Better together: a qualitative exploration of women's perceptions and experiences of group antenatal care using focus groups and interviews

ABSTRACT

Problem: Childbearing women from socio-economically disadvantaged communities and minority ethnic groups are less likely to access antenatal care and experience more adverse pregnancy outcomes.

Background: Group antenatal care aims to facilitate information sharing and social support. It is associated with higher rates of attendance and improved health outcomes.

Aims: To assess the acceptability of a bespoke model of group antenatal care (*Pregnancy Circles*) in an inner city community in England, understand how the model affects women's experiences of pregnancy and antenatal care, and inform further development and testing of the model.

Methods: A two-stage qualitative study comprising focus groups with twenty six local women, followed by the implementation of four *Pregnancy Circles* attended by twenty four women, which were evaluated using observations, focus groups and semi-structured interviews with participants. Data were analysed thematically.

Findings: Pregnancy Circles offered an appealing alternative to standard antenatal care and functioned as an instrument of empowerment, mediated through increased learning and knowledge sharing, active participation in care and peer and professional relationship building. Multiparous women and women from diverse cultures sharing their experiences during *Circle* sessions was particularly valued. Participants had mixed views about including partners in the sessions.

Conclusions: Group antenatal care, in the form of *Pregnancy Circles*, is acceptable to women and appears to enhance their experiences of pregnancy. Further work needs to be done both to test the findings in larger, quantitative studies and to find a model of care that is acceptable to women and their partners.

KEYWORDS pregnancy, antenatal care, women's experiences, group care, social model, models of care

Statement of significance

Problem or Issue	Childbearing women from socio-economically disadvantaged communities and minority ethnic groups are less likely to access antenatal care and more likely to experience adverse outcomes.
What is Already Known	Group antenatal care is associated with increased satisfaction with care, higher attendance rates and improved maternal and neonatal outcomes. These may be mediated through increased empowerment, which is known to improve health and increase life expectancy.
What this Paper Adds	By focusing on the meaning and perceived outcomes of group antenatal care for women, this paper outlines the process through which women attending group care become empowered, and articulates ways in which they experience and use that empowerment.

1. Introduction

1.1. Problem

Women from socio-economically disadvantaged and minority ethnic groups, many of whom have complex social and medical needs, are less likely to access antenatal care (1), and more likely to report negative experiences of care (2–4). Lack of engagement with antenatal care and belonging to socially, ethnically or linguistically marginalised groups has been associated with adverse pregnancy outcomes including low birth-weight, neonatal mortality and maternal morbidity and mortality (5,6). There is evidence that routine maternity care in an obstetric-led service, despite the aims of midwifery care, may alienate or disempower women, particularly those from minority groups (7,8).

1.2. Background

Globally, there is a drive to improve health outcomes for childbearing women in disadvantaged communities through facilitating both their access to care, particularly in the antenatal period, and their empowerment (9,10). Higher levels of empowerment have been shown to lead to improved health and increased life expectancy, particularly among women (11,12). A precise definition of empowerment is, however, difficult to articulate. It is generally agreed that it is a process as well as an outcome, and that it is necessarily acquired for oneself rather than bestowed by others (14). This paper will use the Oxford Dictionary's definition of empowerment as 'the process of becoming stronger and more confident, especially in controlling one's life and claiming one's rights' (15), although we recognise that empowerment also involves increased self-esteem and awareness of one's own value (16), coupled with a measure of autonomy secured through increased knowledge and understanding (11). Community empowerment is linked to an increase in social capital: the social relationships and resources that enable a community to develop shared understandings and work together (17).

Recent guidance from the World Health Organisation (18) highlights the importance of antenatal care as an opportunity to communicate with and support women, in order to improve their physical and emotional wellbeing. Although not specifically identifying empowerment as an aim, the guidance identifies a positive pregnancy experience as key to transforming lives and creating thriving families and communities. Group antenatal care (gANC) aims to incorporate the social, psychological and informational support which are lacking in many conventional antenatal care models, and which may facilitate increased autonomy and empowerment. It has been successfully implemented in a number of countries including the United States (19), Australia (20), Malawi (21) and Iran (22), and appears to be associated with increased satisfaction with care and higher rates of attendance (20,23,24). There is also some evidence that it may be associated with improved health outcomes such as reduced pre-term birth, low birth-weight and likelihood of caesarean birth (19,22,25,26).

There are a number of different models of gANC, most of which either use or adapt the Centering Pregnancy® package developed in the US (27). Group models evaluated in published research tend to combine conventional aspects of antenatal assessment with a more woman-led focus including self-checks, group discussion and learning, and the opportunity for social support. Groups typically comprise 8-12 women with similar expected due dates. Aspects of gANC that may contribute to its success include longer appointment times (typically two hours) and consistency of attending facilitators. Continuity of carer has been found to be particularly beneficial for vulnerable and ethnic minority women, delivering enhanced communication and interpersonal rapport (7,28). Research in countries providing a midwifery service has shown that midwifery-led continuity of care models in particular reduce the incidence of preterm birth less than 37 weeks, and fetal loss and neonatal death for all women, as well as specifically reducing poor outcomes for socially disadvantaged women (29,30).

Furthermore, gANC aims to promote discussion and learning between women rather than solely relying on health professionals. As well as leading to enhanced social support amongst group members (24), this may lead to greater autonomy and enable participants to tailor their antenatal care more closely to their own needs. Finally, the self-monitoring (for example, blood pressure and urinalysis) that is a feature of many gANC models potentially increases knowledge and confidence. These factors have been shown to be significant in increasing the likelihood of a positive birth experience (31).

Evaluations of group ANC indicate that women particularly appreciated opportunities for peer discussion, which normalised their pregnancy symptoms and experiences, helping them not to feel alone (20,32–34). They further reported that continuity of carer facilitated the development of a personal relationship with their care provider which enabled them to ask questions and accrue relevant knowledge (20,26,33,34). Less favourable evaluations were generated in settings where the facilitating midwives were not trained, or not deemed to be skilled in group facilitation; where they

employed a more didactic approach; and/or there was insufficient time in the sessions for discussion (32,35).

1.3. Research question

Very few investigations of group antenatal care have been conducted in the UK to date. Furthermore, qualitative investigations of women's experiences of group care have focussed on their opinions of the care received, concentrating on what gANC was like rather than what it meant to women, or what it achieved and how (34). Closer attention to the processes at work within the group might aid theory development around how the model works and whether it has the potential to lead to empowerment (36). As part of a five-year research programme which aims to improve equity in access to, and experiences of, antenatal care (the Research for Equitable Antenatal Care and Health (REACH) pregnancy programme), we aimed to develop and assess the acceptability of a bespoke model of gANC (*Pregnancy Circles*) to pregnant women in an area of the UK with high levels of socio-economic deprivation and cultural, linguistic and ethnic diversity, and understand how it impacted on their experiences of pregnancy. This information will enable adjustments and modifications to be made to the model in response to women's feedback before it is tested further in a pilot trial and full randomised controlled trial. The forthcoming trial will evaluate the effectiveness and cost-effectiveness of *Pregnancy Circles* in enhancing women's experience of antenatal care, and outcomes for mother and baby. In this paper we report on the perceptions and experiences of women gathered as part of our feasibility study which implemented four bespoke antenatal groups (*Pregnancy Circles*). The specific question we sought to answer was 'is group antenatal care acceptable to women in an area of the UK with high levels of socio-economic and cultural diversity, and how do participating women experience this care?'

