

RESEARCH

Open Access



Implementing group care in Dutch and Surinamese maternity and child care services: the vital importance of addressing outer context barriers

Nele Martens^{1*}, Tessa M.I. Haverkate², Ashna D. Hindori-Mohangoo³, Manodj P. Hindori³, Carolien J. Aantjes^{2,4}, Katrien Beeckman^{5,6}, Astrid Van Damme^{7,8}, Ria Reis^{1,9,10}, Marlies Rijnders¹¹, Rianne RMJJ van der Kleij¹ and Mathilde R. Crone^{1,12}

Abstract

Background By addressing physical and psychosocial needs, group care (GC) improves health-related behaviours, peer support, parent-provider interactions and may improve birth outcomes. Hence, global implementation of GC is encouraged. Context analyses prior to implementation are vital to elucidate which local factors may support or hinder implementation.

Methods Contextual analyses conducted in the Netherlands and Suriname were compared to identify the factors relevant to the implementability of GC as perceived by healthcare professionals (HCPs). 32 semi-structured interviews were conducted with Dutch and Surinamese healthcare professionals. Audio recordings were transcribed verbatim and coded using the Framework approach. The Consolidated Framework for Implementation Research guided the development of the interview guide and of the coding tree.

Results Outer setting: Concerns regarding funding surfaced in both countries. Due to limited health insurance coverage, additional fees would limit accessibility in Suriname. In the Netherlands, midwives dreaded lower revenue due to reimbursement policies that favour one-on-one care. Inner setting: Appropriate space for GC was absent in one Dutch and three Surinamese facilities. Role division regarding GC implementation was clearer in the Netherlands than in Suriname. Innovation: HCPs from both countries expected increased social support, health knowledge among women, and continuity of care(r). Individuals/innovation deliverers: Self-efficacy and motivation emerged as intertwined determinants to GC implementation in both countries. Individuals/innovation recipients: Competing demands can potentially lower acceptability of GC in both countries. While Dutch HCPs prioritised an open dialogue with mothers, Surinamese HCPs encouraged the inclusion of partners. Process: Campaigns to raise awareness of GC were proposed. Language barriers were a concern for Dutch but not for Surinamese HCPs.

*Correspondence:

Nele Martens
n.martens@lumc.nl

Full list of author information is available at the end of the article



© The Author(s) 2024. **Open Access** This article is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License, which permits any non-commercial use, sharing, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if you modified the licensed material. You do not have permission under this licence to share adapted material derived from this article or parts of it. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by-nc-nd/4.0/>.

Conclusions While the most striking differences between both countries were found in the outer setting, they trickle down and affect all layers of context. Ultimately, at a later stage, the process evaluation will show if those outer setting barriers we identified prior to implementation actually hindered GC implementation. Changes to the health care systems would ensure sustained implementation in both countries, and this conclusion feeds into a more general discussion: how to proceed when contextual analyses reveal barriers that cannot be addressed with the time and resources available.

Keywords Group care, Maternity care, Antenatal care, Postnatal care, Context analysis, Implementation, Implementation science, Consolidated framework for implementation research, Global maternal health, Comparative analysis, GC_1000, Suriname, The Netherlands

Background

The first thousand days of a child's life, from conception until age two, lay the foundation for healthy development [1]. As the health of the mother and her unborn child are inherently intertwined, high-quality maternity care is a pillar of good public health [2]. The World Health Organisation's (WHO) guideline on routine antenatal care (ANC) provides evidence-informed recommendations to enhance the quality and uptake of maternity care services [3]. Amongst others, they recommend the implementation of group care (GC), a holistic approach to maternal care that addresses overall well-being and facilitates the empowerment of mothers. In GC, (expecting) mothers/parents (and children in postnatal care (PNC)) join for approximately eight to ten two-hour sessions that combine elements of health assessment, health education and social support [4]. Through interactive discussions GC considerably expands the educational and relational components of individual care by providing mothers / parents with in-depth knowledge and support [5]. Using a facilitative approach to health education, mothers are empowered to engage in critical thinking and mutual learning among peers and to take ownership of their pregnancy and care [4, 6]. By addressing physical and psychosocial needs, GC improves health-related behaviours, fosters peer support and enhances parent-provider interactions [7]. Moreover, there is evidence that GC positively impacts birth weight and preterm birth rates [8–12]. Considering these positive findings, the global implementation and scale-up of GC are encouraged by the WHO [3].

The WHO also emphasises the importance of understanding the implementation context before introducing GC³, as transferring complex interventions - such as GC - to a new context increases the risk of implementation failure [13–16]. Context in implementation has been defined as the complex adaptive systems that form the dynamic environment(s) in which implementation processes are situated [17]. Implementability, the likelihood that the intervention will be implemented as intended, can be anticipated through context analyses, i.e. the investigation of implementation determinants before introducing an intervention in a new setting [18].

Contexts can be systematically assessed using determinant frameworks, such as the Consolidated Framework for Implementation Research (CFIR) [19, 20]. The CFIR describes five interacting domains: innovation, outer setting, inner setting, individual, and implementation process as well as 48 constructs and 19 subconstructs across all five domains. Using the CFIR as a guide, context analyses can illuminate those determinants that will likely impact the implementation and that should inform implementation strategy and adaptation development to enhance the chances of successful implementation [21–23].

The innovative implementation research project 'GC during the first 1000 days (GC_1000)' aims to identify and disseminate contextually appropriate, sustainable mechanisms for implementing GC [24]. For this purpose, GC is implemented in seven countries with preceding contextual analyses. This study compares contextual factors relevant to the implementability of GC in two of these countries, the Netherlands and Suriname. Suriname and the Netherlands are not only linked through colonial history and Dutch language but both countries also have a comparable health care system with regards to ANC and PNC provision: ANC at primary care settings is midwife-led and PNC is provided in form of "consultatiebureau" (well-child care clinic). On the other hand, Suriname and the Netherlands differ with regard to pivotal implementation determinants, including cultural and economic factors.

We aimed to understand similarities and differences in contextual factors, including organizational and socio-cultural factors, and how they may be of influence on the implementation of GC.

Healthcare professionals (HCPs) and their attitudes play a crucial role in the implementation of innovations, such as GC [25, 26]. For instance, in Suriname, early involvement of HCPs in the development of national obstetric guidelines facilitated their implementation [27]. HCPs (or innovation deliverers) and their need, capability, opportunity and motivation to implement are an important bottleneck according to prominent implementation frameworks [20, 28, 29]. Therefore, our study sought to answer the following two research questions:

What factors influence the implementability of antenatal and postnatal group care in the Netherlands and Suriname according to health care professionals, and what are the differences and similarities between these two countries?

Methods

The present study is part of the European Union funded Horizon2020 project ‘GC during the first 1000 days (GC_1000)’ (grant agreement number 848147) [24]. For this sub-study, context analyses were conducted before the implementation of GC in Dutch and Surinamese maternity and child care services. Approval for this study was granted by the *Medical-Ethics Review Committee Leiden Den Haag Delft* and the *Ethical Commission of Suriname’s Ministry of Health*.

