Health Policy xxx (xxxx) xxx–xxx

Contents lists available at ScienceDirect

Health Policy

journal homepage: www.elsevier.com/locate/healthpol

Addressing perinatal health inequities in Dutch municipalities: Protocol for the Healthy Pregnancy 4 All-3 programme

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ARTICLE INFO

Article history:
Received 26 June 2020
Received in revised form
13 December 2020
Accepted 22 December 2020

Keywords:
Perinatal health inequities
Health policy
Cross-sectoral collaborations
Municipalities

ABSTRACT

Background: Health inequities are already present at birth and affect individuals' health and socioeconomic outcomes across the life course. Addressing these inequities requires a cross-sectoral approach, covering the first 1,000 days of life. We believe that - in the Dutch context - municipal governments can be the main responsible actor to drive such an approach, since they are primarily responsible for organising adequate public health. Therefore, we aim to identify and develop transformative change towards the implementation of perinatal health into municipal approaches and policies concerning health inequities.
Methods: A transition analysis will be combined with action research in six Dutch municipalities. Interviews and interactive group sessions with professionals and organisations that are relevant for the institutional embedding of perinatal health into approaches and policies regarding health inequities, will be organised in each municipality. As a follow-up, a questionnaire will be administered among all participants one year after completion of the group sessions.
Discussion: We expect to gain insights into the role of municipalities in addressing perinatal health inequities, learn more about the interaction between different key stakeholders, and identify barriers and facilitators for a cross-sectoral approach to perinatal health. This knowledge will serve to inform the development of approaches to perinatal health inequities in areas with relatively poor perinatal health outcomes, both in the Netherlands and abroad.

1. Introduction

Substantial perinatal health inequities exist between and within cities across high-income countries [1–3]. These inequities have long-term health consequences and therefore major implications for public health [4]. Next to medical risk factors, accumulation of non-medical risk factors, such as a low educational level, psychosocial problems, lack of social support, a low household income, unemployment, and neighbourhood deprivation underlie perinatal health inequities [1,2,5–8]. Perinatal health challenges associated with these non-medical risk factors are beyond the scope of the traditional remit of the perinatal health care system and are, at least in part, either directly or indirectly shaped by municipal policy.

As the preconception, prenatal, postpartum, and early childhood periods (i.e. the first 1,000 days of life) bear substantial plasticity, these allow for improvement via early interventions that help enable the development of the functional capacity of a child to respond to health challenges throughout life. Interventions during the first 1,000 days of life that address the early-life causes of health inequities require a holistic and cross-sectoral approach to

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https://doi.org/10.1016/j.healthpol.2020.12.013

health that appreciates the interconnectedness of medical, social, economic, cultural, and environmental risk factors.

Such a cross-sectoral approach to perinatal health, engaging the entire medical, social, and public health care chain, as well as the national and municipal government has been labelled 'social obstetrics'. Based on the core ideas of social obstetrics, the Ready for Baby programme (2008–2012) was established to address perinatal health inequities in Rotterdam, the Netherlands [9]. Building on the insights of Ready for a Baby, the Ministry of Health, Welfare, and Sport subsidised the nationwide research programme Healthy Pregnancy 4 All (HP4All) [10]. The first HP4All programme (2011–2014) emphasised collaboration between the medical, social, and public health sector, as well as municipal governments on preconception and antenatal care [11,12]. This approach has been extended to cover postpartum care (i.e. maternity care), Preventive Child Health Care, and interconception care within the second HP4All programme (2014–2017) (Table 1) [13,14]. Building on the know-how acquired through Ready for a Baby and HP4All, the Ministry of Health, Welfare, and Sport launched a nationwide action programme entitled Solid Start in 2018. Solid Start supports municipalities in addressing health inequities before, during, and shortly after pregnancy. Through financial incentives, participating municipalities are encouraged and facilitated to build a cross-sectoral approach to perinatal health to support parents(-to-be) and/or young children living in precarious conditions.

