This document, developed by Group Care Global, compiles and synthesizes information used to date on models of group care for pregnant women outside of the United States. For this bibliography, 81 publications (peer-reviewed articles \( n = 78 \), an abstract \( n = 1 \), a book \( n = 1 \), and a presentation \( n = 1 \)) related to the group-care model were reviewed. The reviewed studies were conducted in both developed and developing countries. Table 1 presents more detailed information about the countries where these studies were conducted.

### Table 1. Countries where research on a group care model was conducted

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The research publications include qualitative design (n = 18), randomized control trial (n = 13), quasi-experimental design (n = 8), cohort design (n = 7), systematic evidence synthesis/review (n = 5), effectiveness–implementation hybrid design (n = 5), mixed design (n = 4), descriptive study design (n = 3), cross-sectional design (n = 2), quantitative design (n = 1), prospective observational design (n = 1), and supply-side perspective (n = 1). Fifteen publications included information about the group care model and/or the process of adaptation and implementation of the model in the selected countries.

**The impact of a group care model on women and their children and support persons**

Most studies (n = 43) explored women's experiences and perceptions of the group care model. Numerous studies (n = 24) found that the group care model facilitates gaining health skills and knowledge among women. In addition, many studies showed that this model enables building peer support networks (n = 16) and a collaborative relationship between a woman and her healthcare provider (n = 10). Other reported significant benefits of the group care model included higher infants' vaccination coverage (n = 2), postpartum contraceptive use (n = 2), improved psychosocial health (n = 1), helping women limit weight gain in pregnancy (n = 1), reduced distress about the experienced pregnancy physical discomforts (n = 1), receiving quality antenatal care (n = 1), decreased prenatal hospital admission (n = 1) and increased intermittent preventive malaria treatment with Sulfadoxine–pyrimethamine (IPTp-SP) uptake and insecticide-treated nets use (n = 1). Although women praised group care highly in the majority of the studies, in five of them women raised concerns about lack of privacy.

Several studies found significant positive relationships between group antenatal care and utilization of antenatal services (n = 5) and birth preparedness (n = 4). However, one research found no relationship between group antenatal care and antenatal care completion and birth preparedness. Many studies (n = 13) also explored the relationship between women's satisfaction with care and receiving antenatal group care. Ten studies found that women enrolled in group care were significantly more satisfied with care compared to their counterparts who received individual antenatal care. However, this finding is not consistent across all the reviewed studies. Three studies found no differences between the two groups in overall antenatal care satisfaction.

Receiving group care is also not consistently linked with pregnancy-related empowerment. Higher pregnancy-related empowerment was found among women who received group antenatal care compared to women from the individual antenatal care group in seven studies. However, in a study in Tanzania, pregnancy-related empowerment was not significantly affected by the type of antenatal care women received. Moreover, group care models had different effects on Muslim and Christian women; among Muslim women, group antenatal care was associated with significantly higher level of pregnancy-related empowerment, whereas among Christian women, such a difference was not observed.

Several studies explored the impact of a group care model on mode of birth, place of birth, initiation of breastfeeding, exclusive breastfeeding, preterm birth, birth weight, and the need for obstetric interventions. Results of some studies showed more frequent initiation of breastfeeding (n = 3) and exclusive breastfeeding (n = 1), a decreased prevalence of preterm birth (n = 2), lower rates of Cesarean section (n = 2), higher rates of a facility-based delivery (n = 1) and less need for obstetric interventions (n = 1) among women receiving group
pregnancy care compared to those receiving standard individual care. Other studies found no significant differences between the two groups in terms of birth weight/low birth weight \((n = 5)\), preterm birth \((n = 3)\), mode of birth \((n = 3)\), breastfeeding initiation \((n = 2)\), place of birth \((n = 1)\), and use of pain relief \((n = 1)\).

Finally, seven studies collected data from women’s support persons (e.g., partners, husbands, and mothers-in-law) to explore their opinions about group antenatal care. In these studies, support persons praised the group antenatal care \((n = 5)\). In some studies fathers expressed appreciation for provided information \((n = 3)\) and support \((n = 2)\). Fathers also appreciated having opportunities to share pregnancy-related issues with other group members \((n = 1)\). Lastly, one study found that fathers in group care attended more antenatal visits and had more positive assessment of opportunities to plan for the birth with the midwife.

**The perceptions of the group care model’s implementers**

Twenty-four studies assessed and described implementers’ experiences and opinions about the group care model. The researchers collected data from midwives \((n = 18)\), decision-makers/administrators/program leaders \((n = 8)\), doctors \((n = 5)\), nurses \((n = 7)\), local stakeholders \((n = 4)\), clinical/support staff \((n = 2)\), interns \((n = 1)\), assistants \((n = 1)\), Indigenous health workers \((n = 1)\), community health workers \((n = 1)\), midwives \((n = 1)\), and midwifery students \((n = 1)\). In the majority of research, the healthcare providers acknowledged several benefits of the group care model, including creating support networks for women \((n = 8)\), better education and communication \((n = 9)\), developing close relationships with women \((n = 6)\), shared ownership of care \((n = 4)\), enhanced care \((n = 4)\), team relationship building across healthcare providers \((n = 3)\), and job satisfaction \((n = 2)\). The respondents also believed that the group care model allowed them to empower women \((n = 2)\) and to increase healthcare utilization \((n = 1)\). Lastly, in one study, respondents reported that the group care model enhanced midwifery students’ opportunities to fulfill their clinical requirements.

The researchers also explored challenges and barriers implementers faced during the group care model implementation. The respondents identified several practical hindrances in the group care model implementation, including increased workload \((n = 4)\), space availability \((n = 4)\), time constraints \((n = 4)\), balancing the schedules of women and midwives \((n = 3)\), shortage of trained staff \((n = 3)\), and financial constraints \((n = 2)\). In addition, in four studies, midwives/health workers expressed their concerns about discussing sensitive/private issues (e.g., talking about sexuality) and lack of privacy in group settings. Furthermore, in one study, midwives pointed out that psychosocial problems could be difficult to identify in a group. Other reported organizational differences \((n = 2)\), lack of support from colleagues/managers \((n = 1)\), language barriers \((n = 1)\), political will \((n = 1)\), self-testing \((n = 1)\), involvement of partners \((n = 2)\), long distances from women’s home to the health center \((n = 1)\), insurance payment delays \((n = 1)\), unpredictable group attendance \((n = 1)\), overly didactic group discussions \((n = 1)\), sub-standard documentation \((n = 1)\), and limited number of expectant women with similar gestational ages \((n = 1)\). Lastly, in one study, implemented in Sweden, midwives pointed out that the group care model is inappropriate for immigrants and well-educated parents. However, in another study from Sweden, midwives acknowledged that the group care model has the potential to provide person-centered care for immigrants.
Finally, in three studies, health care providers provided the following recommendations to improve the process of implementing a group care model: setting up an internet site on which women can find information about the groups, times, dates, and any changes, involvement of other professionals and specialists (e.g., nurses, nutritionists, physiotherapists, midwifery students) during group sessions, setting antenatal group care up as a research project, conducting group sessions in the afternoons, sending session reminders, and grouping women based on similar gestational age and a common language.

**The group care model and its process of implementation**

Eleven publications included information about the group care model's adaptation and implementation. The researchers provided information about essential elements and what elements were maintained and adapted (e.g., number of sessions, sessions' content, etc.) during the model's adaptation and implementation. In addition, several of these publications included information about challenges (e.g., space availability, recruitment strategies, poor documentation, inadequate referral system, existed norms about scheduling and medical culture, etc.) that may be encountered during the implementation of a group care model. Seven publications outlined details of the studies' protocols that will be/are/were implemented to determine the feasibility and effectiveness of the group care model to improve quality of healthcare assistance as well as maternal and neonatal/infant health outcomes. In one of the publications the researchers estimated costs of the group care model integration into the government service delivery system.

Five of the studies explored the process of group care model implementation focusing on fidelity and/or costs. A research implemented in Mexico found the overall fidelity to the group antenatal care intervention was 82%, with variability by health center (78–88%). Fidelity by phase varied between 73.1 and 94.4%. Another study implemented in Nepal also found high process fidelity to the model, with 85.7% of visits completing all process elements and high content fidelity. The annual per capita costs for group antenatal care were US$ 0.50. A research implemented in Rwanda found that about 80% of all group visits were delivered as intended, with respect to both process fidelity and objective measures. At the same time, according to results of research implemented in Senegal the estimated fixed cost (e.g., facilitator guides, self-assessment cards, blood pressure cuffs, training of facilitators) to introduce group antenatal care at health posts was $357 USD per health post. The recurrent operational costs (e.g., mobile phone credit and refreshments provided to women during each group session) were $81 USD for the implementation of the four group antenatal care sessions per each group. Lastly, a study implemented in Bangladesh estimated that the total cost of group care model integration was US$ 15,216.3 and it was concluded that the incremental cost of this model introduction is doable within the existing government settings.

Finally, one of the articles the authors focused on 10 landmark health system, clinical, and technology-based in the area of global maternal health and one of the indicated advancements was group care model. Another article highlighted effective approaches for patients participating in shared medical appointments and the authors focused on three models of care: cooperative health care clinic, shared medical appointment / group visit, and group prenatal care / CenteringPregnancy®. Lastly, in one of the articles the researchers reviewed the successes and challenges of implementation of different antenatal care and postnatal care delivery models.
including group prenatal care in various settings around the world. In these three articles the authors acknowledged that the group care model is an effective approach to improve quality of healthcare assistance and health outcomes.

**Articles**


**OBJECTIVE:** The authors reviewed and discussed the challenges faced by Midwives for Haiti during the introduction of the prenatal group-care model in the rural areas of Haiti.

**METHODS:** The authors described the process of adaptation and implementation of the prenatal group-care model.

**RESULTS:** Eleven out of 13 essential elements of centering pregnancy were maintained and 2 essential elements (involvement of participants in self-care activities and ongoing evaluation of outcomes) were adapted during the model implementation.

**CONCLUSIONS:** Challenges that may be encountered during the implementation of the prenatal group-care model in developing countries include language, literacy, space, cultural appropriateness of intervention content, and sociopolitical climate.


**OBJECTIVE:** This research assessed and described women’s experience concerning group prenatal care regarding participation, group cohesiveness and support, learned knowledge of the danger signs in pregnancy, birth preparedness, and enjoyment of the sessions.

**METHODS:** A prospective observational study was conducted in Tsibiri, a village in northern Nigeria. Consenting pregnant women were enrolled in a group prenatal care program based on the centering-pregnancy model. Interviews were done before joining the group and postnatally.

**RESULTS:** In total, 161 women enrolled, and 54 of 72 (75%) scheduled prenatal sessions took place. Women demonstrated significant retention of knowledge of the key danger signs in pregnancy and childbirth acquired during the group sessions. These sessions also enhanced their fidelity to their birth preparedness plans. The mothers enjoyed the group sessions and used the opportunity to develop a new support network.