Study design and setting

The Netherlands is a high-income country in Europe with a population of about 17,5 million [30]. The country’s Maternal Mortality Rate (MMR) significantly decreased to 6.2 per 100,000 live births between 2006 and 2018, reducing the maternal mortality risk by half from the preceding decade [31]. Nevertheless, disparities remain, amongst others for mothers with a background from Suriname and the Dutch Antilles [31]. One factor contributing to these discrepancies is the high prevalence of risk factors associated with adverse outcomes, such as obesity [31, 32]. The Netherlands has a unique maternity care system, characterised by midwifery-led care [33]. Community midwives play a crucial role in providing antenatal, perinatal and the first weeks postnatal care to mothers with low-risk pregnancies [34]. Most community midwives operate in independent group practices, where individual provider-to-user care is standard practice [35, 36]. Typically, mothers will have twelve ANC appointments of fifteen minutes each, which are scheduled according to a ‘4-3-2-1’ scheme [36]. In the first weeks of pregnancy, appointments are every four weeks, which builds up to every three weeks, biweekly and eventually to weekly close to the due date. When complications arise during pregnancy, childbirth or postpartum, are mothers referred to a hospital for secondary care [34, 36]. Further interdisciplinary collaboration is seen, for example by involving municipalities to provide additional social support [37]. Postnatal care is provided by carers who visit the family home daily in the first eight days postpartum. In 2011, GC was first introduced in the Netherlands [36]. Despite considerable scale-up, one-on-one care remains the standard model of ANC.

Suriname is an upper-middle-income country on the northeast coast of South America with a population of about 623,000 [38]. In Suriname, the MMR has plateaued around at 130 maternal deaths per 100,000 live births

over the past decade, of which almost half is preventable [39]. A gap in the continuum of care, challenges in accessing care, and poor quality of care contribute to the high MMR [39]. In Suriname, maternity care is based on obstetric-led or shared models of care [40]. In the shared model, low-risk mothers, receive individual provider-to-user ANC in a primary care setting up until the thirtieth week of pregnancy, when they are referred to secondary care [40]. The Regional Health Service (RGD), a semi-public institute responsible for primary care in the coastal area, is one of three primary healthcare providers offering ANC. The RGD clinics’ medical teams usually include several midwives, nurses and general practitioners (GPs) managing the clinic. On average, approximately half of mothers have at least eight ANC appointments, which are scheduled according to a ‘4-3-2-1’ scheme [41]. Postnatal care is provided by RGD midwives only for mothers who deliver at RGD clinics, and they account for a small fraction of deliveries. In 2014, GC was introduced in three hospitals in Paramaribo under the name *Samen-Zwanger*. The implementation was successful and continued at one of the hospitals [42]. Attempting to reach vulnerable parents, midwives employed at more deprived RGD clinics followed the GC training in 2019. However, due to the Covid-pandemic no groups were conducted in 2020-2022 [43].

Participants and sampling

In the Netherlands, four midwifery practices and one hospital in Rotterdam were selected in collaboration with the municipality of Rotterdam. These sites were suitable for inclusion in GC_1000 as they had no GC experience, a sufficient number of clients with diverse socio-cultural backgrounds, and they were supported by an implementation team from the municipality of Rotterdam and the national programme ‘promising start’ (*Kansrijke Start*). Moreover, at least two midwives at each implementation site had to agree to follow the GC training.

In Suriname, three RGD clinics in the outer skirts of Paramaribo and one clinic located in district Wanica were identified as implementation sites for antenatal and postnatal GC by an implementation team from the RGD and the Foundation for Perinatal Interventions and Research in Suriname (Perisur). Selection criteria included an appropriate space for the GC sessions, at least two midwives working at the sites for group ANC and at least two nurses and at least two doctors for the sites for postnatal GC, and a sufficient number of clients receiving ANC/PNC to create groups. All Surinamese implementation sites had previously aimed to introduced GC but due to the Covid-19 pandemic implementation had to be paused.

Data collection

In the Netherlands, data was collected by a researcher from the Netherlands with German origins (NM), a researcher from Belgium (AVD) and one Dutch researcher (MC). All attended a training on Rapid Qualitative Inquiry (RQI) [44] provided by a professor who specialises in medical anthropology (RR). RQI is an efficient, team-based approach to gain insight into complex situations [44]. In Suriname, data was collected by four local researchers (AHM, MH and two colleagues) and four external researchers (NM, AVD and two research assistants). Surinamese researchers also followed an online training on RQI prior to data collection provided by NM and AVD. Preliminary findings were discussed during regular debriefing where local and external researchers provided insights from the 'inside' and an 'outside' perspective.

In both countries, HCPs were invited to participate in the interviews. Participants were informed about the purpose of the study and if consent was obtained interviews were scheduled. In collaboration with local researchers, online and face-to-face semi-structured interviews were conducted and audio recorded. The CFIR guided the development of the interview guide, which consisted of two parts. The first part explored the current situation of maternity and new-born care and the characteristics and needs of the target population. Subsequently, a vignette, or a four-minute video introduced GC (for respondents who had no to little prior knowledge about GC), followed by questions regarding the HCPs' overall perspectives on GC and its suitability for their client population (e.g., *What do you like/dislike about GC?*), as well as their anticipations concerning the introduction of GC in their organization (e.g., *What will be challenging for you as a GC facilitator? What do you need to resolve those challenges?*).

Data analysis

The Framework Method (FM) was selected to structure coding and analysis of the data as it allowed for systematic comparison of findings from the Netherlands and Suriname [45, 46]. First, audio recordings of interviews were transcribed verbatim and coded according to the predefined coding tree, which was based on the updated CFIR [18] and complemented with inductively derived codes [47]. Next, coded data were reduced by systematically summarising data in matrices where rows correspond to cases, columns to codes and where cells summarise data [45]. Matrix outputs of the Netherlands and Suriname were analysed using a cross-case approach to explore and identify patterns and key concepts of implementability in each country. Subsequently, a cross-country comparison was made and overarching themes were identified, allowing for a comprehensive

understanding of the similarities and differences between implementation determinants across the Netherlands and Suriname. Throughout the coding and analysis, reflective notes were taken and co-authors engaged in active discussions. To ensure cultural validity and contextual relevance findings underwent member checking by local researchers who are well-acquainted with the 'insider perspective' (AHM, MH). Moreover, researchers (NM and TH) contemplated different viewpoints, compared interview transcripts, linked findings to theoretical concepts and in this way clarified ambiguous points and revised themes. For example, one data point that underwent thorough discussion was the issue of workload/staff shortage. Eventually, consensus was reached to place this critical factor under the inner setting domain. This iterative approach not only refined our understanding of specific data points but also illuminated the complex interplay of factors across CFIR domains.

Results

Characteristics of the study participants

Thirty two interviews were performed: sixteen interviews with Dutch midwives who intended to implement GC, and sixteen interviews with Surinamese HCPs (seven midwives, five nurses, four GPs). With the exception of one midwife who led the implementation of the antenatal GC model *SamenZwanger* in a hospital, all interviewees were employed at one of the implementation sites, in primary care settings. The semi-structured interviews were conducted online or face-to-face and lasted 30 to 60 min. With the exception of one interview in English language, all interviews were conducted in Dutch language.

Implementation determinants

Factors that influence the implementability of GC in the Dutch and Surinamese settings were identified and matched to the CFIR domains [19, 20]. Whereas some of these factors identified corresponded seamlessly to CFIR constructs (e.g., competency and motivation), others did not correspond to any CFIR construct and were mapped onto the CFIR domain deemed most appropriate (e.g., characteristics of maternity care) fig 1.

