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Implementation of Centering-Based Antenatal Group Care in Flanders (Belgium): Experiences of woman and health care providers. Modalities for sustainable integration into the health care system.

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Abstract

Background: In Belgium, antenatal care is characterized by one-to-one care; with limited integration of community-based approaches. Centering-Based Group Care (CBGC), derived from the CenteringPregnancy® model, offers an alternative by combining clinical follow-up, health education, and peer support in group sessions. This study focuses on the experiences of participants and facilitators with the implementation of CBGC in three Flemish cities (Aalst, Gent, Leuven) as part of the European Union GC_1000 project. We explored the experience regarding the implementation process along with factors influencing sustainable integration into the health care system.

Methods: A total of 193 women participated in 30 CBGC trajectories between 2021 and 2023. A realist evaluation design was applied, using the Consolidated Framework for Implementation Research (CFIR) to guide thematic analysis. Data were collected through interviews, focus groups, and observations(n=8) involving participants (n=6), facilitators (n=13), and stakeholders (n=13).

Results: Women reported high satisfaction with CBGC, highlighting four key benefits: (1) social support and connection, (2) active involvement in care, (3) enhanced learning and empowerment, and (4) continuity and trust in care relationships. Facilitators emphasized the model's potential to improve quality of care, promote professional growth, and foster interprofessional

collaboration. Challenges addressed included language barriers, recruitment difficulties, time constraints, and limited system-level support. Structural barriers such as fragmented care pathways and lack of reimbursement mechanisms hindered full integration in the health care system. Successful implementation was supported by trained facilitators, engaged coordinators, and local partnerships.

Conclusions: CBGC is a feasible and valued model of antenatal care in Belgium. It enhances participant engagement, peer learning, and relational care. Sustainable integration requires policy-level support, structural alignment between primary and hospital care, and appropriate funding mechanisms. Expanding CBGC as a potential option to the broad population and embedding it within integrated care pathways could strengthen its impact and sustainability. This study contributes to the growing evidence base supporting group antenatal care as a promising model for improving care experiences, integrated care and preventive community health.

Keywords:

Group antenatal care, CenteringPregnancy, realist evaluation, implementation science, midwifery, maternal health, health systems integration, vulnerable populations, participatory care, integrated care

Background

In Belgium, women with low-risk pregnancies can choose where to receive antenatal care. Their options include hospital care, private practice, and primary health care centers. Standard care includes regular clinical check-ups, ultrasounds, blood tests, and screenings for infections and complications like gestational diabetes and pre-eclampsia *[1].*

The Belgian national guideline recommends ten antenatal visits for first-time and seven for those with previous pregnancies *[1]*. Although an increasing number of women are now combining care from both obstetricians and midwives, the current model of antenatal care in Belgium is predominantly obstetrician-led, with limited integration of midwifery-led or community-based approaches, especially in the antenatal phase *[1]*.

Centering-Based Group Care (CBGC), derived from the CenteringPregnancy® model, offers an alternative approach that integrates clinical care, interactive learning, and community building within a group setting. In this model, aspects of antenatal care—such as clinical follow-up, health education, and social support—are integrated into a single care pathway. A group of 8 to 12 women of approximately the same gestational age meets regularly for group sessions facilitated by two trained healthcare providers, at least one of whom is clinically qualified (medicine or midwifery) to follow-up the pregnancy *[2,3]*.

During the group sessions, an antenatal health check is conducted alongside facilitated discussions that value the knowledge and experience of the group care participants. The topics are pre-planned but vary depending on the health needs of the group. Emphasis is deliberately placed on shared interests, and women are encouraged to actively engage in their care, thereby fostering collective learning *[2]*. The medical check occurs in a shielded space within or alongside the room, ensuring privacy. Participants also conduct some routine health checks such as blood pressure themselves, with support from the group facilitators.

Studies show that women who participate in group antenatal sessions have similar rates of preterm birth and NICU admissions, compared to women who receive individual follow-up care *[4]* as well as higher rates of breastfeeding *[5]* although some studies have shown benefits such as reduced preterm birth and low birthweight for some population groups and settings *[6]*. Notably, satisfaction with care is higher among service users who take part in CBGC *[7]*.

Healthcare providers also report satisfaction when delivering this type of care *[8]*. The World Health Organization considers group antenatal care as an alternative care pathway that can improve both the utilization and quality of antenatal care within health systems *[9]*. CBGC (Centering-Based Group Care) was developed in the United States and this model is already being implemented within high-, middle-, and low-income countries *[2, 10]*. Although CBGC is still relatively unknown in Belgium, it is recognized by the

Belgian Health Care Knowledge Centre (KCE) as a potentially protective intervention for pregnant women in vulnerable situations *[1]*. In Belgium, pioneering organisations have started the implementation.

The project, Group Care in the First 1000 days (GC_1000), a multi-country European Union Horizon 2020- funded project, aimed to develop and evaluate strategies for implementing and scaling CBGC during the first 1000 days of life. GC_1000 was carried out in seven countries through the collaboration of 12 global and local partners from January 2000- June 2024*[11]*. This study presents a realist evaluation of the Belgian implementation (process) of CBGC, focusing on the experiences of participants and facilitators.

Methods

Study Design

This study employed a qualitative approach. An interpretive case study design including interviews, focus groups and observations to document experiences with the implementation of group care was applied. The Consolidated Framework for Implementation Research (CFIR) guided the analysis allowing us to explore contextual and process-related factors *[13]*.