**CONCLUSIONS:** Group prenatal care is feasible and acceptable to women from resource-constrained settings.


**OBJECTIVE:** This research explored the experiences of Somali-born mothers and fathers regarding antenatal care in Sweden and of antenatal care midwives in caring for Somali-born
parents and assessed their respective ideas about group antenatal care (gANC) for Somali-born parents.

**METHODS:** This was a qualitative study. The authors conducted 8 focus group discussions with Somali-born mothers \((n = 16)\) and fathers \((n = 13)\) and Swedish gANC midwives \((n = 7)\). The data were coded and analyzed using Attridge-Stirling’s tool “Thematic networks.”

**RESULTS:** The Somali-born mothers and fathers reported several barriers for receiving antenatal care including tailoring care to individual needs, dealing with stereotypes, addressing varying levels of health literacy, overcoming communication barriers, and enabling partner involvement. Midwives confirmed these challenges and tried to address them but sometimes lacked the support, resources, and tools to do so. The general attitude among parents and midwives toward the gANC targeting Somali-born parents was positive, but they were concerned about discussing sensitive or private issues and the male presence in group sessions.

**CONCLUSIONS:** The gANC interventions targeting inequalities between migrants and non-migrants may benefit from embracing a person-centered approach; gANC has the potential to improve communication, allow more time for dialog between midwives and women, and enable peer support where the quality of usual care may be compromised for migrant women.


**OBJECTIVE:** This research aimed to explore how group antenatal care functions within a caseload midwifery model in Australia.

**METHODS:** A critical focused ethnographic approach was applied. Data collection methods included focus group interviews with pregnant and postnatal women \((n = 10)\), interviews with caseload midwives \((n = 4)\), observations of the setting, and examination of selected documents.

**RESULTS:** Critical analysis of the data generated 3 themes: (1) women’s first group encounters, (2) the woman–midwife interaction, and (3) women’s limited opportunities to ‘get to know’ (each other).

**CONCLUSIONS:** The results of this study challenge the practice of combining group antenatal care with caseload midwifery.


**OBJECTIVE:** The objective was to investigate parents’ experiences and perceptions of group antenatal care in 4 antenatal clinics in Sweden.

**METHODS:** This was a qualitative study and data were collected via group interviews and individual interviews with parents who participated in group-based antenatal care. The researchers conducted 5 group interviews and 11 individual interviews.

**RESULTS:** Three themes emerged: (1) “The care combining individual physical needs with preparation for parenthood,” (2) “The group - a composed recipient of care,” and (3) “The midwife—a controlling professional.”

**CONCLUSIONS:** The group model creates a forum for sharing experiences and helps participants to normalize their pregnancy symptoms.

**OBJECTIVE:** The aim of this study was to compare women’s satisfaction with group-based antenatal care (GBAC) and standard care.

**METHODS:** The research was conducted in 12 antenatal clinics in Sweden. The researchers applied a randomized controlled trial where at least 2 midwives working in the same antenatal clinic were allotted to provide either GBAC or standard care within each unit. Thirty-one antenatal midwives were randomized to provide either group-based (n = 16) or standard care (n = 15). Data were collected by 2 questionnaires, the first (baseline) in the first trimester before the antenatal program began, and the second at 6 months after, among 399 women who received GBAC and 301 women who received individual care.

**RESULTS:** Women reported deficiencies in their antenatal care in both models of care. No differences between the groups were detected in overall satisfaction. Variables that differed between the 2 models favored GBAC. This model showed some benefits regarding information and interaction with midwives as well as helpfulness in creating contacts with other women.

**CONCLUSIONS:** Antenatal care available in Sweden is insufficient. The results of this research suggest that women in both models of care considered the care deficient in more than half of all areas.


**OBJECTIVE:** The aim of this research was to investigate and describe antenatal midwives’ perceptions and experiences of their current work focusing on their opinions about group-based antenatal care (GBAC).

**METHODS:** Structured interviews with a convenience sample of 56 midwives from 52 Swedish antenatal clinics were conducted. Descriptive statistics and chi-square tests were used in the analysis of the closed questions. Content analysis was conducted on data from the midwives’ comments.

**RESULTS:** The vast majority (80%) of midwives were satisfied with their general work in antenatal care, but had reservations concerning the time constraints and quality of parental classes. More than half of the midwives (55%) showed an interest in initiating GBAC but identified personal and organizational obstacles and difficulties during this model implementation. The GBAC was considered inappropriate for immigrants and well-educated parents.

**CONCLUSIONS:** A more in-depth examination is needed to explore midwives’ underlying assumptions about the categories of parents suitable for GBAC.


**OBJECTIVE:** The aim of this research was to compare the experiences of fathers enrolled in group-based antenatal care (ANC) and standard ANC.

**METHODS:** This research was a multicenter two-arm, quasi-controlled trial. Data were collected during the first trimester and 6 months after the expected birth. A total of 627 men answered
the baseline questionnaire (361 men in group care and 266 men in standard care). Six months after birth, 132 men in group care and 107 men in standard care completed the follow-up questionnaire.

**RESULTS:** The men in the group care attended more visits and were less likely to report deficiencies in the opportunity to plan for the birth with the midwife than men from the standard ANC group. Additionally, first-time fathers attending group care reported support from the midwife and opportunities to get to know other parents as less deficient than their counterparts from the control group. Regardless of the model of care, almost a quarter of all the aspects of ANC assessed in this research were considered to be deficient by the fathers. **CONCLUSIONS:** Further randomized trials of group care with larger samples of fathers are needed for a better understanding of fathers’ experiences and reasons for their higher attendance in group care.


**OBJECTIVE:** The aims of this research were to (1) review of the literature in relation to group prenatal care effectiveness, (2) identify and summarize the challenges during implementation of group prenatal care in different contexts and solutions to address these challenges, and (3) share Mexican experience in this model implementation.

**METHODS:** The authors conducted a narrative review of the most recent literature published between 2002 and 2018. The authors also summarized their experiences of adapting and implementing the group prenatal care model in Mexico.

**RESULTS:** The group prenatal care model has been implemented in more than 22 countries, and challenges exist during its implementation related to supply (e.g., staff, material resources, and organizational issues) and demand (recruitment and retention of participants, adaptation of material, and perceived privacy). The group prenatal care model achieved greater effectiveness for particular outcomes, including women’s knowledge, use of healthcare services, and family planning. Preliminary evidence showed the feasibility of providing group prenatal care in Mexico.

**CONCLUSIONS:** Future research should strengthen the evidence on the effects of the group-care model on women’s satisfaction, empowerment, self-efficacy, and experience during pregnancy.


**OBJECTIVE:** This research evaluated male partners’ perceptions of and satisfaction with their participation in group prenatal care.

**METHODS:** This was a descriptive study implemented at a private hospital in Gaborone, Botswana. Seven men completed the evaluation questionnaire either in person or by phone.

**RESULTS:** The fathers exhibited positive perceptions and high levels of satisfaction with group prenatal care. They also expressed the willingness to continue participation in the group sessions.
CONCLUSIONS: The healthcare community should continuously search for ways to involve fathers in family-centered care.


**OBJECTIVE:** The objective of this research was to assess implementation outcomes of group antenatal care (Group ANC) in rural Nepal focusing on fidelity, costs, and feasibility.

**METHODS:** This research was conducted at Bayalata Hospital in Achham, Nepal. The researchers applied a prospective non-randomized cluster-controlled, type I hybrid effectiveness-implementation study. Data were collected from nurse supervisors, program leaders, nurse-midwives, and key informants.

**RESULTS:** A total of 141 group antenatal sessions were conducted during the study period. There was high process fidelity to the model, with 85.7% of visits completing all process elements and high content fidelity, with all village clusters meeting the minimum target frequency for 80% of topics. The annual per capita costs for Group ANC were 0.50 USD compared to Nyaya Health Nepal's goal of 25 USD. The reported barriers during Group ANC implementation included scheduling challenges, unpredictable group attendance, difficulty engaging nurse-midwives in the practice, overly didactic group discussions, and sub-standard documentation.

**CONCLUSIONS:** Group ANC is a potentially feasible and affordable alternative to individual antenatal care.


**OBJECTIVE:** The purpose of this research was to compare CenteringPregnancy® (CP) to individual prenatal care plus prenatal education in terms of the characteristics of women and their outcomes.

**METHODS:** This research used survey data collected from a prospective cohort of pregnant women through the All Our Babies study in Calgary, Canada. Data were collected from women who participated in the CP program (n = 106) and who received standard individual care plus prenatal education (n = 619) through 3 mailed surveys in early pregnancy (<25 weeks gestation, baseline), between 34 and 36 weeks gestation, and 4 months postpartum.

**RESULTS:** CenteringPregnancy® recruited and retained a demographically vulnerable group of women. Women from the CP group were more likely to have improved psychosocial health across time than women from the control group. In addition, women from this group were more likely to receive information on nutrition, alcohol, and smoking.

**CONCLUSIONS:** The CP model may be a community-based care strategy for improvement in health outcomes among mothers and children.

OBJECTIVE: This research was conducted with a aim to explore the perceptions of Indigenous health workers towards the prospective acceptability of group antenatal care (GAC) as an additional choice of care model for their Indigenous female clients.

METHODS: This qualitative research applied a descriptive/exploratory methodology. Theoretical Framework of Acceptability’ version 2 guided this research. Data were collected via semi-structured individual interviews from 5 Indigenous health workers in a health service in Far North Queensland, Australia.

RESULTS: GAC could be considered as an additional choice of care model to provide effective and culturally responsive antenatal care for Indigenous women. Some discussed potential limitations of GAC included too much time needed for antenatal care, a reluctance to disclose personal issues in a group setting, lack of privacy, and potential exclusion of partners.

CONCLUSIONS: More research in needed to explore GAC’s acceptability to service providers among other Indigenous communities in Australia.


OBJECTIVE: The objective of this research was to understand the degree of fidelity with which the group antenatal care model was implemented in Rwanda during the trial period.

METHODS: The researchers used two discreet questionnaires to collect data about the fidelity with which the group antenatal care model was implemented during the trial period. The data was collected from two groups. The first group consisted of nurses, midwives, and community health workers who participated in the Preterm Birth Initiative (PTBi) - Rwanda trial as group ANC and PNC facilitators. The second group consisted of a nurse, five midwives, and one physician who served as group ANC/PNC Master Trainers.

RESULTS: The researchers analyzed 2,763 questionnaires completed by group care facilitators which documented group visits among pregnant and postnatal women and 140 questionnaires completed by Master Trainers during supervision visits. About 80% of all group visits were delivered as intended, with respect to both process fidelity and objective measures (e.g. group size). No reliable correlations between conceptually-related items scored by Master Trainers and self-assessment data reported by group visit facilitators were found.

CONCLUSIONS: To develop more reliable self-monitoring methods for group ANC/PNC programs it is recommended to continue involvement of expert observers at new and existing group care sites and continue development of self-assessment techniques by group care facilitations.


OBJECTIVE: This article focuses on the study protocol for the Hooyo project. This project aims to develop and test the acceptability and effects of group antenatal care (ANC) for Somali-born immigrant women.
METHODS: An intervention development and feasibility study included focus group discussions, process evaluation, and a historically controlled evaluation.