The Ready for a Baby and HP4All programmes have demonstrated the potential of a cross-sectoral approach to perinatal health to interrupt the negative cycle of events associated with social and environmental risk factors among parents(-to-be) living in precarious conditions. Both programmes have sparked awareness of the impact of non-medical risk factors on perinatal health outcomes among professionals across different sectors. This resulted in a stronger focus of national and municipal policies on preventive care and health measures early in life, which contributed to the foundation of a cross-sectoral approach to perinatal health in the Netherlands [15–19]. Despite these promising results, this cross-sectoral approach is still not the status quo in the Netherlands. This might be explained by the fact that research into perinatal health inequities predominantly focuses on the identification of its causes and evaluation of subsequent interventions within the medical care sector. However, perinatal health inequities originate from a range of medical, social, cultural, and environmental factors [1,2,5–8]. Addressing them requires a holistic and cross-sectoral approach beyond the boundaries of the medical care sector, as well as those of the (separate) social, and public health care sector. We believe that - in the Dutch context - municipal governments can be the main responsible actor to drive such an approach, since they are primarily responsible for organising adequate public health. Local politicians and civil servants are ideally positioned to create such an approach [20].

To better understand the cultural, behavioural, and institutional barriers for a cross-sectoral approach to perinatal health and to find out how this approach can be implemented at the municipal level, action research – in which research, participation, and action form a simultaneous process – in combination with transition analysis can be a fruitful approach. Transition analysis assembles different perspectives on an issue in order to develop a new way of understanding a persistent societal problem and identifying the drivers behind this persistency. By sharing and discussing a transition analysis with key stakeholders that are struggling with a persistent societal problem, new strategies

Table 1
Overview of Dutch research and policy programmes that preceded the Healthy Pregnancy 4 All-3 programme.

Programme	Initiator(s)	Financier	Time period	Location	Key approaches
Ready for a Baby [9,15]	• Erasmus MC • GGD Rotterdam-Rijnmond[a]	Municipality of Rotterdam	2008–2012	City of Rotterdam	• Health promotion through customised preconception care • Systematic antenatal risk assessment (R4U[c]) with increased attention for non-medical risk factors • Interdisciplinary risk-directed care • Establishment of a primary birth care centre in the Erasmus MC (Rotterdam)
Healthy Pregnancy 4 All-1 [10,18,31]	Erasmus MC	Ministry of Health, Welfare, and Sport	2011–2014	14 Dutch municipalities[b]: Almere, Amsterdam, Appingedam, Delfzijl, Enschede, Groningen, Heerlen, Menterwolde, Nijmegen, Pekela, Schiedam, The Hague, Tilburg, Utrecht	• Health promotion through customised preconception care • Antenatal R4U risk assessment followed by patient-tailored multidisciplinary care pathways
Healthy Pregnancy 4 All-2 [13,14,32,33]	Erasmus MC	Ministry of Health, Welfare, and Sport	2014–2017	10 Dutch municipalities[b]: Almere, Amsterdam, Arnhem, Dordrecht, Groningen, Rotterdam, Schiedam, The Hague, Tilburg, Utrecht	• Interconception care through Preventive Child Health Care • Structured risk assessment during pregnancy and customised maternity care • Optimising postnatal R4U risk assessment in Preventive Child Health Care

[a] GGD Rotterdam-Rijnmond provides the Municipal Health Services for the municipality of Rotterdam as well as for the surrounding municipalities.
[b] All municipalities were selected based on their relatively poor perinatal and child health outcomes.
[c] R4U stands for Rotterdam Reproductive Risk Reduction and is a 70-item score card, assessing risks for adverse pregnancy and child health outcomes in six domains (social status, ethnicity, care, lifestyle, medical history, and obstetric history) [34].

Box 1: Sustainability transitions.
Transitions are radical, non-linear, and structural changes from one equilibrium of a complex adaptive societal subsystem (e.g. healthcare, education, mobility) to another [22]. A transition is conceptualised as a change in a subsystem's dominant culture, structures, and practices (i.e. its regime). Regimes are path dependent as actors, policy, and innovation are directed towards improvement, efficiency, and optimisation. Transition scholars study the process through which regimes destabilise due to external (societal) pressures and emerging disruptive social, technological, institutional, and economic developments [22].
The explorative methods of transition scholars are guided by the principle of *'(un)sustainability'*. If there is evidence of a persistent 'grand societal challenge' [22], such as perinatal health inequities between and within Dutch municipalities [23], what are possible futures and upcoming innovations to overcome this persistency? In other words, what is a desired direction to a systemic change, who is driving this change, and why?

and pathways for a desired transition can be identified. This type of analysis enables academics to take part in process-oriented research, rather than applying traditional descriptive-analytical methods [21].