Settings

In Belgium, between 2021 and 2023, CBGC was implemented in three settings, selected after a call for proposals, based on their diverse organisational structures and populations served. The settings are located in

three Flemish cities: Alost, Ghent, and Leuven. In figure one, each setting is described, they have set up collaborations to organise CBGC with local health and social care organisations. Belgium counts 37 health community centers, concentrated in cities. Whereas the regular health care system in Belgium is characterised by fee for service, the health community centers receive a bundled payment based on the number of patients registered to the center. These patients commit to visit this center as the only one, unless referred by the health community center and do not have to pay out of pocket *[14]*. This makes health community centers attractive for people in vulnerable socio-economic positions (with higher care needs and co-morbidity compared to the general population *[15]*)

In **setting one** the social worker (over 15 years of experience) from the community health care setting acts as coordinator and refers women for group care, in collaboration with the general practitioners from the center. Referral is also supported by an organisation aiming to decrease poverty in the city. Three midwives were trained as group care facilitators, two independent midwives with over 20 years of experience in their own midwifery practice and one that combined her job in the hospital (about 20 years) with a new job as an independent midwife. The regional community health care network supports the project. In Flanders 60 of those networks are installed; their mission is to support the local policymakers, social and care providers to align their health care offer, to inform the sector and to organise networking events and training.

Regarding the **second setting**, a collaboration is set up between 4 community health care centers in the same city; which offer the group care trajectories alternately to ensure appropriate enrollment. There is a coordinator who is a midwife with 14 years of experience as an independent midwife and 6 years of experience as coordinator of the regional center on perinatal care to ensure and communicate about the available care offer to the general public. Besides the coordinator, three facilitators were trained, two independent midwives (5 to 10 years of experience) and a social worker (> 10 years of experience).

The **third setting** includes a collaboration between a regional hospital and an independent midwifery practice. Both organisations are responsible to refer women to the groups. The coordinator in the hospital is the department manager, while referral is done by the obstetricians offering antenatal care. The coordinator stays in close collaboration with the coordinating midwife from the independent midwifery practice to plan the group care sessions. The groups are running in the hospital and facilitated by a duo of an independent and a hospital midwife. In each setting, 2 midwives were trained as facilitators, with experience ranging from 5 to 20 years.

The target population for participating in CBCG sessions consisted primarily of pregnant women in socially vulnerable situations in all the settings. No strict definition of vulnerability was used, each setting used its own inclusion criteria which were not made explicit but referred mostly to socio-economic disadvantage and migration status.

Across the three settings, a total of 30 CBGC trajectories were organized during the study period (Figure 1). The CBGC trajectories included five to seven group care sessions in combination with standard consultations with an obstetrician (at least three for the recommended ultrasound scans according to the Belgian national guideline for antenatal follow-up). A total of 193 women participated in the CBGC sessions during the study period. The majority of the women were multiparous women who were not born in Belgium.

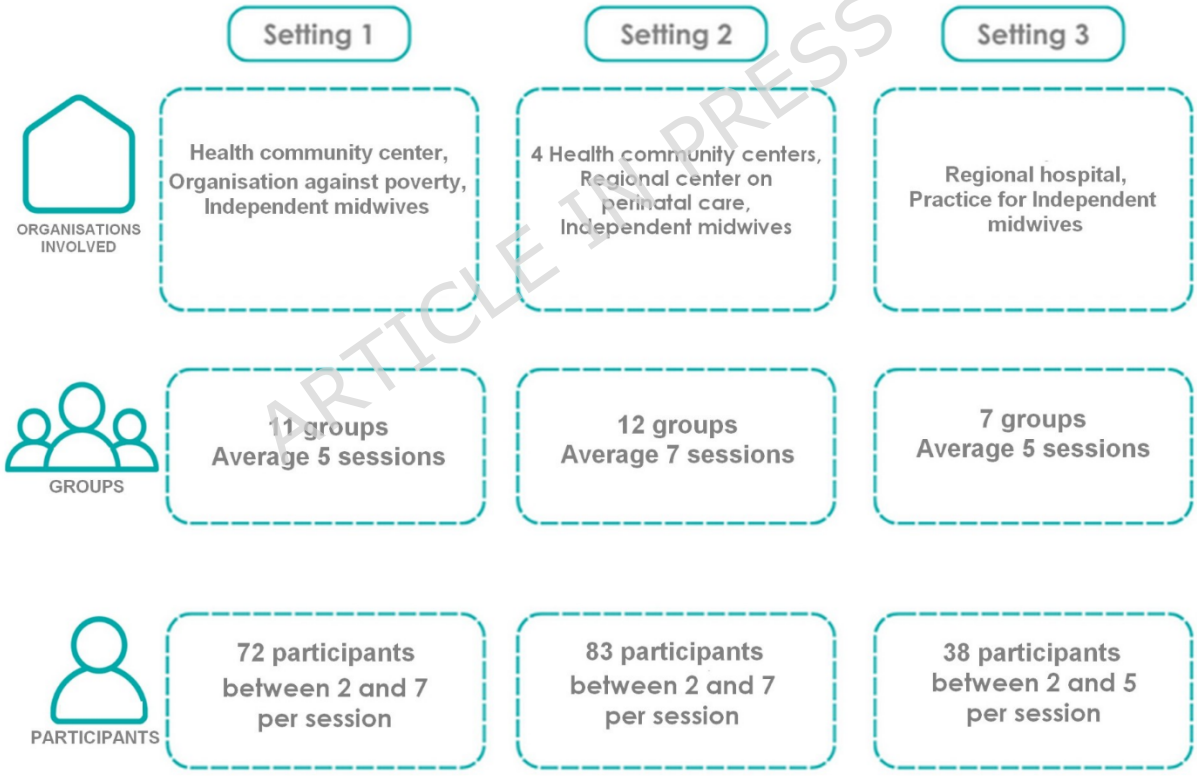


Figure 1: Organisations involved, Antenatal CBGC sessions and women involved in each of the 3 participating settings.

