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An in-depth implementation study of the Greenlandic parenting program MANU's initial stages of implementation

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ABSTRACT

In Greenland, the universal parenting programme MANU was developed in 2016. After documenting the initial years of MANU's implementation, this study aimed to identify implementation determinants focusing on i) which context MANU was conceptualised in and how it was developed and ii) how MANU was implemented and initially received in the healthcare system. A qualitative in-depth implementation study was conducted: document analysis, 38 interviews, one focus group discussion, and observations at two trainings for professionals and four parent sessions. Participants included stakeholders from both the health and social sector and from management to practitioner level. MANU was conceptualised based on a political desire to ensure children's well-being by providing parents with the essential parenting skills, and a desire to create a programme for the Greenlandic context. Professionals welcomed the MANU materials, but anticipated or experienced barriers in implementing MANU. The first years of MANU focused on disseminating material and training professionals. Despite political support and financial security enabling implementation, an assessment of the implementation capacity from the very beginning could have prevented some of the implementation challenges identified. Insights on parents' perspectives and local implementation are lacking and need to be brought to the forefront of the implementation process.

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Introduction

The first thousand days of a child's life, from when it is conceived and until its second birthday, are critical for shaping the foundation for health and development [1]. Focusing on maternal and early childhood health contributes to creating human capital and growing economies [1,2]. While the United Nations' thousand days movement primarily focuses on nutrition [1], existing parenting programmes from pregnancy to five years of age focus more broadly on the transition to parenthood and positive parenting [3,4]. Britto, et al. [4] describe that parenting interventions aim at improving parenting interactions, knowledge and practices. The delivery strategies of programmes can be *indicated*, that is, identified by screening, *selective* meaning available to sub-populations at risk, or *universal* meaning available to all [2]. In the meta-analyses by Kaminski, et al. [5] and Piquero, et al. [6] the effect of

parenting programmes was found to be promoting children's social development. However, the realist review by Gilmer, et al. [3] investigating universal parenting programmes found no strong evidence to suggest that a one-size-fits-all approach is effective.

Parenting programmes in Greenland

Greenland is the largest island and least densely populated country in the world with a total population of 56,081 and a fertility rate of 2.1 in 2019 [7]. The vast majority of the population, close to 90%, are ethnic Greenlanders (Inuit). With no connecting roads Greenland's 16 big communities and approximately 60 small communities, which are situated along the coastal strip, are isolated from each other and only connected by air or in some cases by sea. Countrywide, there are marked socioeconomic and

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List of abbreviations

CFIR = Consolidated Framework for Implementation Research; FGD = Focus Group Discussion; KTB = Klar til Barn (Prepared for Baby); MANU = Meeraq Angajoqqaat Nuannaarneq [child's and parent's good life]

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infrastructural differences between larger and smaller communities [8]. Greenland is a former Danish colony, which gained Home Rule in 1979 and Self Rule in 2009, but still is part of the Kingdom of Denmark. It has roughly adopted the Danish welfare-state model and healthcare system. The healthcare system has been fully administered by the Greenlandic government since 1992. The national language is Kalaallisut (Greenlandic), and both Danish and Greenlandic are taught in schools. In bigger communities and the healthcare system, Danish is usually the primary working language.

Greenlandic midwives were the backbone of the Greenlandic healthcare system when it was first established in the 19th century. In the mid-20th century, public health nurses (Danish: sundhedsplejersker) took over postnatal care. In the 1990s, the first prevention initiative in pre- and postnatal care for vulnerable families in Nuuk was initiated, following other private and public initiatives in 2007. These programmes had indicated or selective delivery strategies and were offered to vulnerable families with a caregiver having an addiction or abusive behaviour, or to teenage pregnancies.

In 2009, the first universal parenting programme “Klar til Barn”, meaning “Ready for Baby” and from here on out referred to as KTB, was adopted from Denmark [9]. The need for a universal programme was determined by a steering committee developing recommendations for children and family policies, based on a survey study describing children’s and families’ well-being in Greenland [10]. The steering committee consisted of the three ministries, the Ministry of Social Affairs, Ministry of Education and Ministry of Health, and representatives from relevant institutions (e.g. healthcare system) and organisations (e.g. civil society organisations) [11].

Box 1. MANU’s materials and content.

Following KTB’s evaluation in 2012, the Greenlandic parenting programme MANU was developed [15]. MANU stands for Meeraq Angajoqqaat Nuannaarneq

MANU’s materials and content

Professionals receive a 3-day training programme;
 Professionals receive a programme manual, three informative animations and PowerPoint slide show;
 Parents receive a book containing reading material and conversation questions;
 All material is provided in both Greenlandic and Danish;
 MANU consists of nine 2.5 hour-sessions of which six are taught antenatal and three postnatal;
 Sessions are given by midwives, public health nurses, or health assistants;
 Based on First 1,000 Days evidence;
 Based on three theories aiming to provide parents the basic skills of: i) sensitivity – parental embodied mentalising [12], ii) bonding – attachment theory [13], and iii) responsiveness – parental emotion regulation [14].

meaning “child’s and parent’s good life”. MANU focuses, as other international parenting programmes, on the transition to parenthood and positive parenting in the child’s first thousand days. MANU’s content builds on evidence from the first thousand days movement and theories from psychology. The programme is divided into two parts, namely 0–1 years, covering the period from conception to nine months of age, and 1–2 years. It is offered to both the child’s mother and father. Parents and professionals receive various guiding materials, see box 1. In (group)sessions, which are facilitated by midwives or public health nurses, parents are encouraged to reflect on their own childhood and together find their own healthy parenting style. Once implemented, MANU is expected to secure a healthy foundation for children’s development and contribute to the prevention of adverse childhood experiences [15,16].