2. Methods

2.1. Design

This study adopted a phenomenological, constructivist approach to explore and make sense of the perceptions and experiences of women before and after the introduction of four *Pregnancy Circle groups.* A range of qualitative techniques was used to construct a shared meaning between the women and the research team (13). This included focus groups with local women conducted before the intervention was implemented, observations of *Circle* sessions, and focus groups and semi-structured interviews with participating women. This comprehensive approach was designed to give multiple opportunities for women to reflect on and describe their experiences, both individually and in discussion with their peers. Observing the sessions helped the research team understand how the intervention functioned and begin to develop ideas about the mechanisms at play, which were then used as a basis for discussion in the focus groups and interviews. Data collection and topic guides were also informed by consultations with two maternity service-user groups and lay representatives on the REACH Programme Steering Committee. This approach was designed to ensure that women's perspectives and priorities remained at the forefront of the research, and resulted in the observations paying particular attention to issues highlighted as contentious, such as the women's physical checks being undertaken in the group space, and the inclusion or exclusion of partners in the sessions. Women attending the focus groups were asked about their initial reaction to the concept of group care, and invited to discuss what form such care might take. Those participating in the *Circles* were asked to describe their experiences and give feedback about the format and content of the sessions (again focusing on issues highlighted as contentious). The semi-structured interviews, conducted postnatally, sought a more personal and in-depth perspective of the impact of group care on the women's pregnancy and childbirth experience. A summary of the guide questions for each element of the research is presented in Table One below.

2.2 Setting

An inner-city UK National Health Service Trust serving an area of high socio-economic, cultural, ethnic and linguistic diversity and high-levels of inward and outward mobility. The Trust incorporates

three separate maternity services with around 16,500 births a year, offering a range of midwifery-led and community services as well as tertiary obstetric care.

2.3 Participants

Pre-implementation focus groups: A combination of opportunistic and snowball sampling was carried out in order to recruit a diverse group of women across the three different geographical areas covered by the study. Women were included if they were living locally, were of reproductive age and aged 18 or over, and spoke sufficient English to enable them to provide informed consent. There were no specific inclusion criteria in terms of maternity experience, but it was explained that the discussion would focus on issues relating to pregnancy and motherhood.

Pregnancy Circle participants: Women were eligible to receive care in a *Pregnancy Circle* if they were over the age of 16, were able to give informed consent and did not meet the criteria for referral to a specialist team for highly vulnerable women operating in the host Trust. Women were not excluded by reason of any other medical or social risk factors. Women of all parities and language abilities were invited to take part. The inclusion criteria aimed to be inclusive, so that those from the target group of women from socio-economically disadvantaged communities and minority ethnic groups would be able to participate.

Women who met the inclusion criteria were given information about the *Pregnancy Circles* by the midwife undertaking their initial antenatal appointment. They were approached by a researcher offering further information and inviting them to receive the rest of their care in a *Pregnancy Circle* shortly after the appointment had finished. All women attending the *Circles* were invited to participate in the focus groups which followed some of their *Circle* sessions, and a semi-structured interview following the birth of their baby.

2.4 Intervention

Four *Pregnancy Circles* were introduced, offering group antenatal care. Each *Circle* comprised up to 12 women living in a specific geographic area who were due to give birth within a pre-specified two-week period, and was facilitated by two midwives, with support from a third coordinating midwife. *Circle* sessions followed the timeline and content outlined by the UK National Institute for Health and Care Excellence (NICE) for standard antenatal care (37), with the addition of a postnatal reunion, and were situated in community venues. Each group included seven key components identified as desirable from the literature on gANC and our pre-implementation work. These are outlined in Table Two below. Women were taught how to undertake their own blood pressure and urine checks, and brief clinical checks were undertaken on a mat in a corner of the room. Alongside these activities, women-led discussion was facilitated using participative techniques such as a 'lucky dip' bag or pooling the group's knowledge on a particular topic. The women in each test group were asked whether and how often they would like partners to be invited. Two groups elected to invite partners twice, one asked partners to a single session, and one decided not to invite partners at all.

2.5. Data Collection and analysis

Three pre Circle-implementation focus groups were held in local community centres in different geographical locations served by the host Trust, in order to gather views across the locality. Each group lasted up to 90 minutes. Observations were carried out at *Pregnancy Circles* towards the beginning and end of each set of group sessions. Twelve observations were carried out in all (see Table Three). Focus groups, lasting up to 30 minutes, were conducted after seven of these observations. A total of 20 women each participated in up to two focus groups each. Finally, participants were invited to take part in semi-structured interviews at a time and place of their choosing (maximum 60 minutes) approximately six weeks after the birth of their babies. Six women were interviewed. No substantively new themes emerged in the final two interviews, indicating that data saturation had been achieved. Partners were invited to join the postnatal interviews, but none

came forward to participate. Women who had had an adverse neonatal outcome were not approached for an interview unless they specifically requested one. Women who had agreed to participate in the intervention could decline to take part in any research other than the observations of the groups, and this was explained at recruitment. Pre-implementation focus groups were undertaken in December 2014 and January 2015, and the final postnatal interview took place in April 2017. Data collection was undertaken by several members of the research team, who met to reflect on, discuss and agree emerging themes on a number of occasions. The team came from a variety of midwifery, non-midwifery and research backgrounds, and all had no or very limited previous exposure to group antenatal care. Using a diverse team of researchers to collect data helped to ensure that the findings reflected the views of the women rather than those of any individual data collector. None of the participants were known to the research team outside of the research context.

The semi-structured interviews and focus groups were audio-recorded on a password-protected device and contemporaneous notes were taken. Contemporaneous notes were taken during the observations. None of this data included participants' family names or personal details other than their given name. The notes, audio files and transcripts were stored on a secure university drive to which only the research team had access. All written data was uploaded onto NVivo 11, read, re-read and coded independently by two authors (author 1 and author 2) using codes that arose inductively from the data. The codes were then collated under themes, as described by Braun and Clarke (38). Themes were agreed between the two coders and the wider research team using an iterative process of discussion and data checking.

2.6. *Ethics* Ethical approval for the pre-implementation work was received from [blinded] School of Health Sciences Ethics Committee. Approval for the post-implementation evaluation was received from the NHS National Research Ethics Service: Wales REC 6 Proportionate Review Sub Committee (#15/WA/0369). Participants gave freely informed consent after receiving information about the

study. Consent was viewed as an ongoing process: participants in all encounters were given information and the opportunity to ask questions, and signed consent forms, before data collection began. Participating or not participating in any aspect of the study did not affect patient care.

