MANUSCRIPT

The challenge of adopting the health assessment when implementing antenatal and postnatal Group Care: identifying and understanding cross-country modifications and corresponding strategies to enable its adoption

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ABSTRACT

Background: Antenatal and postnatal Group Care, based on the Centering Healthcare model, relies on three core components: health assessment, interactive learning and community building. The health assessment consists of self-assessments conducted by the participants and one-to-one medical check-ups conducted by the healthcare provider. Research shows that this component can be challenging within existing health care systems. This study aimed to investigate the modifications and corresponding strategies applied to adopt the health assessment during Group Care implementation.

Methods: A qualitative descriptive study explored modifications to the health assessment and the corresponding strategies in 24 Group Care implementation sites in seven countries. A structured qualitative survey was conducted based on the Expanded Framework for Adaptations and Modifications to Evidence-Based Interventions including views of different stakeholders (site-level and project-level implementers). This provided data on the 'who', 'what', and 'where' of modifications and corresponding strategies. Reflexive thematic analysis provided both structured and in-depth insights into the adaptation process.

Results: Three cross-country strategies were identified: (1) creative solutions to find appropriate spaces for Group Care to accommodate the health assessment, (2) providing assistance with self-assessment, (3) and extending the duration of one-to-one medical check-ups. These strategies were primarily the result of joint decisions made by the implementation team, influenced by multiple context-related factors. Different perspectives emerged regarding for whom these strategies were applied, with some stating it as being for the benefit of the participants, while others aimed to align with facilitators' preferences and familiarity with providing routine care.

Conclusions: The role of differing perspectives in the adaptation process when implementing Group Care and the challenge for facilitators to align their attitudes, beliefs and skills toward

the Group Care model within an individually focused healthcare system, emerged as underlying factors to fully adopt the health assessment. Furthermore, our study demonstrates that, despite the locally context-driven nature of modifications in implementation, it remains valuable to examine them within a cross-country design to identify transferable insights that inform future implementation efforts and implementation science.

Keywords:

Group Care; Adaptations; Qualitative Survey; Implementation Challenges; Modifications

Contributions to the literature

- Our study demonstrated the importance of incorporating multiple perspectives when applying the Expanded Framework for Adaptations and Modifications to Evidence-Based Interventions to achieve a comprehensive understanding of the modification process when implementing a healthcare intervention.
- Our findings underscore the importance and potential to improve training programs, providing better support for caregivers during the transition to implementing new healthcare models in practice.
- The study highlights the adaptability of the Group Care model, demonstrating its capacity to be effectively implemented across diverse contexts.

BACKGROUND

Group Care (GC), based on CenteringPregnancy® and CenteringParenting®, is an increasingly well-known and appreciated model of care during pregnancy and through two years after birth (1, 2). The World Health Organization identifies GC as a potential strategy to enhance care during this period (3). In GC, a stable cohort of 8-12 pregnant participants with

similar gestational age, or 6-8 parent-child dyads, meet for their regular pregnancy/well-child care visits. These interactive group sessions typically last two hours and are facilitated by the same two people each time, at least one of whom is a clinician. The three core components of the model are: 1) health assessment, 2) interactive learning, and 3) community building (4). In GC, participants take an active role in health assessment and group discussions. This approach enables individuals to have influence, address their own goals and ultimately strengthen empowerment (1, 5-7). GC is associated with positive outcomes related to satisfaction with care for both care users and providers (1, 8-10). The continuity of participants and providers also generates a sense of belonging (4, 7) Furthermore, neutral to positive outcomes on birth weight and attendance rates, among others, are identified (11-17). The strongest outcomes are situated in vulnerable groups, identifyingthe GC model as a mediator for reducing racial disparities and health inequity (15, 18, 19) . Despite its well-documented advantages, the implementation of the GC model within existing healthcare systems remains challenging. Barriers arise at the organizational level, such as securing appropriate space or allocating time for implementation, as well as at the level of the broader healthcare context or culture (20-23). One frequently occurring challenge is the adoption of the health assessment within the GC model (20-23). While the positive outcomes of GC stem from the model as a whole, the adoption of its three core components is not equally straightforward. Interactive learning and community building are generally adopted with relatively few barriers, and these components are often more easily facilitated through GC training (8, 24, 25). In contrast, the health assessment more consistently poses implementation challenges. The health assessment consists of two elements: a self-assessment conducted by the participant (e.g. blood pressure, weight/height, wellbeing); and a brief (3-5minutes) one-to-one medical check-up by the healthcare provider, which takes place in the same room as the self-assessment and group discussion, but with privacy (e.g. in a corner of the room behind a screen) (4). There are

several underlying reasons for this, including normalizing health assessments and keeping connection with the group for both participant and facilitator. By including health assessments in GC, the model integrates medical and psychosocial care. The exchange of skills and knowledge reflects a shift in the relationship between healthcare providers and participants, as participants acquire competencies that enhance their ability to monitor their own health and strengthen their power to make informed decisions about their health and well-being (6, 7). The integration of medical care in a group setting requires a mindset shift for both providers and participants, as well as often a restructuring of care services organization and delivery (26, 27). Despite the importance of the health assessment, limited evidence exists on how organizations navigate these challenges and adapt this component in practice, leaving a critical gap in the literature. Documenting and describing adaptations and modifications to the health assessment and corresponding strategies could promote future implementations as well as further support current implementations of GC (24, 28-30). Adaptations are defined as purposeful alteration to the design or delivery of an intervention, often to maintain fidelity with the key elements of an intervention while improving the fit of the intervention within a specific context (31). Modifications are broader, and can include adaptations, but they can also include unintentional deviations (30). Therefore, we will use the term ‘modifications’ throughout this paper, as this includes both modifications and adaptations. Implementation strategies refer to the specific approaches or actions employed to support the adoption, integration, and sustainment of evidence-based practices within routine care settings (32). However, in this study we are not aiming to identify implementation strategies. Instead, we focus specifically on the strategies that were used to realize modifications related to the health assessment. For this reason, we do not use the term ‘implementation strategies’ in this paper, but rather ‘modifications and the corresponding strategies,’ explicitly referring to the

strategies surrounding the modifications to the health assessment, as this is the central focus of our research.