RESULTS: The Hooyo project consists of 4 phases. The purpose of Phase I was to understand how individual ANC was delivered and experienced and what changes women, their partners, and midwives thought might improve care. Phase II included the development of the intervention and evaluation tools. During Phase III, the researchers conducted the historically controlled evaluation focusing on care satisfaction, emotional wellbeing, social support, childbirth fear, knowledge of Swedish maternity care, and delivery outcomes. Finally, Phase IV includes the evaluation of the implementation process and the feasibility and the mechanisms of effect using Moore’s process evaluation of complex interventions as an overarching framework.

CONCLUSIONS: The results of the Hooyo project will address some of the health and care disparities in the ANC system in Sweden. The results of this project will be useful for future randomized controlled studies and for the design of ANC interventions. The project results will also indicate whether group ANC might be appropriate for Somali-born women and other migrant groups.


OBJECTIVE: The objectives of this review were (1) to compare the effects of group antenatal care (ANC) versus conventional ANC on the psychosocial, physiological, labor, and birth outcomes for women and their babies and (2) to compare the effects of group ANC versus conventional ANC on care provider satisfaction.

METHODS: A systematic review of the identified published, unpublished, and ongoing randomized controlled trials (RCTs) and quasi-RCTs was done. Four trials involving a total of 2,350 women were included in this review.

RESULTS: No statistically significant differences were noted between women who received group ANC and those given standard individual ANC in terms of preterm birth, infant birth weight, or death of the baby. The researchers found no differences in spontaneous vaginal birth, initiation of breastfeeding, or neonatal intensive care admission between the 2 groups. In one trial, women who attended group pregnancy care rated their satisfaction as similar to women receiving individual care.

CONCLUSIONS: Available evidence suggests that group ANC is acceptable to women and is associated with no adverse outcomes for them or for their babies. Additional research is needed to determine whether group ANC is associated with significant health benefits.


OBJECTIVE: This research evaluates the impact of group antenatal care on maternal and infant outcomes.

METHODS: Using a randomized controlled trial (RCT) with individual randomization, the researchers evaluate the effectiveness of group antenatal care through 6 months postpartum.
In addition, the researchers use a hybrid type 1 design to evaluate effectiveness and document implementation processes of group antenatal care at six clinics in Blantyre District, Malawi.

**RESULTS:** The researchers hypothesize that women in group care and their infants will have less morbidity and mortality and more positive HIV prevention outcomes than women and their infants in individual antenatal care group. They will test hypotheses using multi-level hierarchical models using data from repeated surveys (four time points) and health records. Data for the implementation part of the research are drawn from key stakeholders at the Ministry of Health of Malawi, District Health Office, clinic administration, and co-facilitators.

**CONCLUSIONS:** Results of this research will provide rigorous evidence documenting the effectiveness and scalability of group antenatal care in low-resource setting.


**OBJECTIVE:** This research explores the effects of customer self-audit on the quality of prenatal care in Tabriz, Iran.

**METHODS:** The researchers used a community-based cluster-randomized controlled trial. Ten health centers/health posts were randomly assigned to the intervention group and 11 facilities were randomly assigned to the control group. Data was collected from 185 pregnant women selected from the health centers' or health posts' registration lists (intervention group: n = 92 and control group: n = 93). Pregnant women from the intervention group attended 6 group support sessions. In addition, maternity books developed using the maternity care protocols of the Ministry of Health of Iran were disseminated among women from the intervention groups. At the same time, women from the control group received only individual prenatal care from either a midwife or doctor. Data collection was done using structured questionnaires.

**RESULTS:** The total mean of service quality score was higher among women from the intervention group. In comparison to the control group, the intervention group scored higher on such quality aspects as confidentiality, communication, autonomy, availability of support group, dignity, safety, prevention, and accessibility. There was also a statistically significant difference in the total mean customer quality scores between the groups; women from the intervention group were more likely than women in the control group to be able to take care of themselves under stressful conditions and financial constraints.

**CONCLUSIONS:** The customer self-audit is an effective approach to improve the quality of maternity care.


**OBJECTIVE:** This study evaluated the “Expecting and Connecting” group pregnancy care service in Queensland, Australia.

**METHODS:** The study was guided by Donabedian’s conceptual framework. Data were collected from 19 respondents (mothers (n = 9), midwives (n = 5) and midwifery students (n = 5)) via semi-structured interviews and focus groups. Thematic analysis was used to identify themes and concepts from the data.

**RESULTS:** Mothers reported high levels of satisfaction with antenatal care including the ability
to develop peer support. The “Expecting and Connecting” group pregnancy care service also enhanced students’ opportunities to fulfill their clinical requirements. Challenges identified for midwives included organizational differences, workload requirements, and the appropriate balance between antenatal check-ups and participation in the group for the women.

**CONCLUSIONS:** The “Expecting and Connecting” group pregnancy care service was highly regarded by mothers, midwives, and midwifery students and provided an additional source of midwifery student placement.


**OBJECTIVE:** The purpose of this research was to assess the effect of pregnancy centered care and routine hospital care on improving pregnant women health behaviors and prenatal controls.

**METHODS:** The research was conducted at the Benha University Hospital in Benha, Egypt. The researchers utilized a quasi-experimental design. The purposive sample consisted of 220 pregnant women. The structured questionnaire was used to collect data.

**RESULTS:** Women who received pregnancy centered care were more likely to adapt prenatal health behaviors and engage less in health impairing behaviors as compared to their counterparts who received regular antenatal care.

**CONCLUSIONS:** Future research should explore the effect of pregnancy centered care on delivery and post-partum preparations.


**OBJECTIVE:** The purpose of this study was to assess the effects of centering-pregnancy (CP) intervention on the use of healthcare services for mothers and babies in Kano State, Nigeria.

**METHODS:** This study applied a quasi-experimental nonequivalent group design. Pregnant women with similar sociodemographic and obstetric history were enrolled in the CP group (n = 257) and control group (n = 260). Research data were collected via a questionnaire. In addition, the necessary information was taken from antenatal cards, postnatal cards, and antenatal registers.

**RESULTS:** Women from the CP group showed higher utilization of antenatal and delivery services. Moreover, infants born to women in the CP group were more likely to receive a complete dose of immunization. Women from the CP group were more likely to report “critical uptake of healthcare” (i.e., attending antenatal care at 36 weeks, having an early postnatal care visit (within 2 weeks), and a newborn receiving immunization at birth).

**CONCLUSIONS:** The CP group is a promising intervention to increase uptake of maternal healthcare services. The low facility delivery requires further investigation.

OBJECTIVE: This research focused on fidelity to the essential elements of CenteringPregnancy during the implementation of an adapted group antenatal care model in four public primary-care health centers in two Mexican states.

METHODS: The researchers collected prospective data using a standardized checklist. The 28-item fidelity checklist was based on the essential elements of the CenteringPregnancy model. The researchers categorized the 28 items into five groups (i.e., cross-cutting processes, registration and taking of vital signs, socialization, medical check-up, and health education) following the phases of a group care session. The researchers calculated fidelity to each process as a proportion with 95% confidence intervals.

RESULTS: Data was collected during 71 sessions which made up of 10 groups and 129 women. Overall process fidelity for the whole intervention was 82% (CI 81.0–85.3) with variability by health center (78–88%). Fidelity by phase varied between 73.1 and 94.4%. The elements with the highest fidelity were having space for activities such as checking vital signs, conversation in a circle, and medical check-ups (100% each). At the same time the element with the lowest fidelity was using music to enhance privacy (27.3%). Fidelity was not significantly different across four centers.

CONCLUSIONS: Results of this research suggested that infrastructure (beginning on time; use of music) and behavioral (the facilitator guided but did not control the conversation) aspects are the hardest to achieve high fidelity.


OBJECTIVE: This manuscript focused on the CenteringPregnancy® (CP) model and a small feasibility study undertaken in South East London, UK.

METHODS: The authors outlined the background of the CP model and described the process of development and implementation of the first UK feasibility study.

RESULTS: During the development and implementation of the feasibility study, adaptations were necessary to ensure compliance with national guidance and policy recommendations for NHS maternity care as well as midwifery rules and regulations. In addition, a level of midwifery knowledge and skills were required to support the implementation of the model.

CONCLUSIONS: Further larger studies are needed to evaluate the CP model within the UK maternity settings.


OBJECTIVE: This study assessed whether the CenteringPregnancy® (CP) model could be introduced into NHS settings, focusing on the views and perspectives of women and their partners and midwives.

METHODS: The study reflected an action research model with a cycle of training, practice, and reflection in workshops and the clinical area. Data were collected using questionnaires from 47 mothers, 4 partners, and 12 midwives. Qualitative data from the questionnaires were analyzed using a simple thematic content approach. Quantitative data from the questionnaires were analyzed using simple descriptive statistics.
RESULTS: Women and their partners praised their care highly. The majority of women said that they had been prepared for the labor and birth and pointed out that, given the option, they would choose CP at a future pregnancy. Eight midwives (67%) felt that CP was an improvement, and 4 midwives (33%) rated it as somewhat better than the usual antenatal care. None of the midwives offered a negative response about the model.
CONCLUSIONS: Conducting randomized controlled trials in the UK to assess the clinical utility and cost-effectiveness of group antenatal care for women in low- and high-risk obstetric populations should be considered.

OBJECTIVE: This publication focused on the CenteringPregnancy® (CP) model implementation in the UK.
METHODS: The authors described the process of the CP model pilot in the UK.
RESULTS: Essential elements of the CP model were described. The authors also included information about initial set-up costs and the most challenging session.
CONCLUSIONS: The authors learned to work within the CP model from each other, the women, and their partners.

OBJECTIVE: This research assessed the perception of the healthcare providers toward the centering-pregnancy (CP) model.
METHODS: The research used a descriptive, cross-sectional analytical design. Data were collected using a structured self-administered questionnaire from 120 doctors, nurses, and interns who worked at the Qasr al-Aini, Cairo University maternity hospitals, antenatal clinics, and all internal hospital units.
RESULTS: The majority of respondents indicated that the CP model helped in early detection of risks (91.6%), improved patient empowerment and learning (94.2%), and enhanced the mother’s self-care (93.3%). At the same time, the reported barriers for this model implementation were the lack of staff training programs (94.2%), hospital financial constraints (95%), priority for high-risk pregnancy (85.0%), lack of mothers’ confidentiality (100%), and lack of mother/family awareness (91.6%).
CONCLUSIONS: The CP model has many benefits for pregnant women. Policymaker decisions can overcome the identified research barriers.

OBJECTIVE: The aim of this study was to assess the effect of the centering-pregnancy (CP) group on the empowerment of women with gestational hypertension.
METHODS: This was a randomized controlled trial conducted at El Kasr Aini, Cairo University maternity hospitals, at the outpatient prenatal clinic. The research was guided by the locus of control theory by Rotter and the self-care deficit theory by Orem. A total of 200 primigravidae who were at between 24 and 26 weeks gestation with a singleton and were between 35 and 45
years old, diagnosed with gestational hypertension, and with a body mass index (BMI) between 18.5 and 24.9 at the beginning of pregnancy were enrolled into the CP group (n = 100) and control group (n = 100). Data collection tools included 1) an interview and follow-up assessment questionnaire, 2) the Pregnancy-Related Empowerment Scale (PRES), and 3) medical records.