Sampling

Research participants were selected through purposive sampling, aiming to include individuals with relevant experiences and perspectives to enrich the analysis. Efforts were made to ensure diversity within the group. The overall sample size for the research was determined by the availability of relevant individuals—such as woman participating in CBCG, care providers, and other stakeholders—within each study setting during the implementation research period. Additionally, the concept of information power *[16]* guided the sampling process, emphasizing the inclusion of those most capable of contributing meaningful insights into the topics under investigation.

Data collection

A qualitative research approach was used to capture the complexity of implementation and experiences. Qualitative data primarily focused on understanding the implementation process in each setting and how this model of care is experienced by both the healthcare providers who facilitate the groups and the women participating in the groups. Methods included individual interviews or focus groups with relevant stakeholders, service providers, and women, as well as observations of the group care sessions. The topic list for the interviews, focus groups, and observation checklist can be found on the EU Horizon 2020 Website*[17]*. For data collection involving participants, written informed consent was obtained, separately for the observations and interviews, as approved by the Medical Ethics Committee of the UZ Brussel (ref 2020-345). All interviews and focus group discussions were audio-recorded. Together with the field notes from the observations,

they were transcribed. These transcripts constituted the data material used in the analysis.

The interviews were conducted by the GC_1000 researchers, for this study the Belgian research team (BE, AVD, FT) was supported by the team of the UK (NL and Anna Horn). All Belgian researchers were junior researchers with a background as midwife, they were trained by the senior researchers from the UK (NL, CM and Susan Bradley) through workshops on data collection and data-analysis. They supported each other in coding to avoid researcher bias and consider reflexivity. These steps ensure the quality of the analysis process for the whole GC_1000 consortium. Researchers had no care or other relationships with the participants, the facilitators or coordinators in the settings recruited the women that participated in the interviews and handled the contact details to the researchers after giving consent.

Data analysis

Data analysis followed a multi-layered approach to explore implementation processes, contextual influences, and participant experiences. The data were collected by the Belgian research team, transcribed, and subsequently coded using NVivo 12 (Pro), the senior researchers (NL, CM) from the UK team offered support, findings and results were discussed through regular meetings reducing research bias. Qualitative data—including interviews, focus groups and observations—were analyzed using an initial coding framework, developed inductively by multiple researchers from the GC_1000

consortium, based on a subset of transcripts across the countries. This framework guided local researchers and helped to avoid researcher bias in further thematic coding of the full dataset as described by Braun and Clarke (2006) *[18]*. Following this, the themes were iteratively refined and mapped onto the CFIR domains to identify multilevel influences on implementation, including: Intervention characteristics (e.g., perceived value, complexity, adaptability); Outer setting (e.g., policy environment, funding structures); Inner setting (e.g., organizational culture, leadership engagement); Characteristics of individuals (e.g., facilitator motivation, participant engagement); Implementation process (e.g., planning, stakeholder involvement, adaptation). Quotes selected for this manuscript were translated from Dutch or French into English.

Results

Participants in the study

Table one offers insight into the number of participants taking part in the interviews and focus group discussions as well as the number of observations accomplished. Half of the women were interviewed in pregnancy and the others in postpartum. From the women two were speaking Dutch (official language in Flanders), two French (official national language) and two English. This also reflects their migration background, three were born outside Belgium. Most women were multiparous (4/6).

Insert table 1 here

Table 1: Overview of participants in the interviews and observations

Method	**Participants**	**Number**
Face to face interview	Women	**6**
	Key stakeholders	**13**
	Coordinator in the setting	*4*
	Head of a community health center	*1*
	Obstetricians	*2*
	Head midwife of regional hospital	*1*
	Social workers, hospital based	*1*
	Social workers community health center	*1*

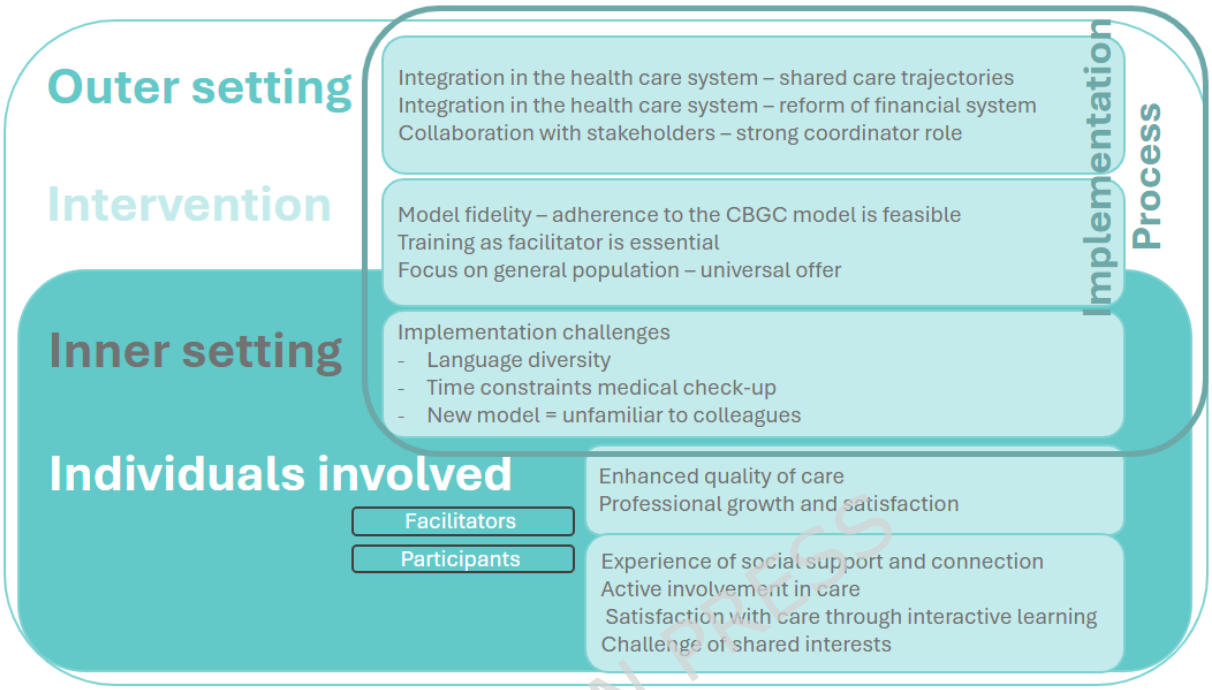
	Professionals of Child and Family*	*3*
Focus group discussion	Group Care facilitators	3 groups, **13** participants
Observations	Group care sessions	
	During pregnancy	**6**
	Final session, approximately six weeks postpartum	**2**