3. *Findings*

Twenty six women, the majority of whom were mothers of South Asian heritage, took part in the pre-implementation focus groups (see Table Four). Twenty four women took part in the four *Pregnancy Circles*. These participants were from a range of ethnic backgrounds; about half were born outside the UK, and just over half were multiparous women. Further details are outlined in Table Five. Findings from the focus groups, observations and interviews were broadly in alignment and are presented together. The postnatal interviews were perhaps more reflective in nature, but did not contradict the more immediate feedback given at the focus groups. As part of our wider feasibility study, interviews were undertaken with the midwives facilitating the *Circles* (Author paper, under review). Some quotes from the midwives' interviews are included here where they relate to and illuminate the women's experiences. All data has been anonymised. It was not possible to differentiate between different speakers in the larger pre-implementation focus groups or in the first focus group undertaken at *Circle* 3. Participants in the other post-implementation groups have been assigned a number, so that the reader can see the range of speakers cited.

Participants in both phases of the study were overwhelmingly positive about gANC, despite some reservations being voiced before the intervention groups were implemented. Participating in gANC appeared to trigger a process of empowerment for women, who grew in confidence as the *Circle* sessions progressed. Our themes attempt to draw out the processes that enabled this transformation. 'Time for change' illustrates the context into which the *Pregnancy Circles* were introduced, and shows how they addressed perceived deficits of current care provision. 'A safe space for sharing', 'learning together', and 'travelling together' articulate the mechanisms through which change took place for women, while 'expanding horizons', 'exercising control', and 'a sense of

belonging' illustrate the results of this process. Figure One (below) illustrates the relationships between themes.

3.1 Time for change – the care context

Women welcomed the idea of a more social, women-led model of care which they believed might enable them to forge stronger and more personal relationships with midwives and across cultural divides in their communities:

I just like that we are all the same even though we are different (Pre-implementation focus group (pre FG) 2).

This positivity was fuelled in part by dissatisfaction with current care, which was seen as impersonal, fragmented, disempowering and strongly paternalistic, discouraging any active contribution from women themselves:

'[Health Professionals] would do everything themselves and they would tell me, 'Everything is okay.' (Woman 3, Focus group (FG) 1, Circle 1)

'[midwives] have to learn that … they have to help, they can't just 'No, you have to do this, this, this and do this' (Pre FG 1).

Reservations about *Pregnancy Circles* centred around concerns about a lack of privacy, the mixing of different cultures and languages, and the possible exclusion of partners:

When it comes to, 'I want to discuss something in private' then it's got to be private, I don't want other people to eavesdrop. (Pre FG 2).

It was felt that having groups of mixed ethnicities might particularly inhibit openness:

You … might have a group that have got mixed races from mixed backgrounds which might not want to discuss things in front of other people (Pre FG 1).

The fact that partners were not automatically invited had clearly influenced whether or not some women decided to take part in the *Circles*, as they had envisaged that they would attend appointments together:

I was like, maybe if I join this group, my husband is not going to see me anymore.' (FG 1, Circle 3).

A dilemma was apparent between wanting to experience pregnancy as a couple, and not wanting other men to be present:

They want their own husbands, they don't want someone else's! [laughter]. (Pre FG 2).

3.2 Mechanisms for change

3.2.1 A safe space for sharing

The *Circles* quickly became a safe space for sharing, and there were few subjects that were not able to be discussed. In the first session of *Circle* 3, for example, the women were observed talking about waxing before labour. In a later session of *Circle* 2, a woman spoke to the group about her experience of genital cutting. Although women were aware that they could speak to the midwives alone, and there were some issues, such as a high risk result for a Downs syndrome screening test, that were discussed privately, for the most part they were happy to bring their fears and anxieties to the group, and receive advice and reassurance from the other women. Topics covered in this way included fear of giving birth, anxiety about coping alone with a new baby, and concerns about breastfeeding:

In the group, we don't hide anything really…because from the beginning, the midwives showed us that it's very, very confidential, so that puts all of us at ease to discuss about any matter, any, really. But if it's one to one, you don't know them…even though you have some concern, you don't talk about it (Woman 2, FG 2, Circle 2).

For some women, being part of a group in which anything could be discussed enabled them to discover more about their own bodies. For example, when it transpired that not everyone in their

group knew where the clitoris was located, the midwives at Circle 3 suggested that the women use a mirror to look at their own anatomy in the shower.

A defining characteristic of the sharing space was that the group made decisions about who should be involved, and a majority of sessions were women only:

Woman 1 - I think if the husbands would be here every time that we meet for two hours, they would get bored and we wouldn't be able to talk about everything, it would be uncomfortable.

Woman 3 - And some of us would not be able to talk about our things.

Woman 2 - Yeah [laughter] I think it's right the way it is (FG 1, Circle 1 (invited partners once))

Not having partners present gave some women a greater sense of their own value – *I realised there was no need, really, for him to come… it was about me (Postnatal interview 1, Circle 3)*- and emboldened others:

Another lady said it empowered her to think that actually, 'Yeah, I don't actually need him to be here, I can do this' (Midwife interview Circle 4, partners not invited).

Nonetheless, women also expressed some concern that partners were missing out and their needs were not being met, particularly as they would have had the opportunity to attend every session of a standard antenatal appointment or class. One woman reported signing up for an antenatal class at her local Birth centre purely so that her husband could go along with her.

3.2.2. Learning together

Women described learning with and from each other, as well as from the facilitating midwives. Group discussions encouraged a more informal and democratic form of information sharing which encouraged women to make an active contribution:

At the beginning of every session we have like this little whiteboard where we can write anything that …we wanted to discuss… so it was great because it was not only led by the midwives, it was kind of led by us (Postnatal interview 1, Circle 3).

The group format was seen to facilitate knowledge development as different women thought about different questions to raise:

[Other women] also ask questions which you haven't actually thought about, somebody asks and you are like, 'Oh yeah, this is nice, this is useful information,' because usually when you are one to one you are confused… you don't know what to ask (Woman 1, FG2, Circle 2).

It also helped those with limited English, as women were observed helping each other understand and find the right words so that they could ask questions. Similarly, quieter, more shy women were looked after and '*brought out of their shells*' (Postnatal interview 1, Circle 1) by other women, enabling them to contribute to the discussion.

Knowledge gained at *Circle* sessions contributed to women feeling more confident and in control of their labours:

I felt very prepared, I knew everything, the outcome of everything and what I could do in what scenario (Postnatal interview 1, Circle 1).

The learning process was enhanced by the self-checks, and having primiparous and multiparous women in the same group. Self-checking enhanced curiosity as women took charge of their own care, compared results with one another and asked questions about what different readings signified:

So you are not just told the figures. At the GP, they just told us the number whereas here you can question them a bit more and compare them with other people (Woman 2, FG 1, Circle 1)

I think it was quite nice to be so independent… so it's not only them telling you, 'Oh, the urine test is okay,' no, you are doing it and you see that it is fine and I think that also makes you feel… um, I don't know, made me feel good about it (Postnatal interview 1, Circle 3).

Primiparous women particularly appreciated the opportunity to question women who had had babies before, and the presence of multiparous women was instrumental in shifting the dynamics of *Circle* discussions away from a midwifery-led lecture towards a partnership in which women's voices and experiences were of equal value to professional input. Women's experiential knowledge was highly prized:

we talk, we've got real people who have had experiences (Woman 4, FG 1, Circle 4).