This paper examines the modifications and corresponding strategies used by starting implementation sites across seven countries to adopt the health assessment when implementing GC. Our goal is to gain in-depth insights into these modifications and corresponding strategies and understand the underlying processes involved. This may inspire and support future care providers and their implementation team when implementing healthcare interventions.

METHODS

Design

We conducted a qualitative descriptive study to explore modifications related to the health assessment and the corresponding strategies when implementing GC, as part of the broader Horizon2020 '*Group Care for the first 1000 days'* study. Within this study, 24 implementation sites in seven countries (Belgium, Ghana, Kosovo, Netherlands, South Africa, Suriname and United Kingdom) implemented ante- and/or postnatal GC, with the aim of developing a GC implementation toolkit. These implementation sites were studied from the pre-implementation phase to 1-2 years after the start of the first GC sessions. Further details about the overarching study, including the implementation contexts of the participating sites, are described in the design paper by Martens et al. (33) and Van Damme et al. (22). A qualitative descriptive approach within this cross-country study allows for data generation from a subjective perspective regarding the 'who', 'what' and 'where' of modifications regarding the health assessment (34, 35).

Data collection

To achieve both structured and in-depth insights into this modification process, we designed a structured online qualitative survey. This enabled identification of which modifications or corresponding strategies were applied to adopt the health assessment. A qualitative survey is well-suited when there is a clear focus, while also allowing the respondents to set their own emphasis (36). The *extended Framework for Adaptations and Modifications to Evidence-based Interventions* (FRAME) provided the structure of the survey (Appendix 1) (29). It is a structured framework in which multiple aspects of the adaptation and modification process are addressed. It is intended to capture information that reflects the complexity and dynamics of implementation sites, not only characterizing modifications but also clarifying the underlying processes to facilitate implementation (29). Therefore, it was considered the most suitable theoretical framework for this study.

Customizing the FRAME

The FRAME covers several core constructs that help to describe and understand modifications. These include: **what** is being modified, **when** did the modification occur, were adaptations **planned, who** participated in the decision to modify, the **nature** of the modification, the **level of delivery** (for whom/what is the modification made), to which (format, setting, personnel, population) are contextual modifications made, relationship with **model fidelity**, and the **goal and reason** for the modification. By addressing these constructs, the FRAME provides a comprehensive structure to study the ways in which evidence-based interventions are adapted in real-world contexts. To fit with the GC_1000 research and feasibility for participants, the existing FRAME was contextualised. Cognitive methods were used to develop and pretest the survey mapping the contextualised FRAME. We applied the methodologies of *thinking aloud sessions* and *probing questions* during the pretesting (37). During thinking aloud sessions, stakeholders perform a task and talk aloud to reveal their thinking process, while the researcher probes with questions to fully understand the rationale of the stakeholders and optimize the survey (32, 37). Three senior researchers filled out the survey in two virtual and one in-person thinking aloud sessions, and talked aloud about how they interpreted the questions, where they struggled, their thoughts on language etc. They primarily advised on the formulation and type of questions, for example replacing the FRAME multiple-choice options on ‘What was modified’ with an open-ended question to capture richer descriptions. For fidelity measurement, a four-point Likert scale was introduced instead of a dichotomous outcome, as the former provides greater nuance—particularly valuable in small datasets and qualitative surveys where variation and contextual insight are more important than a binary fidelity consistent versus fidelity inconsistent representation. Two Group Care Global (GCG) consultants, experts in global GC implementation and responsible for training facilitators and supporting sites in this project, also provided feedback during two virtual pilot tests. Their suggestions focused mainly on clarity, simplicity of

wording, and fit with the Group Care model. This pretesting, or piloting, is considered a vital part of qualitative surveys (36). Based on the input of the thinking aloud sessions, the survey including the customized FRAME was finalised, as visualised in Figure 1 and Appendix 2. Sufficient English proficiency to understand the survey was anticipated by the country's research teams. Therfore, no translations were deemed necessary.

Figure 1 *FRAME customized for GC_1000 research study. Adapted from the FRAME (29)*

The survey

To provide the opportunity for respondents to share their own experiences and views, the survey starts with an open-ended question asking each respondent to describe what they considered as the most important modification they made to the health assessment when implementing GC. To enhance comprehensibility for the survey respondents, we opted to use the more commonly used term *'adaptations'* in the survey, rather than *'modifications'.* Here, a clear description was provided to ensure uniform understanding of 'adaptations' (36), including modifications, emphasizing this could encompass modifications to the health assessment as described in the GC model, or to the context or implementation strategies to enable the adoption of this health assessment. After this broad open question, the respondents proceeded through all the different aspects of the FRAME. Multiple choice questions representing the different FRAME components were used, followed each time by an open question to clarify their response. With regard to model fidelity, the influence of the modification on each of the core components and its sub-elements (i.e. *definers (25)*) of the GC model is questioned on a 1-4 Likert scale, ranging from a strong negative impact towards a strong positive impact, or 'I don't know/not applicable'(4). An open question was added to

provide more information. To ensure the ability to provide comprehensive and in-depth information, no word limit was applied to the open-ended questions in the survey (36). Qualtrics, a programme for online surveys, was used.