* Child and Family is a national governmental organisation providing child care

Themes mapped against the CFIR framework

The analysis revealed different themes that are related with the implementation of CBGC in Belgium. Figure 2 maps the themes against the CFIR framework, they reflect the experiences of the participants and facilitators as individuals involved in the inner setting offering the intervention within the broader health care system (outer setting). With regard to the implementation process, 6 themes related to the intervention and outer setting seemed important.

Figure 2: Themes based on the analysis, mapped against the Consolidated framework of implementation research [13]



Participants' Experiences with CBGC

Four key themes emerged from participants' experiences. The first was the **experience of social support and connection** during group sessions. Many participants reported feeling isolated but described the group sessions as a source of social connection (quote 1).

> *Quote 1 (participant 1): Yes, I was always, happy. So I always looking forward to the sessions, so that was a good sign I guess. Yes, because also. I think also because I myself now in my private life uhm don't*

have much social contact. That [Group Care] that does really good for me. (...) That's an advantage for me yes, that I could then ...be myself there. Yes, reasons – to participate are- to be able to talk to other people, because when you go outside you don't have that – social interaction- or when you go to the hospital, you don't have that either.

The shared experience of pregnancy created a strong bond within the groups, fostering a sense of collective pride and mutual support (quote 2).

Quote 2 (participant 2) in postnatal group care session: For me, it was a pleasure to see all the mums back, we were all pregnant and now everyone was with their babies. So I was very happy to see everyone with their babies and everything. In hospital one of the other participant gave birth just before me... She sent a message to the group with photos of the baby. And then I sent the message with the photos of my baby and so did the others. And when we saw each other there [in the final postnatal group care session], it was a pleasure for me to see that everybody did well, we'd all succeeded. It's just like a school reunion, happy to see everybody was successful. And it was really good. I said to myself, that's good. Nobody had any serious problems, nor complications or something like that.

Participants expressed a desire to stay in touch, although language barriers were seen as the main obstacle to forming deeper (friendship) connections

(quote 3). One participant, who was the only English-speaking person in her group noted:

> *Quote 3 (participant 3): Not really [developed a real friend]. I think communication is also a little bit difficult because of the language, so not really made a friend, but I can learn from the other women's feelings and we can learn from each other. I think that's very interesting.*

A second major theme describing the experiences of participants was **active involvement** in their care. Participants felt more engaged in their healthcare and appreciated this involvement (quote 4). This was reflected in their eagerness to learn, ask questions, and participate in group discussions. Participants appreciated the opportunity to ask questions, share experiences, and take ownership of their care. Self-monitoring activities (e.g., measuring blood pressure) were initially unfamiliar but became a source of pride and confidence.

> *Quote 4 (participant 4): In the beginning I didn't know how to measure my blood pressure for example, but on the other hand I find that good that you learn to do this and as such also take a step forward to take care of your own health care and your own health, I would say(...) Yes, it's something important. Not only that 'doing everything ourselves', but also that we have a say in ourselves. I like that.*

Satisfaction with the care provided through learning was a third important theme that emerged from the experiences participants shared. The interactive format allowed participants to learn not only from facilitators but also from each other. Multiparous women reported gaining new insights they had missed in previous pregnancies, and many expressed a desire to have had access to group care in an earlier pregnancy (quote 5).

> *Quote 5 (participant 2): Yes, it helped me a lot. I like the advice we gained, when you're pregnant, one may have weird symptoms. Or receive helpful advice on how to talk back to our husbands, things like that, it [talking back] also leads to violence and it [the group care sessions] helped us. I said to myself, this is the last baby, but I've learnt new things even in this last pregnancy I thought, I missed the chance to learn that from the start with the big ones, with the other children. So yes, there are things that I took benefit of. If I knew that it [group care] was like that, I would have liked to go there [group care sessions] also for the previous pregnancies.*

Besides wishing to have had CBGC used earlier women feel able to talk about sensitive topics and the group opens-up possibilities to hear others asking different questions or describe different experiences. This shift from passive recipients to active participants was enabled by the safe environment that encouraged asking questions (quote 6).

Quote 6 (participant 4): Well, because it was very striking for me because at CBGC I was so open, I could ask a lot of questions in between, this is not comparable to there [information sessions in hospital care] where really everyone was so serious, sitting and listening. Nobody dares to do that, to ask questions. And I was like the only one asking a lot of questions. But in group care everyone did ask questions.