Multiparous women were perceived to be able to give independent, true-to-life guidance, as they weren't bound by the same rules as midwives:

I have said stuff that I know [the midwife] could never say, but I can get away with saying it because I am not an employee following a guideline (Woman 2, FG 1, Circle 4).

They also had a pastoral role within the groups:

[X] has two kids before us and she gives a lot of good things on this… basically she is say…our mother [laughter] for beginner mothers, us (Woman 3, FG 2, Circle 2).

The multiparous women clearly enjoyed sharing and the status that their experience gave them. They also felt that they had their own learning needs which were met in the group:

Everyone was coming with questions, even though they had done it before. Just because sometimes you forget, you know there is loads of things, or you might have a symptom you didn't have last time (Postnatal interview 1, Circle 4).

3.2.3 Travelling together

This theme describes how the women developed bonds with one another and felt nurtured and cared for by the *Pregnancy Circle* midwives.

The midwives took you on board and travelled with you in your journey (Postnatal interview 1, Circle 1).

Care in the *Circles* was experienced as individual and personal, despite being provided in a group setting. Women felt that the *Circle* midwives knew them and remembered their stories, and were therefore able to give individualised advice, whereas they had constantly had to re-state their histories and symptoms in conventional care settings:

[The Midwife] knew us so well … and because we built that relationship with her, it was much easier to ask her a question and her to be able to answer, really knowing the answer … not guessing, because she's got to know us (Postnatal interview 3, Circle 4).

The women also appeared to derive strength and reassurance from having contact with other pregnant women: 'not being alone' was a refrain that occurred in several narratives:

You know, when you are alone, all the bad things are coming to you and you discuss with someone else… and you feel better (Woman 3, FG 2, Circle 2).

We do it all together with support from the midwives and everybody else (Woman 2, FG 2, Circle 1).

Although both women and caregivers had expressed concerns about individual checks being conducted in a group setting, women reported that these were experienced as sufficiently private. They also enjoyed an element of sharing their progress with each other. This finding was perhaps facilitated by the fact that the first palpations and fetal heart auscultations occurred during the second *Circle* session when women already knew and felt comfortable with each other:

*Later on in the pregnancy when they were doing, you know, measurements and the heartbeat and stuff, that always felt a lot more separate than I thought it would (*Postnatal interview 2, Circle 4).

So it hasn't been weird at all you know, hearing other people's babies' heartbeats [laughter]. It sort of feels like you are plotting everyone's growth and [sigh] it's just… you are not just bonding with the mothers, you are bonding with everyone's babies as well, you can hear them grow you know, their hearts beating' (Woman 3, FG 1, Circle 1).

3.3 Outcomes of change

3.3.1 Expanding horizons

During their discussions, the women began to challenge previously accepted normative beliefs. The midwives at *Circle* 1 noted that decisions about place and mode of birth were particularly influenced by peer group information sharing, with women doing their own research and sharing the findings. They commented that many of the women were considering homebirth or birth in the midwifery-led unit (MLU) as a result of this.

Water birth and breastfeeding were among other things that some women reported they would not have considered before discussing them at the *Circles*:

I wasn't really aware of many of the options… I didn't know what a water birth was, I actually thought it was a little bit hippy, I didn't know it was like a completely normal thing to do (Woman 1, FG 1, Circle 4).

I didn't feel comfortable with breastfeeding at all, it wasn't normal to me, I found it something I was a bit self-conscious about as well, but [the Pregnancy Circle Midwives] taught me to be open minded and I went to the sessions in the evening to get the techniques and I listened to what they were saying about natural… like let your instincts take over, and then I ended up breastfeeding for three months (Postnatal interview 1, Circle 1).

Being part of a group of mixed ethnicities, nationalities, religions and cultures also expanded the women's cultural horizons. It was evident that many of them had rarely mixed outside their own communities before, and they were keen to find out as much as possible about each other. At the

first *Circle* 4 session different traditions and cultural practices were observed to be a major topic of conversation amongst the women, and the facilitating midwife noted how this had been an enriching experience:

[Y] is Jewish, and…she was saying that she…organises food…for the ladies who have had babies and they don't have to cook for the first three weeks…and one of the other mums was like 'Oh, that's a really good idea…I could look to do that in my community' (Midwife interview, Circle 4).

I think at the end of the day we were all Mums or Mums-to-be like, everything else kind of stays away… in a way it was more enriched, there was a lot of enrichment in the group that we were all so different, from different places you know (Postnatal interview 1, Circle 3).

3.3.2. Exercising control

The themes above show how women grew in confidence and knowledge at the *Circles* and took ownership of their learning and aspects of their care. Exercising such ownership is an aspect of autonomy, which is further evidenced in the commitment women made to attending the *Circle* sessions, prioritising their need to be there above other family commitments:

My husband is supposed to work every Saturday… so I told him, 'Tell your chef, tell your manager that today you must take off 'til two o'clock, I must attend to my meeting (Woman 2, Focus Group 1, Circle 2).

This suggests that the exercising of control is linked to a sense of self-worth and value. It was also linked to increased assertiveness, which on occasion resulted in women making decisions that went against the advice of obstetricians, as seen in the following quote from a woman who had developed gestational diabetes and was advised to attend hospital based obstetrician-led care instead of the *Circle*:

[Doctor] said we have to go to the hospital. I said, 'Hospital? For me it's my decision, it's going to be for a scan and consultation appointment. Midwife, I am staying [at the Pregnancy Circle] (Woman 2, FG 1, Circle 2).

3.3.3. A sense of belonging

The forging of friendships at the *Circles* has been evident throughout this narrative. Having a peer group with whom to share their experience was particularly welcome as, living in a large city with a transient population, it could be difficult to make friends:

I don't really know anyone here that is pregnant or is going to have baby or that you know, that are in the same situation (Woman 4, Focus group 1, Circle 3).

Facilitating midwives suggested to the women in each *Circle* group that they set up a virtual group space using the social media platform WhatsApp. These virtual groups were particularly instrumental in the women asking one another for advice, and inviting each other to meet up, between *Circle sessions*. Once again, the value placed on lay, experiential knowledge is evident here:

I find that the WhatsApp group that we have has helped all of us a lot because any concerns that are raised, we don't even need to call the midwife (Woman 3, FG 1, Circle 1).

One woman even used the app to get reassurance and advice from the others when she was in early labour. It was postnatally, however, that this support network really came to the fore:

Everyone is really supportive of each other and there is a lot of advice going around between us Mums, what is really great… you know being there at 4 o'clock or 5 o'clock in the morning and feeling that you are not there by yourself (Postnatal interview 1, Circle 3).