Sampling

To understand how the GC implementation sites applied modifications regarding the health assessment, the online survey was presented to three respondents per site between January and August 2023. Within each of these sites, purposive sampling was applied for survey completion by each of the three defined profiles: (1) one GC facilitator at the site (site-level implementers), (2) one member of the country's research team from the GC_1000 project (project-level implementers with close contacts at the site); and (3) one GCG consultant who supports the GC implementation at the site. All the respondents followed a GC training and were involved in GC implementation within the GC_1000 project. This selection of respondents fits within a qualitative survey, which focuses on listening to different perspectives to gain a deeper understanding, rather than compiling a sample size to obtain statistical representation and generalizability (36). By including different perspectives per implementation site, as well as multiple sites in different countries, a more comprehensive understanding of these modifications can be obtained. The researchers invited the members of the country's research team and the GCG consultants directly as they had already established contact and collaboration at the project level. For inviting the GC facilitators, the country's research teams contacted them since they had already established a trust relationship. In some cases, individuals were invited to complete more than one survey when their roles spanned multiple sites. This applied, for example, to some GCG consultants as well as to delegates from the country's research teams who maintained close involvement with the sites in their respective countries. The respondents were offered the option to fill out the questionnaire by

themselves, or in an online meeting with the researcher AVD. Both options were chosen equally.

Data analysis

A reflexive thematic analysis approach was applied to identify themes across countries, an approach that is very valuable if applied when processing across the entire dataset of a qualitative survey (36, 38). Initial coding was conducted by systematically reviewing participants' responses to generate codes that captured meaningful patterns and concepts related to modifications of the health assessment in GC. These codes were then iteratively grouped and refined into broader themes, with ongoing discussion among the researchers to ensure reflexivity and consistency in interpretation. This is supported with examples from participants' responses, a good practice in qualitative survey analysis (36). This qualitative survey data offers richness and depth when considered as a whole, even if the individual responses are concise (36). In this way we get a more comprehensive understanding of the modifications related to health assessment when implementing GC. The FRAME is used as a structure for display and to ensure that we map all elements of the modification process. Next to the overarching thematic analysis, a directed content analysis was conducted within each of the themes with regard to the different elements of the FRAME (39). The multiple choice answers and Likert-scale questions linked to the FRAME were analysed in a qualitative descriptive manner in combination with the responses of the linked open questions, that assumes a reality that exists in a given context and is dynamic and subjective (34), best suited to answer our research question.

Results

Responses

With a total of 24 participating sites, the targeted number of completed surveys was 72. However, we deviated from this predetermined number because the GCG consultants regularly completed, by mutual agreement with the researchers, one questionnaire per country rather than per site as they could not differentiate sufficiently between sites in one country. The missing data for the facilitators were linked to staff shortages and research fatigue. Despite reminders and offering possible solutions, there was one participating country where the country's team representative filled out only one out of the estimated five surveys. In total, 55 surveys were completed and analyzed as part of this study.

Table 1 *Overview of responses*

Strategies to adopt the health assessment

Three cross-country themes were identified during the thematic analysis, described as strategies to enable the adoption of the health assessment when implementing GC: (1) Creative solutions to find a suitable space for GC to accommodate the health assessment; (2) Providing assistance in self-assessment; and (3) Extending the duration of the one-to-one medical check-up. We present the components of the FRAME per strategy in a corresponding figure. One country might be represented in multiple responses because of the option to indicate multiple responses or because different respondents within a country indicated different aspects of the FRAME. The figures show the answers to the multiple choice questions, which sometimes deviated from the response in the open questions. Whenever such discrepancies occurred, they are explicitly addressed in the text.

Strategy 1: Creative solutions to find a suitable space for GC to accommodate the health assessment

The first strategy, recurring in four of the seven countries (Ghana, South Africa, Suriname, United Kingdom), involved tackling a logistical challenge of finding a suitable space for GC sessions to take place. All countries managed to find creative solutions to make the organization of GC possible and remain as close as possible to the original GC model where the health assessment consists of both the self-assessment in the open group space, and the individual medical check-up in the group space but with privacy. Examples of strategies applied included organizing the one-to-one medical check-up behind a curtain, and the group discussions in the shade under a tree to enable the organization of GC. Other solutions were organizing GC sessions in a waiting room at a time when it was not in use and performing the one-to-one medical check-up in an adjacent room to disrupt the group flow as little as possible.

"Because we do not have extra space in the site, we had to create space. We had to integrate GC within the existing space" (Facilitator from South Africa)

Figure 2 provides an overview of the Modification process according to the FRAME.

Figure 2. *Modification process for strategy 1 'Creative solutions to find a suitable space for GC to accommodate the health assessment', adapted from the FRAME (29)*

As presented in figure 2, we identified that the modification often occurred *before the start of the first GC session*. Despite being selected as *planned* in the survey, the responses on the open questions and in the descriptions throughout the survey revealed that it was unplanned in light of the full implementation process. In most countries, they initially planned to strictly follow the model, including the one-to-one medical check-up in the same room as the group discussion. However, the modifications appeared to be responsive to the situation, such as logistical challenges or preferences of the participants or facilitators. Regarding *who was*

involved in the decision to adapt, it appeared that it was a cooperative decision in all countries, including multiple stakeholders such as the staff and management at the site and the GC_1000 research team. The staff and management at the site were central in making the decisions. Regarding the *main goal*, several options of the FRAME were selected, but 'improve feasibility' was selected in all the participating countries.