Study objective

Several studies describe how interventions often fail to achieve the expected effect due to challenges associated with the implementation process [17–20]. Quantitative methods are predominantly used in intervention research and most often applied with the focus to determine the success of an intervention by its ultimate outcomes. Furthermore, in the past decade increasing attention has been given to intervention’s implementation capacity and process. The implementation process is largely decisive for whether or not an intervention creates the intended change [18,21,22]. In the 2017 Lancet Series on Advancing Early Childhood Development, the reviews found existing gaps between policies and integrated implementation capacity, and how implementation of parenting programmes often are fragmented and lack coordination [2,4,23]. Richter, et al. [23] conclude that “often, even when high-level horizontal coordination is achieved, implementation and integration frequently fall short at the local level. Therefore, vertical coordination to local levels is also needed to ensure effective implementation”.

The objective of the study was to identify determinants that influence the implementation of the parenting programme MANU in Greenland from a national perspective, while its implementation was still underway and at its beginning. The study took a whole-system approach focusing on the following research questions: i) which context MANU was conceptualised and developed in, and ii) how MANU was implemented and initially received in the healthcare system. In this study, only MANU 0–1 years was studied. The project

was initiated and developed in close collaboration with central stakeholders from central management and practitioner level, who also participated in the study.

Theoretical framework

This study takes a national perspective on the parenting programme MANU. In order to study the whole system [24], we considered it useful to combine three theoretical approaches, which guided data collection and analysis: the Complex adaptive systems perspective by Plsek and Greenhalgh [25], Nilsen and Bernhardsson [26] review on the contextual determinants in implementation science, and the two non-contextual categories (intervention characteristics and characteristics of individuals) from the Consolidated Framework of Implementation Research (CFIR) by Damschroder, et al. [17]. In the following the theories and how they complement each other are presented; additionally, the combined theoretical framework is visualised in Figure 1.

Complex adaptive systems are unpredictable [25]. Plsek and Greenhalgh [25] describe characteristics of complex adaptive systems, which here are translated into the context of the Greenlandic healthcare system, in which the parenting programme MANU is implemented. The Greenlandic healthcare system is embedded and co-evolves within other systems, and so do the individuals within the system. This leads to unexpected actions when change appears. The continuously emerging change from the interactions among health professionals and systems makes the implementation

process in a complex adaptive system unpredictable, requiring to abandon linear models and to respond flexibly to emerging opportunities [25]. The complex system perspective provides the underlying understanding of the healthcare system's unpredictability, which is depicted through the dotted lines and overlap of circles in the visualisation of the theoretical framework, see Figure 1. The non-linearity of the healthcare system is captured by the contextual levels reviewed and described by Nilsen and Bernhardsson [26].

In a scoping review, Nilsen and Bernhardsson [26] grouped contextual determinants influencing implementation of 17 frameworks into 12 contextual dimensions of determinants. Half of these dimensions were divided into micro, meso and macro level, while the other half were considered to affect multiple levels. In this study, the wider environment at macrolevel is the Greenlandic community at large, where exogenous influences (e.g. policies) can determine implementation at meso level, meaning in the healthcare system. In the healthcare system, there are four organisational dimensions of determinants, namely organisational culture and climate, organisational readiness to change, organisational support, and organisational structures. At microlevel are the intervention recipients, who in this study are the expecting parents. On all levels, the determinants regarding leadership, feedback, financial resources, time availability, social relations and support, and physical environment can influence the implementation of MANU.

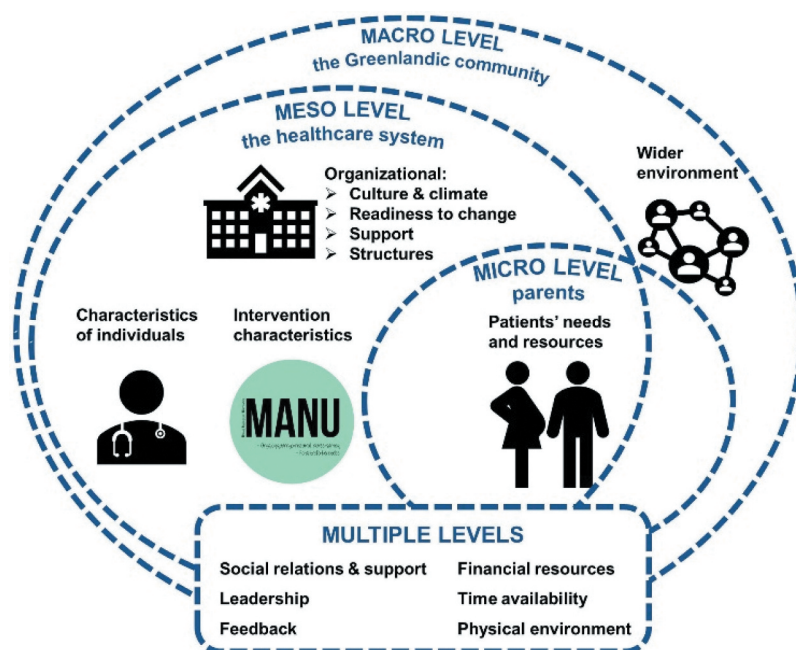


Figure 1. Theoretical framework based of Plsek and Greenhalgh [25], Nilsen and Bernhardsson [26], Damschroder et al. [17].

The Consolidated Framework for Implementation Research (CFIR) by Damschroder, et al. [17] provides an overview of determinants influencing implementation outcomes, where the three contextual categories process, inner setting and outer setting are already included in Nilsen and Bernhardsson [26] contextual dimensions. For this study's objective to fully understand MANU as an intervention in its context and how health professionals initially received MANU, we included the two non-contextual categories from the CFIR, namely intervention characteristics and characteristics of individuals. MANU being the intervention in focus and primarily implemented within the healthcare system is presented within the meso level in Figure 1. Determinants in the category intervention characteristics includes perceptions of the intervention's evidence strength and design quality, its relative advantage, adaptability and complexity [17]. The individuals in this study are the healthcare professionals implementing MANU, their characteristics influencing implementation include self-efficacy, and knowledge and beliefs about the intervention [17].