RESULTS: Women from the intervention group had higher PRES scores than women from the control group. In addition, women in the intervention group had 66% less risk of prenatal hospital admission with a relative risk of 0.34 and 60% less risk of prenatal hospital admission until delivery with a relative risk of 0.4 in comparison to women from the control group with a risk difference of 19 and 15, respectively. Maternal and neonatal outcomes (e.g., gestation on delivery, mode of delivery, birth weight, and Apgar score at 5 minutes) were not significantly different between the groups.

CONCLUSIONS: A CP group may hold promise for the empowerment of pregnant women with gestational hypertension and may decrease the rate of hospital admissions during pregnancy.


OBJECTIVE: This research assessed the effectiveness of group antenatal care (ANC), compared to individual ANC, in improving the rates of ANC attendance, facility-based deliveries, and quality of care in Kenya and Nigeria.

METHODS: The researchers conducted a facility-based cluster randomized controlled trial in Nasarawa State (Nigeria) and Kisumu and Machakos Counties (Kenya). The study included 20 clusters (health facilities) per country: 10 facilities assigned to group ANC and 10 facilities assigned to individual ANC. In Nigeria, 510 women from the intervention group and 508 women from the control group were included in the final analysis (totaling 1,018). In Kenya, 415 women from the intervention group and 411 women from the control group were included in the final analysis (totaling 826).

RESULTS: Women in the intervention groups in both countries were significantly more likely to attend ANC 4 or more times and to receive quality care than those in the control groups (the researchers defined quality of care as the receipt of 8 key interventions during pregnancy: a long-lasting insecticidal net provided during ANC, woman never ran out of iron and folic acid supplements, HIV status was known before delivery, syphilis testing was completed, 3 or more doses of intermittent preventive treatment in pregnancy for malaria were received, blood pressure was recorded at every ANC visit, comprehensive counseling was received, and danger signs were assessed at all antenatal visits). In Nigeria, women in the intervention group were more likely to have a facility-based delivery than their counterparts from the control group.

CONCLUSIONS: Future studies should explore the feasibility and effect of group ANC in a variety of contexts (e.g., large busy tertiary hospitals, facilities with low ANC census, and private facilities).

OBJECTIVE: The purpose of this manuscript was to review and discuss challenges during the introduction of the centering-pregnancy (CP) model in Mexico.

METHODS: The authors described the process of adaptation and implementation of the CP model.

RESULTS: Five out of 9 essential elements of the CP model were maintained, and 4 elements were adapted during the model implementation. The authors also described 6 phases/steps for adapting, piloting, and implementing the group antenatal care model in Mexico. They also provided information about the educational content of sessions.

CONCLUSIONS: Challenges that may be encountered during the implementation of the CP model may include space, recruitment strategies, and the existing medical culture.


OBJECTIVE: The purpose of this study was to evaluate the effect of centering-pregnancy (CP) on patient outcomes (i.e., level of knowledge, sense of readiness for birth, overall satisfaction with prenatal care, and relationships with prenatal care providers) among vulnerable women compared to those receiving individual care.

METHODS: This was a cross-sectional survey. The intervention group consisted of 45 women who participated in CP at a community-based health center in urban Alberta, Canada. Women who received individual prenatal care (n = 92) in the same geographic area of the city served as a comparison group. Women were asked a series of questions on their prenatal care experience.

RESULTS: This study found high rates of satisfaction with prenatal care in both groups. Women in CP were significantly more likely to report having received enough information on exercise during pregnancy, breastfeeding, and baby care. In addition, women in CP were more likely to report that they felt their prenatal care providers were interested in how the pregnancy was affecting their lives.

CONCLUSIONS: Group prenatal care is a viable option to engage vulnerable women in prenatal care with high rates of satisfaction and improved information exchange. Programs interested in engaging, educating, and empowering vulnerable pregnant women may benefit from the implementation of group care.


OBJECTIVE: The aim of this research was to evaluate outcomes in women receiving interprofessional group perinatal care versus interprofessional individual care in a Canadian setting.

METHODS: Women attending the South Community Birth Program were invited to participate in the study. Pregnancy knowledge and satisfaction scores, and perinatal outcomes were compared between those receiving group versus individual care.
RESULTS: In total, 303 women participated in the study. Of these, 96 received individual care and 207 received group care. The rates of adverse perinatal outcomes were low regardless of the model of care received. Breastfeeding rates, measures of pregnancy knowledge, and satisfaction were high among all women.

CONCLUSIONS: Interprofessional group care is as effective as interprofessional individual care. Future research should focus on provider satisfaction and the long-term benefits of group perinatal care.


OBJECTIVE: This research was implemented with the aim to test the feasibility of introducing group antenatal care in an area with high levels of social deprivation and cultural diversity.

METHODS: The researchers applied an inductive qualitative approach. Semi-structured interviews and informal discussions were carried out with local stakeholders, facilitating midwives, maternity managers, and commissioners. Data were collected before and after the group-care model implementation. The research was conducted in a large inner-city National Health Service Trust in the UK.

RESULTS: The researchers organized data around 3 core themes: (1) organizational readiness, (2) the acceptability of the model and its effect on midwifery practice, and (3) thematical analysis. The respondents acknowledged that the model enables midwives to build meaningful relationships with women. Other reported benefits included job satisfaction, empowerment of women, and enhanced care. The reported concerns were privacy, self-testing, and the inclusion of partners.

CONCLUSIONS: Implementation of the group-care model was possible and acceptable in the host setting.


OBJECTIVE: The goal of this research was to explore how group antenatal care affects women's experience of pregnancy and antenatal care.

METHODS: This was a two-stage qualitative study and the researchers applied a phenomenological, constructivist approach. Focus groups with 26 local women were conducted before group antenatal care was introduced. In addition, data was collected via focus groups and semi-structured interviews with 24 women who received group antenatal care. Finally, the researchers observed the implementation of group antenatal care sessions. This research was implemented in an inner city community in England.

RESULTS: The interviewed women exhibited high levels of satisfaction with the group antenatal care. Women also described feeling empowered. In addition, they also acknowledged increased knowledge, active participation in care, and peer and professional relationship building. Women had mixed opinions about involvement of their partners in the sessions.

CONCLUSIONS: More research is needed to assess the acceptability of group antenatal care by women and their partners.

OBJECTIVE: In this article, the authors described the implementation and evaluation of group prenatal care in Iran.

METHODS: This was a cluster randomized controlled trial where the health center was the unit of randomization. Women in the experimental group received group prenatal care, whereas women in the control group received standard individual prenatal care. Moreover, 14 health centers were stratified by geographical area and then allocated by simple randomization within strata to the group prenatal care (n = 7) or individual prenatal care (n = 7). Data were collected from women (group care (n = 320) and individual care group (n = 308)) through individual structured interviews at 3 points: 34–36 weeks gestation, 24 hours after delivery, and 2 months after delivery. In addition, information about Apgar scores, gestational age at birth, birth weight, neonatal hospital stay, and maternal outcomes was taken from medical records.

RESULTS: Birth weight was greater for the infants of women in the group prenatal care compared with those in individual care. Low birth weight, preterm birth, and perinatal death, although not significant, were lower in the intervention group. Women in the group-care model were significantly more likely to take iron and vitamins during pregnancy and to use contraception at 2 months postpartum. In addition, women in group prenatal care were more likely to use vitamin supplements for their infants.

CONCLUSIONS: Provision of prenatal care using the group model improves perinatal outcomes. In developing countries, the implementation of group prenatal care is feasible and practical.


OBJECTIVE: The purpose of this research was to pilot the CenteringParenting (CP) model in 2 Calgary area public health clinics and to assess the model’s feasibility and its effect on maternal and infant outcomes.

METHODS: This was a quasi-experimental feasibility pilot study. The intervention group consisted of parent/infant dyads who participated in CP. Data from the “All Our Babies” (AOB) cohort study were used for comparisons.

RESULTS: Twenty-four dyads participated in at least one CP session, and 22 completed the program. Most CP mothers left good reviews about the program. All participants felt welcomed, respected, listened to, and encouraged to apply new information learned in the sessions. At 4 months, all CP babies were immunized compared to 95% of babies in AOB. At 12 months, all CP infants received their vaccinations, whereas just over 50% were immunized in the AOB cohort by 12 months.

CONCLUSIONS: Longitudinal, randomized controlled trials are needed to examine the effectiveness of CP, focusing on its effect on breastfeeding, child development, and immunization.

**OBJECTIVE:** The purpose of this study was to explore the feasibility and acceptability of group antenatal care (ANC) in urban India.

**METHODS:** This was a qualitative study conducted in Vadodara, India. The researchers collected data from physicians/administrators (*n* = 5), auxiliary nurse midwives (*n* = 7), Anganwadi workers (*n* = 1), pregnant women (*n* = 29), and support persons (*n* = 9). Data were collected through focus group discussions, in-depth interviews, and a written survey.

**RESULTS:** The participants saw group ANC as a vehicle for delivering more comprehensive ANC services, improving care experiences, empowering women to become more active partners and participants in their care, and potentially addressing some current health system challenges (e.g., reduce wait times).

**CONCLUSIONS:** Group ANC is feasible and appropriate for use in urban India.


**OBJECTIVE:** The purpose of this article was to describe the process of implementation of the multi-country cluster randomized controlled trial (cRCT) in Kenya and Nigeria.

**METHODS:** This is a two-arm, two-phase, cRCT (non-blinded). Public health facilities were matched and randomized to either standard individual antenatal care (ANC) (control) or group ANC (intervention) prior to enrollment. Participants include pregnant women attending their first ANC at gestational age <24 weeks, healthcare providers, and sub-national health managers.

**RESULTS:** Overall 1,075 and 1,013 pregnant women were enrolled in Nigeria and Kenya, respectively. The authors outlined actions undertaken during the implementation of Phase 1 and Phase 2 of the study. Data will be collected from healthcare providers, women, and sub-national health managers. Data collection will be done through surveys, data extraction, focus group discussions, and in-depth interviews. Data analysis and the reporting of results for this study will be done based on norms for analyzing cRCTs outlined in the Consolidated Standards of Reporting Trials guidelines.

**CONCLUSIONS:** This is the first cRCT on group ANC in Africa that will examine the effects of continuing group care through the first year, postpartum.


**OBJECTIVE:** The objective of this research was to explore and describe how clinical and support staff who were not directly involved in the centering-pregnancy (CP) program delivery, experienced the CP program implementation and what effect (if any) they perceived it had on their roles and clinic operations.
METHODS: Semi-structured in-person interviews were conducted with a purposive sample of 12 staff members (3 medical doctors, 4 clinical staff, 2 clinical support staff, and 3 administrative staff) at a community-based health center in urban Calgary, Canada. The authors applied an interpretive description approach to analyze the interview data. A coding framework was developed iteratively.