Inner setting: characteristics of maternity care

Role division

At the Dutch implementation sites, all trained midwives and practice assistants were designated GC facilitators. In Suriname, role division was less clear. While midwives were seen as suitable candidates for GC facilitation by all HCPs, nurses also showed willingness to co-facilitate, while GPs anticipated less direct involvement and assumed an advisory role.

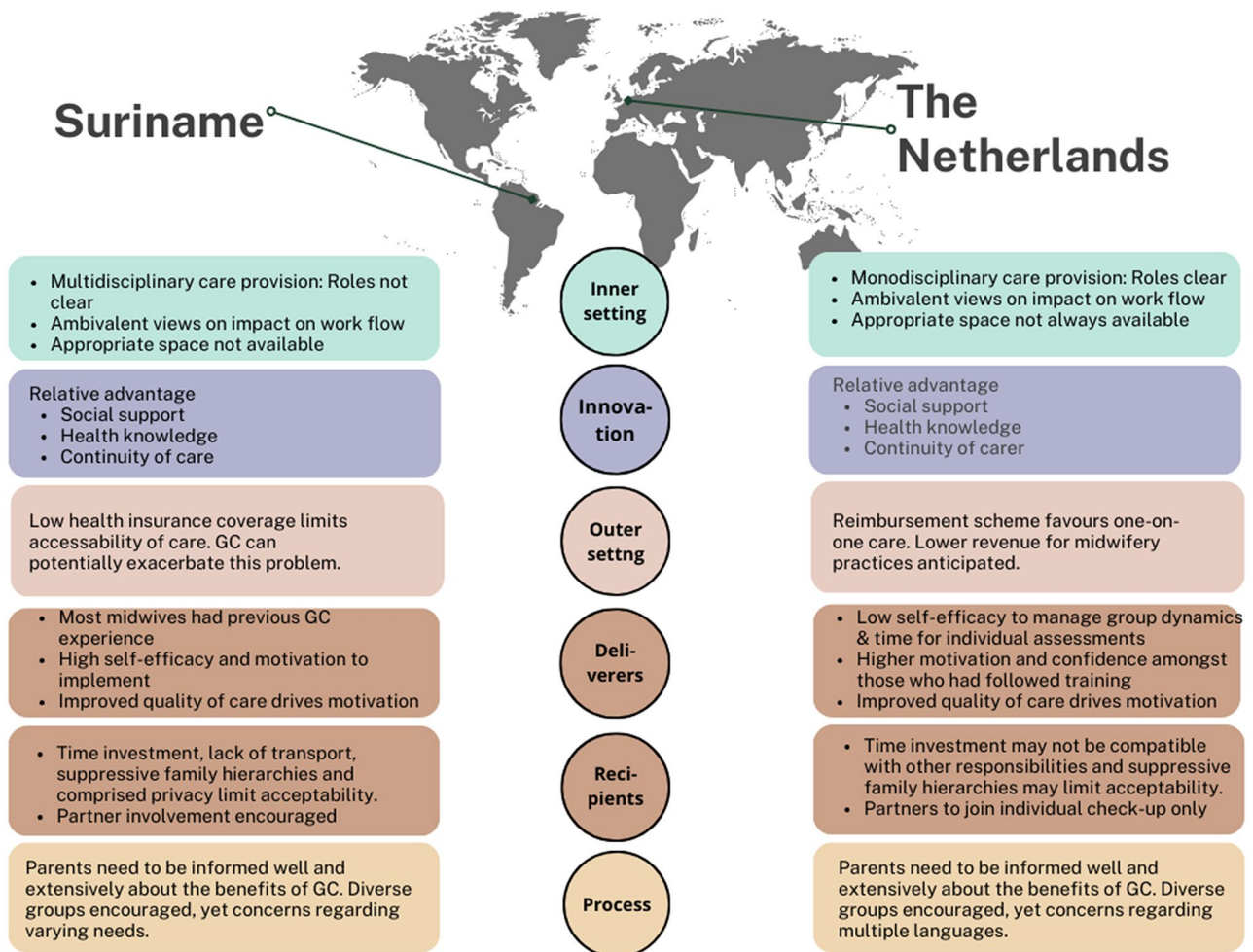


Fig. 1 Implementation determinants in Suriname and the Netherlands

Work infrastructure/flow

Concerns regarding the substantial time investment required to set up and facilitate GC were raised by respondents from both countries. The logistical burden was experienced as particularly heavy in one Dutch setting as one midwife explained:

“Well, I think that it is because, at this moment in particular, we don’t yet have a concrete plan. The ambition is there, the enthusiasm is there. I also sincerely believe that we can recruit people. But the logistics... There is still a bit of setback because we just don’t have a clear picture of the optimal way to organise everything.” Clinical midwife, the Netherlands.

Organisational challenges also surfaced in interviews with Surinamese HCPs, particularly with regard to time and staff capacity. In Suriname, at least one HCP at each implementation site experienced heavy workload and staff shortage. While most Surinamese midwives would

prefer scheduling GC during their regular working hours, a GP suggested to schedule GC outside of the midwives’ regular working hours without additional compensation as this would save resources. However, not all interviewees anticipated an additional time investment. In fact, several HCPs from both countries expected that GC would be more time efficient than individual care. This discussion on staff capacity and resources was more pronounced in Suriname where GC was considered additional care on top of standard care, whereas Dutch midwives planned to offer GC *instead* of one-on-one care.

Physical infrastructure

One of the four implementation sites in the Netherlands did not have an appropriate space available and would have to rent a sufficiently spacious room elsewhere to host GC sessions. Surinamese HCPs shared this concern and linked it with the recipients’ likely concern for confidentiality (as described under 5. **Recipient: acceptability, competing demands and paternal involvement**) in

mind, two Surinamese midwives emphasised the need for a sufficiently private room which was not available at the RGD clinics.

Innovation: relative advantage

Continuity of care(r)

As GC sessions are supposed to be consistently facilitated by the same HCPs, Dutch midwives expected improved continuity of carer, i.e. mothers would be seen by the same midwife throughout their ANC trajectory. In Suriname where provision of PNC is lacking, improved continuity of care was amongst the expected benefits of GC, as at least one GC session is held postpartum. Moreover, HCPs from both countries anticipated a stronger connection with mothers and their families.

Health education

Most HCPs from both countries perceived GC's extended duration and facilitative (rather than didactic) style as advantageous for their client's learning. While a few Dutch midwives doubted the usefulness of the suggested tools to facilitate discussions, the majority of HCPs (both Dutch and Surinamese) thought that the GC methods would encourage parents to take on an active role in their own learning experiences. In this way, their health knowledge and preparedness for parenthood would increase. HCPs from both countries thought that discussing topics related to lifestyle, pregnancy, and childbirth could effectively prevent pregnancy complications (i.e., gestational diabetes, hypertension, overweight, intoxication). Moreover, while Dutch and Surinamese respondents agreed on the importance of addressing family planning, this was often mentioned by Surinamese HCPs in the light of the high prevalence of unintended and unwanted pregnancies in Suriname, especially amongst young women. In the Netherlands, interviewees did not mention unintended pregnancies as characteristic of their client population. Furthermore, Surinamese HCPs emphasized the need to include topics which would help parents prepare for the postpartum period (e.g., planning support, managing postpartum pain and depression, and new-born care).