Participants reported to have learnt from the interaction and therefore are satisfied with the CBGC. CBGC was found accessible and attentive to both learning and clinical follow-up (quote 7).

Quote 7 (participant 6): I *can learn from what the other woman are feeling and we can learn from each other. I think that's very interesting. Yes. And also every time... the facilitator gave us some new information I can learn. I really learnt a lot. So I don't want to miss that. And also, every time the midwife will check our baby. And so I think that is also an important thing. Yes. And every time if I have some question, I will write it down and bring my question to the group. So, Excellent.*

Some also encountered the same midwife/facilitator at community health centers or hospitals outside the group sessions, and being recognized contributed to their sense of continuity and trust in the care relationship (quote 8).

Quote 8 (participant 5): *And what I also found very nice: I had to go to the hospital once for a check-up and one of the midwives who had checked me was also one who was involved in the CBGC sessions and yes she had recognized me(...) Yes, I know there are certain ones working with the hospital and sharing information so I like it, it gives a sense of trust. For example, I know that my obstetrician knows X [CBGC facilitator] and on a professional level I knew if there was something, they are going to share that information*

The fourth theme that emerged from the experiences participants shared were **challenges and diverse experiences.** Some women in less vulnerable situations reported feeling out of place in groups composed primarily of participants in more vulnerable situations. The latter group was the specific focus within GC_1000. They expressed a preference for mixed groups, including both vulnerable and non-vulnerable women, to better relate to shared experiences. A few participants encountered skepticism from other healthcare providers about their choice to participate in CBGC, highlighting the need for broader system-level awareness and acceptance. One participant also encountered a lack of understanding from other healthcare providers regarding her choice for CBGC, feeling she had to justify her decision, which was unpleasant (quote 9). Despite the discomfort she felt, it is notable that this participant had the power to make her own choices.

Quote 9 (participant 4): But I now think that my obstetrician herself thought it was a bit weird that I am only being followed up at CBGC. She said "Why are you choosing that now? And why not here?". She was actually not open to this idea. That was also the case, that you have to, you actually have to have good arguments. I then thought "But actually that's my choice". So yes, they can't decide on that like "You have to do it [follow-up] here or there". But I did have the feeling that they didn't like that, I guess.

Facilitators' Perspectives and Experiences with CBGC

The views and perspectives of facilitators from the different settings were captured through focus groups and gained insight on their views on the group care model compared to standard (individual) care, their experience working in pairs, and the challenges they encountered.

All facilitators viewed group care as a valuable model for antenatal follow-up with **enhanced quality of care.** Facilitators valued the opportunity to provide more holistic, relational, and psychosocially oriented care. The most appreciated aspects were the active learning and engagement of participants during the sessions (quote 10).

Quote 10 (facilitator 1): I notice that the women have a lot to share with each other. This is the case for networking and giving tips to each other. It is very nice to see them sharing things with each other. Yes, I think that this way a woman takes on information more easily from another pregnant woman compared to information only provided by a healthcare provider in a way or so.

Facilitators saw CBGC as a way for women living in vulnerable situations to access primary antenatal care in Belgium. They noted that group sessions allowed for deeper discussions and more meaningful engagement than traditional one-to-one appointments. Facilitators emphasized that the group format allowed participants to express their questions and concerns more freely than in short one-on-one consultations (quote 11).

Quote 11 (facilitator 2): If you compare it to a standard care trajectory, 90% of pregnant women are now actually doing the entire follow-up just with the obstetrician. Then you have the 10%, the happy few who find their way antenatally to a midwife. For those 90%, I think this is a very big difference compared to a Group Care session. Most women are now just able to sit with the obstetrician eight times for 10 minutes and do not dare to start their own list with questions because you feel a time pressure. For them this is an incredible difference.

Another benefit was the ability to address psychosocial aspects during the sessions, which contributed to a sense of providing high-quality care (quote 12).

> *Quote 12 (facilitator 2): We are all midwives with the necessary knowledge and competencies to follow-up pregnancy, so if we look purely at the medical level, we know what we are doing, so I cannot say that we would not meet the quality standards, but what makes our care extra is the link with well-being and networking and providing information, which is also quality of care.*

Facilitators felt **professional growth and satisfaction**. They described a shift from a didactic to a facilitative role, which they found enriching. They even integrated this style into their standard care practices (quote 13).

> *Quote 13 (facilitator 3): I do think there is an incredible amount of attention [given to the participants] on the one hand, that it [content for the interactive sessions] comes from themselves on the other hand makes it valuable to me. It has taught me a lot for my reality as a midwife at my consultation office at my private practice as well, I try to let it [content] come much more from the people. I notice that I want information much less to come from myself and that I ask much more 'what do you think?' and I do think that's better.*

Facilitators saw the collaboration between them as highly valuable. Working in pairs was seen as supportive and effective, particularly when combining different workplaces (e.g., hospital and primary care midwives). They supported each other in dealing with doubts, questions, and the challenges of implementing the model in their regions (quote 14).

> *Quote14 (facilitator 4): The first groups that I facilitated, was like … what are we actually doing here? Is that really any use here [being with two persons]? After a while, I thought, it is nice to have someone. Having a sound board, indeed, I was not alone.*

Facilitators described some **implementation challenges**. Language diversity within groups was a main challenge, often requiring creative solutions to maintain group cohesion and flow. Sessions were often conducted in two to three languages, with facilitators relying on interpreters, translation apps, or other group members. Despite these efforts, the multilingual setting sometimes hindered the flow of sessions and required extra effort to maintain group cohesion (quote 15).