4. Discussion

Our findings suggest a level of dissatisfaction with current maternity care provision among some women, which could potentially be addressed by implementing gANC. This dissatisfaction is mirrored in other studies where women describe routine care as a 'tick-box' exercise focusing on physical wellbeing, with no time for discussion or emotional care (39). Participants in *Pregnancy Circles* exhibited high levels of satisfaction with this form of care. Moreover, the *Circles* appeared to function as an instrument of empowerment with the potential to address social inequalities by increasing personal levels of autonomy and control as well as social capital. Women described feeling empowered through the self-checks, which encouraged them to take ownership of their care, and through having a safe space for information sharing and relationship building. These mechanisms led to increased knowledge and confidence, and promoted positive outcomes in the form of expanded horizons and the establishment of a support network, both of which were experienced as enriching the women's lives. In terms of informing the further development and testing of *Pregnancy Circles*, the results indicate that the model is acceptable to women in an area with high levels of socio-economic deprivation and cultural, linguistic and ethnic diversity, and may also have a number of advantages in this context, such as fostering cross-cultural friendships and facilitating the overcoming of language barriers. We intend to explore this latter finding further by exploring the pros and cons of using translators in a *Circle* setting as part of a forthcoming pilot trial. The clear association with empowerment in our findings suggests that this may be a legitimate outcome measure in a larger quantitative enquiry and is being considered as an outcome in our forthcoming randomised controlled trial. The positive feedback regarding self-checking and midwife checks in the group space has informed a decision to keep these aspects of *Pregnancy Circles.* Our findings in respect of women's views of the inclusion of partners in the Circle sessions were ambivalent, indicating that this should also be a focus of future enquiry.

This is the first study to attempt to describe the process of empowerment initiated in and facilitated by gANC, although empowerment has emerged as a theme in two US-based evaluations (9,33). Many of the constituent parts of the process, such as peer support and increased knowledge, have

also been identified in other evaluations, adding credibility to the process outlined here. It is also the first study (to our knowledge) to identify the benefits of cultural diversity within groups.

As an instrument of empowerment, gANC has the potential to humanize antenatal care, replacing an industrial and patriarchal model with a more relational approach that recognises the importance of respecting women's rights to be active agents in their own care (40). The transformative potential of such agency is underscored in the writings of Paulo Freire and Ivan Illich, both of whom recognised that humanizing change was only possible if those with the least power in a dehumanizing system became engaged in the construction of knowledge and the process of their own emancipation (41,42). Illich in particular spoke of an ideal of 'constant autonomous healing' (p6), played out in the community, and argued that individual coping ability was being destroyed by the 'disabling impact of professional control over medicine' (Pviii), which created a culture of dependence and pathologised normal life events.

It is evident that during the *Pregnancy Circles* women realized their potential to construct their own knowledge and make a valuable contribution to their own care and wellbeing. This appears to have been initiated by the sharing of knowledge and experiences among peers. Our findings, like those of MacDonald et al (43), strongly suggest that the 'real life' experiences of multiparous women in particular are highly valued by the group. This peer-to-peer interaction both exposed women to different possibilities and perspectives, and perhaps, in assigning value to the knowledge received from their peers, individuals realized that they had something of value to contribute themselves. Women's increased awareness of their own intuitive and experiential knowledge appears to have been associated with self-determination, agency, and the retention of control, rather than the adoption of a passive 'patient' role, relinquishing power and decision-making to medical authority.

Furthermore, the *Circles* physically and symbolically re-situated pregnancy care in the community, treating it as a social and relational event rather than a pathological condition in need of external monitoring and control. Community-based care was identified as a national target in the UK in a

recent review of maternity care (44). It has been suggested elsewhere that the physical location of gANC contributes to the breaking down of barriers between care providers and women (27), perhaps enabling women to discover an ability to adapt and cope together, in partnership with, but not overly dependent on, health professionals. By bringing together women from diverse backgrounds and communities, the *Pregnancy Circles* illustrated the potential of the model to reach beyond individual empowerment to build social cohesion.

A core element of the safe space provided by *Pregnancy Circles* appeared to be that the groups themselves decided when and how often to include partners; most meetings were women-only. The finding that mixed-sex groups inhibit a certain level of candidness and openness resonates with other studies (34,45). There is also some suggestion in the literature that including partners may inhibit the forming of friendships with other women (46). However, American models of gANC that welcome partners or support people to all sessions have found that their presence is instrumental in making women feel safe and calm in labour, and in smoothing the transition to parenthood for all parties (9,34). Further work needs to be done to establish an optimum format that includes partners without unduly inhibiting information sharing and relationship building among women.

Our findings indicate that gANC in the form of *Pregnancy Circles* is highly evaluated by women, and may have particular advantages in areas of high socio-economic and cultural diversity. Further research is needed in order to test the mechanisms and potential outcomes identified here in larger, quantitative studies. However, the findings and questions raised in this study indicate that the current components of *Circle* care are positively evaluated by women and suggest further enquiry is merited into the possible use of translators and the presence of partners. These issues will be further explored as part of a future pilot trial and full randomized trial.

4.1. Strengths and limitations

This study adopted a comprehensive data collection strategy, soliciting women's views before, during and after the implementation of the intervention, and used a variety of approaches

(observations, focus groups and interviews), demonstrating depth of engagement in the field. The analysis attempts to theorize potential mechanisms for the findings observed, thus moving beyond descriptive themes. The findings of this qualitative study may be transferable to other, similar settings, but would need to be tested further in a robust quantitative trial with nested qualitative research to demonstrate generalizability. We acknowledge that participants in the focus groups and interviews were self-selecting, and may not therefore be representative of women who chose not to take part, or who dropped out of the *Pregnancy Circles*. As with any research, true objectivity is hard to achieve, and was not a goal here, but having two researchers code the data independently, followed by a period of discussion and data checking with the wider research team, should help to ensure that the results reflect the women's stated experiences as closely as possible. As part of our wider research we have solicited the views of midwives about *Pregnancy Circles*. In order to comply with word limits, it was not possible to include all the midwives' views in this paper. Analysing the views of women and midwives together may have strengthened the paper, but would also have limited the depth of reporting.

4. Conclusions

GANC, in the form of *Pregnancy Circles*, appears to function as an instrument of empowerment for women, with the potential to increase awareness of personal and social capital. The process of empowerment is perhaps triggered by peer group information sharing, which highlights the value of experiential knowledge; self-checks and the provision of care in a community setting, which encourage autonomy and ownership; and the formation of social relationships with the capacity to transcend community boundaries and provide ongoing support. Further work needs to be done both to test these conclusions in larger, quantitative studies and to find a model of care that is acceptable to women and their partners, satisfying the requirements for, and benefits of, a women-only space as well as partner inclusion.

Acknowledgements and Disclosures

This is a summary of independent research funded by the National Institute for Health Research (NIHR)'s **Programme Grants for Applied Research Programme** (Grant Reference Number RP-PG-1211-20015).

The authors gratefully acknowledge the contributions of (blinded for review) in setting up, recruiting to, and overseeing the test groups, and helping to gather monitoring data. (Blinded) was the local PI for the study and (Blinded) are research midwives. (Blinded) provided invaluable research assistance during the pre-implementation work.

(Blinded) is supported by the National Institute for Health Research (NIHR) Collaboration for Leadership in Applied Health Research and Care (CLAHRC) North Thames at Bart's Health NHS Trust. The views expressed are those of the author(s) and not necessarily those of the NHS, the NIHR or the Department of Health.