1.1. Healthy Pregnancy 4 All-3

The HP4All-3 programme (2018–2021) aims to identify the dynamics and mechanisms that might enable a 'sustainability transition' (Box 1) towards a cross-sectoral approach to perinatal health. To achieve this, our research will take place in a selected sample of Dutch municipalities. We will focus on transformative change within local public health policies, as we hypothesise that municipal governments can play a central role in stimulating a cross-sectoral approach to perinatal health.

With the use of a transition analysis, combined with action research, we intend to increase the impact potential of local policies, approaches, and initiatives that address perinatal health inequities. To do so, we will develop a local action-agenda in a selected sample of Dutch municipalities. An action-agenda consists of suggestions on agreements to be made and actions to be taken. The results of this research will be used to inform a knowledge dissemination programme on the need to implement perinatal health into municipal approaches and policies concerning health inequities. The knowledge dissemination programme will be rolled out among the 156 municipalities with the highest share of disparities out of all 380 Dutch municipalities.

The HP4All-3 programme is a collaboration between the Erasmus MC, the Dutch Research Institute for Transitions (DRIFT), and the Dutch Centre of Expertise on Health Disparities (Pharos). The Erasmus MC and DRIFT are responsible for all research activities. In close collaboration with the Erasmus MC and DRIFT, Pharos carries out the knowledge dissemination programme. By collaborating with such a diverse set of partners, we aim to reach all relevant stakeholders and institutions in different Dutch municipalities and thereby promote the establishment of a cross-sectoral approach to perinatal health to address health inequities from their earliest origins.

The objective of this protocol article is to introduce the context and research questions of the HP4All-3 programme, as well as its innovative design and research methods that we intend to apply to address perinatal health inequities.

1.2. Research questions

The central research question posed in the HP4All-3 programme is formulated as follows: Which transition dynamics are driving transformative change in institutional structures, culture, and practices, towards the implementation of perinatal health into municipal approaches and policies concerning health inequities resulting in a cross-sectoral approach to perinatal health?

In addition to the central research question, the following subquestions were posed:

1 To what extent are professionals from the medical, social, and public health sector, as well as the municipal government aware of the concept of perinatal health inequities, the degree to which these inequities exist in their municipality, and the urgency to address them through a cross-sectoral approach?
2 What is needed to increase awareness of existing perinatal health inequities and the urgency to address them through a cross-sectoral approach among professionals from the medical, social, and public health sector, as well as the municipal government?
3 What is needed to engage municipalities in activities aimed at addressing local perinatal health inequities (e.g. by introducing policies that address these inequities)?
4 What are the institutional facilitators and barriers that influence the implementation of perinatal health into municipal approaches and policy plans regarding health inequities?
5 How can collaboration between different municipal stakeholders (e.g. civil servants, aldermen, etc.) and professionals from the medical, social, and public health sector be stimulated in addressing perinatal health inequities?
6 Which lessons can be learned from best practices and front running municipalities regarding approaches to reduce perinatal health inequities?
7 How can we strengthen and accelerate existing local municipal approaches aimed at addressing perinatal health inequities?

2. Methods

2.1. Study design

In this study, transition analysis will be combined with action research. Action research is an umbrella-term for various research processes and methods that try to achieve change in a certain context and/or system. Notwithstanding its diversity, action research always consists of three balancing elements; research, participation, and action [24]. We follow Bartels and Wittmayer (2018) who define action research as "critical and relational processes through which researchers and their co-inquirers aim to collaboratively produce scientifically and socially relevant knowledge and transformative action" [25]. In our research programme, action research will be used to guide a process of knowledge co-production that contributes to the ability of the involved municipalities/participants to control perinatal health inequities more effectively and to keep improving their capacity to do so within a more sustainable and just environment. As our research will take place in various municipalities, we will use a multiple case study design [26]. We aim to highlight differences and similarities in (existing) municipal approaches and policies to perinatal health inequities. The commonality that allows for comparison of the participating municipalities are the relatively poor perinatal health outcomes, the relatively high share of children living in families on welfare, and the large proportion of inhabitants with a low socioeconomic status (SES).

2.2. Identification and selection of participating municipalities

Action research is an intensive and time-consuming process. Given the capacity of our research team, we were able to select six Dutch municipalities as cases for our action research. These municipalities were selected based on an extensive baseline measurement (supplementary file 1) that was carried out in 2018 among the 156 municipalities with the highest share of disparities out of all 380 Dutch municipalities. This baseline measurement, which was part of the transition analysis, consisted of a Google search, a document analysis and a quantitative analysis into municipal perinatal health outcomes.