> *Quote 15 (facilitator 5): But it really makes it exhausting too. Also as a facilitator, I find. Because you are translating as well as having to wait for the translation to finish from an interpreter. Then actually, you have to just facilitate the process like that. In the previous group we had two interpreters and I did not think that worked at all. That was too much.*

Yes so actually one interpreter is exactly the maximum in the group; regardless of what other languages there are, one interpreter is really the maximum in a group.

Time constraints for clinical check-ups were also challenging, especially since women in vulnerable situations often needed additional psychosocial support. The focus on this group of women also made recruitment for group sessions more difficult and made retention more resource intensive, particularly when CBGC was perceived as “additional” rather than integrated care. Some participants viewed the sessions as an extra component of their antenatal care, which reduced their sense of necessity to attend (quote 16).

Quote 16 (facilitator 6): *I personally think they experienced it [the group care sessions] more as a health education sessions rather than a medical check-up (...) because I still had the feeling that a lot of people also had an additional medical appointment anyway, individually or with the obstetrician, sometimes the day after or the day before the group care session, and those women didn't see [CBGC] as necessary appointments in the follow-up of a pregnancy, but rather as a pleasant meeting where something was also learned.*

This might be related to the fact that usually in standard care, midwives in Belgium are providing antenatal classes while the clinical check-up occurs in one-to-one visits to the obstetrician. However, over the years there is a

growing proportion of midwives that is providing clinical pregnancy follow-up (whether or not alternating with an obstetrician).

Finally, facilitators reported that a significant effort was needed to inform and convince other healthcare providers and organizations about the CBGC model (quote 17). Not only is the model unfamiliar to them, but also because of the unfamiliarity that midwives can provide the full schedule of regular antenatal care in low risk pregnancies.

> Quote 17 (facilitator 2): *And then a third challenge I think is to get General Practitioners and obstetricians on board. And so you sometimes feel like you have to convince them of the value of what we're doing and also when sending emails we're not getting a response. But yes, I think that's in our work as midwife in general [not necessarily related to group care]. But yes, it's still a challenge, you put a lot of work into it, to send all those e-mails to the doctors [explaining that a women is included in a series of group care sessions] and then you don't get any response from them, they schedule the women for a monthly check-up with them anyway...*

Insights regarding the Implementation Process

Through the interviews with facilitators and stakeholders along with the observations of the group care sessions, some contextual factors influencing integration and sustainability in our health care system can be highlighted.

The first finding is related to the importance of **adhering to the CBGC model, which includes medical check-up, interactive learning and community building.** In all settings, they were able to include clinical check-ups into the group session. A high degree of self-assessment was achieved by the participants. Participant's self-confidence to self-check grew the more sessions they attended and was valued. When facilitators record data themselves instead of the participant, the main reason given was participants' illiteracy or language problems. Health measurements recorded by the participants were equal in the three settings: blood pressure, weight and urine (protein check). Deviations from the model—such as not maintaining similar gestational ages within a group in one of the settings—led to challenges, including a lack of clarity on relevant topics for the facilitated group discussions.

> *Observation 6: Since the start of this group, the facilitators of setting X have switched to continuous groups. This means that new pregnant women are welcome in the group regardless the gestational age. The reason for this was that it was difficult to fill the groups. The observation shows that this has the consequence that during the*

session one has to think and adjust which content is most relevant, especially in function of the topics to be discussed that are relevant to the duration of pregnancy. On the other hand, the necessary medical examinations that are required in the group are diverse and difficult to oversee which hinders the flow of the session.

On the other hand, we could observe that facilitators were able to avoid didactic methods during the group sessions and stimulate interactive learning. In none of the observed sessions there was a moment when the facilitators spoke for a long time. In all settings, time for informal interaction, engagement and connectedness was made to foster community building but aspects such as small groups, language barriers and time constraints due to clinical check-up were sometimes seen as barriers.

Facilitators emphasized that **training skills to facilitate CBGC** was essential. It provided a strong foundation for guiding sessions and fostered a sense of ownership over the model. This is particularly important as facilitators are often involved in participant recruitment and other implementation-related tasks.

Regarding the **target population**, both facilitators and stakeholders saw expanding CBGC to the general population as a potential strategy for long-term sustainability (quote 18).

Quote 18 (facilitator 3) I really feel like, and I emphasize this; yes I think mixed groups [vulnerable and non-vulnerable participants] is for me the solution and the outcome.

They also believed that CBGC could be applied in other areas of care and that other types of healthcare professionals could be involved (quote 19).

Quote 19 (focus group 2): But now there was a psychologist, this psychologist from X who would actually like to continue to organize group care sessions after birth, from the preventive care point of view, and that could be a clean fit. But it's all still at the exploratory stage. But I do think there could be some added value, because the (CBGC) group has already been formed, so it would actually be nice if they could meet up afterwards. Yes, I think for some that's also really unfortunate that the groups stop once they've delivered and the group was just really formed. They really enjoy seeing each other again

Challenges related to **integrating the model into the healthcare system** included the positioning of CBGC within primary care, as antenatal follow-up in Belgium typically occurs in hospital settings. Facilitators and stakeholders suggested that a more integrated care pathway—with clear agreements between primary and hospital care providers—could support the integration of group care (quote 20). This way duplication of services or ambiguity in care responsibility is avoided, and continuity of care is stimulated.

Quote 20 (stakeholder 1): It [CBGC] is one of the many possibilities in the range of antenatal care provision in Belgium and as long as no policy decisions are made about this being (a) the permanent care [option], it will continue to be a pulling and dragging process for us as facilitators and we will have to continue to convince people (...). I think that this is a bit of a summary for me: it is a lot of work to get that [group care] installed as a care system.

