancy model	Informal discussions with midwives, doctors, and women to define the educational components to include Ensure curriculum meets Mexican Norma (standards of care and regulations) Create a curriculum and guide for integration of the group antenatal care model	Must understand the health system and regulations governing health care providers. Incorporate existing guidance[a] from the beginning. Reflect carefully about when to be flexible and when to hold the line so as not to lose the essence of the model or cause health care providers to reject the model. In curriculum and training materials, give greater weight to the concepts of facilitative leadership style and skills and multidisciplinary teamwork.
Phase 3. Site selection process	Diagnosis in the health units on human resources and assess human resources, space and infrastructure, and patient volume in primary care clinics	Take special care with the aspects of infrastructure and physical spaces available in health facilities for group care. It is not advisable to depend on physical spaces outside the units. This generates logistical and organizational challenges that hinder implementation.
Phase 4. Initial training of health center staff	Initial training to raise awareness with health care providers Two workshops with the US expert	The most difficult component to teach and incorporate is a facilitative leadership style Balancing flexibility with core elements of group antenatal care model was essential.
Phase 5. Pilot	Piloting instruments and initial group care sessions in one clinic	Pilot study is needed for technical assistance and feedback. Needs to be flexible during initial supervision of sessions, providing technical assistance. Maintain focus on facilitative leadership style and review or debrief with health care providers after each session to review successes and challenges (use model fidelity checklist).
Phase 6. Implementation	Implement sessions in all 4 clinics	Ensure physical space and stable facilitator teams. Ongoing technical assistance with troubleshooting for time management (eg, for chart documentation) and other logistics of group care. Ongoing focus on multidisciplinary teams and what can be done by nonphysicians to ease the burden of group care. Ongoing focus on facilitative leadership style is essential—the norm is to go back to didactic style.

Table 3. *Consulta Prenatal en Grupo* Educational Content by Sessions

Session Number and Themes	Educational Content	Included or Not in Mexican Regulations[a]
Session 1		
Introduction to group antenatal care	Group rules	Not included; group rules are specific to *Consulta Prenatal en Grupo*
	Physical and emotional changes during pregnancy	
Knowing my pregnancy and care during pregnancy	Care in nutrition, dressing, hygiene, sexual intercourse, and healthy lifestyle choices during pregnancy	Included (guideline 5.2.1.8)
		Included (guidelines 5.2.1.12, 5.2.1.18)
Session 2		
The traffic light of my pregnancy	Signs and symptoms of danger during pregnancy; myths and explanations	Included (guidelines 5.3.1.12, 5.4)
Session 3		
Planning my family	Family planning and contraceptive methods	Included (guideline 5.3.1.10)
Session 4		
Breastfeeding my baby	Breastfeeding benefits and appropriate techniques of breastfeeding	Included (guideline 5.3.1.15)
	Barriers to breastfeeding	Not explicitly included
Session 5		
Preparing my childbirth	Labor, breathing, and relaxation techniques; birth attendance kit	Included (guideline 5.5.1)
	Comfort during labor	Included (guidelines 5.5.5, 5.5.15)
Session 6		
Care of women after childbirth	Care of women during puerperium, signs of danger, and caring for your baby (sleep, nutrition)	Included (guidelines 5.6.1.9, 5.6.2.3)
Session 7		
(two options)	Nutrition, umbilical cord, bath, early stimulation	Included (guidelines 5.7.2)
Newborns, pediatric care	Vaccines, stimulation techniques	Included (guideline 5.7.2.9)
Child growth and development		

[a] Secretaría de Salud de México, *Norma Oficial Mexicana NOM-007-SSA2-2016*.[27]

written curriculum and potential difficulty in getting health care providers to shift from a didactic mode to a facilitative model. The group decided on a 7-session format starting at 12 to 20 weeks' gestation extending through the postnatal period. The educational topics are generally covered in order (Table 3) but are flexible to allow the emergence of new or member-driven elements for group discussion.

We also adapted the format for health care provider training to meet the needs of the participants, reducing the time spent in the large group on systems issues and adding additional one-on-one, on-site time after the training to address ongoing systems and implementation challenges. We did this because we were constrained as to the length of trainings by Secretaria de Salud permissions for participants to be away from their clinics. The training agenda allowed the health care providers to focus on learning and developing the facilitative leadership skills and other skills needed to conduct a group prenatal session. The part of the site implementation process that deals with systems issues such as scheduling, billing, and space requirements was not emphasized in the trainings; this important content was covered in one-on-one technical assistance at each site. All materials were adapted to use local images of women and infants, and, additionally, all materials were translated into Spanish and adapted for lower-literacy populations. We also developed a series of forms to help with record keeping for recruitment and at each session. The final adapted group antenatal care model, *Consulta Prenatal en Grupo,* included a facilitator's guide and curriculum, standardized recruitment procedures including posters with a logo and the logo of the Secretaria de Salud, record-keeping forms, and standardized equipment for facilitating care (flipcharts, visual aids, scales, automatic sphygmomanometers, materials for games, etc). We prepared a large, lockable, plastic trunk for each site that contained all necessary materials and resources to address concerns about materials disappearing or getting lost.