Social support

HCPs from both countries implied that GC could effectively address the need for additional social support and thus improve mothers' overall well-being. HCPs discussed social issues prevalent in both countries (e.g., financial concerns and substance use), and others which were context-specific (e.g., housing problems in the Netherlands or unemployment in Suriname). Dutch and Surinamese HCPs agreed that bringing parents together and sharing experiences in GC would create a social network, which would be extremely valuable to help them

cope with such issues. A Dutch midwife who participated in GC during her own pregnancy explained:

"The trajectory after that [when GC is finished], when you are no longer assigned a midwife and are with your new-born child and you wonder even as a midwife yourself: 'Is this normal?'. And then it is nice that you can text others in such a group [chat]: 'Hey this is what I see, this is what I experience, can anyone relate?'. I believe that even as a midwife, let alone as a layperson, you can experience that you do not know where to go or what to do. So, it is very nice to still be able to rely on that [support network]"
Community midwife, the Netherlands.

Outer setting: financing

In Suriname, HCPs noticed that most mothers are not (completely) insured for ANC/PNC costs. Mothers who apply for new health insurance cards often face bureaucratic hurdles and lengthy delays. Uninsured clients must pay out of pocket for medical treatments and preventative examinations, which many cannot afford. HCPs from Suriname feared that the implementation of GC may exacerbate this issue of limited accessibility of care, because GC would be offered in addition to individual care in Suriname, rendering it more costly. Thus, parents with low income would be unable to participate.

In the Netherlands, concerns regarding funding discouraged Dutch HCPs to implement GC. Midwives in the Netherlands pointed out that the facilitator training for midwives (as described under 4. GC facilitators: HCP self-efficacy and motivation) was costly, and they doubted their willingness to follow the training if it would not have been subsidised. Moreover, concerns regarding the reimbursement scheme and the cost-effectiveness of GC were raised by Dutch midwives.

Innovation deliverers: HCP self-efficacy and motivation

From the interviews with HCPs from both countries, self-efficacy and motivation emerged as intertwined determinants to GC implementation.

Facilitation skills and experience

Although the majority of the respondents from both countries recognised that their work experience has provided them with a range of competencies to provide GC, they also mentioned the need for additional skills, such as guiding group discussions, managing dynamics, and fostering a respectful environment. Dutch midwives raised concerns about their readiness to "shift gears mentally" from individual to group care. Two Dutch midwives specifically stressed that they were nervous about speaking in front of a group of people.

“And will we manage to shift gears mentally? Some of us have been working like this for ten if not twenty years.” Community midwife, the Netherlands.

Furthermore, the majority of Dutch midwives doubted their ability to effectively manage the time allocated for the three-minute individual assessment in GC, while also addressing the emotional needs of mothers. Such concerns regarding time-management were not raised in Suriname.

Overall HCPs with previous GC experience appeared to be more self-confident and have alleviated trust in GC methods and motivation to implementation. For example, a two-day facilitator training was provided for the Dutch HCPs to familiarise them with the GC model. Among the respondents who had already followed the training, it not only increased their enthusiasm but removed pre-existing scepticism. All Surinamese midwives had previous GC facilitation experience which had been a positive experience for them and resulted in positive feedback from participants, increasing their motivation to implement.

Motivation

Dutch and Surinamese respondents agreed that improved quality of care was the primary driving force behind their motivation to implement GC. Moreover, the two midwives employed at the Dutch hospital setting aspired to enhance primary and secondary care collaboration. Two Dutch community midwives explained that the high saturation of midwifery practices in their neighbourhood led to competition for clients. They saw the implementation of GC as a way to distinguish their practice and gain a competitive advantage. Surinamese respondents emphasised that they do not want to put their efforts into a short-term initiative but instead want to create an improved, long-lasting approach to care provision.

Innovation recipient: acceptability, competing demands and paternal involvement

Acceptability and competing demands

HCPs from both countries expected that the demanded time investment may render their client population apprehensive of participating in GC, as it may collide with work, or care obligations. Dutch HCPs emphasised the need to accommodate for mothers' work schedules, for example by organising GC in the evening. In Suriname lack of transportation to RGD clinics may affect willingness to participate. Moreover, Surinamese HCPs expected their patients to raise concerns regarding compromised privacy in GC. One Surinamese GP suggested that GC might not suit the Surinamese context due to privacy reasons.

“I have to say that, in Suriname, we are quite wary of any information that we are asked to share with others.” Midwife, Suriname.

While such privacy-related concerns were not voiced by Dutch interviewees, suppressive family hierarchies that may interfere with GC attendance can be found in (sub-)cultures in both countries according to interviewed HCPs. Dutch and Surinamese respondents explained that in some of the respective (sub-)cultures the decision-making power is held by men, and they may forbid GC participation. Therefore, HCPs from both countries emphasised the need to not only engage and educate mothers but also their partners/families about the advantages of GC.

Paternal involvement

Dutch and Surinamese HCPs agreed that when partners attend standard care appointments, their presence often influences the HCP-service user communication. For example, partners dominate the conversation, or mothers do not speak freely. This is particularly noticeable when partners act as interpreters when mothers do not speak Dutch, which is not rare in the Dutch settings. Therefore, Dutch HCPs suggested that partners only join for the individual check-ups and not during group discussions. Surinamese respondents, on the other hand, preferred to involve partners as much as possible, acknowledging their active role in the pregnancy and preparing them for the post-partum period.

“Do you know how very important it is that the father also understands that it is beneficial for him to be involved in the process, in the preparation of having a new human being or a baby and that it is also pleasant for the mother to get that support from her partner? That especially is important.” GP, Suriname.

Implementation process: tailored implementation strategies

Recruiting and engaging A few Dutch and Surinamese midwives suggested incorporating a detailed introduction to GC in the first individual ANC appointment to raise awareness. Information should be communicated using accessible language (communication that considers lower reading levels or different language needs) and inclusive, attractive, and relatable visuals. Interviewees from both

countries proposed raising awareness of GC through campaigns using traditional and social media.

Recruitment of diverse groups

The majority of respondents from both the Netherlands and Suriname supported the recruitment of diverse groups with regard to culture and socioeconomic status. However, selecting content that matches variable educational needs could be challenging, acknowledged HCPs from both countries. Moreover, in the Netherlands, respondents shared wariness about language barriers, whereas implementability of mixed-language groups was not a concern among Surinamese HCPs, as HCPs and clients are predominantly multilingual.

Discussion

Our study on the perceptions of Dutch and Surinamese HCPs revealed that contextual factors related to the intervention, individuals involved, inner setting and implementation process influence the implementability of GC. However, we found that factors related to the outer setting were most influential. Not only were the most prominent discrepancies between the two countries found in the outer setting, but also their impact was discernible in all other layers of context.