For sustainable implementation, stakeholders stressed the importance of involving healthcare professionals, organizations, and regional partners to ensure broader acceptance of the model. A key challenge was the reluctance of healthcare providers across all implementation regions to refer patients to group sessions, which made the implementation fragile (quote 21).

Quote 21 (stakeholder 2): I have the feeling that it [group care] is not yet embedded in a structure. And we [group care setting] are still lucky that we are physically embedded within a community health center, which means that we already get some referrals. But it is also very, very fragile if we suddenly no longer get that referral. It is fragile. It can be over in one go, so to speak, if the additional funding stops or if the referral and recruitment stops, it is over again

Facilitators also noted that **financial support** to organise the sessions could strengthen implementation. Currently, group sessions are largely funded by

local governments, which also contributed to wages of the facilitators, alongside partial coverage by health insurance.

> *Quote 22 (facilitator 1): Because we now have subsidies from city X, we can ensure that the midwife is paid according to her value. If that were not the case, it would only depend on very strong intrinsic motivation.*

The likelihood of successful implementation was higher when in the setting there was a stable and engaged **coordinator** who maintained active contact with key stakeholders. This led to an increase in referrals to CBGC (quote 23). Other crucial factors included practical considerations such as finding suitable spaces for group sessions and using specially developed materials tailored in both content and language.

> *Quote 23 (stakeholder 1): I think we are one of the only ones who really do that so systematically [systematically informing doctors about the group follow-up of the woman by the coordinator]. And that [communication and information continuity] really works. That way, General Practitioners stay involved and they stay involved in referring people [to the group care program].*

Discussion

This study focused on the experiences related to the implementation of CBGC, an alternative model of antenatal care that combines clinical follow-up with group-based health promotion and community building in the Belgian context. As part of the European Union Horizon 2020 project GC_1000, group consultations were implemented in three Flemish settings. Our results show that social support and connection, active involvement, learning and knowledge exchange were experienced by participants along with some challenges and diverse experiences. From the CBGC facilitators' perspectives, experiences such as enhanced quality of care and professional growth and satisfaction were described. Finally, we identified key challenges during the implementation process, which led to concrete suggestions for sustainable integration of CBGC into the health care system.

The **experiences of participants** in this study show that they value the interactive group approach, which also fosters social support. Participants felt actively involved and satisfied with their care, supported by a consistent team of care providers. Our findings confirm the analysis made by the Belgian Federal Health care knowledge center) *[1]*, in their report on integrated antenatal care in which they revealed that parents expressed a need for reassurance and information. A personal approach in small groups

was particularly appreciated. Participants also preferred continuity in care providers and the opportunity for greater involvement in their care) *[1]*. In addition, our findings are consistent with international literature on group antenatal care, which highlights womens' satisfaction) *[7]*, peer connection) *[19]*, involvement and enhanced provider engagement as key benefits of the model) *[8]*. Additionally, Mehay et al (2024) describe six interlinked mechanisms posited in the literature that make group antenatal care work that confirm our results. Their realist synthesis described: social support, peer learning, active participation in health, health education, satisfaction with care, and professional development and wellbeing leading to empowerment in participants *[20]*. The importance of social support as an element of safe maternity care is described by Rayment Jones et al (2020, 2021) and was especially important to the target population of women in vulnerable situations included in this study *[21, 22]*. Facilitators likewise described a shift toward more relational, woman-centered care, echoing findings from other CBGC evaluations *[8]*.

Our study showed that implementation of CBGC in Belgium is possible. Facilitators viewed the model as valuable but as in other high-income countries, and particularly those without establishment of midwife-led care, the integration of CBGC into existing healthcare systems remains challenging. To **optimize the implementation process,** our findings indicate that **training** is considered essential by facilitators and other

stakeholders for successful CBGC. The importance of training to ensure the paradigm shift from a didactive approach towards a facilitative one through using an interactive coaching technique is also confirmed by Gresh et al (2022) *[23]* and Pekkala et al (2019) *[24]*. Through the GC_1000 project, facilitators in Belgium were first trained by certified experts from The Netherlands who had over a decade of experience in group care training and implementation. Since 2021, Group Care Belgium, a non-profit organization, has been offering in country Group Care training.

Facilitator engagement is a critical driver of success and, in addition to training, the CBGC approach requires institutional support and recognition.

Facilitators must carefully consider the **target group** they want to engage in CBGC. Participant diversity enriches group dynamics but also requires careful facilitation to ensure inclusivity and cohesion. Groups reflecting broader society—rather than being limited to a specific selection—are preferred. Avoiding inclusion criteria related to women in vulnerable situations only also has the advantage of allowing clinical check-ups to be conducted within the allotted time, keeping the care burden manageable, and enabling participants to relate to a variety of life experiences. Previous studies demonstrated that the number of participants is crucial to ensure a safe space, augment learning opportunities and deal with language barriers, as in larger groups peer interpreting can be available and avoids the organizational burden of booking the same interpreter recurrently *[25]*.