Site Selection Process

Next, we selected clinical sites for implementation of the pilot in small, primary care facilities in 2 different states in Mexico—Hidalgo and Morelos. The sites typically have one or

2 medical staff plus auxiliary staff (eg, nurses, social workers) and provide a range of primary care services. We used criteria identified in prior group antenatal care interventions[28] and our CenteringPregnancy team member expert's own experience. We were also guided by the Ministry of Health in each state. Master's students at our institution conducted diagnostic visits to all sites and summarized the physical space, patient volume, and personnel on site. Selection criteria were volume of antenatal care visits (enough pregnant women to recruit cohorts for groups), space and infrastructure of the health center (a private and large enough space to allow for 12-20 people sitting in a circle and have a space off to one side for individual health assessments), and willingness of center staff to participate. The physical space where group antenatal care would be carried out was a challenge. Potential primary care clinics were all small facilities, with small rooms designed for individual consultations. Open areas (such as for waiting) were either not covered (precluding holding sessions during Mexico's 4-5-month rainy season) or provided insufficient privacy for group discussions. Two sites selected to participate did not have adequate physical space. This led to problem-solving consultations with clinic staff to identify physical spaces close to the clinics with space to hold group antenatal care.

Initial Training of Health Center Staff

After site selection, initial training of health care providers began through a 2-day workshop with our US expert team member leading the training and our Mexico team assisting. We trained physicians and other health professionals (nurses, social workers) already working in our chosen primary health care centers. This training served 2 purposes: to train health center staff to facilitate group antenatal care and as a first training of trainers (training our team to lead trainings).

During the training, we reviewed the background and main components of the model, the rationale behind its essential elements, and the implementation process for each site. This included space, recruiting, scheduling groups, team communication, and sustainability. The US expert led some cases for facilitation and mock groups (simulation of a group antenatal care session), reviewed all the material to be used during the antenatal group sessions, and talked about the importance of fidelity to the core elements of the model. As part of the mock groups, participants engaged in some of the activities included in the curriculum, so the health care providers could experience them prior to leading them.

We discussed concerns about the group antenatal care model with participants, as well as describing our feasibility study process and troubleshooting implementation concerns. This helped to clarify misunderstandings and allowed us to better understand further adaptations to the model that needed to be made. We also asked the attendants to evaluate the training team in order to identify if anything was not clear or if we needed to make changes for subsequent trainings.

Pilot

We implemented the Mexican group antenatal care model *Consulta Prenatal en Grupo* in a stepped process, which allowed for further refinements and adjustments prior to expanding to all sites. We began in 2 sites, one in each state. First, we delivered all materials in a plastic trunk with a lock so that materials would stay secure on site and always be available for group care sessions. We provided guidance for initial recruitment: identifying women between 12 and 20 weeks' gestation to invite to join group antenatal care. When the initial groups were full (a least 10 but not more than 15 women to allow for some to drop out), the cohorts began sessions monthly. Two members of our study team attended all sessions to observe, provide troubleshooting support to health care providers, evaluate model fidelity using a checklist, and prepare a brief narrative report about challenges and successes of each session (eg, noting attendance, facilitative style of the health care providers, women's engagement, and questions or challenges the health care providers had).

Implementation

A final phase of adaptation was training our own team members to conduct facilitator trainings independently. This was done to ensure that the group antenatal care model could be sustainable in Mexico. Future expansion of the model requires trained facilitators for group antenatal care, and our formative work early in the adaptation process showed that participants valued local peer experience with the group antenatal care model prior to agreeing to implement the model. Our 2 team members, one physician and one midwife, who had participated in the Centering training in the United States actively participated in the subsequent facilitator trainings in Mexico with our US midwife expert, then wrote their own training plan based on her training plan and their own experience. They then led a training session with her support and finally led training independently.

Currently we have trained 23 health care professionals and conducted 10 groups; 129 women have participated, and 83% attended at least 5 prenatal sessions, as established in the Official Mexican Standard Guidelines (recruitment and groups are ongoing). Anecdotal evidence from our team reports of each session suggests that women and health care providers report high levels of satisfaction and acceptance of the group antenatal care model. Highlights for women include more time with health care providers; learning to take one's own vital signs; continuity of care (same health care provider); interacting and learning from the experiences of other pregnant women; and a perception of receiving more information and ending up with more knowledge about care during pregnancy, childbirth, warning signs, and care of the newborn.