We hypothesised that our action research would have the biggest impact in municipalities where inequities are greatest. A policy analysis towards improvements in perinatal health in the Netherlands showed that quantification of perinatal health data created urgency to act amongst politicians, aldermen, and the preventive health sector [17]. As such, we expect that the urgency to address perinatal health inequities will be stirred up more easily in municipalities with poor perinatal health outcomes compared to municipalities with better perinatal health outcomes. We therefore selected municipalities with a high incidence of adverse perinatal health outcomes (i.e. preterm birth and small for gestational age (SGA)), a high proportion of children living in families on welfare, and a low municipal SES. Municipalities were considered having a low SES, when a large proportion of their inhabitants are living in an area with a SES score within the lowest quintile (details are presented in supplementary file 1). Additionally, we considered whether municipalities were already implementing perinatal health into their approaches and policies concerning health inequities and whether they participated in previous HP4All programmes (Table 1).

Based on the findings of the baseline measurement, we first selected municipalities that belong to (1) the highest quintile regarding the incidence of adverse perinatal health outcomes, (2) the highest quintile regarding children living in families on welfare, and (3) the lowest quintile regarding municipal SES. This resulted in a selection of 20 municipalities. We then selected six out of the 20 municipalities to represent variation in the level of activity concerning approaches to perinatal health inequities, size, and location. Of these six, four municipalities were already active in addressing perinatal health inequities and/or participated in previous HP4All programmes and two municipalities were not. Seventy thousand inhabitants was used as a cut-off for municipalities to be considered large. Three of the six municipalities had less than 70,000 inhabitants and three had more than 70,000 inhabitants. Finally, the selected six municipalities had to be spread across the country. Accordingly, the following Dutch municipalities were invited to participate in our action research: Delfzijl, Enschede, The Hague, Vlissingen, Landgraaf, and Heerlen (see Fig. 1 for an overview of their location within the Netherlands). All six municipalities are willing to participate in our research.

2.3. Data collection

The HP4All-3 programme is based on action research, an iterative process, in which theory and action are interlinked by reflection [24]. As mentioned, action research consists of three balancing element: research, participation, and action. Regarding our roles as (action) researchers, it was a balancing act of constantly switching between being a change agent, knowledge broker, reflective scientist, self-reflexive scientist, and process facilitator. Various yet complementing types of expertise within the HP4All-3 research team facilitated this process. We will start our action research with conducting a transition analysis to gather knowledge and theories on the persistent societal problem at stake (i.e. perinatal health inequities) and to identify possible drivers behind this persistency. This knowledge will be used in a participatory research setting. Researchers and participants will collaboratively reflect on and analyse the findings of the transition analysis, while simultaneously formulating a theory or hypothesis about how to address this problem. Additionally, concrete actions are identified to actively tackle perinatal health inequities. To go through these steps, we will conduct interviews and interactive group sessions with various relevant stakeholders.

2.3.1. Sampling - interviews

The aim of our research programme is to accelerate the institutional embedding of a cross-sectoral approach to perinatal health. To do so, we want to stimulate collaboration between professionals with varying backgrounds, motives, and competences that can collectively address the variety of interconnected medical, social, economic, cultural, and environmental risk factors that underlie perinatal health inequities.

For the interviews, we will employ purposive sampling [27], selecting professionals who can provide the greatest insight into factors that either hinder or facilitate this institutional embedding, such as 1) municipal structures, 2) approaches to perinatal health inequities (if existing), and 3) relevant future plans/ideas. We prespecified a list of key stakeholders for a cross-sectoral approach to perinatal health (supplementary file 2) whom we intend to interview (corresponding sector between brackets):

- Alderman from the field of youth or public health (municipal government);
- Civil servant from the field of youth or public health (municipal government);
- Civil servant from the field of work and income or societal support (municipal government);
- Professional from a local multidisciplinary neighbourhood team (support team for inhabitants of a specific neighbourhood) or another relevant welfare organisation (social sector);
- Employee of the local Preventive Child Health Care organisation (public health sector);
- Obstetric professional, such as a midwife from a local midwifery practice or obstetrician from the nearest hospital (medical sector);
- Professional from a local maternity care organisation (medical sector);
- General practitioner (GP) from a local GP practice and/or paediatrician from the nearest hospital (medical sector).