RESULTS: Five themes emerged: (1) variable knowledge about CP, (2) positive perceptions of CP, (3) perceived separateness of CP from other programs and services, (4) communication as a core enabler, and (5) patient-care processes related to CP developed ad hoc.

CONCLUSIONS: Integration of the CP program within an existing healthcare center had a negligible or moderate short-term effect on clinical and support staff who did not participate in direct program delivery. Those in clinical settings in which the CP model is planned for implementation should consider how it will affect the staff involved in direct program delivery and other staff that may be more peripherally involved.


OBJECTIVE: This research aimed to compare outcomes (primarily the proportion of cesarean births) between a midwifery-led group-based antenatal care (ANC) service ('Expecting and Connecting') with individual ANC in a regional area of Queensland, Australia.

METHODS: It was a retrospective matched cohort study. The midwife-led group ANC (n = 110) participants were compared with controls enrolled in individual ANC (n = 330). Groups were matched by parity, maternal age, and gestation to form comparable groups, selecting a homogeneous sample with respect to confounding variables likely to affect outcomes.

RESULTS: No difference existed in the mode of birth (cesarean or vaginal) rates between group and individual ANC. In addition, there were no significant differences in exclusive breastfeeding initiation, birth weight, and use of pain relief between the matched cohorts.

CONCLUSIONS: Midwife-led group ANC is a viable option for ANC. In this research, a nonsignificant reduction in odds of cesarean births was found, which needs further examination among larger cohorts of women.


OBJECTIVE: The aim of this research was to examine the successes and challenges of the implementation of antenatal care (ANC) and postnatal care (PNC) delivery models in different settings around the world.

METHODS: The authors reviewed a range of ANC and PNC delivery models using the availability, accessibility, acceptability, and quality of care (AAAQ) framework.

RESULTS: Eight case studies covered a variety of approaches for delivering ANC and PNC in urban and rural settings and at the hospital, clinic, and community levels mostly in Sub-Saharan Africa and South Asia. The indicated factors that enable high-quality care were the increased demand for maternal healthcare, a supported health workforce, referral networks, the
The integration of healthcare, and technological innovations. Barriers to implementing best practices were weak monitoring and evaluation, financing, and weak infrastructure.

**CONCLUSIONS:** Future analyses should include models that did not succeed in increasing access to or the quality of ANC or PNC to learn from their failures.


**OBJECTIVE:** The purpose of this research was to review 10 of the health system, clinical, and technology-based advancements in the area of global maternal health.

**METHODS:** The authors focused on 10 landmark health system, clinical, and technology-based advancements that have occurred in the past 3 decades in the area of global maternal health. The discussed advancements were chosen through the cumulative clinical and public health expertise of the authors.

**RESULTS:** The authors focused on the following advancements: (1) obstetric hemorrhage management, (2) ultrasonography, (3) mHealth/eHealth, (4) vaccines, (5) essential medicines, (6) antiretroviral therapy for HIV, (7) decentralized health systems including the use of skilled birth attendants, (8) prenatal care expansion and potential, (9) development of clinical training programs including the potential for subspecialty development, and (10) Millennium Development Goals and Sustainable Development Goals.

**CONCLUSIONS:** With the Sustainable Development Goals now underway, the field must build upon past successes to sustain maternal and neonatal wellbeing in the future global health agenda.


**OBJECTIVE:** The purpose of this research was to explore whether centering pregnancy (CP) can be successfully modified to meet the needs of antenatal care in Malawi and Tanzania and positively affect maternal and child health.

**METHODS:** The process of CP model piloting consisted of 2 Phases. During Phase 1, content and maintained model fidelity were developed. Training of local midwives was completed and pilot sessions were conducted with fidelity to the model. During Phase 2, a pilot was conducted in Dar es Salaam, Tanzania (urban) and Kabudula, Malawi (rural). Pregnant women \((n = 192)\) with similar due dates were randomized to either group or individual care and participated in interviews at baseline, late pregnancy, and postpartum.

**RESULTS:** In Phase 1, qualitative assessments indicated the acceptability and feasibility of conducting group care. Midwives and women were enthusiastic and satisfied with group care. In Phase 2, women enrolled in group care were significantly more satisfied with the care and waited significantly less for care when compared to women in individual care. Women enrolled in group care had significantly higher empowerment scores compared to women in individual care and were more likely to complete 4 antenatal visits.
CONCLUSIONS: Group care can be implemented while maintaining model fidelity. The CP model can reduce missed opportunities to improve maternal and child health in sub-Saharan Africa.


OBJECTIVE: The aim of this study was to examine the social processes and mechanisms that create trusting relationships within centering-pregnancy (CP) in a small sample of participants in Dutch midwifery contexts.

METHODS: A qualitative study was conducted using in-depth interviews with 26 (former) CP participants, alongside observations of CP sessions. All interviews were transcribed and analyzed following open, axial, and selective coding.

RESULTS: Five useful features of CP were apparent within interview narratives: (1) sharing experiences, (2) learning from the group, (3) being aware of one’s pregnant body, (4) feeling empowered to make better decisions, and (5) building a social network. Most women considered their CP experiences predominantly positive, although differences existed among women. Common mentioned negative features included time constraints and privacy concerns. Women also mentioned 5 preconditions for building a trusting relationship in CP: (1) vulnerability, (2) communication, (3) reciprocity, (4) chemistry, and (5) atmosphere.

CONCLUSIONS: Future research should explore the experiences of more socio-economically, educationally, and ethnically diverse cohorts of women and involve more women with negative CP experiences or low trust or mistrust in CP.


OBJECTIVE: The purpose of this research was to assess the feasibility of providing focused antenatal care (ANC) in a group setting to improve patient-provider communication and patient engagement thereby improving health literacy in the context of Ghana.

METHODS: An exploratory, mixed-methods study design was used. The health literacy skills framework guided the process of research development and data analysis. Data were collected at 2 time points: after the initial training of trainers (n = 6) and 3 months later after the midwives had each conducted 14 group visits using the newly learned methodology for group-focused ANC (n = 5).

RESULTS: Overall, the midwives scored the perception of their communication and engagement with patients during ANC visits quite high, indicating greater levels of communication and engagement. Three major themes emerged through the analysis of the focus group data: (1) improved communication through the use of picture cards, (2) enhanced information sharing and peer support through the facilitated group process, and (3) an improved understanding of patient concerns. In addition, considering the results of this research, the authors modified the health literacy skills framework focusing on maternal health literacy in low-resource countries.
CONCLUSIONS: Focused ANC creates an environment of respect and provides the opportunity for everyone involved to learn from each other. It can be used to increase health literacy in countries where women continue to die from preventable causes.


OBJECTIVE: The goal of this research was to quantify the potential effect of group antenatal care (ANC) in a low-resource setting.

METHODS: A prospective cohort design was used. The setting was an urban district hospital in Kumasi, Ghana. In total, 183 women were followed from the time of enrollment through postpartum; 100 women participated in group care, and 83 women received individual-focused ANC.

RESULTS: Women who received group care were more knowledgeable about self-care behaviors, danger signs, and breastfeeding than women from the control group. In addition, they were more likely to arrange emergency transport in advance in case of a problem and save money in preparation for birth. Lastly, a significantly greater number of women enrolled in group care intended to use postpartum family planning.

CONCLUSIONS: Group ANC has the potential to improve the quality of care, increase healthy behaviors, and promote respectful care in low-resource settings.


OBJECTIVE: This research was conducted with the aim to compare the effects of group antenatal care (ANC) versus individual ANC on uptake and continuation of post-partum family planning and exclusive breastfeeding.

METHODS: The researchers applied a longitudinal, prospective cohort design with 240 women assigned to group ANC (n = 120) or individual ANC (n = 120). This research was conducted at an urban district hospital in the Ashanti Region of Ghana.

RESULTS: Women from the intervention group were more likely to use modern and nonmodern contraception than those in the control group. Moreover, women who received group ANC were more likely to exclusively breastfeed for more than 6 months than those in the individual care group.

CONCLUSIONS: Group ANC has the potential to improve uptake and long-term use of family planning methods postpartum in a low-resource setting.


OBJECTIVE: This research aimed to understand the experiences of Rwandan nurses and midwives one year after the implementation of group ANC and PNC in 18 health centers.

METHODS: The researchers collected quantitative and qualitative data. Using questionnaires, quantitative data were collected from 59 providers at intervention sites and 46 providers at control sites. Data collection was done at baseline and about 9 months later (follow up). Three focus groups with 29 providers were conducted to collect qualitative data. Data collection was
done one year after the beginning of group-care implementation. **RESULTS:** Of the surveyed nurses and midwives, 86% reported that they prefer group care to the traditional individual model of ANC and PNC. Perceived stress levels and job satisfaction results were similar between groups. The respondents acknowledged increased satisfaction with ANC and PNC in the group-visit model. The most commonly stated sources of this satisfaction were freedom of expression, increased quality of care (including health education), and relationships among group members. They also pointed out several implementation challenges including a shortage of provider staff, scheduling many group visits on 1 or 2 days each week, and barriers to women’s participation in group ANC/PNC (e.g., long distances from home to the health center, delays at the insurance payment office, and poor attendance in general at the 6-week PNC visit). The respondents also suggested solutions to address these challenges. **CONCLUSIONS:** The results of this research are under consideration by stakeholders and policymakers as they consider whether or not to scale up the implementation of group ANC and PNC in Rwanda. 48. Maier, B. J. (2013). Antenatal group care in a Midwifery Group Practice: A midwife’s perspective. *Women and Birth, 26* (1), 87–89. **OBJECTIVE:** This article focused on a midwife’s experience in the adaptation of the centering-pregnancy (CP) model into her group practice in Adelaide, South Australia. **METHODS:** The author described the process of group care in the context of her work and acknowledged the benefits of group care to women, families, midwifery students, and herself. **RESULTS:** Antenatal group care was successful for the author, and it was extended to postnatal group care and student group care. **CONCLUSIONS:** The author encourages other midwives and group practices to consider the integration of the CP model into their practice. 49. Maru, S., Harsha, A., & Nirola, I. (2015). Group antenatal care: The power of peers for increasing institutional birth in Achham, Nepal. Retrieved from www.mhtf.org/document/group-antenatal-care-the-power-of-peers-for-increasing-institutional-birth-in-achham-nepal **OBJECTIVE:** This presentation was about the group antenatal care (ANC) implementation in Achham, Nepal. **METHODS:** The authors described the process of implementation of the group ANC in Nepal. **RESULTS:** This presentation focused on the group ANC concept and the process of group ANC implementation in Achham, Nepal. **CONCLUSIONS:** The authors described major successes and challenges during the group ANC implementation in the country. 50. Maru, S., Nirola, I., Thapa, A……Maru, D. (2018). An integrated community health worker intervention in rural Nepal: a type 2 hybrid effectiveness-implementation study protocol. *Implementation Science, 13*(53). doi.org/10.1186/s13012-018-0741-x. **OBJECTIVE:** This manuscript presented information about a 3-year study that will evaluate a community health worker system delivering an evidence-based integrated reproductive, maternal, newborn, and child health (RMNCH) intervention as it is scaled up in rural Nepal.
**METHODS:** A type 2 hybrid effectiveness implementation study will be implemented. The study will take place in the Achham and Dolakha districts of Nepal. The study will be implemented in step-wise fashion across the village clusters in coordination with district authorities and study staff. The study population will include women of reproductive age and children from 0 to 24 months of age enrolled in continuous surveillance, home-based care, and/or monthly group antenatal care (ANC). The researchers will evaluate effectiveness using a pre- and post-quasi-experimental design with stepped implementation and implementation using the RE-AIM framework.