Comparison of contextual factors

While two commonly reported benefits of GC, education on health promotion and social support [7, 48–52], are the most prominent advantages of GC named in both countries, views on anticipated improvements in continuity of care(r) differed between Dutch and Surinamese respondents (**intervention domain, relative advantage**). These divergent expectations may be linked to structural disparities between the health care systems of both countries (**outer setting**). Surinamese HCPs expected that the implementation of GC can foster continuity of care, which is urgently needed.

especially for mothers delivering in secondary care facilities (86%) [39] and who do not receive postnatal care. In contrast, Dutch postnatal care is exceptionally well-positioned, yet continuity of carer is lacking in most Dutch midwifery practices where mothers encounter a number of different midwives during their ANC trajectory. Therefore, Dutch midwives viewed ‘continuity of carer’ rather than ‘continuity of care’ as a potential benefit of GC. Contrary to the opinion voiced by Suriname HCPs, we argue that it is not entirely clear how the postnatal care gap in the Surinamese context can be bridged with GC. Although not explicitly stated in the interviews, we suspect that Surinamese HCPs hoped for GC-induced continuity of care in two ways: (1) mothers who participate in GC would also deliver at the RGD clinics and

hence receive postnatal care provided by RGD midwives; (2) antenatal GC would seamlessly transition into postnatal GC. While the idea to encourage mothers during GC sessions to deliver at RGD clinics seems plausible, ideas regarding a continuous GC model that extends into the postnatal period remained vague. Usually, the antenatal GC model includes one postnatal session that can hardly compensate for well-organized postpartum care, including home visits, during the first days/weeks postpartum. The fact that Surinamese and Dutch midwives expected divergent benefits (continuity of care vs. continuity of carer) can be linked to different needs in both countries. We argue that inventorying HCP’s needs and expectations prior to the implementation of GC is advisable as it facilitates hands-on planning, which in turn fosters realistic expectations.

Relevant contextual factors related to the innovation deliverers were remarkably similar between countries (**individuals domain**). Heightened quality of care (**innovation domain, relative advantage**) was the most frequently mentioned reason to implement GC in Suriname and in the Netherlands (**individuals domain, motivation**). Furthermore, two Dutch midwives admitted that the idea that GC can attract clients, and in this way create a competitive advantage over other midwifery practices, played into their motivation. Such ideas did not surface in the interviews with Surinamese HCPs.

This motivational discrepancy makes sense in the light of structural differences between the two health care systems (**outer setting**). In the Netherlands, midwives run their own clinics. They are not only HCPs but also owners of small businesses and they receive funding for each client, which is why competition for clients is more important to them than for Surinamese HCPs, who are all employed by a public health care institution and do not have to compete for clients with each other. Midwives from both countries are primarily intrinsically motivated, yet, health care system factors also shape their motivation. Thorough understanding of the health care system and payment flows will help implementers comprehend HCP’s motivation to implement GC. Moreover, in both countries, interconnection between motivation and prior GC experience as well as between motivation and self-efficacy were identified. Correspondingly, a previous study found that Australian midwives grew confidence in their facilitation skills and appreciation for the GC model with experience [53]. Thus, it is not surprising that Surinamese midwives – who were all trained and had some GC facilitation experience – appeared on average more confident in their capability to successfully conduct GC. A high-quality training prior to implementation and regular intervision and/or supervision sessions may foster confidence and motivation. Moreover, it seems important that trained midwives run groups regularly to gain experience.

Despite the aforementioned parallels in the innovation domain (**expected advantages**) and the individuals domain (**innovation deliverers, motivation and self-efficacy**), distinct concerns regarding factors in the outer setting as well as the inner setting became evident. In Suriname, the additional financial burden of GC will ultimately be carried by **innovation recipients** who are insufficiently insured (**outer setting domain**), limiting accessibility. Dutch HCPs, on the other hand, anticipated a lower revenue for midwiferies (**inner setting domain, resources**), potentially hampering the sustainability of providing GC. A recent study from the Netherlands proves that these concerns are valid; costs are €45 higher per person in GC, compared to one-on-one care [54]. Limited resources and funding are indeed common obstacles when implementing GC [55–59]. Frequently, implementors rely on subsidies [55, 57], leaving GC in a vulnerable position where subsidies serve as a band aid to cover overt symptoms while the underlying condition - lack of sustained funding - remains untreated. Long-term changes at policy level (and the execution thereof) are needed in both countries to sustain GC beyond the timespan of this project (**outer setting domain**). In the Netherlands, a reimbursement plan that renders GC at least as profitable as one-on-one care for midwifery practices is warranted for sustained implementation. Given that the extra investment of €45 per person in GC is balanced out by €67 long-term cost saving per person - due to increased breastfeeding rates, reduced prevalence of pregnancy induced hypertension and decreased postpartum smoking - the development of a reimbursement plan that supports GC is also in line with the quadruple aim for optimizing health care systems [60]. Thus, corresponding amendments to reimbursement plans should be supported by health insurance companies and policy makers, and in fact the Dutch midwifery organisation KNOV (Koninklijke Nederlandse Organisatie van Verloskundigen) announced that such a reimbursement plan for GC will come into action in 2024 [61].

In Suriname, we argue that recipients must be fully insured against any costs associated with ANC; in practice and not merely theoretically (**outer setting domain**). Like child care (starting at six weeks postpartum), ANC, including GC, could be funded by the Surinamese government. However, due to economic hardship (**outer setting domain**), governmental funding for GC specifically will only be allocated once data on pregnancy outcomes and cost-effectiveness are available for GC in the Surinamese context [43]. In both countries, lobby work - with arguments anchored in local data - can advance the needed reimbursement/funding plan for GC. Moreover, to address the financial burden directly and promptly, managers at the Surinamese settings could consider offering GC *instead of* rather than *on top of* individual care (**inner setting domain**).

GC warrants not only financial resources but also human resources. While staff shortage is a major implementation

barrier in Suriname (**inner setting domain**), this was not identified as an obstacle in the Netherlands. Staff shortage in Suriname is inherently linked to governmental spending on health care; demonstrating how **outer setting** factors influence the **inner setting**.

Moreover, the monodisciplinary care provision in the Netherlands left no room for unclarity regarding role division, whereas Surinamese HCPs were less certain about the part they and their colleagues would play in implementing GC, as midwives, GPs, and obstetricians share care responsibilities during pregnancy in Suriname. This is yet another example of the impact **outer setting** factors (monodisciplinary vs. multidisciplinary care provision) have on the **inner setting** (role clarity).

Midwives from both countries feared that acceptability of GC could be low amongst their clients (**recipients domain**). Competing demands, such as care and work obligations, were named as potential barriers for participation in both countries, whereas privacy concerns were only named as a barrier for implementation in Suriname. Although privacy concerns are commonly found in the GC literature [59, 62–67] and also in the Dutch context [68, 69], their aggregation in Suriname may be explained by their rooting in tightly knit social networks (**outer setting domain**) [43]. Potentially low acceptability of recipients was also linked to paternalistic family structures that can be found in the Netherlands and in Suriname (**outer setting domain**). Hence, when developing recruitment strategies, buy-in of fathers and other male family members needs to be considered (**implementation process domain**).

HCPs from the Netherlands and Suriname had divergent opinions regarding the target population (**innovation recipients**). Dutch midwives prioritised openness of mothers and suggested to include partners merely during individual check-ups, whereas Surinamese HCPs stressed the need to include partners throughout. In light of the organisation of postnatal care in both contexts (**outer setting**), these divergent stances regarding partner involvement make sense. In the Netherlands postpartum care “kraamzorg” is exceptionally thorough: a postnatal carer visits the family home daily in the first week to support the new parents. In sharp contrast, most Surinamese mothers do not receive postnatal care and need to rely on their social environment for support. Hence, Surinamese midwives saw GC as a welcome opportunity to raise awareness amongst fathers of their postnatal duties.