Study design

An in-depth implementation study with qualitative methods was conducted. The use of qualitative methods in implementation research is limited, though increasing [27,28]. By applying and combining qualitative methods in form of document analysis, interviews, focus group discussion, and observations [29–31], this study provides insight into how the determinants presented in this study's combined theoretical framework influence the implementation of MANU in the healthcare system. The different methods applied are described below. Table 1 provides an overview and timeline of data collection and methods. Stakeholders from both the health and social sector, from management to practitioner positions, and with both Greenlandic and/or Danish background were purposively selected because of their professional positions. They participated in the study in one or multiple ways, for example being interviewed, participating in the focus group discussion, and making relevant documents accessible. The specific positions of stakeholders will not be mentioned in the separate sections, since identification of individuals is fairly easy in Greenland's small population. Data collection was an iterative process and was collected over almost two years from 2017 to 2018. All data collection was conducted in Danish, if

Table 1. Overview and timeline of the study's data collection and methods.

Methods		Time of data collection
Document analysis	About 30 documents	February 2017 – December 2018
Open interviews	14 stakeholders	December 2018
Focus group discussion with stakeholders	6 stakeholders	October 2018
Observations at MANU trainings	1 training in Ilulissat with 41 professionals 1 training in Nuuk with 29 professionals	November 2018
Semi-structured interviews	8 health professionals	November 2018
Observations of MANU sessions	4 sessions	December 2018

not stated otherwise below. The Greenlandic Scientific Ethical Committee (Danish: Det Videnskabetiske Komitee) approved the project.

Document analysis

Documents were collected throughout data collection, and the majority of the documents were made available by the MANU programme coordinator. About 30 documents were collected and consist of: i) internal or public government documents, such as evaluations and §37 questions,¹ from before the initiation of MANU; ii) protocols, working documents and email correspondences from when MANU was developed; and iii) the MANU parent book and provider manual. A qualitative content analysis of the documents was used with a focus on extracting information regarding the contextual factors conceptualising the parenting programme MANU, for example, when and in reaction to which political decisions a related §37 question was posed.

Open-ended interviews

About 30 formal conversations in form of meetings and open-ended interviews with 14 different stakeholders were held. The 14 stakeholders were the MANU-coordinator, Danish consulting firm involved in the development of MANU, central management from ministries and national boards of the health and social sector, experienced midwives and public health nurses, and stakeholders with experience of implementing similar health promotional interventions in Greenland. These stakeholders were recruited based on their different professional positions and contextual positions within the healthcare system (meso level) or community at large (macro level). The latter, for example, being

¹A §37 question can be posed by politicians in the Greenlandic Parliament (*Inatsisartut*) to the Government of Greenland, who is obliged to respond.

a stakeholder outside the healthcare system who is not directly involved in the implementation of MANU; however, they coordinate or are developing programmes that coexist with MANU. Most meetings were held individually and only few in groups of two or up to five persons, and the majority were held face-to-face and few over telephone. These conversations and interviews were open-ended with only this study's objective being the general agenda. Stakeholders were able to direct the conversation into topics related to MANU that they found of most interest. Notes were taken during and after the meetings.

Focus group discussion

In October 2018, a focus group discussion (FGD) lasting two hours was held, where six of nine invited stakeholders attended. The three stakeholders, who were unable to participate in the FGD, were later individually interviewed on the topics discussed. The group of stakeholders was heterogeneous in terms of employment in the health or social sector and holding a management and/or practitioner position. In the FGD, participants were first informed about the study's aim and design, then two discussions were facilitated. First, participants were asked to share their perception of MANU's concept and aim. Their reflections were then summarised by the facilitator and elaborated with a short presentation of the programme's intention as stated in MANU. In the second discussion, participants were asked to note on individual post-its barriers and facilitators they experience or expect to see in the implementation of MANU. Afterwards, participants shared their notes with the group and collaboratively grouped the identified factors in the middle of the table for everyone to see. The discussions were facilitated and documented by two researchers. The notes taken during the FGD were later combined.

Observations of MANU trainings and sessions

Two MANU training programmes of professionals in Ilulissat and Nuuk, respectively, were observed. At the training in Ilulissat, 41 professionals from the health and social sector participated. Half of the attending professionals were from Avannaq region, while the remaining were from bigger and smaller communities from the regions Qeqertalik, Qeqqata and Sermersooq (Table 5 in results provides an overview of the regions). In Nuuk, 29 professionals participated from mainly Nuuk and communities within the region (Sermersooq). The trainings were organised and facilitated by the MANU team and

the Danish consulting firm Center for Forældreskab (Centre for Parenthood), who was brought in to assist with the development of MANU. Each training lasted three days. The facilitators spoke Danish, while a professional interpreter translated between Greenlandic and Danish simultaneously.

The focus of the observations was on implementation determinants by noting how MANU was presented and communicated to professionals, and how facilitators and professionals interacted, for example, were professionals engaging in the training exercises, or what type of questions did they pose to the facilitators during the training. The primary researcher presented herself and the aim of the study to the participants at the beginning of the training. Notes of the observations were taken during trainings and transcribed by the end of the day.

Four MANU sessions for parents were observed in Nuuk in December 2018. The sessions lasted between one to two hours. Two Danish-speaking sessions facilitated by a midwife, and one Danish-speaking and one Greenlandic-speaking session facilitated by public health nurses were observed. These sessions were selected by convenience. Observations in the MANU sessions were focused on experiencing how a session operated in practice, and how parents interact with the facilitator and with each other. The primary researcher and the purpose of the study was first introduced by the facilitator, then parents were asked if they accepted the researcher being present. In all sessions, parents consented.

Semi-structured interviews with health professionals

During the MANU training in Ilulissat eight attending health professionals were individually interviewed. The health professionals were midwives, public health nurses or health assistants from six different communities. They were recruited out of convenience based on being health professionals attending this training [32]. The interviews were semi-structured and lasted between 10 and 20 minutes. The health professionals were asked: i) why did you choose to attend the training, ii) what were your expectations for the training, iii) how do you perceive the training and the parenting programme MANU, iv) what are your expectations for when you return to your work place, how will you approach this new task. Notes were taken during the interviews and transcribed afterwards.