**RESULTS:** The authors described the processes of respondents’ selection and data analysis. They also outlined the major limitations of the planned study and 5 evidence-based approaches: (1) home-based ANC and postnatal care counseling and care coordination; (2) continuous surveillance of all reproductive-age women, pregnancies, and children under 2 years of age via a mobile application; (3) community-based integrated management of newborn and childhood illness; (4) group ANC and postnatal care; and (5) the balanced counseling strategy for postpartum contraception, which will be integrated into the intervention.

**CONCLUSIONS:** This research holds promise for providing high-quality data and detailed implementation information on a complex and integrated RMNCH intervention in a resource-limited and rural setting.


**OBJECTIVE:** This research was conducted with the aim to compare the effects of the centering-pregnancy (CP) model versus individual antenatal care on certain prenatal care outcomes.

**METHODS:** The study was quasi-experimental, and it was conducted at the Antenatal Outpatient Clinic of Mansoura University Hospitals, Egypt. In total 108 women were randomly assigned to the intervention group, and the same number of women was assigned to the control group. Data were collected for healthy behaviors, the extent of women’s trouble about pregnancy physical discomforts, and women’s satisfaction with prenatal care.

**RESULTS:** Pregnant women from the CP model group had higher health behavior adoption scores, lower distress scores, and higher participation and satisfaction scores in comparison to their counterparts from the individual care group.

**CONCLUSIONS:** Future research should focus on the effect of introducing the CP model on other prenatal outcomes (e.g., mother’s knowledge and readiness for labor and delivery).


**OBJECTIVE:** The purpose of this study was to gain a better understanding of women’s and care providers’ experiences with group prenatal care (GPC) in a setting where women have lower obstetrical risk than has usually been studied.

**METHODS:** A qualitative descriptive design was used, and data were collected through 3 focus group interviews – 2 with women who had completed GPC at a midwifery clinic in Ontario,
Canada and 1 with the midwives at the clinic. In total, 9 women and 5 midwives participated in the focus groups. Data were analyzed through open coding.

**RESULTS:** The collected data were categorized into 8 categories: (1) reasons for choosing to participate in GPC, (2) benefits provided by GPC, (3) concerns about GPC, (4) suggestions for change, (5) challenges to providing GPC, (6) facilitators in providing GPC, (7) comparison with other models of prenatal care, and (8) suggestions for promoting GPC.

**CONCLUSIONS:** Overall, women and midwives expressed a high level of satisfaction with their GPC experience. This confirms the benefits of GPC for women with low risk and their healthcare providers.


**OBJECTIVE:** The primary objective of this research was to determine the likelihood of participating in group prenatal care (GPC) among low-risk Canadian women receiving traditional prenatal care from obstetricians, family physicians, or midwives and to determine factors associated with their likelihood of participating in GPC.

**METHODS:** A quantitative study was conducted using a self-administered questionnaire to collect data from 477 women. Prior to completing the questionnaire, a 2-minute compiled video about GPC was shown to the pregnant women receiving traditional prenatal care.

**RESULTS:** Approximately half (49.2%) of the respondents expressed interest in participating in GPC. Women with postsecondary education, those who were not engaged in discussions on labor with their care provider, and those who valued woman-centered care were more likely to be interested in participating in GPC. The women would prefer to be in groups with participants of similar age, and they placed importance on education.

**CONCLUSIONS:** The results of this research may be useful for health providers interested in optimizing satisfaction with traditional prenatal care and GPC.


**OBJECTIVE:** The goal of this research was to assess implementation outcomes (e.g. acceptability, cost) to establish the feasibility of the group antenatal care model in Senegal and explore effectiveness outcomes related to maternal and infant health.

**METHODS:** The researchers used an effectiveness–implementation hybrid design. Data collection was done via baseline and postnatal interviews with women. In addition, focus group discussions were conducted after each group’s final group antenatal care session. Furthermore, interviews with midwives, nurses, matrones, and male partners were conducted. Lastly, the researchers carried out supportive supervision visits of group antenatal care sessions. At each visit, they completed a checklist that assessed fidelity to the group antenatal care model.

**RESULTS:** A total of 330 pregnant women participated in the research, of whom 281 (85%) were followed up at 6–10 weeks post-delivery. Women enrolled in group antenatal care reported discussing important subjects, such as birth plan, breastfeeding and complimentary feeding, family planning, and pregnancy and newborn danger signs more frequently than those enrolled
in traditional antenatal care. During focus group discussions women emphasized two key advantages of group antenatal care: the knowledge gained during sessions and the relationships established among women and between women and providers. Nearly half of the women, however, expressed some worry about their privacy during group sessions. Healthcare providers acknowledged the close trusting relationships formed between women and providers, the improvement in women’s knowledge about pregnancy and childbirth, and the involvement of male partners. Male partners appreciated the knowledge they gained during sessions and feeling a sense of support and pride for their pregnant wives.

Fidelity checklists completed by researchers demonstrated good conformity to fundamental elements of the group antenatal care model. The estimated fixed cost to introduce group antenatal care at health posts was $357 USD per health post. The recurrent operational costs associated with group antenatal care were $81 USD for the implementation of four group antenatal care sessions per each group.

CONCLUSIONS: Results of this research confirm that the group antenatal care model was feasible to implement within the current health system and socio-cultural context in Senegal.


OBJECTIVE: The objective of this study was to understand the central meaning or the core of the experience of group prenatal care for women and care providers who participated in centering pregnancy through a community maternity clinic in Calgary, Canada.

METHODS: This study used the qualitative tradition of phenomenology and Heidegger’s approach. A purposive sample of 12 women participated postpartum in a one-on-one interview and/or a group validation session.

RESULTS: Six themes emerged: (1) “getting more in one place at one time,” (2) “feeling supported,” (3) “learning and gaining meaningful information,” (4) “not feeling alone in the experience,” (5) “connecting,” and (6) “actively participating and taking on ownership of care.” The validation session confirmed these themes and the core experience, which was “getting more than they realized they needed.”

CONCLUSIONS: Group prenatal care has the potential to enhance the care experience for women in community prenatal care clinics and may also change the experience of social support for women from marginalized groups.


OBJECTIVE: This study aimed to explore the experience of CenteringPregnancy group prenatal care from the physician’s perspective in Calgary, Canada.

METHODS: This study used phenomenology and Heidegger’s approach to inquiry. Three physicians involved in group prenatal care participated in a one-on-one interview, and 2 of them participated in verification sessions.

RESULTS: Six themes emerged from the data: (1) having a greater exchange of information, (2) getting to knowing, (3) seeing women get to know and support each other, (4) sharing ownership of care, (5) having more time, and (6) experiencing enjoyment and satisfaction in
providing care. These themes contributed to the core meaning for physicians of “providing richer care.”

CONCLUSIONS CenteringPregnancy group prenatal care can improve workplace satisfaction, increase retention of providers in maternity care, and improve health care for women.


OBJECTIVE: This research explored the key informants’ views and perspectives on prenatal care provision in Northern Ireland and on the possibility to pilot a group-care model in the country.

METHODS: The concept of the bricolage in the qualitative inquiry was applied, and data were collected via interviews with key informants (e.g., midwifery leaders, community workers, service users, etc.).

RESULTS: The respondents acknowledged that public participation in decision-making, including access to childbirth care and education, is complicated in Northern Ireland due to community divisions and women’s lack of power, especially from socially disadvantaged groups. They also discussed issues related to access to information about the availability of birthing choices. Lastly, the respondents talked about several challenges in implementing innovations, such as the group-care model in Northern Ireland.

CONCLUSIONS: Implementation of the group-care model should be viewed and evaluated as a “complex intervention” within a social model of health.


OBJECTIVE: The purpose of this research was to explore the perceptions of mothers, nurses, and decision-makers involved in implementing CenteringParenting in 2 public health clinics in Alberta, Canada.

METHODS: This research was the qualitative component of a quasi-experimental pilot study. Focus groups and individual interviews were used to collect data from mothers (n = 13), nurse facilitators (PHNs) (n = 5), and decision-makers/administrators (n = 4). Conventional qualitative content analysis was used during the data analysis.

RESULTS: Three major themes emerged during the analysis of data collected from the mothers: (1) receiving instrumental/practical support, (2) participating in group discussions and making connections, and (3) not being alone in the experience. Four key themes emerged during the data analysis of data collected from PHNs: (1) conflict with standard practice, (2) making it work, (3) building a community and supporting relationships, and (4) striking a balance. Finally, 3 themes emerged from the data obtained from the decision-makers/administrators: (1) a new way of thinking, (2) options for families, and (3) broader implications.

CONCLUSIONS: The CenteringParenting program provides benefits to new mothers beyond what they expected. Addressing logistical challenges will be needed prior to the expansion of the CenteringParenting program.

**OBJECTIVE:** The objective of this research was two-fold: (1) to inform the design of the group-care program before implementation and (2) to document women’s experiences in group care at the mid-point of the 36-cluster randomized controlled trial to make ongoing programmatic adjustments and improvements.

**METHODS:** This was a qualitative study. Eight focus group discussions were conducted among women of reproductive age from 4 districts across Rwanda before group-care implementation, and 6 focus group discussions were conducted among women who participated in group antenatal care and/or postnatal care at 18 health centers that introduced the model, approximately 9 months after implementation.

**RESULTS:** Before the group-care model implementation, the participants acknowledged several potential benefits of participation in this model, including ease of expression, learning from the experiences of their peers, and increased social cohesion. At the same time, women voiced concerns about sharing personal information with peers. After group-care model implementation, women reported several benefits, including peer support, increased knowledge, and more satisfying relationships with providers. The reported barriers to group-care participation were the lack of financial resources, lack of cooperation from a male partner, and long distances to the health center. Finally, the cited suggestions for program improvement included decreasing the time women spent waiting for each other and for providers to arrive at the session, increasing community outreach, and creating communications systems to remind families about appointment dates.

**CONCLUSIONS:** The group-care model provides compelling benefits to women and families.


**OBJECTIVE:** The goal of this research was to compare the effect of group prenatal care (GPC) support versus standard individual care (SIC) on breastfeeding initiation rates and other perinatal outcomes.

**METHODS:** A retrospective cohort study was conducted. The researchers analyzed data from 1383 women, who delivered at Hospital del Mar in Barcelona, Spain.

**RESULTS:** Breastfeeding initiation rate was higher among women from the GPC group. Cesarean section rates, prematurity and low birth weight rates also improved in the GPC group.

**CONCLUSIONS:** More prospective randomized studies are needed to establish the benefits of GPC during the whole pregnancy.