As evident from our comparison of implementation factors in Suriname and the Netherlands, CFIR domains are inherently intertwined. While the most striking differences between both countries were found in the outer setting, they trickle down and affect all layers of context. As factors within and across domains influence each other and in combination impact implementation, it is hard to disentangle

them and conclude causal mechanisms [70]. Therefore, a holistic view of context is encouraged [70].

Still, our findings and other evidence point to the magnitude of outer setting (or macro-level) factors but they remain understudied, or underreported in context analyses [22]. Lack of guidance, or research tools may account for this scarcity [22]. For instance, outer setting factors are under emphasized in most determinant frameworks [70]. An alternative explanation for the underreporting of outer setting barriers is that they appear inalterable.

Limitations

The overall perception of GC may have been disproportionately positive due to selection bias as we interviewed HCPs at settings that agreed to implement GC. We also recognise that actual barriers and facilitators may differ from anticipated determinants [18]. However, as acknowledged in the CFIR addendum [18], pre-implementation context analyses are characterised by their tendency to focus on anticipated rather than actual implementation outcomes and evaluation activities will continue throughout the implementation process. Moreover, dependency on local researchers with less experience in qualitative research methods (e.g., use of closed-ended questions) during the peak of the COVID-19 pandemic led to a variable richness of data. Furthermore, several interviews were conducted online (due to travel restrictions/social distancing) and at times conversations were interrupted due to technical challenges. Moreover, as contextual factors are dynamic, external validity is limited.

Implications for research and practice

The findings of our contextual analyses raise a considerable dilemma as to how researchers and implementers should proceed when (for the scope of the project) insurmountable barriers (such as a need for amendments to reimbursement and health insurance systems) are encountered at an early stage? In this project, we formulated suggestions on how to adapt and implement GC and proceeded with implementation. We did not attempt to alter the health care system (policies) of the two countries although they appear to be the bottleneck for implementation success. Ultimately, at a later stage, the GC_1000 process evaluation will show if those outer setting barriers we identified actually hindered the implementation of GC. In the meantime, we are left to wonder if our way forward - proceeding to implement GC despite the identification of alarming barriers in the outer setting - was the best way forward.

Given that we had to meet our funder's targets (e.g., at least five groups in each country), stopping, or postponing the implementation was not a viable option. Arguably, more flexibility with regard to project targets within implementation projects is needed, as to enable cost-effective, sensible choices based on results of context analyses. Ideally, this flexibility is apparent in research proposals where

the possibility of obstacles that cannot be overcome timely is acknowledged and various possible scenarios and corresponding solutions are anticipated. In our case, a solution could have been to postpone the implementation and to focus on lobby work first to attain the needed health care system changes. In the Netherlands a mainly bottom-up approach was applied; from the introduction of GC in 2011 enthusiastic midwives, researchers, the midwifery organization and midwifery educators joined forces to implement, deliver evidence and influence policy makers through the use of (social) media and participation in relevant maternity care networks and programs. But should researchers be involved in such lobby work at all?

As aforementioned, in Suriname, governmental funding for GC will only become available if locally generated evidence points to improved pregnancy outcomes and cost-effectiveness. Thus, researchers could design and conduct studies, such as effectiveness-implementation hybrid designs [71], that are tailored to policy makers' decision-making process, before considering to embark on lobby work.

A different approach to implementation science proposals could also be considered. Contextual analyses are usually embedded in implementation science projects but their findings are frequently neglected [22, 72], because – as mentioned above – the show must go on. Arguably context analyses should be considered as separate studies that lay the groundwork for the decision to grant an implementation project, or not. When findings of contextual analyses indicate that implementation failure is likely (e.g., due to understaffed health care systems, lack of funding, lack of health insurance coverage), implementation strategies to overcome decisive contextual barriers need be developed first, or resources might be better allocated elsewhere. While Mielke and colleagues argue that funding agencies need to develop specific opportunities to improve methodologies and reporting of context analyses [22], we take the next step forward and argue that these specific opportunities should take the shape of calls for implementation projects in a two-step-process, where context analyses are the first step and gateway to step two, implementation and evaluation. Such a two-step-process of grant allocation would ensure the “implementation of implementation science”, or the connection between implementation science and implementation practice [72], at least at the start of the project. Subsequently, context needs to be addressed throughout the entire implementation process and not merely again at end of the project when evaluation reports are due [72]. Hence, study designs that allow for timely responsiveness to contextual factors, such as prospective rather than retrospective process evaluations, should be considered [72].

If this two-step-process of grant allocation sounds radical, another suggestion is to raise the standards of research proposals for implementation science projects. To an extent,

outer settings barriers can be anticipated even before collecting data for context analyses. For instance, thorough literature search and sound knowledge of policies would have informed us about challenges regarding health insurance coverage and staff shortages in the Surinamese health care sector [73]. The Basel Approach for coNtextual ANALYSIS (BANANA) proposes a standardised approach to contextual analyses consisting of six components, one of them (component two) includes mapping what is already known about the specific implementation context [74]. We consider this component imperative and suggest that it should proceed the actual context analysis and that it should be included in the research proposal. Such a thorough research proposal would anticipate health care system barriers and propose strategic solutions (or if no solutions can be formulated the proposal would become redundant as the best way forward would be the cessation of the project). The Shaping Public hEalth poliCies To Reduce ineqUalities and harM (SPECTRUM) consortium aims to specifically address outer setting factors, including commercial determinants, to study and more importantly shape public health policies; the SPECTRUM consortium's comprehensive theory of change can serve as a source of inspiration for proposals development [75]. Moreover, funding is such a common obstacle [70, 76, 77] that a clear funding plan should be outlined in every implementation research proposal.

Naturally, such ideas will spark discord amongst implementation scientists, who are under a lot of pressure to secure funding and who do not have the time at hand to write the high-quality proposals we plead for. Work pressure and working conditions of academics are well-known problems of which a detailed discussion goes beyond the scope of this article. However, if we aim for high-quality research proposals that will create the room for addressing contextual factors and ultimately for sensible choices in implementation research projects (which in turn will allocate resources more appropriately), then we need to pave the way for them.

Abbreviations

ANC	Antenatal Care
BANANA	Basel Approach for coNtextual ANALYSIS
CFIR	Consolidated Framework for Implementation Research
FM	Framework Method
GC	Group care
GC_1000	Group Care in the first 1000 days
GP	General Practitioner
HCP	Healthcare professional
KNOV	Koninklijke Nederlandse Organisatie van Verloskundigen
MMR	Maternal Mortality Ratios
PERISUR	Foundation for Perinatal Interventions and Research in Suriname
PNC	Postnatal care
RGD	Regionale Gezondheidsdienst/Regional Health Service
SPECTRUM	Shaping Public hEalth poliCies To Reduce ineqUalities and harm
WHO	World Health Organization

Acknowledgements

We thank all interviewed health care professionals for their contribution.

Author contributions

MC, MR, RR, KB, RMJJK, NM, and AD designed the research project. NM and TH were responsible for in depth analysis while MH, AHM and AD contributed to preliminary understanding of data. MH clarified in-depth interpretation of data in local context. NM, TH, RMJJK and MC were major contributors in writing the manuscript, and CA provided input to the structure of the results section. All authors read and approved the final manuscript.