We will search the websites of the participating municipalities, local hospitals, midwifery practices, maternity care organisations, GP practices, welfare organisations, etc. to identify potentially eligible interview respondents. Additionally, we will apply snowball sampling by asking participants whom we already interviewed about other potentially eligible participants in addition to our prespecified list of key stakeholders [28]. We intend to conduct eight to 12 interviews in each participating municipality to gather information on what is currently being done within and across different sectors to address perinatal health inequities.

All interviews will be conducted by members of the HP4All-3 research team, using a semi-structured approach. Each interview will be conducted by two interviewers (alternately LSB, LAD, and FS), face-to-face or by telephone. An interview protocol (supplementary file 3) was developed and tested in advance to guide the interviews. During the interviews, there will be time for participants to share extra information which they consider relevant to our topic [29]. All interviews will be audio-recorded and will last about one hour.

Fig. 1. Geographical location of the participating municipalities.
Legend: Circles indicate municipalities with less than 70,000 inhabitants and squares indicate municipalities with more than 70,000 inhabitants. Municipalities that are already active in addressing perinatal health inequalities are blue coloured and municipalities that are not yet active are orange coloured.
From January 1, 2021, the municipality of Delfzijl will merge with two neighbouring municipalities, Appingedam and Loppersum, into the municipality Eemsdelta. Therefore, we decided to include Appingedam and Loppersum in addition to Delfzijl. We will examine these three municipalities as one case. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

2.3.2. Sampling – interactive group sessions

After completion of the interviews, we will organise two successive interactive group sessions within each municipality. These group sessions will focus on how to develop or accelerate local approaches and policies concerning perinatal health inequities. Each session will last three hours and will be audio-recorded. Professionals working in the medical, social, or public health sector or for the municipal government will be invited to both group sessions. We will apply purposive sampling, aiming to invite individuals of whom we expect that they can contribute valuable insights, questions, and ideas to a group discussion concerning the institutional embedding of a cross-sectoral approach to perinatal health. Interviewees who meet these criteria will be invited to participate in the group sessions. Additionally, stakeholders who can contribute valuable insights according to participants of the first group session, will be invited to join the second group session. We will use the methodology of transition management to guide the group sessions [30]. A central method in transition management are small-scale group sessions, so-called 'arenas', with key stakeholders from different backgrounds, who hold varying perspectives on perinatal health inequities. During these arenas, participants collectively go through a participatory process of 1) problem structuring, 2) envisioning, 3) agenda-building, and 4) developing action-oriented experiments. Between ten and 20 participants will participate in these sessions, as to safeguard space for personal interaction and exchange.

During the first group session, we will present the findings of our transition analysis. This includes local perinatal health outcomes for the period 2013–2017 (freely accessible on the webpage www.waarstaatjegemeente.nl), findings from the Google search and document analysis, as well as insights that we will gather during the interviews. These insights will be used to inform participants about: 1) the current orientation of local stakeholders towards perinatal health inequities, 2) local approaches and policies aimed at addressing perinatal health inequities (if existing), and 3) local challenges to build a cross-sectoral approach to perinatal health. Subsequently, participants will work in small groups (three to five participants each) to define future systemic changes that are needed within their municipality to overcome perinatal health inequities. The ideas of these small groups will be shared during a plenary discussion at the end of the meeting.

In the time between the two group sessions, the research team will synthesise the proposed future systemic changes into approximately five local key changes for each participating municipality. In the second group session, we will present and discuss these key changes to/with the participants to validate them. Subsequently,

using the five key systemic changes, participants will work in small groups to identify tangible actions to address perinatal health inequities on both the short- (within one year) and medium-term (one to five years). Next, prioritisation of the identified actions will take place during a plenary exercise, which will result in the formation of a local action-agenda. Lastly, participants will discuss in plenary which steps need to be taken in the months following the group sessions. Additionally, they will identify which stakeholders are responsible for the implementation of the action-agenda.

After completion of the two group sessions, the research team will draw up separate reports for each of the six participating municipalities. These reports will summarise relevant insights from the baseline measurement, the interviews, the group sessions, and the action-agenda. The reports will be shared with all participants of the interviews and group sessions, in order to fuel and guide future actions aimed at addressing local perinatal health inequities. Participating municipalities will be supported by Pharos until the end of the research programme to strengthen and expand local actions and activities directed towards a cross-sectoral approach to perinatal health.