Data analysis

A thematic analysis of the transcriptions and fieldnotes was performed in an iterative process, where primarily

the first author (CI) performed analysis in close collaboration with the last author (CVLL). Based on the study's objective, a deductive analysis approach using the presented combined theoretical framework was applied. Data was first imported and initially coded in the qualitative data analysis software NVivo12 using the determinants of the theoretical framework as coding categories. Then the determinants of the framework were set up in a table in Microsoft Word, and the coded data in NVivo12 was summarised and transferred into this table to get a concise overview of the study's findings. The process was iterative in the way that when reporting data the transcripts, coded data in NVivo12 and the summarised table were used. For the final step of the analysis the same focus group participants as in the data collection attended another meeting in January 2021, where the analysed results were presented. After the presentation the focus group participants were invited to discuss lessons-learned based on the results. During this focus group discussion, the primary researcher (CI) summarised their conclusions and also utilised this forum to validate the reporting of the results. The lessons-learned pointed out by the focus group participants are included in the discussion of this article. The quotes presented in this paper are based on the notes taken during interviews and were translated from Danish to English.

Results

This study aims to identify determinants influencing the implementation of the MANU parenting programme in Greenland from a national perspective. Firstly, which context was MANU conceptualised in and how was it developed? Secondly, how was MANU implemented and initially received in the healthcare system? The study's findings are presented following the study's conceptual framework, and largely also follow the research questions, for instance, the first three sections contain results mainly answering the first research question. After each section a table provides an overview of the presented findings.

MANU's evolvement in the Greenlandic community at large and the healthcare system

Reviewing the contextual determinants at macro (the Greenlandic community at large) and meso (healthcare system) level prior to MANU's development provides insight into how it evolved. This information was gathered through the open interviews held with

stakeholders and document analysis validating and expanding the information from interviews.

In 2009, the Greenlandic KTB programme, predecessor to the parenting programme MANU, was implemented. In 2012, KTB was evaluated. The evaluation pointed at poor organisational support to midwives, who were to provide KTB, leading to lack of knowledge about and belief in the intervention. Another barrier in KTB's implementation then was the inadequate adaptability of the intervention to the local context. Besides KTB's internal evaluation report stating these challenges, it was also mentioned in stakeholder interviews. Following this evaluation, KTB's implementation was not further supported by the involved ministries, Ministry of Health and Ministry of Social Affairs. This was described in §37 questions and in interviews with the MANU coordinator. However, the Board of Health and Prevention (Danish: Styrelsen for Sundhed og Forebyggelse), which nationally manages the healthcare system, initiated in 2014 a working group to revise KTB but without available funds at the time. After unsuccessful applications for funding, a §37 question from a politician in parliament (Greenlandic: Inatsisartut) brought the absence of a parenting programme to the political agenda, leading to the 2016 Finance Act allocating funds to revising KTB, later MANU. By the wider environment's commitment at macro level and the national management's support at healthcare system (meso) level, the development of MANU had facilitating preconditions. An overview of the presented findings is provided in [table 2](#).

Table 2. MANU's evolvement in the Greenlandic community at large and the healthcare system.

Contextual levels	Determinants	Results
The Greenlandic community (macro level)	Wider environment	Predecessor KTB's evaluation pointed at barriers in implementation related to organisational support and lack of KTB's adaptability. Upon evaluation the Ministry of Health and Ministry of Social Affairs withdrew their involvement. Following a §37 question from parliament in 2015, the revision of KTB was budgeted for in the 2016 Financial Act.
	Financial resources	Following a §37 question from parliament in 2015, the revision of KTB was budgeted for in the 2016 Financial Act.
The healthcare system (meso level)	Leadership	Central management initiates a working group in 2014 to revise KTB, later MANU.

Development of MANU

MANU was developed in 2016 within the healthcare organisation, where the Danish three-person consulting firm Centre for Parenthood [33] was brought in to contribute with evidence and expertise on parenting programmes. Thus, the working group managing the development of MANU, consisted of the consulting firm and an experienced midwife from the healthcare system in Greenland. Findings regarding the development of MANU are primarily based on open interviews with stakeholders, since documentation of this process was limited or not accessible. Perspectives of stakeholders are described below.

To explore relevant topics to include in MANU, the working group conducted two interviews with parents. One interview was held with a couple who participated in KTB, and another interview was held with a small group consisting of six pregnant women and one expecting man. A reference group and a steering group were created and involved in the development process. The reference group consisted of practitioners (two midwives, one public health nurse, and an educational psychologist) who were involved in discussions on the content and design from the initial to final stage of the programme development. The steering group included three nurses from the management level (national, public health nurses, and midwives) and this group granted the final approval of MANU materials. The purpose of involving both groups was to ensure that the intervention would fit the Greenlandic context, as stated by the working group in an interview. Further, an underlying intent, but not specifically stated as such, was to shape change agents among practitioners and managers to lead the implementation of MANU, and

finally to contribute to organisational readiness to change through early involvement of stakeholders. An overview of the presented findings is provided in table 3.

MANU's intervention characteristics

As stated in MANU's manual, MANU aims to provide parents through pedagogical methods with the ability to i) develop their own parenting style from early on, ii) prevent that parents who had adverse childhood experiences will repeat this towards their own child, iii) network with other parents, and iv) equal involvement of mothers and fathers. These goals have also repeatedly been mentioned in open interviews with the working group and during trainings of professionals. In the focus group discussion with stakeholders and semi-structured interviews with professionals at MANU trainings, these goals were also reflected in participants' answers on how they perceive MANU's concept and what strengths they see in MANU.

In an interview during the MANU trainings, a midwife described the advantages of MANU compared to exclusively providing consultations:

"MANU is much more thorough than usual birth preparation, it is not just about birth but also about parenting. You can make a bigger difference with MANU." (midwife A)

While generally all participants in the study's interviews and focus group discussion saw an advantage in having a parenting programme as MANU, many also pointed out limitations or challenges with MANU's content, language and scope. The limited amount of practical information in MANU was repeatedly pointed out in the open interviews. Professionals requested MANU to include more instructional information on labour and breastfeeding. Most participants in the study complimented the design and layout of MANU, for example, for using Greenlandic features. Furthermore, a few professionals in the semi-structured interviews mentioned that MANU being provided in both languages is a strength and found the material easy to read. However, one public health nurse specifically mentioned the use of language in MANU to be a barrier:

"You have to be good in reading to be able to read the MANU book, and many in [big community] are not used to reading. MANU is, in our opinion, made above middle-class level. One must be educated to be able to reflect and talk about heavy concepts such as conflict." (public health nurse A)

Most often MANU's scope in terms of number of sessions and duration was discussed to be a barrier for implementation among stakeholders in the open interviews and focus group discussion. In some cases,

Table 3. Development of MANU.