Funding

GC_1000 began in January 2020 and is funded for a four and a half year period through the European Commission's Horizon 2020 research and innovation program under grant agreement 848147.

Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate

The study was approved by the ethics committee of the Ministry of Health of Suriname and the ethics committee of the Leiden University Medical Centre. All methods were carried out in accordance with relevant guidelines and regulations. Informed consent was obtained from all the participants and/or legal guardians for the study.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

Author details

¹Leiden University Medical Centre, Leiden, The Netherlands

²Faculty of Science, Vrije Universiteit Amsterdam, Amsterdam, The Netherlands

³Foundation for Perinatal Interventions and Research in Suriname (Perisur), Paramaribo, Suriname

⁴Health Economics and HIV/AIDS Research Division (HEARD), University of KwaZulu-Natal, Durban, South Africa

⁵Vrije Universiteit Brussel (VUB), Universitair ziekenhuis Brussel (UZ Brussel), Brussel, Belgium

⁶Universiteit Antwerpen, Antwerpen, Belgium

⁷Department of Public Health, Vrije Universiteit Brussel (VUB), Brussel, Belgium

⁸Department of Nursing and Midwifery Research Group (NUMID), Universitair Ziekenhuis Brussel (UZ Brussel), Brussel, Belgium

⁹Amsterdam Institute for Global Health and Development, Amsterdam, The Netherlands

¹⁰Children's Institute, University of Cape Town, Amsterdam, The Netherlands

¹¹TNO (Nederlandse organisatie voor toegepast-natuurwetenschappelijk onderzoek), Leiden, The Netherlands

¹²University Maastricht, Maastricht, The Netherlands

Received: 30 November 2023 / Accepted: 25 July 2024

Published online: 12 August 2024

References

1. Gynaecologists R. A.a.N.Z.C.o.O.a. Maternity care in Australia: a framework for a healthy new generation of Australians Melbourne. (2017).
2. Almond D, Currie J. Killing me softly: the fetal origins hypothesis. *J Economic Perspect.* 2011;25:153–72.
3. World Health Organization. WHO recommendations on antenatal care for a positive pregnancy experience, WHO. (2016).
4. Rising SS. Centering pregnancy. An interdisciplinary model of empowerment. *J Nurse Midwifery.* 1998;43:46–54.

5. Trudnak TE, Arboleda E, Kirby RS, Perrin K. Outcomes of Latina women in CenteringPregnancy group prenatal care compared with individual prenatal care. *J Midwifery Women's Health*. 2013;58:396–403.
6. Rotundo G. Centering pregnancy: the benefits of group prenatal care. *Nurs Women's Health*. 2011;15:508–18.
7. Hunter LJ, et al. Better together: a qualitative exploration of women's perceptions and experiences of group antenatal care. *Women Birth*. 2019;32:336–45.
8. Picklesimer AH, Billings D, Hale N, Blackhurst D, Covington-Kolb S. The effect of CenteringPregnancy group prenatal care on preterm birth in a low-income population. *Am J Obstet Gynecol*. 2012;206:e415411–7.
9. Ickovics JR, et al. Group Prenatal Care and perinatal outcomes. *Obstet Gynecol*. 2007;110:330–9.
10. Ickovics JR, et al. Group prenatal care and preterm birth weight: results from a matched cohort study at public clinics. *Obstet Gynecol*. 2003;102:1051–7.
11. Carter EB, et al. Group prenatal care compared with traditional prenatal care: a systematic review and Meta-analysis. *Obstet Gynecol*. 2016;128:551–61.
12. Cunningham SD, et al. Group prenatal care reduces risk of Preterm Birth and Low Birth Weight: a matched cohort study. *J Womens Health (Larchmt)*. 2019;28:17–22.
13. Durlak JA, DuPre EP, Implementation Matters. A review of Research on the influence of implementation on Program outcomes and the factors affecting implementation. *Am J Community Psychol*. 2008;41:327.
14. Schaaf M, et al. Unpacking power dynamics in research and evaluation on social accountability for sexual and reproductive health and rights. *Int J Equity Health*. 2021;20:1–6.
15. Allen-Scott L, Hatfield J, McIntyre L. A scoping review of unintended harm associated with public health interventions: towards a typology and an understanding of underlying factors. *Int J Public Health*. 2014;59:3–14.
16. Mumtaz Z. Can Community Midwives establish financially sustainable practices in the private sector? Lessons from the Integrated Afghan Refugee Assistance Program Midwifery Training Project, Baluchistan. (2014).
17. May C. Towards a general theory of implementation. *Implement Sci*. 2013;8:1–14.
18. Damschroder LJ, Reardon CM, Opra Widerquist MA, Lowery J. Conceptualizing outcomes for use with the Consolidated Framework for Implementation Research (CFIR): the CFIR outcomes Addendum. *Implement Sci* 17(2022).
19. Damschroder LJ, et al. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. *Implement Sci*. 2009;4:50.
20. Damschroder LJ, Reardon CM, Widerquist MAO, Lowery J. The updated Consolidated Framework for Implementation Research based on user feedback. *Implement Sci*. 2022;17:1–16.
21. Shelton RC, Adsul P, Oh A. Recommendations for addressing structural racism in implementation science: a call to the field. *Ethn Dis*. 2021;31:357.
22. Mielke J et al. Methodological approaches to study context in intervention implementation studies: an evidence gap map. *BMC Med Res Methodol* 22(2022).
23. Hawe P, Shiell A, Riley T. Theorising interventions as events in systems. *Am J Community Psychol*. 2009;43:267–76.
24. Martens N et al. Group Care in the first 1000 days: implementation and process evaluation of contextually adapted antenatal and postnatal group care targeting diverse vulnerable populations in high-, middle- and low-resource settings. *Implement Sci Commun* 3(2022).
25. Vlassak E, Bessems K, Gubbels J. The Experiences of Midwives in Caring for Vulnerable Pregnant Women in The Netherlands: A Qualitative Cross-Sectional Study. in *Healthcare*, Vol. 11 130MDPI, (2022).
26. Finlay S, Sandall J. Someone's rooting for you: continuity, advocacy and street-level bureaucracy in UK maternal healthcare. *Soc Sci Med*. 2009;69:1228–35.
27. Verschueren KJC et al. Bottom-up development of national obstetric guidelines in middle-income country Suriname. *BMC Health Serv Res* 19(2019).
28. Glasgow RE et al. RE-AIM planning and evaluation Framework: adapting to New Science and Practice with a 20-Year review. *Front Public Health* 7(2019).
29. Nilsen P. Making sense of implementation theories, models, and frameworks. *Implement Sci*. 2020;30:53–79.
30. The World Bank. Vol. 2023 (The World Bank, 2023).
31. Kallianidis A et al. Confidential enquiry into maternal deaths in the Netherlands, 2006–2018: a retrospective cohort study. (2021).
32. Bahadoer S, et al. Ethnic disparities in maternal obesity and weight gain during pregnancy. The Generation R Study. *Eur J Obstet Gynecol Reproductive Biology*. 2015;193:51–60.
33. Perdok H, et al. Opinions of maternity care professionals and other stakeholders about integration of maternity care: a qualitative study in the Netherlands. *BMC Pregnancy Childbirth*. 2016;16:1–12.
34. Hollander M, de Miranda E, Vandenbussche F, van Dillen J, Holten L. Addressing a need. Holistic midwifery in the Netherlands: a qualitative analysis. *PLoS ONE*. 2019;14:e0220489.
35. NIVEL. Cijfers uit de Nivel-registratie van verloskundigen. (2021).
36. Rijnders M, Jans S, Aalhuizen I, Detmar S, Crone M. Women-centered care: implementation of CenteringPregnancy® in the Netherlands. *Birth*. 2019;46:450–60.
37. Rotterdam G. Aanmeldpunt Moeders van Rotterdam. Vol. 2023 (2023).
38. PAHO. Suriname - Country Profile Vol. 2023. Pan American Health Organization; 2023.
39. Kodan LR, et al. Trends in maternal mortality in Suriname: 3 confidential enquiries in 3 decades. *AJOG Global Rep*. 2021;1:100004.
40. Ministerie van Volksgezondheid. Maternal and Newborn Health Strategy 2021–2025.
41. Housing. M.o.S.A.a.P. Suriname Multiple Indicator Cluster Survey 2018, Survey Findings Report. (2019).
42. Hindori-Mohangoo AD, Hindori MP. Innovatieve zorg rondom zwangerschap en geboorte in Suriname: ervaringen van het Perisur project Paramaribo. (2017).
43. Martens N et al. Anticipated benefits and challenges of implementing group care in Suriname's maternity and child care sector: a contextual analysis. *BMC Pregnancy Childbirth* 23(2023).
44. Beebe J. Rapid qualitative inquiry: a field guide to team-based assessment. Rowman & Littlefield; 2014.
45. Gale NK, Heath G, Cameron E, Rashid S, Redwood S. Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC Med Res Methodol*. 2013;13:1–8.
46. Goldsmith LJ. Using Framework Analysis in Applied qualitative research. *Qualitative Rep* 26(2021).
47. Terry G, et al. The SAGE handbook of qualitative research in psychology. SAGE Handb Qualitative Res Psychol. 2017;2:17–36.
48. Adaji SE, et al. Women's experience with group prenatal care in a rural community in northern Nigeria. *Int J Gynecol Obstet*. 2019;145:164–9.
49. Ahrne M et al. Group antenatal care (gANC) for somali-speaking women in Sweden – a process evaluation. *BMC Pregnancy Childbirth* 22(2022).
50. Andersson E, Christensson K, Hildingsson I. Parents' experiences and perceptions of group-based antenatal care in four clinics in Sweden. *Midwifery*. 2012;28:502–8.
51. Benediktsson I et al. Comparing CenteringPregnancy® to standard prenatal care plus prenatal education. *BMC Pregnancy Childbirth* 13(2013).
52. Craswell A, Kearney L, Reed R. Expecting and connecting group pregnancy care: evaluation of a collaborative clinic. *Women Birth*. 2016;29:416–22.
53. Teate A, Leap N, Homer CS. Midwives' experiences of becoming CenteringPregnancy facilitators: a pilot study in Sydney, Australia. *Women Birth*. 2013;26:e31–6.
54. Jans S, Westra X, Crone M, van den Akker-van ME, Rijnders M. Long-term cost savings with centering-based group prenatal care. *Midwifery*, 103829 (2023).
55. Novick G, Womack JA, Sadler LS. Beyond implementation: sustaining group prenatal care and Group Well-Child Care. *J Midwifery Women's Health*. 2020;65:512–9.
56. Novick G, Sadler LS, Knaf KA, Groce NE, Kennedy HP. In a hard spot: providing group prenatal care in two urban clinics. *Midwifery*. 2013;29:690–7.
57. Novick G, et al. Perceptions of barriers and facilitators during implementation of a Complex Model of Group Prenatal Care in six Urban sites. *Res Nurs Health*. 2015;38:462–74.
58. Wiseman O, et al. The challenges and opportunities for implementing group antenatal care ('Pregnancy circles') as part of standard NHS maternity care: a co-designed qualitative study. *Midwifery*. 2022;109:103333.
59. Pekkala J, et al. Key considerations for implementing group prenatal care: lessons from 60 practices. *J Midwifery Women's Health*. 2020;65:208–15.
60. Bodenheimer T, Sinsky C. From triple to quadruple aim: care of the patient requires care of the provider. *Annals Family Med*. 2014;12:573–6.
61. knov. NZA komt met tarief Centering-based Interactieve Prenatale Groepszorg. Vol. 2023 (2023).
62. Novick G, et al. Women's experience of group prenatal care. *Qual Health Res*. 2011;21:97–116.
63. Phillippi JC, Myers CR. Reasons women in Appalachia decline CenteringPregnancy Care. *J Midwifery Women's Health*. 2013;58:516–22.