An important step in preparing for implementation is maintaining the **fidelity** of the model. Our study shows that participants value the clinical component of group consultations as well as the benefits of facilitated interactive discussions and community building. However, the model is not yet fully offered or experienced as integrated care in Belgium. CBGC is intended to replace one-on-one care, but participants often continued to use traditional services in parallel, often as a result of other providers' lack of awareness, leading to overuse of healthcare. The fact that CBGC, in our study, is offered by midwives might also be explanatory. The tension between midwifery-led group care and obstetrician-led individual care – is well-documented in the literature *[26,27]*. Fee-for-service reimbursement and fragmented care pathways hindered substitution of traditional appointments with CBGC. Establishing clear agreements with care providers —especially those referring patients to CBGC— is crucial to defining an integrated care pathway. When working towards an integrated care pathway information continuity is needed, especially seen electronic medical files in hospital are not interoperable with the systems in primary health care practices. Agreements in an integrated care pathway could also avoid the major challenge of **recruitment** experienced in our study. Hesitant referrals were a major reason for difficulties in filling groups. Talrich et al. (2023) examined the referral process in Belgium and concluded that mobilizing referrers is a complex process. It involves several steps, such as identifying potential referrers, maintaining consistent and effective communication,

establishing concrete collaborations, and providing practical tools (e.g., brochures) to support the process *[28]*.

During the implementation process, strong facilitators are needed and will benefit from institutional support. Focusing on the role of a **coordinator** who can make transmural agreements seems useful to encourage interprofessional collaboration among obstetricians, general practitioners, and midwives. Finally, organisations interested in implementing CBGC must consider the financial aspects that make the model successful. In Belgium, current group sessions are funded through existing fee-for-service reimbursement codes, in some settings supplemented by temporary local funding. For sustainable implementation, appropriate reimbursement through the national health insurance system (RIZIV) is needed to allow group sessions. Although no cost-effectiveness study is available for Belgium, research in the United States confirms the cost-effectiveness of the model *[29, 30]*, and a Dutch study shows that although initial costs may be higher, they are offset by long-term healthcare savings *[31]*. In mental health care, there is also a shift towards care in groups ; the Belgian national health insurance institute initiated the project ‘psychological primary care’ where a number of group sessions is facilitated by a psychologist in combination with another care provider *[32]*. This evolution offers opportunities for collaborations between midwives and psychologists offering CBGC in pregnancy as well as the translation of the care model towards other domains of preventive health care.

Our study confirms the work of Novick et al (2020) *[33]* and Pellaka et al (2019) *[24]* concluding that successful implementation of CBGC depends on systematic strategies at the practice, payer, provider, patient, and policy levels to implement, reimburse for, and sustain the model. Completing the anticipated challenges framework by Van Damme et al (2024) will raise awareness and encourage a concrete action plan enabling organisations to tackle their challenges *[34]*.

A key strength of this study is the application of the CFIR in real world, which allowed for a nuanced understanding of how CBGC functions in three diverse settings. The integration of interviews, focus groups and observations with a focus on participants, facilitators, stakeholders and process provides a comprehensive picture of implementation dynamics. In 2025, all settings are still offering CBGC. However, some limitations should be noted: The study was limited to three Flemish sites, which may not reflect experiences in other regions or linguistic communities once they start up. The lack of a clear definition on vulnerability hinders transferability of the results, however, this reflects reality of practice in many settings. Since 2025 the Belgian government supports carrying out a psychosocial assessment through the Born in Belgium Professionals platform *[35],* eventually enabling settings to define target populations. This could not be applied retrospectively and furthermore apart from the importance to assess psychosocial wellbeing, our results do not underscore using this assessment as selection criteria, group care is best offered to all women with an interest. The COVID-19 pandemic disrupted implementation timelines, also group formation was hindered since it was not always allowed to bring together large groups, potentially explaining the relatively low number of women reached and affecting results. The number of six women included may seem low, but the findings were meaningful and credible, especially considering these were women in vulnerable situations. Moreover, these interviews were only one part of the

overall study. Data sufficiency was achieved through the triangulation of methodologies: interviews, focus groups, and observations in different settings with also facilitators and stakeholders involved. Although in our sampling strategy, we strived to include those most capable of contributing meaningful insights to reach information power, our study was limited to these three well described settings.

Conclusions

This study demonstrates that Centering-Based Group Care (CBGC) is a possible, acceptable, and valued model of antenatal care in the Belgian context, particularly for women in vulnerable situations. Across three diverse implementation sites, CBGC fostered social support, enhanced participant engagement, active learning and improved the quality of relational care. Facilitators reported increased professional satisfaction and a renewed sense of purpose in their work.

However, despite these positive outcomes and the fact that all the sites in this study continue to offer CBGC, the integration of CBGC into the Belgian healthcare system remains limited by structural and systemic barriers. These include fragmented care pathways and lack of dedicated reimbursement mechanisms. Without policy-level support and financial investment, CBGC risks to remain a promising but peripheral innovation. The potential of CBGC extends into preventive (population) health, warranting further research and positioning it as a promising model (for antenatal care and other health care domains) with significant applicability within the Belgian healthcare system.

Declarations

- Ethics approval and consent to participate

This study adhered to the ethical principles of the Declaration of Helsinki. For data collection involving participants, written informed consent was obtained. The study was submitted and approved by the Medical Ethics Committee of UZ Brussel, Belgium (reference number: 2020-345).

- Consent for publication

Not applicable

- Availability of data and materials

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

- Competing interests

The authors declare that they have no competing interests

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- Authors' contributions

BE, AVD, KB, CM, NL have made substantial contributions to the conception of the work; BE, AVD, FT collected the data; MR, MC, DB, MO, CM, KB are work package leaders in the GC_1000 European Union Horizon 2020 project leading to the design and acquisition; BE, AVD and KB did the analysis and

interpretation of data; BE and KB have written the manuscript; BE, AVD, FT, CM, NL, DB, MC, MO, MR, KB substantively revised the manuscript. All authors have approved the submitted version (and any substantially modified version that involves the author's contribution to the study). All authors have agreed both to be personally accountable for the author's own contributions and to ensure that questions related to the accuracy or integrity of any part of the work, even ones in which the author was not personally.

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