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

The authors declare no conflict of interest in the undertaking or reporting of this study.

Abbreviations

FG focus group

gANC group antenatal care

REACH research for equitable antenatal care and health

UK United Kingdom

USA United States of America

Authors' contributions

(Author 1) undertook some of the focus groups and interviews, analysed the data, developed the themes and discussion and prepared the manuscript for publication. (Author 2) undertook some observations, focus groups and interviews, analysed the data, and contributed to the development of themes and the discussion section. (Author 3) helped conceptualise the project, oversaw data collection, and contributed to theme development and the discussion section. (Author 4) undertook some observations and focus groups and prepared a draft of the methods section. (Author 5) undertook the pre-implementation data collection and contributed to the background section. (Author 6) was involved in setting up the Circles and contributed to the background section. (Author 7) helped conceptualise the project. (Author 8) is the PI for the project, and led the conceptualisation process. All authors contributed to ongoing discussions about the study in regular meetings and commented on a draft of this paper.

REFERENCES

1. Cresswell JA, Yu G, Hatherall B, Morris J, Jamal F, Harden A, et al. Predictors of the timing of initiation of antenatal care in an ethnically diverse urban cohort in the UK. BMC Pregnancy Childbirth [Internet]. 2013 Dec 3 [cited 2017 Jul 10];13(1):103. Available from: http://www.ncbi.nlm.nih.gov/pubmed/23642084

2. Lindquist A, Kurinczuk J, Redshaw M, Knight M. Experiences, utilisation and outcomes of maternity care in England among women from different socio-economic groups: findings from the 2010 National Maternity Survey. BJOG An Int J Obstet Gynaecol [Internet]. 2015 Nov [cited 2017 May 15];122(12):1610–7. Available from: http://doi.wiley.com/10.1111/1471-0528.13059

3. Henderson J, Gao H, Redshaw M. Experiencing maternity care: the care received and

perceptions of women from different ethnic groups. BMC Pregnancy Childbirth [Internet]. 2013 [cited 2017 May 15];13(196). Available from: http://download.springer.com/static/pdf/110/art%253A10.1186%252F1471-2393-13-196.pdf?originUrl=http%3A%2F%2Fbmcpregnancychildbirth.biomedcentral.com%2Farticle%2F10.1186%2F1471-2393-13-196&token2=exp=1494837204~acl=%2Fstatic%2Fpdf%2F110%2Fart%25253A10.1186

4. Hatherall B, Morris J, Jamal F, Sweeney L, Wiggins M, Kaur I, et al. Timing of the initiation of antenatal care: An exploratory qualitative study of women and service providers in East London. Midwifery [Internet]. 2016 May [cited 2017 Jul 10];36:1–7. Available from: http://www.ncbi.nlm.nih.gov/pubmed/27106937

5. MBRRACE-UK. Saving Lives, Improving Mothers' Care [Internet]. Oxford; 2016 [cited 2017 May 15]. Available from: https://www.npeu.ox.ac.uk/downloads/files/mbrrace-uk/reports/MBRRACE-UK Maternal Report 2016 - website.pdf

6. Knight M, Kurinczuk J, Spark P, Brocklehurst P. Inequalities in maternal health: national cohort study of ethnic variation in severe maternal morbidities. BMJ [Internet]. 2009 [cited 2017 May 15];338. Available from: https://pdfs.semanticscholar.org/bcda/da83c99fc30347ba7b067458e90828481610.pdf?_ga=2.157034931.948720975.1494834493-386100768.1494834493

7. McCourt C, Pearce A, Hadlow J. Does continuity of carer matter to women from minority ethnic groups? Midwifery [Internet]. Sage, London; 2000 Jun [cited 2017 May 15];16(2):145–54. Available from: http://www.ncbi.nlm.nih.gov/pubmed/11151550

8. McCourt C. Supporting choice and control? Communication and interaction between midwives and women at the antenatal booking visit. Soc Sci Med [Internet]. 2006 Mar [cited 2017 Jul 23];62(6):1307–18. Available from: http://www.ncbi.nlm.nih.gov/pubmed/16126316

9. Risisky D, Asghar SM, Chaffee M, DeGennaro N. Women's Perceptions Using the CenteringPregnancy Model of Group Prenatal Care. J Perinat Educ [Internet]. 2013;22(3):136–44. Available from: http://openurl.ingenta.com/content/xref?genre=article&issn=1058-1243&volume=22&issue=3&spage=136

10. UN System Task Team on the Post-2015 UN Development Agenda. Addressing inequalities: The heart of the post-2015 agenda and the future we want for all [Internet]. Geneva; 2012 [cited 2017 May 22]. Available from: http://www.un.org/millenniumgoals/pdf/Think Pieces/10_inequalities.pdf

11. Garces-Ozanne A, Kalu EI, Audas R. The Effect of Empowerment and Self-Determination on Health Outcomes. Heal Educ Behav [Internet]. 2016;43(6):623–31. Available from: http://journals.sagepub.com/doi/10.1177/1090198116667665

12. United Nations Entity for Gender Equality and the Empowerment of Women. WOMEN AND SUSTAINABLE DEVELOPMENT GOALS [Internet]. Nairobe; 2016 [cited 2018 Jun 3]. Available from: https://sustainabledevelopment.un.org/content/documents/2322UN Women Analysis on Women and SDGs.pdf

13. Giacomini M. Theory matters in qualitative health research. In Bourgeault I, Dingwall R, De Vries R, The Sage handbook of qualitative methods in health research London: Sage; 2010 760 p.

14. WHO. Health Promotion Track 1: Community empowerment [Internet]. WHO. World Health Organization; 2010 [cited 2017 Jun 9]. Available from: http://www.who.int/healthpromotion/conferences/7gchp/track1/en/

15. Oxford Dictionaries. empowerment - definition of empowerment in English | Oxford Dictionaries [Internet]. [cited 2017 Jun 9]. Available from: https://en.oxforddictionaries.com/definition/empowerment

16. WHO. Gender Equality : Essential Goals for Saving Women's Lives essential goals for saving women's lives essential goals for saving women's lives. Geneva; 2008.