"It was the most feasible way to adapt health assessment to fit into the physical structures of the health system." (Country lead from Ghana)

Multiple *reasons* appeared to play a role in the strategies applied regarding the suitable location for GC sessions. There are site-related reasons, e.g. *available resources* are selected by every country. It became clear that current health care facilities were not built with GC sessions in mind, resulting in a lack of space large enough to host GC sessions, especially if the health assessment is to be included in that same room. As (co-) facilitator-related reasons, both the *previous training and skills* and their *preferences* were selected. For example, one facilitator stated the following:

"*We as facilitators feel more comfortable to implement the group sessions in the bigger/open waiting room and we are able to accommodate more participants." (Facilitator from Suriname).*

This quote aligns closely with participant-related reasons, e.g. in Suriname, facilitators opt to organize the one-to-one medical check-up in a separate room, believing that this is the preference of the participants, grounded in, among others, cultural norms. They anticipated that pregnant Surinamese participants appreciated some privacy and therefore it was decided beforehand to have the one-to-one medical check-up in a separate space. This was based on, among other things, a check with participants who already participated in GC with the one-to-one medical check-up in a separate room and confirmed this preference, although they have never experienced the health assessment in the same room and were therefore unable to

compare. In all countries, the pregnant people and (co-) facilitators were selected in the survey as *for whom* they applied this strategy to integrate the health assessment when implementing GC.

Strategy 2: Providing assistance in self-assessment

A second strategy to enable the implementation of the health assessment in GC was to provide assistance in self-assessment, reported in two countries, i.e. Ghana and South Africa. In this self-assessment, the participants are conducting some measurements, e.g. checking their blood pressure, though with a facilitator in the room and after they were trained how to do so. In Ghana and South Africa, this required a real mind shift from both participants and health care providers.

"*Involving clients in self-assessment was the biggest adaptation for both clients and the midwives and at the beginning it seemed impossible but both women and the facilitators are enjoying it. It is now becoming a practice for us to explain to all our clients including those who are not in groups to explain why we do what we do." (Facilitator from South Africa).*

To accommodate this change in Ghana and South Africa, but still recognize the importance of the self-assessment, such as greater involvement in care and empowerment, assistance for the participants by a health care provider was provided in conducting this self-assessment.

Figure 3 shows the results of the survey structured by the FRAME regarding the provision of assistance with the self-assessment (29).

Figure 3. *Modification process for strategy 2 'Providing assistance with self-assessment', adapted from the FRAME (29)*

The decision to provide assistance with the self-assessment was in both countries a *planned* decision *before the first GC session* took place. It was a *joint decision* with multiple stakeholders involved, including the management and facilitators at the site, demonstrating that this was a well-considered decision. E.g. in South Africa, the self-assessment was included in the ethical application from the University as this was a new practice in the hospital site. The GC model had not been tested in South Africa before, therefore, all participants needed to be trained on how to do it, and the process and measurements were supervised by a midwife to ensure accuracy of measurement. Several *main goals* of the strategy were selected by different respondents (i.e. increase retention, increase engagement, improve feasibility, improve fit with recipients, and improve effectiveness and outcomes), and they all considered the goal achieved. Regarding *for whom* the modification was put in place, multiple responses were selected. In both countries, all respondents indicated that they did this for the individuals involved, i.e., the pregnant people, and for the health care system, i.e. a direct reference to their policy regulations. In Ghana there are regulations indicating that it is mandatory for a health care provider to perform the medical check-ups that are included in the self-assessment. Several *reasons* lay behind this modification. In terms of socio-political reasons, the aforementioned policy regulations played a role in South Africa and Ghana. Organisation-related reasons in South Africa included the regulations linked to the approval of the ethical application. Available resources were a recurring reason in both countries. E.g. in Ghana, the nature of the medical equipment contributed to the need for assistance in the self-assessment:

"Facilitators had to check women's blood pressure (i.e. not the participant) as only a Mercury blood pressure apparatus was available for some sites." (Facilitator from Ghana).

In both countries, facilitators' 'clinical judgement' was described as a facilitator-related reason. For example, a country researcher of South Africa described this modification as *"a*

safety precaution to ensure accuracy of measurement.". There were as well participant-related reasons that played a role, where the limited literacy of the participants proved to be a decisive factor to assist, in order to integrate the self-assessment in this way:

"...pregnant women, though they cannot read and write, when assisted are able to do the self-assessment and the facilitators record it." (GCG consultant/implementation supervisor, Ghana).

Strategy 3: Extending the duration of the one-to-one medical check-up

A third identified strategy for including the health assessment was an extended duration of the brief (3-5 minutes) one-to-one medical check-up in Belgium, the Netherlands and UK. The shift from regular care, where a medical check-up generally takes between 15-30 minutes, to GC proves difficult regarding this relatively short one-to-one medical check-up.

Figure 4 shows the results of the survey structured by the FRAME regarding the extended duration of the one-to-one medical check-up (29).