As a follow-up on the action research process, a questionnaire (see supplementary file 4 for a draft version) will be administered approximately one year after completion of the group sessions. This questionnaire will be distributed via e-mail among all interviewees and participants of the group sessions, in order to provide insights into:

1 The actions taken in the period after the formation of the action-agenda. We are in particular interested in the how, what, and why, the effect of the actions taken, as well as the extent to which different stakeholders are satisfied with the actions taken;
2 The extent to which sustainable cross-sectoral collaborations have been and are being built, as well as the extent to which the different stakeholders are satisfied with these collaborations;
3 The extent to which perinatal health has been or is planned to be implemented in local approaches and policy plans aimed at addressing health inequities.

Towards the end of the HP4All-3 programme a closing symposium will be organised in which the research team will share key findings of the HP4All-3 research programme with stakeholders that are, or could be, involved in a cross-sectoral approach to perinatal health. The symposium will be accessible for all relevant stakeholders from the 156 Dutch municipalities with the highest share of disparities. This symposium also offers the possibility for professionals from the participating municipalities to share insights and learn from each other's experiences, struggles, and action-agendas.

2.4. Study timeline

The identification and selection of the six participating municipalities took place between June 2018 and January 2019. The interviews and group sessions took place between February and December 2019. All action-agendas are aimed to be drawn up between January and May 2020. The questionnaire will be administered in September/October 2020. The closing symposium will be organised in March 2021.

2.5. Analyses

All interviews and group sessions will be transcribed by an independent organisation (TiptopGlobal, www.tiptopglobal.com). The transcripts will be checked by two researchers of the HP4All-3 team (LSB, LAD). After transcription, all interviews and group sessions will be analysed based on existing theories, elements of the research questions, and the interview protocol. All analyses will be undertaken by two researchers (LSB, LAD). Codes, themes, and subthemes will be used to answer the research questions. All analyses will be performed in ATLAS.ti.

3. Discussion

The aim of the HP4All-3 programme is to investigate which transition dynamics are driving transformative change in institutional structures, culture, and practices to strengthen and accelerate a cross-sectoral approach to perinatal health in Dutch municipalities. Six municipalities with relatively poor perinatal health outcomes, a high proportion of children living in families on welfare, and a low municipal SES were approached and have agreed to participate. The HP4All-3 programme will provide insight into: (1) the necessary future systemic changes in institutional structures, cultures, and practises to overcome perinatal health inequities, (2) the various roles that municipalities are, or could be, playing in addressing perinatal health inequities, and (3) how local cross-sectoral approaches to perinatal health can be built and/or strengthened. Together, these insights will lead to a diverse set of drivers and barriers to institutionalise a cross-sectoral approach to perinatal health in Dutch municipalities. Finally, our research will provide knowledge on differences and similarities between urban and rural municipalities regarding approaches and policies aimed at addressing perinatal health inequities.

Next to these promising results that will be gathered through the HP4All-3 programme, there are some limitations that merit discussion. First, although we have included a diverse set of stakeholders in our research, there are several groups that are missing. For instance, we did not include parents(-to-be), local community organisations, and informal networks in our research. We have chosen to focus on stakeholders directly involved in the institutional embedding of a cross-sectoral approach to perinatal health. This choice stems from the experiences of the previous HP4All programmes. These programmes have showed how time-consuming and challenging it is to establish collaborations between different sectors and professions. Therefore, we started with a core set of professionals that are directly involved in the institutional embedding as a starting point to establish a cross-sectoral approach to perinatal health. When there is a solid collaboration established between this core set of professionals, it is possible to enrich the cross-sectoral approach with perspectives from the aforementioned stakeholders. Second, a limitation of the research design is its relative short time span. The transition towards a cross-sectoral approach to perinatal health requires multiple transformations in institutional structures, culture, and practices, which will not be accomplished in the time available for our research programme. A societal transition could take decades. As the HP4All-3 programme lasts three years, an in-depth monitoring of such transformations could not be integrated in our research design. However, the transition towards a cross-sectoral approach to perinatal health has been studied since 2010. Building on the insights of among others the HP4All programmes, the national programme Solid Start was launched by the Ministry of Health, Welfare, and Sport in 2018. Within Solid Start, municipalities that wish to participate receive support and guidance in implementing existing approaches which are aimed at addressing health inequities before, during and after pregnancy. This, as well as the support provided by Pharos to strengthen and expand municipal activities, ensures that the transition is further guided. In addition, we aim to monitor short term transformations with a questionnaire one year after completion of the action research. We will also organise a closing symposium to evaluate transformations within the participating municipalities. It would be interesting to follow some municipalities more up close and

(collaboratively) monitor their transition process in the coming years.