Contextual levels	Determinants	Results
The healthcare system (meso level)	Leadership	Involving a reference and steering group in the development of MANU might have created change agents.
	Intervention characteristics	
	Intervention Source	MANU is internally developed with external consultants. In the development process a reference and steering group were involved.
	Organizational determinants	
Organizational readiness to change	Involving a reference and steering group in the development of MANU facilitates implementation.	
Organizational support	Development and implementation is carried out by the MANU team in collaboration with the Danish consulting firm Centre for Parenthood.	

Table 4. MANU's intervention characteristics.

Contextual levels	Determinants	Results
The healthcare system (meso level)	Intervention characteristics	
	Evidence strength & quality	Stakeholders perceived the intervention to be built on relevant evidence and recognised MANU's aims and underlying theories as a strength.
	Relative advantage	General agreement among interviewed stakeholders that MANU is of advantage.
	Adaptability	Only adaptations in form of providing individual instead of group sessions are accepted. However, adaptations on content and scope have been made locally.
	Complexity	Professionals expressed challenges with MANU's scope, content and language.
	Design quality & packaging	All study participants complimented the design and layout of MANU materials, especially the short animations.

professionals decided to adapt the scope of the programme by shortening it. This led to some places summarising MANU's nine sessions to four or shortening the duration of sessions from 2.5 hours to one hour. However, the working group disapproved of this form of adaptation. The MANU manual highlights the importance of fidelity for implementation outcomes, while recognising adaptations in the form of individual instead of group sessions being necessary when working with parents in vulnerable positions or in smaller communities.

The working group expressed in interviews how they put much effort into making a user-friendly manual for professionals, so that any professional, who has received MANU training or not, can hold sessions for parents. This was perceived as a crucial component for implementation according to the working group, which they based on KTB's evaluation results and on Greenland's high-turnover and lack of human resources. Professionals, who have held MANU sessions, explained in the open interviews how the MANU manual is helpful and easy to use. An overview of the presented findings is provided in [table 4](#).

The healthcare system – central coordination and national trainings

At meso level, the healthcare system's organisational structures and support and to what extent these are considered in the implementation process are determinants for the implementation [17,26]. Repeated interviews with stakeholders and observations of the national implementation over a two-year period provided insight into the structural characteristics of the organisation. Leadership in the implementation process can be formal, such as national and regional management, and informal through change agents.

The midwife of the working group was appointed coordinator, who established a MANU team with a public health nurse and an educator in child development to assist with the national coordination. The Centre for Parenthood continues to be an integral part

of the implementation by facilitating the trainings to professionals and developing subsequent MANU material the following two years. This included: MANU 1–2 years, a book for public health nurses and parents; MANU Hashish & Alcohol, booklets for consultations with parents with addictions; MANU community meetings, a topic guide for discussing the community-environment for children; MANU 2–3 years, material for public health nurses, educators in nurseries and parents; and a MANU homepage. According to the working group the different MANU materials were developed trying to supply the prevailing demand for Greenlandic material among professionals in healthcare and municipalities, which the MANU team experienced.

The working group stated that providing training to professionals is of high importance for implementation, since introductions to KTB's materials were stated inadequate in its evaluation. The training consists of three days and is hosted by the MANU team and facilitated by the Centre for Parenthood. In the training, professionals are first introduced to MANU 0–1 years and then to the remaining MANU materials available at the time. Since other MANU materials include professionals from municipalities, they participated in the trainings as well. Over the course of two years the majority of MANU-relevant professionals from the healthcare system attended in one of the five organised trainings. More trainings within these two years were anticipated by the MANU team, to reach out to remote communities.

When MANU was finalised and production completed by the end of 2016, materials were nationally distributed to Greenland's five regional hospitals. Greenland's healthcare is decentralised to its five regions, which is overseen by national management but regionally managed. 60% of the population live in the regional capitals where the regional hospital is placed. Each regional hospital, where midwives and public health nurses work from, manages smaller health centres and nursing stations within its region. Since not all professionals could be trained at once, professionals, who have received training as well

as those who only have received materials, began providing MANU sessions to parents in 2017.

Table 5 provides an overview of the status of trained professionals and by the MANU coordinator estimated status of how MANU is operating in Greenland's 16 big communities. Small communities are not included. This table was developed in collaboration with the MANU coordinator in October 2018, prior to the two trainings in November 2018. There was variation between the big communities on how many professionals were trained and how MANU is provided. In 12 of the 16 big communities at least one or more professionals from mainly the healthcare sector, but also municipality personnel, have received MANU training. The MANU coordinator considers MANU to be operating in seven of the 16 big communities, meaning sessions are held

Table 5. Overview of MANU's implementation, status October 2018.

Region	Big communities	Professional	MANU trained?	
Avannaq 154 live births in 2017	Qaanaaq	1 Health assistant	No	
	Upernavik	1 Health assistant	Yes	
	Uummannaq	1 Health assistant	No	
	Ilulissat (regional capital)	2 Midwives 3 Public health nurses	Yes all	
Disko 99 live births in 2017	Aasiaat (regional capital)	2 Midwives 2 Public health nurses	Yes all	
		1 Health assistant Municipality personnel		
	Qeqertarsuaq	1 Public health nurse Municipality personnel	No Yes	
		1 Health assistant	Yes	
Qeqqa 140 live births in 2017	Sisimiut (regional capital)	1 Midwife 1 Public health nurse 3 Health assistants Municipality personnel	Yes all	
	Maniitsoq	1 Health assistant 2 Public health nurses	Yes all	
	Sermersooq 347 live births in 2017	Nuuk (regional capital)	13 Midwives 7 Public Health Nurses	Half of each profession
		Paamiut	1 Health assistant Municipality personnel	Yes all
	Tasiilaq	1 Midwife 1 Public health nurse	Yes all	
	Ittoqqortoormiit	No available personnel		
Kujataa 113 live births in 2017	Qaqortoq (regional capital)	2 Midwives 1 Public health nurse	Yes No	
	Narsaq	1 Health assistant	Yes	
	Nanortalik	Municipality personnel	No	

Table 6. The healthcare system – central coordination and national trainings.