Figure 4. *Modification process for strategy 3 'Extending the duration of the one-to-one medical check-up', adapted from the FRAME (29)*

The results using the FRAME clarify that extending the time for one-to-one medical check-up is *not* a *planned* decision and happened *within the first year* after the groups effectively started. There was one Belgian facilitator indicating that the struggle of the facilitators with this suggested time existed from the first GC session:

"Even at the first session, we felt we would not make it with 5 minutes. In the beginning we tried to keep the time tight, but it made us feel rushed and we always felt like we were 'missing' something." (facilitator from Belgium)

For this strategy to extend the one-to-one medical check-up in Belgium, the Netherlands and United Kingdom, it was often only the facilitator who was *involved in the decision*. It appeared that in the United Kingdom and the Netherlands, it was not a conscious decision as such, but rather a way it evolved. In the United Kingdom, this longer one-to-one medical check-up was only described in smaller groups. Different *main goals* were selected, but they all indicated that better care for pregnant people and their families is paramount. There is one respondent expressing that they feel that they reached their goal and had a good effect of this longer one-to-one medical check-ups. A difference in vision was observed between different profiles of respondents, i.e. between facilitators and GCG consultants.

"*Now that we are letting go of the tight time schedule, midwives feel they have a better and more complete medical picture of the pregnant women.". (Facilitator from Belgium)*

This view of the facilitator was rather contradictory to the view of the GCG consultant on the same issue.

"No [i.e. the goal was not reached], because she [i.e. the facilitator] works really hard and still has the feeling it is not enough. It was not to make the women more engaged in their own care. She didn't use the strength of the group. It took a lot of time, so there was less time to do other things in group." (GCG consultant from Belgium)

This difference in vision was reflected regarding *for whom* the modification was put in place. Whereas the facilitators indicated that the families come first, the GCG consultants in the three countries remarked that it might subconsciously be more preferred by the facilitator than by the participants. They stated it might be mainly the facilitator who feels more comfortable, and it is rather an assumption that the participants might feel a one-to-one medical check-up that takes 3-5 minutes is too short.

Reasons behind the choice of this extended duration of the one-to-one medical check-up differed between countries. In the United Kingdom, primarily a small group size (leading to

more time per participant) in combination with facilitators' previous skills and habits contributed to the longer one-to-one medical check-ups. As the group discussion and medical one-to-one check-up occur simultaneously in the United Kingdom, it reduced the number of people in active discussion and could then be more distracting according to a respondent. In the Netherlands, a GCG consultant also linked this strategy to the preference and habits of the facilitators.

"*They [i.e. the facilitators] want to facilitate the satisfaction of the women, they want to give "good care". They presume the women need more then 3-5 minutes individual time. It might give the midwife more satisfaction, more closely related to the care they know, they are more used to do it this way." (*GCG *consultant from the Netherlands)*

In Belgium, the implementation of GC within the GC_1000 project focused on including a vulnerable target population. This target population's characteristics inherently contributed to the perception of a need for a longer one-to-one medical check-up to cover the common additional (financial, social, physical, communication, etc.) challenges.

Influence on model fidelity

Although the three modification strategies identified describe an overall positive impact on fidelity to the GC model, the survey could not provide sufficient information for an in-depth analysis on the influence of the strategies on model fidelity. The three modifications described did not remove the core components . However, one can argue that some modifications may have an impact on the effect of each (of the other) core component as the core components were not carried out as intended. This distinction reflects that fidelity concerns not only the presence of components, but also the extent to which they are delivered as intended (40).

For example, a difference in perspectives between facilitators and GCG consultants regarding the third strategy was observed. Whereas the facilitators are convinced of a positive impact of their modification strategies, GCG consultants wondered if the reduced time left for

socialising when extending the duration of the one-to-one medical check-up would not negatively impact ‘model fidelity’ since this might influence time left for interactive learning and community building, the other two core components of the GC model.

Discussion

Structured by the FRAME, we examined which strategies early implementation sites applied in integrating the health assessment when implementing GC (29). Using a cross-country thematic analysis, three strategies were identified that were applied to integrate the health assessment: (1) Creative solutions to find a suitable space for GC to accommodate the health assessment; (2) Providing assistance with self-assessment; and (3) Extending the duration of the one-to-one medical check-up.

We identified strategies to address the challenge of finding a suitable space to organize GC, more specifically to adopt the health assessment. This challenge was also reported in previous research, with examples of GC being offered outdoors, in church buildings, or in schools (20, 21). Although this challenge may seem daunting at the start, all the sites did find a solution, highlighting the model’s and implementation teams’ flexibility. Both in our study and in the literature, the potential impact of these strategies is not fully understood. For example, conducting one-to-one medical check-ups in a separate room could potentially disrupt the group flow, but this remains unclear (4).

The second modification strategy to provide assistance with the self-assessment appeared to be partly policy-driven. It was also linked to the difference with the care one is familiar with, as ownership over measures and self-evaluations is sharing power, and this differentiates from usual care. The participating sites tried to stay as close as possible to the model in this regard, providing assistance in self-assessment rather than excluding it. This sharing of ownership in care has been prominent in previous GC research (6, 7, 41).

The third strategy to extend the duration of the one-to-one medical check-up exposed different views on multiple aspects. Facilitators reported that this strategy was applied in the participant's interest. In contrast, the GCG consultants suggested that, whether unconsciously or not, it often reflected a preference of the facilitator. For facilitators, the shift from a routine individual consultation of 15-30 minutes to a 3-5-minutes one-to-one medical check-up may feel significant when viewed as these 3-5 minutes comprise the complete antenatal care consultation. However, in GC the overall time with the participants increases, with two-hour GC sessions, including active involvement of the participants in their medical follow-up, performing tasks like weight and blood pressure measurements themselves during the self-assessment, outside the one-to-one medical check-up time (4, 6, 7). It therefore remains important to consider the GC as a whole, rather than reducing it to a 3-5-minute medical check-up. A narrow focus on this medical check-up does not reflect the core principles of GC or the potential benefits it offers (8, 9). Nevertheless, discussions about time allocation must acknowledge that policy, system, and payer structures can act as barriers or facilitators when organizations attempt to implement the GC model as designed. It is emphasized in our study that the facilitators in Belgium needed additional time given the specific target group of participants in vulnerable situations. However, previous research shows even better outcomes for antenatal GC participants in vulnerable situations compared to those in regular care, e.g. regarding preterm birthweight or attendance rates (10, 11, 13, 15). On the contrary with this feeling of ‘less time’ in 3 out of 7 countries in our sample, previous research highlights the feeling of ‘more time’, and better bonding with the participants and indicate that they get to know the women better personally (8, 41). It is recommended that the effects of these modifications and corresponding strategies, including their long-term sustainability and feasibility, be examined in a later phase of the overarching study.