4. Conclusion/Policy recommendations

To conclude, the HP4All-3 programme can serve as an example for other countries with persistent (perinatal) health inequities. The design described in this protocol can be used by other countries to shape a cross-sectoral approach to (perinatal) health inequities, both nationally, regionally, or locally. Our findings will therefore be of added value for institutional actors working for the national or municipal government, as well as institutional actors working in the medical, social, or public health sector, both in the Netherlands and abroad.

Our research approach along with knowledge dissemination across a large set of Dutch municipalities can contribute to the development of (inter)national action-agendas directed at sustainable approaches to (perinatal) health inequities. This will contribute to enabling children to develop into healthy citizens who can live independently and participate in society.

CRediT authorship contribution statement

Lisa S. Barsties: Methodology, Investigation, Writing - original draft, Project administration. **Leonie A. Daalderop:** Methodology, Investigation, Writing - original draft, Project administration. **Jacqueline Lagendijk:** Writing - original draft, Supervision. **Frank van Steenbergen:** Conceptualisation, Methodology, Investigation, Writing - original draft, Supervision, Funding acquisition. **Jasper V. Been:** Conceptualisation, Writing - review & editing, Supervision, Funding acquisition. **Loes C.M. Bertens:** Writing - review & editing. **Adja J.M. Waelput:** Conceptualisation, Methodology, Writing - review & editing, Supervision, Funding acquisition. **Hanneke van Zoest:** Conceptualisation, Writing - review & editing, Funding acquisition. **Derk Loorbach:** Conceptualisation, Methodology, Writing - review & editing, Supervision, Funding acquisition. **Eric A.P. Steegers:** Conceptualisation, Methodology, Writing - review & editing, Supervision, Funding acquisition.

Declaration of Competing Interest

The authors report no declarations of interest.

Acknowledgements

The Healthy Pregnancy 4 All-3 programme is funded by the Dutch Ministry of Health, Welfare and Sport, The Hague [grant number 326481]; Jasper V. Been is supported by fellowships of the Erasmus University Medical Centre and the Netherlands Lung Foundation (4.2.14.063JO). The funder had no role in the design of the study, writing of the manuscript, and the decision to submit the manuscript for publication.

Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:https://doi.org/10.1016/j.healthpol.2020.12.013.