17. Keeley B. What is social capital? In: Human Capital: how what you know shapes your life [Internet]. Paris: OECD; 2007 [cited 2017 Jun 12]. p. 102–5. Available from: https://www.oecd.org/insights/37966934.pdf

18. World Health Organisation. WHO recommendations on antenatal care for a positive pregnancy experience [Internet]. I.World Health Organization. from World Health Organization. Geneva: WHO Press; 2016 [cited 2018 Jun 3]. Available from: http://www.who.int

19. Ickovics JR, Kershaw TS, Westdahl C, Magriples U, Massey Z, Reynolds H, et al. Group Prenatal Care and Perinatal Outcomes. Obstet Gynecol [Internet]. 2007 Aug [cited 2017 May 15];110(2, Part 1):330–9. Available from: http://www.ncbi.nlm.nih.gov/pubmed/17666608

20. Teate A, Leap N, Rising SS, Homer CSE. Women's experiences of group antenatal care in Australia—the CenteringPregnancy Pilot Study. Midwifery [Internet]. 2011 Apr [cited 2017 May 22];27(2):138–45. Available from: http://www.ncbi.nlm.nih.gov/pubmed/19386402

21. Patil CL, Abrams ET, Klima C, Kaponda CPN, Leshabari SC, Vonderheid SC, et al. CenteringPregnancy-Africa: A pilot of group antenatal care to address Millennium Development Goals. Midwifery [Internet]. 2013 [cited 2017 May 15];29:1190–8. Available from: http://ac.els-cdn.com.oxfordbrookes.idm.oclc.org/S026661381300154X/1-s2.0-S026661381300154X-main.pdf?_tid=7e57177e-394a-11e7-bd54-00000aacb35e&acdnat=1494837956_c0c85f33be4fceb059b431485d62ed4f

22. Jafari F, Eftekhar H, Mohammad K, Fotouhi A. Does group prenatal care affect satisfaction and prenatal care utilization in Iranian pregnant women? Iran J Public Health [Internet]. Tehran University of Medical Sciences; 2010 [cited 2017 May 15];39(2):52–62. Available from:

http://www.ncbi.nlm.nih.gov/pubmed/23113007

23. Craswell A, Kearney L, Reed R. “Expecting and Connecting” Group Pregnancy Care: Evaluation of a collaborative clinic. Women and Birth [Internet]. 2016 [cited 2017 May 22];29:416–22. Available from: http://ac.els-cdn.com.oxfordbrookes.idm.oclc.org/S1871519216000408/1-s2.0-S1871519216000408-main.pdf?_tid=eb011c3e-3ecd-11e7-b84f-00000aab0f26&acdnat=1495444159_f7eeb8eb70374f10f71b2f12fc8cab49

24. Wedin K, Molin J, Crang Svalenius EL. Group antenatal care: new pedagogic method for antenatal care—a pilot study. Midwifery [Internet]. 2010 [cited 2017 May 15];26:389–93. Available from: http://ac.els-cdn.com.oxfordbrookes.idm.oclc.org/S0266613808001034/1-s2.0-S0266613808001034-main.pdf?_tid=7d290e04-3952-11e7-8ebb-00000aacb361&acdnat=1494841390_345cb04303231dff92dfcd9fc6a9ec46

25. Catling CJ, Medley N, Foureur M, Ryan C, Leap N, Teate A, et al. Group versus conventional antenatal care for women. In: Catling CJ, editor. Cochrane Database of Systematic Reviews [Internet]. Chichester, UK: John Wiley & Sons, Ltd; 2015 [cited 2017 May 15]. p. CD007622. Available from: http://www.ncbi.nlm.nih.gov/pubmed/25922865

26. Gaudion A, Bick D, Menka Y, Demilew J, Walton C, Yiannouzis K, et al. Adapting the CenteringPregnancy® model for a UK feasibility study. Br J Midwifery [Internet]. MA Healthcare London ; 2011 Jul [cited 2017 May 15];19(7):433–8. Available from: http://www.magonlinelibrary.com/doi/abs/10.12968/bjom.2011.19.7.433

27. Massey Z, Rising SS, Ickovics J. CenteringPregnancy Group Prenatal Care: Promoting Relationship-Centered Care. J Obstet Gynecol Neonatal Nurs [Internet]. 2006 Mar [cited 2017 May 23];35(2):286–94. Available from: http://www.ncbi.nlm.nih.gov/pubmed/16620257

28. Harper Bulman K, McCourt C. Somali refugee women’s experiences of antenatal care in West London: a case study. Crit Public Health [Internet]. 2002;12(4):365–80. Available from:

https://doi.org/10.1080/0958159021000029568

29. Sandall J, Soltani H, Gates S, Shennan A, Devane D. Midwife-led continuity models versus other models of care for childbearing women. In: Sandall J, editor. Cochrane Database of Systematic Reviews [Internet]. Chichester, UK: John Wiley & Sons, Ltd; 2016 [cited 2017 May 15]. Available from: http://doi.wiley.com/10.1002/14651858.CD004667.pub5

30. Rayment-Jones H, Murrells T, Sandall J. An investigation of the relationship between the caseload model of midwifery for socially disadvantaged women and childbirth outcomes using routine data – A retrospective, observational study. Midwifery [Internet]. 2015 Apr [cited 2017 May 15];31(4):409–17. Available from: http://www.ncbi.nlm.nih.gov/pubmed/25661044

31. Schwartz L, Toohill J, Creedy DK, Baird K, Gamble J, Fenwick J. Factors associated with childbirth self-efficacy in Australian childbearing women. BMC Pregnancy Childbirth [Internet]. BioMed Central; 2015 Feb 13 [cited 2017 May 15];15:29. Available from: http://www.ncbi.nlm.nih.gov/pubmed/25879780

32. Andersson E, Christensson K, Hildingsson I. Mothers' satisfaction with group antenatal care versus individual antenatal care – A clinical trial. Sex Reprod Healthc [Internet]. 2013 Oct [cited 2017 May 15];4(3):113–20. Available from: http://www.ncbi.nlm.nih.gov/pubmed/24041732

33. Kennedy HP, Farrell T, Paden R, Hill S, Jolivet R, Willetts J, et al. "I Wasn't Alone"—A Study of Group Prenatal Care in the Military. J Midwifery Womens Health [Internet]. 2009 May [cited 2017 May 22];54(3):176–83. Available from: http://www.ncbi.nlm.nih.gov/pubmed/19410209

34. McNeil DA, Vekved M, Dolan SM, Siever J, Horn S, Tough SC. Getting more than they realized they needed: a qualitative study of women's experience of group prenatal care. BMC

Pregnancy Childbirth [Internet]. 2012 [cited 2017 May 22];12(17). Available from: https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/1471-2393-12-17

35. Allen J, Kildea S, Stapleton H. How does group antenatal care function within a caseload midwifery model? A critical ethnographic analysis. Midwifery [Internet]. Elsevier; 2015;31(5):489–97. Available from: http://dx.doi.org/10.1016/j.midw.2015.01.009

36. Moore GF, Audrey S, Barker M, Bond L, Bonell C, Hardeman W, et al. Process evaluation of complex interventions: Medical Research Council guidance. BMJ [Internet]. 2015 [cited 2017 Jul 10];350. Available from: http://www.bmj.com/content/350/bmj.h1258

37. NICE. Antenatal care for uncomplicated pregnancies | Guidance and guidelines | NICE [Internet]. NICE; 2017 [cited 2017 May 15]. Available from: https://www.nice.org.uk/guidance/cg62

38. Braun V, Clarke V. Using thematic analysis in psychology. Qual Res Psychol [Internet]. 2006 [cited 2018 Jun 4];3(2):77–101. Available from: http://eprints.uwe.ac.uk/11735

39. Boyle S, Thomas H, Brooks F. Women's views on partnership working with midwives during pregnancy and childbirth. Midwifery [Internet]. Elsevier; 2016;32:21–9. Available from: http://dx.doi.org/10.1016/j.midw.2015.09.001

40. Rattner D. Humanizing childbirth care: brief theoretical framework. se Botucatu [Internet]. 2008 [cited 2017 May 23];4. Available from: http://www.scielo.br/pdf/icse/v13s1/en_a11v13s1.pdf

41. Freire P, Freire AMA. Pedagogy of hope : reliving Pedagogy of the oppressed [Internet]. London: Bloomsbury; 2014 [cited 2017 Jul 10]. 226 p. Available from: https://www.bloomsbury.com/uk/pedagogy-of-hope-9781472533401/

42. Illich I. Limits to medicine : medical nemesis : the expropriation of health : with a new introduction by the author. M. Boyars; 1995. 294 p.