Our research exposed another important aspect in the implementation of GC: despite facilitators participation in GC training and being committed to the model, it still often proves challenging to fully adopt the health assessment as described in the model. This is also identified in other research on GC implementation (42). The inclusion of novice sites in our study may have contributed to these findings: even though the facilitators were trained, they did have little experience in implementing the specific methodology of GC as a pregnancy follow-up/baby well-child care. The systematic review on experiences of healthcare providers about GC confirms that there is a growth process to make this specific method their own in practice (8).

We uncovered underlying factors and the importance of someone's subjective perspective, as well as contextual factors playing a critical role in the alignment of attitudes, beliefs and skills towards GC to fully adopt the health assessment. To support effective implementation of GC, ongoing facilitator training could place greater emphasis on understanding the rationale behind the core components, as well as developing the practical skills needed to execute the model as intended (24). Given the significant system and mindset changes required, as confirmed in our study at start-up sites, it is necessary to allow sufficient time for these transitions.

Furthermore, we used the FRAME to understand the different aspects of the modifications and the respective strategies for adoption of the health assessments within the GC model. Most of the strategies were joint decisions, emphasizing the importance of the implementation team buy-in as reflected in previous research. (23, 43). A variety of socio-political, organizational, facilitator-related, and participant-related reasons were found to underlie the applied modifications, reflecting the strong contextual embedding in the modification process. The importance of context in implementation science is widely recognized (44-47). However, this contextual variability also complicates the generalizability of findings, as modifications to

enhance fit of an intervention in one context, may not translate seamlessly to another. Our study similarly revealed context-specific differences in the underlying reasons for modifications across cultures and socio-political environments. This touches a recurring challenge in implementation science, i.e. the tension between the local nature of modifications and the desire to generate generalizable insights (48). Our study demonstrates that a deep understanding of the implementation context is essential for interpreting why certain modifications emerge. Without sufficient contextual information, it becomes challenging to assess the necessity, rationale, and transferability of these modifications across settings. The contextual variability complicates efforts to aggregate insights in modification processes across diverse contexts. Nevertheless, multi-context research on modifications, as this study, remains highly valuable, as recurring patterns and mechanisms that transcend individual contexts could be identified. These can in turn inform further implementation research and enhance understanding of how and why certain strategies succeed under particular conditions. Thus, while the contextual specificity of adaptations limits strict generalizability, their collective examination provides transferable lessons that advance both theory and practice in implementation science. Accordingly, our study demonstrates that, regardless of context, the different perspectives from which modification processes are approached are essential to gain an in-depth understanding of implementation behaviour, such as modifying intervention aspects. We emphasize that each implementation actor speaks from their own truth, and these individual truths influence how implementation challenges are perceived and addressed. This may explain why certain modifications arise that appear unnecessary or inefficient from another viewpoint. Including and acknowledging these multiple perspectives enriches our understanding of the complexity of modification processes. It also highlights the importance of dialogue between the different actors involved in the implementation of interventions (49).

To conclude, we recommend to apply the FRAME before and during the implementation process to reflect on the modification process and its broader implications, thereby including perspectives from multiple implementation actors.

Limitations and strengths

For the development of the survey, it proved beneficial to organize thinking aloud sessions as pretesting, as a result of which the questionnaire was completed by the vast majority of our target group. Despite this pretesting and multiple perspectives involved when developing the survey, the section on model fidelity contained too little information for an in-depth analysis. Nevertheless, all other parts of the FRAME did include sufficient information and by aggregating the results we were able to come to several insights that contribute to the literature around the adoption of the health assessment when implementing GC. A somewhat unique aspect of the qualitative survey within a qualitative data collection, is the fact that it is explored with a “wide-angle lens” which makes it possible to include different perspectives, experiences and sense-making (36). For this study, the focus was on the modifications and the related strategies during GC implementation from the perspectives of both the facilitators, the GCG consultants and the country-specific research teams. The results proved that the inclusion of these different perspectives was of great value to explore the modifications from a range of perspectives. A limitation concerns the fact that the participants' views were not included. Since the primary focus of the study was on the process surrounding the modifications related to health assessment in GC implementation, and the participants were not involved to that extent, they were not included here as respondents. With the results known, and the different views identified, it would be valuable in the next phase to check with the participants the impact of the modifications from their point of view. Furthermore, examining the effects of the modifications in a later phase of the research will be valuable.