Contextual levels	Determinants	Results
The healthcare system (meso level)	Social relations & support	Collaboration across sectors and regions established at trainings is expected to provide support.
	Leadership	MANU team coordinates MANU nationally.
	Organizational determinants	
	Organizational readiness to change	In some places, professionals started giving sessions as soon as they received the material or training in 2017.
	Organizational support	Materials were provided to all regions. Five trainings within two years were held, reaching almost all relevant health professionals. The MANU team coordinates nationally within the decentralised system.
	Organizational structures	National management oversees the five regions, which each are regionally managed. MANU is provided from the regional hospitals to healthcare centres and nursing stations.

as planned. In two of the big communities the coordinator found MANU not to be operating. The MANU coordinator suspected low motivation among the professionals to be the biggest barrier in these places. In almost half of the big communities MANU was described to be operating with adaptations, most often this meant that not all nine sessions were provided or professionals struggling with recruiting parents.

MANU is hardly provided in small communities, since professionals are only able to visit small communities one or three times a year conditioned to for example the number of people living there [34]. However, in some small communities, sessions are provided in a summarised and on individual basis when possible. Focus group participants and some interviewed professionals identified this as a challenge for making MANU truly universally and nationally accessible. In response to this, the MANU coordinator aspires that small communities' existing telemedical devices would be used for providing remote sessions. An overview of the presented findings is provided in table 6.

Financial resources and organisational readiness to change

Professionals had to travel in order to attend the trainings, which took place in Nuuk, Aasiaat and Ilulissat. Their travel expenses were mainly covered by MANU. From 2016 and onward, MANUs implementation has been financed through the Financial Act.

Table 7. Financial resources and organisational readiness to change.

Contextual levels	Determinants	Results
The healthcare system (meso level)	Financial resources	The following three years funds in the Financial Act remain allocated to the development and implementation of MANU. High expenses for providing trainings is perceived as a barrier, though an online solution is underway.
	Intervention characteristics Adaptability	Adaptations on content and scope have been made locally.
	Organizational determinants Organizational readiness to change	Barriers with implementation related to high workload, lack of human resources, restricted support from local managers, or managers requiring MANU's scope to be shortened.
	Organizational structures	High turnover of professionals leads to continuous need for providing training to new employees.

Focus group participants were concerned that this training format will not be financially sustainable due to the high turnover of professionals. To overcome this barrier the working group is planning to develop an online training programme.

By involving managers and practitioners in the development process, the healthcare system is to some degree prepared for change, namely for implementing a new programme. However, the MANU coordinator explains how some regions or communities expressed to not seeing it feasible to implement MANU. This related to barriers like high workload, lack of human resources, restricted support from local managers, or managers requiring MANU's scope to be shortened. These were also barriers that interviewed professionals had experienced or expect to experience. Some also mentioned the importance of having management or a change agent leading implementation.

"I wish my managers would also attend a MANU training, so they understand why I need to spend more work-hours on MANU. I feel we otherwise get resistance from them." (public health nurse B)

An overview of the presented findings is provided in [table 7](#).

Professionals' characteristics

Professionals' perception of MANU and their individual belief in their own capabilities (self-efficacy) to implement MANU influence implementation, but the individual is also influenced by interacting with peers and the organisation [17]. Change agents enable implementation, but, as the MANU coordinator pointed out in an

Table 8. Professionals' characteristics.

Contextual levels	Determinants	Results
The healthcare system (meso level)	Social relations & support	Collaboration across sectors and regions established at trainings is expected to provide support.
	Characteristics of individuals Knowledge & Beliefs about the Intervention Self-efficacy	Training provided good knowledge and motivation for implementing MANU. Training intends to provide professionals with self-efficacy. Still, self-efficacy varies among interviewed professionals.

interview, support from peers and local management remains important. The MANU team described how they both focus on supporting motivated professionals, who are lone change agents in their local organisation, and assist places with low self-efficacy and belief in the intervention. Their support includes consultations over the telephone, providing material, offering training, involving national management, placing incentives, or advocating for the financing of more human resources.

The working group described how the aim of the training is to motivate professionals, strengthen their self-efficacy, and to provide a forum for networking across sectors and regions. In fact, at the observed trainings professionals expressed how the training gave them a good understanding of MANU's concept and that they were excited and motivated to implement MANU in their own community. Networking visibly occurred at the observed trainings and was also confirmed in the conducted interviews. The collaboration across sectors and regions was highlighted by the MANU team, since this could prevent MANU from depending on individuals. An overview of the presented findings is provided in [table 8](#).

Parents, the intervention recipients

Characteristics of parents, who are recipients of the MANU programme, have an equal important influence on implementation. The barriers and facilitators to meeting their needs in regard to the intervention must be known and prioritised at meso level [17]. When developing MANU, parents' needs were considered based on international evidence on the importance of the first thousand days and on studies conducted in Greenland showing evidence for many children growing up in vulnerable homes. A small group of parents were interviewed in the initial phase of the development of MANU, but were not further involved in the development process. The observations

Table 9. Parents, the intervention recipients.

Contextual levels	Determinants	Results
The healthcare system (meso level)	Intervention characteristics Complexity	Professionals expressed challenges with MANU's scope, content and language.
Parents (micro level)	Parents' needs & resources	Anticipated and experienced challenges with recruiting parents.

from the four MANU sessions showed that the majority of the parents attending these sessions were interacting with the professional, other parents and MANU material during the session; possibly indicating interest in MANU. However, in all four sessions only half or less of the enrolled parents showed up, their reasons for not attending that particular session is unknown.