Participating health care professionals have reported several perceived benefits, including the following: being able to deliver more information about care during pregnancy, birth, and puerperium; increased self-efficacy and empowerment among women; more exchange of experiences among women; and women being involved more actively in their care. However, they also state that the implementation of the model imposed important organizational and management challenges in the clinics, which must be considered to ensure sustainability. Our study of women's satisfaction and self-efficacy for birth with group antenatal care and health care providers' perceived barriers and facilitators to implementing group an-

tenatal care is ongoing, led by a doctoral student in our institution.

DISCUSSION

Each phase of our adaptation process provided us with lessons learned about adapting CenteringPregnancy to Mexico. Some lessons appear to be universal or at least have been documented in US settings; some may be more specific to the Mexican context and point to the importance of a deep understanding of the health care system context when adapting or developing a group antenatal care model in a new country.

Challenges we encountered in our adaptation process that have been noted in previous literature include physical space,[28] sufficient volume of pregnant women and recruitment strategies, and the challenge of changing medical culture.[29] In Mexico, the public primary care clinic system is made up of small clinics conveniently located in the community and serving a limited catchment area. By virtue of their design, the clinics are small and each community health clinic has the same footprint, so the problem of space is consistent across the country. This meant that we had to look in the community for space to share and/or negotiate improvements to health centers with health systems personnel looking for a place inside the clinic. However, having to travel to another space, such as a nearby government space offering social services, to lead group antenatal care session is more logistically difficult and threatens sustainability. In previous literature, for example during the implementation of *Fanm Pale* sessions in rural regions of Haiti, there were challenges to identifying locations that could support the group structure (ie, a circle). The decision was made to hold sessions in a diverse set of conveniently accessible, shared public locations. Running groups outside clinics posed several challenges, including high temperatures and concerns about women's comfort, as well as confidentiality.[18]

The primary care clinics where we implemented group antenatal care provide full-spectrum care; pregnancy is just one of the areas they are responsible for; however, to select a clinic for the group antenatal care model, the site needs a sufficient number of pregnant women to allow for recruitment. Patient volume is another important requirement to choose an implementation site. High patient volume facilitates enrollment and recruitment.[28] In order to allow for a drop-out rate of 33% and still leave groups with the lowest essential critical mass number of 8, the literature recommends recruiting 12 women.[30] To solve challenges around low volume, others have adopted recruitment methods such as rolling groups, cohorts with wider gestational age range, or the merging of clients from multiple sites.[8] Our solution was to recruit cohorts with wider gestational age ranges, and this approach appears acceptable to women and health care providers; this was an adaptation of the CenteringPregnancy model.

Our experience shows the importance of establishing an atmosphere of trust between facilitators and participants, as well as the challenge of changing the hierarchical medical culture and physician perception of how care is delivered, which has also been noted in previous literature within and outside of the United States.[28] Achieving this change is not easy; however, we found that nonphysician staff (nurses or social workers) as well as some participating physicians really took to the model of group antenatal care. Other studies have found that integration of a CenteringPregnancy program within an existing health care center had challenges associated with clinical and support staff activities, such as increased workload, lack of clarity regarding expectations or role(s) of the center's health care providers, or lack of processes specific to CenteringPregnancy client service provision. In general, they perceived this model of care positively, in terms of both impact on the clients served and the clinic environment more broadly.[29]

In contrast with our findings, literature in low-income settings has focused on culture change and implementing group antenatal care models in the context of foreign health care providers leading groups.[18] In Mexico, the same people who normally work in the facilities led all group antenatal care sessions; the Mexican research team was present during sessions but did not facilitate them. We remain committed to this model in order to promote the full integration of the group antenatal care model and ensure sustainability within the public health services. As we plan to scale up group antenatal care in Mexico, we anticipate engaging licensed maternity care nurses and, when possible, midwives, who may be able to more quickly adapt to the more horizontal style that this model requires.

We encountered some challenges that required us to adapt our group antenatal care model to be more specific to the Mexican context and highlighted the need to fully understand the health system context when adapting and implementing group antenatal care. Examples are documentation in the medical chart, ensuring our group antenatal care model adhered to the Mexican government guidelines and rules for antenatal care (Norma Oficial Mexicana NOM-007-SSA2-2016),[27] use of a bed versus a mat for individual checkups, and needing more than one trained team of facilitators at each site.

Finding time to document findings from the health care visit is an ongoing challenge anywhere, but we had the further challenge of strict rules governing who can write in a patient's medical chart. Only the attending physician is authorized to enter information into the chart. Our first adaption had the nurse or other support staff helping the physician complete charts; this was not possible, so we had to work with physicians to determine when and how to complete charts for women participating in group care. This is a finding of our study that to our knowledge has not been discussed in other publications.