Conclusion

Identifying which strategies starting GC implementation sites across seven countries applied to adopt the health assessment when implementing GC revealed three cross-country strategies: (1) Creative solutions to find a suitable space for GC to accommodate the health assessment; (2) Providing assistance with self-assessment; and (3) Extending the duration of the one-to-one medical check-up. The use of the FRAME highlighted that most strategies were developed through joint decisions with the implementation team, influenced by multiple context-related factors. Different perspectives were identified regarding for whom these strategies were applied, i.e. whether they were primarily intended for the participants' benefit or, whether subconsciously or not, to align with the facilitators' preferences, or were simply pragmatic responses to contextual constraints. Our study highlights the importance of including these different perspectives when gaining in-depth understanding of modification processes. The FRAME proved to be a valuable tool for this. From a policy perspective, embedding GC as an equally recognized and structurally supported model of care alongside individual care could remove many of the current implementation barriers by improving its alignment with existing healthcare systems.

Statements and declarations

Ethics approval and consent to participate

Ethical approval was obtained from ethics committees in all seven countries as part of the Group Care for the first 1000 days study:

- Medisch-ethische toetsingscommissie Leiden Den Haag Delft; reference number N20.157/Dj/dj

- Navrongo Health Research Centre Institutional Review Board Approval; reference number NHRCIRB413

- NHS Research Ethics Committee (Bromley); reference number IRAS 292,310; granted provisional approval

- Commissie Ethiek UZ Brussel; reference number 2020–345

- Kosovo Chamber of Doctors

- Human Research Ethics Committee, Health Sciences Faculty, University of Cape Town, Cape Town

- Medical Ethical Commission/Director of Suriname's Ministry of Health, reference January 26, 2021

Consent for publication

N/A

Availability of data and material

The survey is available as Appendix 1. The datasets with the results of the questionnaires cannot be shared openly to protect the participants' privacy.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

Conceptualization: AVD, FT, KB**; Methodology:** AVD; FT, KB, MC, CP, MR, SR**; Formal analysis and investigation:** AVD, FT, JA, MC, MG, AHM, MH, CMcC, MO, CP, MR, SR, WS, KB**; Writing - original draft preparation:** AVD**; Writing - review and editing:** AVD, FT, JA, MC, MG, AHM, MH, CMcC, MO, CP, MR, SR, WS, KB**; Supervision:** KB

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MANUSCRIPT

The challenge of adopting the health assessment when implementing antenatal and postnatal Group Care: identifying and understanding cross-country modifications and corresponding strategies to enable its adoption

Table 1 *Overview of respondents*

Country	N of participating **sites**	N of responsess – **country's research team representative**	N of responses - **facilitator**	N of responses – **Group Care Global consultant**	**Total** N of responses
Belgium	3	3	3	3	9
Ghana	6	6	6	6	18
Kosovo	2	2	2	1	5
South Africa	1	1	1	1	3
Suriname	5	5	5	1	11
The Netherlands	5	1	2	1	4
United Kingdom	2	2	1	2	5
Total	24	20	20	15	**55**

WHAT was adapted?

Description of the most impactful adaptation regarding health assessment in Group Care

Was the adaptation **PLANNED?**

- Planned (proactive)
- Unplanned (reactive)

WHEN did the adaptation occur?

- Before the first Group Care session
- Within the first year after the start of the first Group Care session
- After the first year of the first Group Care session

What was the most important **GOAL** of the adaptation?

- Increase engagement
- Increase rentention
- Improve feasibility
- Improve fit with recipients
- Reduce costs
- Increase satisfaction
- Improve effectiveness/ outcomes

Do you consider the most important **goal achieved**?

- Yes
- Partially
- No

For **WHOM/WHAT** was he adaptation made?

- Individual – pregnant woman
- Individual – (co-)facailitator
- Target population
- Site/organisation
- Community
- Group Care 1000 research team
- Country research team
- Health care system
- Other (specify)

WHO participated in the decision to adapt?

- Group Care 1000 research team
- Country research team
- Management at the site
- Staff at the site
- Pregnant women/their families
- CBGC steering committee
- Group Care Global consultant
- Other (specify)

What were the **REASONS** to adapt?

SOCIO-POLITICAL

- Existing laws
- Existing mandates
- Existing policies
- Existing regulations
- Political climate
- Funding policies
- Historical context
- Societal or cultural norms

ORGANISATION/SITE

- Available resources
- Competing demands or mandates
- Time constraints
- Service structure
- Location/accessibility
- Regulation/compliance
- Billing constraints
- Social context
- Mission
- Cultural or religious norms

(CO-)FACILITATOR

- Race/ethnicity
- Sexual/gender identiy
- First/spoken language
- Previous training and skills
- Preferences
- Clinical judgement
- Cultural norms

PARTICIPANT

- Race/ethnicity
- Sexual/gender identity
- Access to resources
- Cognitive capacity
- Physical capacity
- Literacy and educational level
- First/spoken language
- Legal status
- Cultural or religious norms
- Comorbidity/multimorbidity
- Immigration status
- Crisis of emergent circumstances
- Motivation and readiness

Which **strategy** was applied?

Creative solutions due to lack of suitable space for Group Care

Was the adaptation **PLANNED?**

- **Planned (proactive)** – Suriname; South Africa; Ghana
- **Unplanned (reactive)** – UK; Ghana

WHEN did the adaptation occur?

- **Before the first Group Care session** – Suriname; South Africa; Ghana
- **Within the first year after the start of the first Group Care session** - UK

What was the most important **GOAL** of the adaptation?

- **Increase engagement** – Ghana
- **Increase rentention** – Ghana
- **Improve feasibility** – UK; Suriname; South Africa; Ghana
- **Improve fit with recipients** - Suriname
- **Improve effectiveness/ outcomes** – Suriname; Ghana

Do you consider the most important **goal achieved**?

- **Yes** – UK; Suriname; SA
- **Partially** – Ghana

For **WHOM/WHAT** was the adaptation made?