**OBJECTIVE:** This research was implemented with aim to determine whether women who received group antenatal care (G-ANC) differed in intermittent preventive treatment with
Sulfadoxine–pyrimethamine (IPTp-SP) uptake and insecticide-treated nets (ITN) use as compared to women who received standard antenatal care (ANC).

**METHODS:** The researchers used data from the G-ANC study, a pragmatic, cluster randomized controlled trial designed to assess the effectiveness, acceptability, and feasibility of a group antenatal care (G-ANC) model implementation in Nigeria and Kenya. Data from the 1,437 women were included in the present analysis.

**RESULTS:** Mean number of IPTp doses received was higher among women from the intervention group as compared to women from control group in Nigeria (3.45 versus 2.14, p < 0.001) and Kenya (3.81 versus 2.72, p < 0.001). Reported use of ITN the previous night was similarly high in both groups for mothers in Nigeria and Kenya (over 92%). In Nigeria the reported ITN use for infants was higher in the intervention group than control group (82.7% versus 75.8%, p = 0.020).

**CONCLUSIONS:** G-ANC service delivery platform may have the potential to increase uptake of some recommended malaria in pregnancy interventions.


**OBJECTIVE:** This article reported the preliminary work that established the acceptability and feasibility of CenteringPregnancy-Africa (CP-Africa) in Malawi and Tanzania.

**METHODS:** The development and piloting of CP-Africa were guided by principles of action research. In Phase 1, whether CP group ANC was an acceptable and feasible format was determined. In Phase 2, CP-Africa was developed. In Phase 3, a pilot of CP-Africa sessions was conducted in Malawi at 2 sites: a district hospital and a small clinic. Data were obtained from direct and systematic observations of the training of health professionals and the implementation of 2 CP-Africa sessions. Data were also obtained from separate focus groups with health professionals and pregnant women.

**RESULTS:** Phase 1 results showed that group healthcare delivery was an acceptable format for ANC delivery. Members of the Malawian and Tanzanian ministries of health, health professionals, and women were enthusiastic about CP-Africa. During Phase 2, a CP-Africa guide was developed. In Phase 3, a pilot of CP-Africa sessions was conducted with 24 pregnant women (12 at each site). The pilot established that the CP model could be implemented with process fidelity to the 13 essential elements. Several implementation challenges and strategies to address these challenges were identified.

**CONCLUSIONS:** Given the potential benefits of CP-Africa for pregnant women and their infants, a randomized trial is urgently needed to test whether this model can be implemented on a larger scale and whether it would be effective in improving health outcomes in sub-Saharan African countries.


**OBJECTIVE:** The purpose of this research was to compare pregnancy-related empowerment, as measured by Pregnancy-Related Empowerment Scale (PRES) scores, for women who attended
individual antenatal care (ANC) and CenteringPregnancy® (CP)-based group ANC at clinics in Malawi and Tanzania.

**METHODS:** This was a two-arm randomized controlled pilot study. Pregnant women in Malawi (n = 112) and Tanzania (n = 110) were recruited into a pilot study and randomized to individual ANC or group ANC. The late pregnancy interview and PRES tool were scheduled to take place after the woman’s fourth ANC contact (between 32 and 38 weeks).

**RESULTS:** In Malawi, 58 women were assigned to individual ANC, and 54 participated in group ANC. In Tanzania, 50 women were assigned to the control group, and 56 women were in the intervention group. In Malawi, the women receiving group ANC had higher PRES scores than those receiving individual care, whereas, in Tanzania, the score difference was much smaller and not statistically significant. Muslim women in group ANC had a higher mean PRES score than those in individual ANC, but the type of care was not associated with pregnancy-related empowerment among Christian women.

**CONCLUSIONS:** Group ANC empowers pregnant women in some contexts. More research is needed to identify the ways models of ANC can affect pregnancy-related empowerment.


**OBJECTIVE:** The purpose of this research was to identify implementation challenges associated with conducting a randomized controlled trial (RCT) of group prenatal care (PNC) and to report the outcomes of the pilot.

**METHODS:** A multi-site randomized pilot was conducted in Malawi and Tanzania. Pregnant women were randomly assigned to individual or group PNC. Structured interviews were conducted at baseline, in the third trimester, and 6–8 weeks after delivery.

**RESULTS:** The pilot showed that an RCT with individual randomization can be conducted in low-resource settings. Significantly more women in group PNC than in individual PNC completed at least 4 PNC visits and attended the postnatal visit. Satisfaction was significantly higher among women in group PNC than among those in individual PNC. Among women with HIV-related knowledge gaps at baseline, a significantly higher proportion in group PNC correctly answered all Joint United Nations Programme on HIV/AIDS (UNAIDS) comprehensive HIV knowledge questions in late pregnancy. Accurate knowledge on the prevention of mother-to-child transmission was also reported more frequently by those in group PNC than in individual PNC.

**CONCLUSIONS:** The results of this research should be considered while designing large RCTs to examine the effect of PNC on the health system and the maternal, neonatal, and child health outcomes in the context of sub-Saharan Africa.


**OBJECTIVE:** The purpose of this paper was to describe the gestational weight change of a cohort of obese pregnant women enrolled in a group antenatal program aimed at assisting them to limit their weight gain in pregnancy.

**METHODS:** This descriptive study was conducted in New South Wales, Australia. Data (i.e., body
mass index (BMI), pre-pregnancy weight, last pregnancy weight, and select clinical outcomes) were collected among 82 women.

RESULTS: Overall, 27% of women enrolled in the program gained the recommended 5-9 kg, 27% gained less than this amount, and 46% gained more. Multiparous and heavier women (BMI >35 kg/m²) were more likely to be successful in limiting their gestational weight gain than women who were primiparous and whose BMI was <35 kg/m².

CONCLUSIONS: This innovative, collaborative program shows promise in terms of weight change. Further research in this area is needed considering the rapidly increasing average BMI of women entering pregnancy in the developed world.


OBJECTIVE: The purpose of this research was to assess the feasibility of implementing CenteringPregnancy® (CP) into the Dutch maternity care system. In addition, the researchers explored the possible health benefits and the satisfaction of care for the general population of pregnant women and for those from marginalized groups.

METHODS: This was a retrospective cohort study (n = 2,318; 579 were in the CP group, and 1,736 were in individual care group). In addition, a survey on women’s experience (n = 222) was conducted in 8 primary care midwifery practices.

RESULTS: Primiparous and multiparous CP women attended more prenatal care visits compared with women who received individual care. Moreover, marginalized women in the CP group attended more prenatal visits than those in the individual care group. Primiparous CP women, especially marginalized women, experienced less need for obstetric interventions, and they initiated breastfeeding more often. Women participating in CP were more likely to feel that their wishes with respect to medication use, physical activities, and relaxation exercises were listened to by care providers. They also felt more supported to actively participate in their care and felt more able to voice opinions about care.

CONCLUSIONS: The results of this research are an important and encouraging indication for midwives to continue the CP scale-up in the Netherlands.


OBJECTIVE: This book focused on a review of the science, theory, practice, and evidence related to the CenteringPregnancy® (CP) model.


RESULTS: The first section focused on the CP model. The second section included information on the CP model implementation and expansion of the model. Finally, the third section contained information about the policy, research, and international uptake of the model.

CONCLUSIONS: This book is a valuable resource for clinical groups, researchers, healthcare providers, and advocacy groups interested in the CP model and transformation of the existing healthcare delivery system to improve healthcare outcomes.

**OBJECTIVE:** The purpose of this research was to conduct a systematic, comprehensive, and unbiased accumulation and summary of the available evidence from all study designs to compare the effects of group prenatal care (GPC) and individual prenatal care (IPC) on preterm birth (PTB; PTB< 37 weeks), low birth weight (LBW< 2500 g), and other infant and maternal health outcomes.

**METHODS:** The researchers carried out separate systematic reviews and meta-analyses of randomized studies and observational studies in accordance with the methodology from the “Meta-analysis of Observational Studies in Epidemiology” consensus statement. Eight studies were included in the analysis: 3 randomized controlled trials (totaling 1,903 women) and 5 cohort studies (totaling 1,106 women).

**RESULTS:** Only 2 high-quality randomized studies in women with high-risk pregnancies were found. The results of these studies suggested similar risks of LBW in women having GPC and IPC, but a reduction in the occurrence of PTB and Cesarean section in women having GPC. In addition, GPC was also associated with higher rates of breastfeeding and more knowledge and satisfaction with care. Results of cohort studies suggested that GPC reduced the prevalence of LBW and increased satisfaction with care.

**CONCLUSIONS:** To determine the generalizability of these research results, more high-quality studies are needed.


**OBJECTIVE:** The aim of this research was to evaluate the effect of centering-pregnancy (CP) model implementation on prenatal health behaviors and pregnancy-related empowerment.

**METHODS:** A quasi-experimental (pre- and post-test comparison group) design was used. This study was conducted in Egypt. A purposive sample of 151 pregnant women was recruited for the study and divided into the CP group (75 women) and individual prenatal care group (76 women).

**RESULTS:** The total mean self-reported health behavior score in the CP group was higher than that in the individual prenatal care group. The mean pregnancy-related empowerment score in the CP group was also significantly higher than that in the individual prenatal care group. Two-thirds of the CP group reported a high satisfaction level compared to one-tenth of those in the individual prenatal care group.

**CONCLUSIONS:** Considering the results of this study, the authors recommended to scale-up the implementation of the CP model and to explore prenatal health behaviors among women who receive the CP model.


**OBJECTIVE:** The article presented information about the design and implementation process of the group antenatal care (ANC) and postnatal care (PNC) program.
METHODS: The authors described the process of development of a group-care model for implementation and evaluation by the East Africa Preterm Birth Initiative–Rwanda in the context of a cluster randomized controlled trial.

RESULTS: Adapting the group ANC and group PNC model for the Rwandan context was done through a group process. A technical working group consisting of 10 Rwandan maternal-child health stakeholders defined the content and structure of a combined group ANC and PNC model for implementation in Rwanda. The same group process was used to train 6 Rwandan group-care master trainers, 70 nurses and midwives, and 217 community health workers as new group-care facilitators. Descriptions of the customized group ANC and PNC model and the implementation plan were included in the article.

CONCLUSIONS: The authors will collect feedback from all study staff, including master trainers, throughout the trial. Qualitative research activities among ANC and PNC clients and healthcare providers are planned for 9 and 18 months after implementation. After each round of qualitative research, the technical working group will reconvene to reconsider the group ANC and group PNC model and plan for possible implementation at a larger scale in Rwanda.


OBJECTIVE: The objective of this research was to review the published literature on models of group antenatal care (ANC) in low-and middle-income countries (LMICs) and to compile and synthesize evidence on such models to inform future research on group ANC in LMICs.

METHODS: This was a systematic evidence synthesis. Evidence was gathered from 2 sources: (1) published literature and (2) expert consultation. The authors searched published literature in 5 databases (MEDLINE [Ovid], Embase, Web of Science, CINAHL, and the WHO Global Health Library). They also searched the online bibliography available through the Centering Healthcare Institute and the Maternal Health Task Force Resource Database. The authors included 9 studies in this review. In addition, 10 semi-structured key informant interviews were conducted with researchers and programmers who were implementing or testing group ANC in LMICs.