64. Andrade-Romo Z, et al. Group prenatal care: effectiveness and challenges to implementation. *Rev Saúde Pública*. 2019;53:85.
65. Kennedy HP, et al. I wasn't Alone—A study of group prenatal care in the military. *J Midwifery Women's Health*. 2009;54:176–83.
66. Connor KA, Duran G, Faiz-Nassar M, Mmari K, Minkovitz CS. Feasibility of implementing group well baby/well woman dyad care at federally qualified health centers. *Acad Pediatr*. 2018;18:510–5.
67. Sayinzoga F, et al. Use of a facilitated group process to design and implement a group antenatal and postnatal care program in Rwanda. *J Midwifery Women's Health*. 2018;63:593–601.
68. Kweekel L, Gerrits T, Rijnders M, Brown P. The role of Trust in CenteringPregnancy: Building Interpersonal Trust relationships in Group-based prenatal care in the Netherlands. *Birth*. 2017;44:41–7.
69. Wagjio MaR, et al. CenteringPregnancy in the Netherlands: who engages, who doesn't, and why. *Birth*. 2022;49:329–40.
70. Nilsen P, Bernhardsson S. Context matters in implementation science: a scoping review of determinant frameworks that describe contextual determinants for implementation outcomes. *BMC Health Serv Res*. 2019;19:1–21.
71. Curran GM, Bauer M, Mittman B, Pyne JM, Stetler C. Effectiveness-implementation hybrid designs: combining elements of clinical effectiveness and implementation research to enhance public health impact. *Med Care*. 2012;50:217.
72. Harvey G et al. Connecting the science and practice of implementation—applying the lens of context to inform study design in implementation research. *Front Health Serv* 3(2023).
73. Volksgezondheid Mv. National Maternal Health and Mortality Reduction Priority Plan. Ministrie van Volksgezondheid; 2019.
74. Mielke J et al. The Basel Approach for coNtextual ANALysis (BANANA) in implementation Science using the SMILe Project as an Example. Presentation at: ESPACOMP (2019).
75. Horton M et al. The SPECTRUM consortium: a new UK Prevention Research Partnership consortium focussed on the commercial determinants of health, the prevention of non-communicable diseases, and the reduction of health inequalities. *Wellcome open Res* 6(2021).
76. Padek MM, et al. Patterns and correlates of mis-implementation in state chronic disease public health practice in the United States. *BMC Public Health*. 2021;21:1–11.
77. Allen P, et al. Perspectives on program mis-implementation among US local public health departments. *BMC Health Serv Res*. 2020;20:1–11.

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.