- **Individual – pregnant person** – UK; Suriname; Ghana; South Africa
- **Individual – (co-)facailitator** – UK; Suriname; Ghana; South Africa
- **Target population** – Suriname; Ghana
- **Site/organisation** – UK; Ghana; South Africa
- **Group Care 1000 research team** – Ghana
- **Country research team** – Suriname
- **Health care system** – Suriname; Ghana; South Africa

WHO participated in the decision to adapt?

- **Group Care 1000 research team** – Ghana
- **Country research team** – Suriname; SA; Ghana
- **Management at the site** – Suriname; SA; Ghana
- **Staff at the site** – UK; Suriname; SA
- **Pregnant people/their families** – Ghana
- **CBGC steering committee** – Ghana
- **Group Care Global consultant** – Ghana

What were the **REASONS** to adapt?

SOCIO-POLITICAL

- **Existing mandates** – Ghana
- **Existing policies** – South Africa; Ghana
- **Societal or cultural norms** – Suriname; Ghana
- **Funding or resources availability** – South Africa; Ghana

ORGANISATION/SITE

- **Available resources** – UK; Suriname; South Africa; Ghana
- **Service structure** – Suriname; Ghana
- **Location/accessibility** – Suriname; South Africa; Ghana
- **Regulation/compliance** – South Africa; Ghana
- **Social context** – Suriname; Ghana

(CO-)FACILITATOR

- **Previous training and skills** – Suriname; Ghana
- **Preferences** – UK; Suriname
- **Clinical judgement** – Ghana; South Africa
- **Cultural norms** – Suriname

PARTICIPANT

- **Access to resources** – Ghana
- **Cognitive capacity** – Ghana
- **Literacy and educational level** – Ghana
- **Cultural or religious norms** – Suriname
- **Motivation and readiness** – South Africa

Which **strategy** was applied?

Providing assistance with self-assessment

Was the adaptation **PLANNED?**

- **Planned (proactive)** – South Africa; Ghana

WHEN did the adaptation occur?

- **Before the first Group Care session** – South Africa; Ghana

What was the most important **GOAL** of the adaptation?

- **Increase rentention** – Ghana
- **Improve feasibility** – South Africa
- **Improve fit with recipients** – Ghana
- **Improve effectiveness/ outcomes** – Ghana

Do you consider the most important **goal achieved**?

- **Yes** – South Africa; Ghana

For **WHOM/WHAT** was the adaptation made?

- **Individual – pregnant woman** – South Africa; Ghana
- **Individual – (co-)facailitator** – South Africa; Ghana
- **Target population** – Ghana
- **Site/organisation** – South Africa; Ghana
- **Group Care 1000 research team** – Ghana
- **Country research team** – Ghana
- **Health care system** – South Africa; Ghana

WHO participated in the decision to adapt?

- **Group Care 1000 research team** – Ghana
- **Country research team** – South Africa; Ghana
- **Management at the site** – South Africa; Ghana
- **Staff at the site** – South Africa; Ghana
- **Pregnant women/their families** – Ghana
- **Group Care steering committee** – Ghana
- **Group Care Global consultant** – Ghana

What were the **REASONS** to adapt?

SOCIO-POLITICAL

- **Existing mandates** – Ghana
- **Existing policies** – South Africa; Ghana
- **Funding or resources allocation/ availability** – South Africa; Ghana

ORGANISATION/SITE

- **Available resources** – South Africa; Ghana
- **Service structure** – Ghana
- **Location/accessibility** – South Africa
- **Regulation/compliance** – South Africa

(CO-)FACILITATOR

- **Previous training and skills** – Ghana
- **Clinical judgement** – South Africa; Ghana

PARTICIPANT

- **Access to resources** – Ghana
- **Cognitive capacity** – Ghana
- **Literacy and educational level** – Ghana
- **Motivation and readiness** – South Africa

Which **strategy** was applied?

Extending the duration of the one-to-one medical check-up

Was the adaptation **PLANNED?**

- **Planned (proactive)** – UK
- **Unplanned (reactive)** – Netherlands; Belgium

WHEN did the adaptation occur?

- **Before the first Group Care session** – UK
- **Within the first year after the start of the first CBGC** session – Netherlands; Belgium

What was the most important **GOAL** of the adaptation?

- **Improve feasibility** – UK; Belgium
- **Improve effectiveness/ outcomes** – Belgium
- **Increase satisfaction –** Netherlands

Do you consider the most important **goal achieved**?

- **Yes** – Belgium
- **Partially** – UK
- **No** – Belgium; Netherlands

For **WHOM/WHAT** was he adaptation made?

- **Individual – pregnant woman** – UK; Belgium
- **Individual – (co-)facailitator** – UK; Netherlands; Belgium

WHO participated in the decision to adapt?

- **Country research team** – UK
- **Staff at the site** – Belgium

What were the **REASONS** to adapt?

SOCIO-POLITICAL

- **Historical context** – Netherlands
- **Societal or cultural norms –** Netherlands

ORGANISATION/SITE

- **Time constraints** – UK, Netherlands
- **Service structure** – UK

(CO-)FACILITATOR

- **Previous training and** skills – UK; Netherlands
- **Preferences** – Netherlands; Belgium
- **Clinical judgement** – Belgium
- **Cultural norms** – Belgium

PARTICIPANT

- **Access to resources** – Belgium
- **Cognitive capacity** – Belgium
- **Literacy and educational level** – Belgium
- **Comorbidity/multimorbidity** – Belgium
- **Immigration status** – Belgium
- **Crisis of emergent circumstances** – Netherlands