We also needed to ensure that Secretaria de Salud administrators as well as participating physicians and other staff felt confident that all required content from the Norma was covered in group antenatal care. This led to developing a standardized curriculum to be able to demonstrate all core content was included; explicitly linking our curriculum to the Norma was an adaptation of the CenteringPregnancy model.

Using a mat on the floor for individual checkups, as our CenteringPregnancy expert was used to in her experience, was not acceptable to our participating health care providers, so we changed to a low cot or bed. However, the individual checkups did take place in the group space, with which health care providers also were not comfortable at first. We thus adapted but also negotiated to preserve essential elements of the model.

Finally, we learned that each site needs at least 2 trained facilitators as well as technical and logistic support from our team to successfully implement the group antenatal care model, at least during the first one to 2 groups; this was an adaptation of the CenteringPregnancy model, which proscribes the same team from being present through the group sessions. This was not always possible because of scheduling beyond the control of our participating health care providers. These findings may be specific to the Mexican context but merit consideration in any new health system context.

Overall, our experience supports the findings of a recent systematic review of group antenatal care in low- and middle-income countries.[8] This review identified core attributes in the original model that are fundamental to the effective delivery of group antenatal care: physical assessment, facilitated discussion, and women's self-care activities. However, as we found, other elements of group care can be or even must be adapted to the context in which the model is implemented, for example, the number of sessions and session content. Being clear about this combination of standard and flexible components is key during implementation across low- and middle-income country settings. In Mexico, we learned when to be flexible and when to be firm so as not to lose the essence of the CenteringPregnancy model. We negotiated some changes, such as the mat example described above, in order to preserve elements that seemed core to the group antenatal care experience.

Our experience, however, did not face some challenges described in other low- and middle-income country settings. For example, we did not need to translate materials to a local language or use translators during group sessions, which can negatively affect group dynamics.[18] High rates of illiteracy among women and an adverse sociopolitical context, noted in previous literature, were not part of our initial experience of adaptation and implementation. We did, however, adapt all materials to be linguistically and culturally appropriate before starting groups—this process was possible because our team is made up of local health care providers and researchers. If we were to expand to geographic zones in Mexico with a higher proportion of indigenous women or lower literacy levels, we would likely need to further adapt the content of the sessions.

CONCLUSION

The Mexican experience during the adaptation process of the CenteringPregnancy model shows evidence of the challenges and opportunities to adopt this model of antenatal care outside of high-income countries and in diverse health system contexts. We encountered some challenges similar to experiences in other countries, such as space, recruitment, and changing medical culture. We also discovered some challenges that may be unique to Mexico, such as the need to adhere to government guidelines, clinical chart documentation, and needing more than one team of facilitators available. Our experience highlights the need to understand the health system context when adapting CenteringPregnancy to diverse global settings, perhaps especially in the public sector. The educational and health promotion components of the model provide the opportunity to strengthen women's capacities and skills during their pregnancy, childbirth, and puerperium and improve continuity and quality of antenatal care in Mexico.

AUTHORS

Ileana B. Heredia-Pi, MD, MSc, PhD, is a professor and researcher at the Instituto Nacional de Salud Publica in Cuernavaca, Morelos, Mexico, where she teaches and conducts research in the reproductive health services area.

Evelyn Fuentes-Rivera, MSc, is an assistant researcher at the Instituto Nacional de Salud Publica. She is an economist with a master's degree in health economics and works on several reproductive health projects.

Zafiro Andrade-Romo, MD, MSc, is a junior researcher at the Instituto Nacional de Salud Publica. Her research has focused on HIV/AIDS, mixed-methods research, reproductive health and minorities (men who have sex with men, adolescents, and migrant women).

María de Lourdes Bravo Bolaños Cacho, CPM, is a professional midwife, instructor of childbirth, breastfeeding consultant for La Leche League International, and a researcher in the project of Group Antenatal Care at the Instituto Nacional de Salud Publica, Cuernavaca, Morelos.

Jacqueline Alcalde-Rabanal, PhD, is a professor and researcher at the Instituto Nacional de Salud Publica in Cuernavaca, Morelos, Mexico, where she teaches and conducts research.

Laurie Jurkiewicz, CNM, MS, is practicing full-scope midwifery at Zuckerberg San Francisco General Hospital and has a faculty appointment at the University of California at San Francisco. She has been a health care provider using the CenteringPregnancy model of prenatal care since 2003. She has worked as a consultant for the Centering Healthcare Institute since 2006 and is considered an expert in the field of group care.

Blair G. Darney, PhD, MPH, is a reproductive health services researcher. She is an assistant professor at Oregon Health and Science University School of Medicine and an affiliate investigator at the Instituto Nacional de Salud Publica in Mexico.

CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

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