RESULTS: Altogether, the authors described 9 unique models of group care. This analysis synthesized evidence from 16 countries: Bangladesh, Botswana, Brazil, Egypt, Ghana, India, Iran, Kenya, Malawi, Mexico, Nepal, Nigeria, Rwanda, Suriname, Tanzania, and Uganda. Urban and rural populations were represented, and the group-care settings included hospitals, community health centers, and clinics. The authors identified attributes (e.g., providing a physical assessment, using facilitated discussion to foster learning and peer support, and including women in self-care activities) that appeared consistently across all group-care models and could be considered fundamental to the effective delivery of group ANC. They also identified attributes that must be tailored to the context in which the model is implemented (e.g., the number of sessions or the session content). Finally, using collected evidence, the authors developed a “generic” model of group ANC for adaptation and implementation in LMICs.

CONCLUSIONS: The group antenatal care is feasible and appropriate for use in LMICs with context-specific adaptation to meet local practice guidelines.

OBJECTIVE: This research was implemented with aim to estimate the incremental cost of GPC model introducing in the existing government healthcare facility.

METHODS: The research was implemented in a public health facility in Chandpur district of Bangladesh. The researchers applied supply-side perspective to estimate costs of integrating the GPC model. All costs were measured retrospectively based on the administrative and financial records of the project.

RESULTS: It was estimated that the total cost of GPC model integration was US$ 15,216.3. Considering the total number of per session beneficiary (n = 844), the average cost of the per-beneficiary per-GPC session was US$ 18; at the same time cost of per beneficiary (n = 300) was US$ 50.7 and cost per session (n = 125) was US$ 121.7.

CONCLUSIONS: Results of this research suggest that the incremental cost of the GPC model introduction is doable within the existing government settings.

OBJECTIVE: This article provided information about the study protocol, which will be implemented in Bangladesh with the aim to assess the effect of group prenatal care (GPC) on antenatal care (ANC) and postnatal care (PNC) utilization and maternal and neonatal outcomes.

METHODS: The study will be quasi-experimental in design. A total of 576 pregnant women (288 cases and 288 comparisons) will be randomly enrolled in this research. The intervention group will receive GPC, and the control group will receive individual prenatal care. Data collection will be done via a structured and semi-structured questionnaire. Data will be collected 24 hours after delivery and 2 months after delivery. Cost data will be collected through a structured and semi-structured questionnaire, observation checklist, hospital database, and compilation of service statistics. Information about gestational age at birth, birth weight, neonatal hospital stay, and maternal outcomes will be taken from medical records and individual structured interviews.

RESULTS: The authors described the process of the respondents’ selection, randomization, intervention implementation, and primary and secondary outcomes of the study.

CONCLUSIONS: The results of this study will be useful in planning a new strategy to improve the health outcomes for Bangladeshi women. In addition, this research will contribute to strengthening the health system in Bangladesh.

OBJECTIVE: The objective of this research was to understand the core experience of the women that participated in group prenatal care (GPC) sessions.

METHODS: A qualitative research approach was used. In-depth, face-to-face interviews were conducted with 21 pregnant mothers who attended all recommended GPC sessions. A thematic analysis was applied during the data analysis.

RESULTS: The analysis identified 7 themes: (1) comprehensiveness of pregnancy care services, (2) prescheduled appointments, reminders and reduction of waiting time, (3) social gathering to reduce stress and solitude, (4) coping with common discomforts during pregnancy, (5) upturns
of provider-patient and family relationships through GPC, (6) birth preparedness and confidence to tackle situations, and (7) recommendations for prospective mothers.

**CONCLUSIONS:** The GPC model promises movement toward peer- and family-supported care.


**OBJECTIVE:** The objective of this research was to describe the experiences of women who were participants in the Australian CenteringPregnancy (CP) pilot study.

**METHODS:** A descriptive study was undertaken in 2 suburban metropolitan hospitals in Sydney, Australia. The collected data included information from the medical records and the antenatal and postnatal questionnaires. In total, 35 women were recruited to the study and 33 of them received all their antenatal care (8 sessions) through 5 CP groups.

**RESULTS:** Only 35 (20%) out of 171 women agreed to participate in group antenatal care and they attended a total of 268 (95%) group sessions. The women pointed out that the received type of care was positive and satisfying. Particularly, they valued the opportunity to develop supportive relationships with their peers and their midwives. The women also indicated that the new model met their individual needs; enhanced information sharing about their pregnancy, labor, and birth; and enabled building friendship and support networks.

**CONCLUSIONS:** Results of this research suggests that CP is an appropriate model of care for many women in Australia.


**OBJECTIVE:** This study aimed to explore the experiences of the midwives who undertook the new role as a group facilitator.

**METHODS:** The researchers applied a qualitative design based on 2 methodological approaches: qualitative description and action research. This study was conducted in 3 antenatal clinics and 2 community health centers in southern Sydney, Australia. Data were collected via (1) pre-study and post-study self-reported surveys, (2) checklists completed after each of the 8 centering-pregnancy (CP) group sessions, and (3) a focus group after the completion of all group sessions. The research participants were 8 midwives who were experienced in providing both traditional and group antenatal care.

**RESULTS:** The midwives acknowledged the benefits of the CP model for pregnant women and valued the positive relationships developed with women and their colleagues. There were some negative comments about the time required for model development and implementation. The major theme that emerged during analysis of focus group data was “Building and maintaining relationships,” which was developed from 7 codes: (1) “Getting involved,” (2) “Giving it a go,” (3) “Getting prepared,” (4) “Becoming a facilitator,” (5) “Meeting together,” (6) “Trusting Centering Pregnancy,” and (7) “Creating communities and Connections.”

**CONCLUSIONS:** This study adds to the increasing body of knowledge about the experience of midwives who provide group antenatal care.


OBJECTIVE: The researchers assessed the effects of group antenatal care (ANC) on the institutional birth rate, completion of 4 ANC visits, and women’s knowledge acquisition and birth preparedness.

METHODS: The researchers applied a prospective nonrandomized, cluster-controlled, type I hybrid effectiveness implementation trial design with a nested prospective cohort. The effectiveness was evaluated through a difference in difference analysis of institutional birth rates between groups prior to the implementation of the intervention and 1 year after implementation. The control group consisted of recently delivered women in the 6 village clusters who received home visit care, while the intervention group consisted of women in the 7 village clusters who received home visit care and group ANC. The researchers also conducted focus group discussions and interviews with key informants (e.g., providers, community leaders, and community health supervisory staff).

RESULTS: Quantitative results suggested that the group ANC did not result in an improvement in the outcomes of institutional birth, ANC completion, or contraceptive prevalence. Women from the intervention group had increased knowledge of pregnancy danger signs. However, knowledge of danger signs related to the labor and delivery, the postpartum period, and the newborn did not improve in both groups. At the same time, knowledge on the key aspects of birth preparedness declined among women from both groups. The results of the qualitative analysis suggested that women found that group care provided an opportunity for learning and discussion, and they considered group care to be a source of empowerment and social support. Women also reported perceived improvement and an increase in the availability of healthcare services at the village clinic (e.g., labs, ultrasound, and counseling). The interviewed providers noted that women seemed to enjoy group ANC. Other reported benefits included social support and closer relationships between women and providers. Challenges in birth planning were brought up by both providers and women.

CONCLUSIONS: More research is needed among a larger population and over a longer period.


OBJECTIVE: The authors provided information about a study that will be implemented with the aim to evaluate the effects of centering pregnancy (CP) in the Netherlands in primary health care (low-risk population) and in hospital-based care (moderate to high-risk population) on maternal and neonatal health outcomes, health behaviors, and psychosocial outcomes.

METHODS: A stepped wedge cluster randomized controlled trial will be used. The study will be conducted in 13 midwifery practices and 2 hospitals that do not yet offer CP within the region of “northern South-Holland.” These 15 centers will be divided into 3 groups, and each group will be randomly assigned to 1 of 3 time points (steps) at which they will start to implement the intervention, with a between-step period of 3 months.

RESULTS: The described study will collect information about the following outcomes: neonatal health outcomes, maternal health outcomes, labor and birth outcomes, health behavior
outcomes and health literacy, psychological outcomes, parenting outcomes, satisfaction with prenatal care, and process outcomes.

**CONCLUSIONS:** The results of this study will contribute to the evidence regarding the effect of CP and will be useful to explain the mechanisms that lead to effects on maternal and neonatal outcomes.


**OBJECTIVE:** This research aimed to highlight 1) effective approaches for patients participating in shared medical appointments and 2) the determinants of effectiveness.

**METHODS:** The researchers applied a mixed-method systematic review approach. They analyzed peer-reviewed publications published in 1997 or after, which focused on shared medical appointments that implemented a clinical intervention (e.g., vital sign measurements, lab checks, medication adjustments, and physical exams). The categorization of the extracted data informed a thematic synthesis.

**RESULTS:** Thirteen quantitative controlled trials, 11 qualitative papers, and 2 mixed-methods studies met the inclusion criteria. The researchers identified 3 consistent models of care: cooperative healthcare clinics (5 articles), shared medical appointment/group visits (10 articles) and group prenatal care/CenteringPregnancy® (11 articles).

**CONCLUSIONS:** The researchers concluded that shared medical appointments are increasingly used in primary care settings. Accepting and implementing this approach can result in measurable improvements in patient trust, patient perception of the quality of care and quality of life, and health outcomes.


**OBJECTIVE:** The authors provided information about a pilot trial that will be conducted in the UK with the aim to determine the feasibility of and the optimum methods for testing the effectiveness of group antenatal care (ANC) in an NHS setting that serves populations with high levels of social deprivation and cultural, linguistic, and ethnic diversity.

**METHODS:** This research will be an individual-level randomized controlled external pilot trial with an integrated process and economic evaluations. They plan to recruit 72 pregnant women across 3 maternity services within one large NHS acute trust. Half of the recruited women will be randomized to receive group ANC and half will receive standard ANC.

**RESULTS:** The baseline, outcomes, and economic data will be collected via questionnaires completed by the women at 3 time points. In addition, routine maternity service data will be collected. Stakeholder interviews will provide insight into the acceptability of research and intervention processes. The researchers also selected pre-agreed criteria to guide the decision about whether or not to progress to a full trial.
CONCLUSIONS: The results of this research will provide high-quality evidence to inform the design and conduct of a trial in the area of improvements in health care and women’s experiences in the UK.


OBJECTIVE: This article outlined the principles and evidence behind group antenatal care and explored how developing group facilitation skills can improve midwifery practice in the UK.

METHODS: The researchers discussed the impact of different training models developed by the REACH Pregnancy Programme as part of a randomized controlled trial of group antenatal care.

RESULTS: The authors described the developed three models of training: (1) facilitator training workshops; (2) postgraduate model; and (3) train-the-trainer workshops. They also outlined major challenges for practitioners during facilitating group antenatal care.

CONCLUSIONS: Early experiences of facilitating group antenatal care suggested that, with appropriate training and support, both midwives and women enjoy this model of care.