In the observed trainings, professionals discussed among each other potential barriers for implementing MANU, this included reaching out to parents, especially fathers, and creating safe spaces for parents to share their thoughts. Focus group participants also discussed the challenge of recruiting parents, elaborating on the fact that sessions are provided within normal working hours thereby questioning fathers' ability to attend sessions. Interviewed professionals, who had already begun to provide MANU sessions, observed many parents not interested in attending or not able to attend all nine sessions. The MANU coordinator explained in an interview how professionals need to be tenacious and adapt their working hours in order to overcome this barrier. A public health nurse pointed out how implementation at microlevel takes time:

"It takes time before MANU is a 'thing' so that everyone who is pregnant will naturally attend." (public health nurse A)

An overview of the presented findings is provided in table 9.

Discussion

This study collected data during the parenting programme MANU's first two years of implementation with the intent to identify implementation determinants taking a national perspective. After summarising the identified determinants influencing MANU's implementation, the following sections will respectively respond to the first and second objective of the study. The study objectives were to understand the context which MANU was conceptualised and developed in, followed by how programme implementation was carried out and initially received in the healthcare system.

The results were discussed in another meeting with the same focus group participants as in the data

collection. The participants validated the analysis of the study's results and engaged in discussions on lessons-learned. Despite the political interest and financial security enabling MANU's development and implementation, a thorough assessment of the implementation capacity of the healthcare system prior to the political decision-making could possibly have prevented some of the challenges identified. With a decisive ambition to implement MANU nationally after having finalised programme materials, the MANU team has come a long way with the national rollout within the first two years. While the focus was on disseminating the material and training professionals, professionals' ability to implement MANU remains conditional on local context challenging implementation. The latter leading to professionals adapting MANU's scope, which disagreed with the MANU team's ambition to implement programme fidelity. This disagreement also challenged implementation, identified as restraining determinants relating to the intervention's adaptability, and organisational structure, support and readiness to change. Including relevant stakeholders in the development process through a reference and steering group enabled change agents in parts of the healthcare system supporting implementation, though the scarce involvement of parents' perspective could be a restraining determinant for MANU to reach its intervention recipients.

Conceptualisation and development of MANU

MANU was conceptualised based on a political desire to ensure children's well-being by providing parents with the essential parenting skills, and a desire to create a programme for the Greenlandic context rather than adapting a Danish programme as, for example, in the case of the first universal parenting programme Prepared for Baby (KTB). The political ambition at the Greenlandic community at large is based upon the awareness that adverse childhood experiences are widespread, which has been monitored by the Greenland Population Health Survey [35]. With the growing interest in improving children's life chances and parenting skills, since the 1990s in Europe, parenting has become a public health issue [36]. Furthermore, the Convention on the Rights of the Child declares parents' essential role in children's upbringing and the importance of states providing appropriate support to parents [37]. These political ambitions and ongoing development going from corrective to preventive initiatives over the past decades have provided a window of opportunity for the parenting programme MANU to be

financially secured in the Financial act. Together with an available working group to begin developing MANU immediately, favourable conditions for implementation in terms of financial resources and time were present. However, as Nilsen and Bernhardsson [26] point out, the necessary condition of available resources is only one of the two context dimensions for implementation. It needs to be combined with driving forces such as supportive leadership and readiness for change if implementation is to succeed [26].

When MANU was developed, a reference and steering group were involved to review and approve materials. Involving stakeholders in the development process can have encouraged organisational readiness for change and created change agents. The intention of involving stakeholders, as stated by the working group, was assuring a programme fitting the Greenlandic context. This intention is based on the prior Danish parenting programme KTB, which was translated to Greenlandic. In the past decades and still ongoing, Western, typically Danish, health intervention models are directly or with slight adaptations applied in Greenland and only few achieve local integration. Presumably a backlog of colonisation and the fact that Greenland has roughly adopted the Danish welfare-state model and healthcare system. This is a common phenomenon in the circumpolar region. Based on collective research and expertise, the scholars of the Fulbright Arctic Resilient Communities Group pointed out the importance of taking a strength-based approach by acknowledging and integrating Indigenous knowledge, and recommended applying community-based approaches in research and policy [38].

MANU was internally developed though with the driving forces being the external Danish consulting firm Centre for Parenthood, who provided material, international evidence and experience from previous developed parenting programmes in Denmark. Although the programme's aim, layout, evidence and underlying theories are acknowledged as relevant for the Greenlandic context by interviewed professionals, they expressed challenges with the content, language and scope of the programme. The latter also emerging from conversations with the MANU coordinator, who saw adaptations to the programme's scope in some communities, which was perceived unacceptable by the MANU working group due to the importance of fidelity for implementation and outcome. While political support at macrolevel enabled MANU; parents and families at microlevel were scarcely consulted regarding their opinion or needs for a parenting programme. Parent Exit Questionnaires are provided, when attending the last MANU session, however, challenges with disseminating and collecting questionnaires have

persistently occurred. Parents could have been involved in and along the development and implementation of MANU, since their perspective can ensure a suitable programme and have helped finding suitable solutions for anticipated or experienced challenges in implementation.

A different approach to developing and implementing a comparable parenting programme was applied in Nunavut, Canada. In response to numerous requests from communities, the local Qaujigiartiit Health Research Centre [39] conceptualised and developed a parenting programme in collaboration with organisations and communities. This finally led to a piloted, evaluated and revised evidence-based and culturally responsive parenting programme being made available for all Nunavut [39]. Another relevant example, showing an Indigenous focused approach to developing a parenting programme, is the First 1000 Days Australia programme, which is an evidence-based model conceived of and led by Indigenous people to promote resilience, leadership and innovation in Aboriginal and Torres Strait Islander families [40,41].

Implementation and initial perceptions of MANU

The findings show how the first years of MANU focused on developing MANU materials, national distribution and training professionals. Apart from this, the working group had not discussed further elements of programme implementation. The demand for Greenlandic material among practitioners as experience by the working group and the financial security and eagerness to meet this demand, seem to have led to the primary focus on producing and disseminating MANU material along with providing trainings to professionals. With the majority of the relevant health professionals having received trainings, in about half of the big communities the programme is implemented as intended and the other half operates with adaptations, according to the MANU coordinators observations.