43. McDonald SD, Sword W, Eryuzlu LE, Biringer AB. A qualitative descriptive study of the group prenatal care experience: perceptions of women with low-risk pregnancies and their midwives. BMC Pregnancy Childbirth [Internet]. BioMed Central; 2014 Sep 26 [cited 2017 Jul 23];14:334. Available from: http://www.ncbi.nlm.nih.gov/pubmed/25258167

44. National Maternity Review. BETTER BIRTHS Improving outcomes of maternity services in England A Five Year Forward View for maternity care [Internet]. 2016 [cited 2017 Jul 9]. Available from: https://www.england.nhs.uk/wp-content/uploads/2016/02/national-maternity-review-report.pdf

45. Andersson E, Christensson K, Hildingsson I. Parents' experiences and perceptions of group-based antenatal care in four clinics in Sweden. 2012 [cited 2017 May 22]; Available from: https://www.sciencedirect.com/science/article/pii/S0266613811001008

46. Novick G, Sadler LS, Kennedy HP, Cohen SS, Groce NE, Knafl KA. Women's Experience of Group Prenatal Care. Qual Health Res [Internet]. 2011 Jan [cited 2017 May 22];21(1):97–116. Available from: http://www.ncbi.nlm.nih.gov/pubmed/20693516

Tables

Table One. Summary of focus group and interview topic guides

Pre-implementation focus groups	**Focus groups with *Circle* participants antenatally**	**Postnatal interviews with *Circle* participants postnatally**
Introductions: Name, do you have children already? If so how old are they? Where were they born? Where did you get advice during pregnancy? What did you expect from your antenatal care? Did it turn out like that? What was good/not good? How could it have been better? **(Describe care in a group)** What would make care like this better than usual? What might be not as good as usual care? Would you miss anything? Would it be better to be in a group with people from your community or who speak the same first language as you, or in a mixed group? Would this be different for other people? Who should come to the group – partners too? If someone asked you at your booking appointment if you'd like to join a group for your antenatal care, what questions would you have? Do you think you'd say yes or no and why?	What are your thoughts and feelings about being part of a *Pregnancy Circle*? (Prompts: group model, partner involvement, mat time, group size) Has the antenatal care you received reached your expectations? What have been the best things about *Pregnancy Circles?* What improvements would you suggest? Have your expectations of having a baby changed since you started coming to *Pregnancy Circles*?	Tell me a bit about your birth How do you feel about the antenatal care you received now that your baby has been born? What are your thoughts and feelings about having been part of *Pregnancy Circles?* (Prompts: group, speakers, mat time, content) What were the best things about *Pregnancy Circles?* Are there any improvements you would suggest? Did you meet postnatally? Can you tell me a little about that? Do you think you will stay in touch with anybody from your *Pregnancy Circle?*

Table Two. Core elements of a *Pregnancy Circle*

	Concept	Explanation/Rationale
1.	**Partnership model**	Foster non-hierarchical relationships among women and between women and midwives, facilitating informed decision-making
2.	**Continuity of carer**	Each session to include the same group of women and named midwives, to encourage peer friendships and high quality, relational care
3.	**Women's participation/self-check**	Women encouraged to calculate their gestation, check their own blood pressure and urine, and report on fetal movements at each session, recording findings in their hand-held notes. To foster autonomy and self-efficacy
4.	**Brief one-to-one clinical check**	Conducted on a mat or couch in the same room as the group in order to maintain group involvement and encourage peer support and sharing
5.	**Woman-centred care & environment**	Sessions held in a community location to foster a non-medicalised, interactive approach
6.	**Importance of discussion**	A woman-led, non-didactic approach encouraging information sharing among women and midwives, facilitating informed decision-making
7.	**Responsive to local needs**	To maximise inclusivity and make best use of local resources, local decisions to be made regarding make up of group, venue arrangements and the inclusion of other lay or professional groups such as interpreters, student midwives, Health Visitors or service users

Table Three. Evaluations undertaken with women at each Circle

Circle	Observations	Focus Groups	Postnatal Interviews with women
1	Observation 1 – 16 weeks Observation 2 – 28 weeks Observation 3 – 34 weeks Observation 4 – 40 weeks Observation 5 – postnatal reunion	Focus group 1 – 28 weeks (n= 4) Focus group 2 – 40 weeks (n= 2)	1
2	Observation 1 – 28 weeks Observation 2 – 36 weeks	Focus group 1 – 28 weeks (n= 5) Focus group 2 – 36 weeks (n= 4)	
3	Observation 1 – 20 weeks Observation 2 – 36 weeks Observation 3 – postnatal reunion	Focus group 1 – 20 weeks (n= 7) Focus group 2 – 36 weeks (n= 2)	2
4	Observation 1 – 36 weeks Observation 2 – postnatal reunion	Focus group 1 – 36 weeks (n= 4)	3

Table Four. Women interviewed for pre-implementation phase

Ethnicity	White British	0
	White other (all Albanian)	3
	Black Afro-Carribean	2
	South Asian (mostly Pakistani, Indian and Bangladeshi)	16
	Mixed/Other (mostly Latin American/Middle Eastern)	5
Parity	0	5
	1	7
	2-3	10
	≥4	4
TOTAL		**26**

Table Five. *Circle* attendees.

Circle	Number of regular attendees	Ethnic group (n=)	Parity (n=)	Age	Born in UK?	Proficiency of English (n=)	Educational Qualifications (n=)
1	6	Asian British (1) Bangladeshi/British Bangladeshi (2) white British (1) white European (1) black African (1)	P0 (5) Multip (1)	25-33 Mean =29	3 yes 3 no	Native speakers (3) 2nd language/ good (3)	Higher Education (not degree) (1) Degree or equivalent (5)
2	6	black British (2) white European (3) British Bangladeshi (1)	P0 (4) Multips (2)	26-41 Mean= 33	0 yes 6 no	2nd language/ good (6)	Higher Education (not degree) (3) Degree or equivalent (3)
3	7	Bangladeshi / British Bangladeshi (1) white European (1) Chinese (2) white British (1) Middle Eastern (1)	P0 (0) Multips (6) Not stated (1)	24-34 Mean=30	3 yes 4 no	Native speaker (5) 2nd language/ good (2)	Higher education (not degree) (6) Degree or equivalent (1)
4	5	Indian British (2) white British (2) Algerian (1)	P0 (2) Multips (3)	31-35 Mean= 33	3 yes 2 no	Native speaker (4) 2nd language/ good (1)	'A' level or equivalent (1) Degree or equivalent (4)

Figures

Figure One. Context, mechanisms and outcomes of Pregnancy Circles