Nilsen (2015) describes how "implementation is part of a diffusion-dissemination-implementation continuum; diffusion is the passive, untargeted and unplanned spread of new practices; dissemination is the active spread of new practices to the target audience using planned strategies; and implementation is the process of putting to use or integrating new practices within a setting" [24]. Applying this to MANU's first years of implementation: diffusion occurred when MANU materials were distributed and put to use while most professionals have not received training yet, and dissemination occurred when introducing MANU at trainings for professionals. Implementation by putting

MANU to use locally was indirectly expected of professionals. Implementation capacity, monitoring and evaluation, were not thought out prior to diffusion and dissemination. Based on the authors' experience, this is not uncommon in Greenland. Typically programmes mainly receive resources for development and dissemination, while piloting, evaluating and revising initiatives are downgraded. Much practice-based experience exists but little has been systematically documented. Combined with the challenge of high turnover at local and central level, this practice-based experience gets lost. The reference and steering group could have been a relevant setting for discussing implementation capacity, which Durlak and DuPre [18] describe to be an important process for effectively handling complex phases and anticipated challenges of programme implementation.

The implementation process is critical to whether an intervention creates the expected change and whether the change can be sustained in the system in which it is implemented [17,21,22]. Evaluations of health promotion strategies in Greenland show poor implementation due to the lack of considering and understanding local context and local professionals' experience with implementation, since communities are isolated from each other and resources vary [42,43].

Besides estimating implementation capacity, providing support during implementation is an important determinant [17]. Quoting Pawson and Tilley [44] "what works for whom in what circumstances and in what respects" [44], points out the importance of keeping in mind that these are individuals working in isolated communities, where work and cultural context as well as resources differ. The trainings functioned as a type of support for introducing material, meeting the MANU team and building potential support networks with other professionals. Findings did not indicate that the support provided after the trainings by the MANU team to professionals was systematic. While the MANU user-friendly manual might be facilitating local implementation, interviewed professionals anticipated barriers being high workload, limited human resources, difficulty recruiting parents and reaching small communities. Adaptations were observed in the status made in 2018, but fidelity to the programme was still urged by the MANU team. Fidelity in implementation science is discussed as important for implementation of interventions [45], since variations of adaptations to the programme's scope and content across the country is expected to alter programme outcome and could challenge an effect evaluation. However, understanding the challenges of local

implementation within their different unique context is of immense interest if we want to understand how barriers can be overcome to reach programme fidelity, or on the contrary if the programme should be revised to be flexible to local context.

Implications for practice and next steps in research

The implications for practice that were brought forward by the focus group participants in the second meeting can be summed up to the importance of considering implementation capacity from the very beginning of planning an intervention. As also described by Durlak and DuPre [18], assessment of the implementation capacity beforehand is important in order to be able to effectively handle complex elements and expected challenges in programme implementation. The lessons-learned were the importance of: providing the MANU team with the necessary competencies and resources for working with implementation processes; assessing the full amount of resources needed in the healthcare system for it to implement MANU; examining and clarifying which other initiatives MANU is to coexist with or to replace; involving municipalities from an earlier stage to support collaboration and self-efficacy across sectors for implementing MANU; maintaining the reference and steering group from the programme development to discuss and resolve challenges throughout implementation and for discussing potential programme revisions. Furthermore, the importance for the next steps in research to be studying local implementation strengths and challenges with MANU, as well as gaining insights to parent's perspectives on parenthood and attending the parenting programme MANU. These are the study objectives of the consecutive studies currently being conducted by the author team.

Strengths and limitations

This study is comprehensive and has a strong validity by applying and combining data collection methods and collecting data over a two-year period. The long period of data collection made it possible in this study to observe changes in implementation and the system's context, thereby reducing the chance of only having a "one moment" picture of the process. In order to analyse the comprehensive collection of data, it was conducive to combine three frameworks. A single implementation theory would have provided a too narrow focus, while the combination gave a better whole picture [24]. While perspectives from management to

practice level were included, some of the participants' responses could have been biased, since questions regarding the development process, which was prior to data collection, were retrospective. Reporting on events and perspectives from the past are likely influenced by the present.

Conclusion

This study provides an understanding of the context in which the universal parenting programme MANU in Greenland was conceptualised and developed and describes how programme implementation was carried out and initially received in the healthcare system. Data were collected during MANU's first two years of implementation with the intent to identify implementation determinants taking a national perspective.

MANU was conceptualised in a context where parenting skills were seen as a public health issue with a political interest to improve children's well-being. However, families' perspectives on what they need for transitioning to parenthood were not included in the development of the programme. The first years of MANU focused on disseminating material, training professionals, and developing more MANU related material. The MANU team worked intently to meet the conceived need for Greenlandic parenting material and ensure all relevant personnel has received training, local implementation was delegated to the individual professional. Programme fidelity was urged, but many local barriers were anticipated and experienced. Future research will gain insights to the local barriers to implementation and will explore parents' perspectives and experiences with the aim to bring them to the forefront of the implementation process.

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Ethics approval and consent to participate

The Greenlandic Scientific Ethical Committee (Danish: Det Videnskabetiske Komitee) approved the project. Verbal informed consent for participation was given by study participants.

Consent for publication

Not applicable.

Availability of data and materials

Documents and reports used and analysed during the present study are available from the corresponding author on reasonable request. Qualitative data from interviews, the focus group discussion and observations is not available, since this would otherwise breach with participant confidentiality. Data and material are stored encrypted.

Authors' contributions

CI, CVLL, SK, TTT conceived and designed the study. CI conducted all data collection with assistance in the focus group discussion by CVLL. RLK contributed with the collection of material for the document analysis and recollection of the events prior to the study's data collection. Data analysis was conducted by CI under the supervision of CVLL and feedback from RLK. CI drafted the manuscript. Critical revision of manuscript was given by CI, CVLL, RLK, SK, TTT. All authors reviewed and approved the manuscript.

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