References

[1] Poeran J, Denktas S, Birnie E, Bonsel GJ, Steegers EAP. Urban perinatal health inequalities. Journal of Maternal-Fetal and Neonatal Medicine 2011;24(4):643–6, http://dx.doi.org/10.3109/14767058.2010.511341.
[2] Vos AA, Denktaş S, Borsboom GJJM, Bonsel GJ, Steegers EAP. Differences in perinatal morbidity and mortality on the neighbourhood level in Dutch municipalities: a population based cohort study. BMC Pregnancy and Childbirth 2015;15(1):201, http://dx.doi.org/10.1186/s12884-015-0628-7.
[3] Euro-Peristat Project. European Perinatal Health Report. Core indicators of the health and care of pregnant women and babies in Europe in 2015; 2018. Available from: https://www.europeristat.com/images/EPHR2015_Euro-Peristat.pdf [Accessed 23 June 2020].
[4] Barker DJP. The origins of the developmental origins theory. Journal of Internal Medicine 2007;261(5):412–7, http://dx.doi.org/10.1111/j.1365-2796.2007.01809.x.
[5] Vos AA, Posthumus AG, Bonsel GJ, Steegers EA, Denktas S. Deprived neighborhoods and adverse perinatal outcome: a systematic review and meta-analysis. Acta Obstetricia et Gynecologica Scandinavica 2014;93(8):727–40, http://dx.doi.org/10.1111/aogs.12430.
[6] de Graaf JP, Steegers EAP, Bonsel GJ. Inequalities in perinatal and maternal health. Current Opinion in Obstetrics and Gynecology 2013;25(2):98–108, http://dx.doi.org/10.1097/GCO.0b013e32835ec9b0.
[7] Goedhart G, Van Eijsden M, Van Der Wal MF, Bonsel GJ. Ethnic differences in preterm birth and its subtypes: the effect of a cumulative risk profile. BJOG 2008;115(6):710–9, http://dx.doi.org/10.1111/j.1471-0528.2008.01682.x.
[8] Weightman AL, Morgan HE, Shepherd MA, Kitcher H, Roberts C, Dunstan FD. Social inequality and infant health in the UK: systematic review and meta-analyses. BMJ Open 2012;2(3):e000964, http://dx.doi.org/10.1136/bmjopen-2012-000964.
[9] Denktaş S, Bonsel GJ, Van der Weg EJ, Voorham AJJ, Torij HW, De Graaf JP, et al. An urban perinatal health programme of strategies to improve perinatal health. Maternal and Child Health Journal 2012;16(8):1553–8, http://dx.doi.org/10.1007/s10995-011-0873-y.
[10] Denktaş S, Poeran J, van Voorst SF, Vos AA, de Jong-Potjer LC, Waelput AJM, et al. Design and outline of the healthy pregnancy 4 all study. BMC Pregnancy and Childbirth 2014;14(1):253, http://dx.doi.org/10.1186/1471-2393-14-253.
[11] van Voorst SF, Vos AA, de Jong-Potjer LC, Waelput AJM, Steegers EAP, Denktas S. Effectiveness of general preconception care accompanied by a recruitment approach: protocol of a community-based cohort study (the Healthy Pregnancy 4 All study). BMJ Open 2015;5(3):e006284, http://dx.doi.org/10.1136/bmjopen-2014-006284.
[12] Vos AA, van Voorst SF, Waelput AJM, de Jong-Potjer LC, Bonsel GJ, Steegers EAP, et al. Effectiveness of score card-based antenatal risk selection, care pathways, and multidisciplinary consultation in the Healthy Pregnancy 4 All study (HP4ALL): study protocol for a cluster randomized controlled trial. Trials 2015;16(1):8, http://dx.doi.org/10.1186/1745-6215-16-8.
[13] Waelput AJM, Sijpkens MK, Lagendijk J, van Minde MRC, Raat H, Ernst-Smelt HE, et al. Geographical differences in perinatal health and child welfare in the Netherlands: rationale for the healthy pregnancy 4 all-2 program. BMC Pregnancy and Childbirth 2017;17(1):254, http://dx.doi.org/10.1186/s12884-017-1425-2.
[14] Lagendijk J, Been JV, Ernst-Smelt HE, Bonsel GJ, Bertens LCM, Steegers EAP. Client-tailored maternity care to increase maternal empowerment: cluster randomized controlled trial protocol; the healthy pregnancy 4 All-2 program. BMC Pregnancy and Childbirth 2019;19(1):4, http://dx.doi.org/10.1186/s12884-018-2155-9.
[15] de Jonge HCC, Lagendijk J, Saha U, Been JV, Burdorf A. Did an urban perinatal health programme in Rotterdam, the Netherlands, reduce adverse perinatal outcomes? Register-based retrospective cohort study. BMJ Open 2019;9(10):e031357, http://dx.doi.org/10.1136/bmjopen-2019-031357.
[16] Vos AA, van Voorst SF, Posthumus AG, Waelput AJM, Denktaş S, Steegers EAP. Process evaluation of the implementation of scorecard-based antenatal risk assessment, care pathways and interdisciplinary consultation: the healthy pregnancy 4 all study. Public Health 2017;150:112–20, http://dx.doi.org/10.1016/j.puhe.2017.05.010.
[17] Vos AA, van Voorst SF, Steegers EAP, Denktaş S. Analysis of policy towards improvement of perinatal mortality in the Netherlands (2004–2011). Social Science & Medicine 2016;157:156–64, http://dx.doi.org/10.1016/j.socscimed.2016.01.032.
[18] Lagendijk J, Vos AA, Bertens LCM, Denktas S, Bonsel GJ, Steyerberg EW, et al. Antenatal non-medical risk assessment and care pathways to improve pregnancy outcomes: a cluster randomised controlled trial. European Journal of Epidemiology 2018;33(6):579–89, http://dx.doi.org/10.1007/s10654-018-0387-7.
[19] van Minde MRC, van Veen-Belle DW, Ernst-Smelt HE, Rosman AN, Raat H, Steegers EAP, et al. Handover of care and of information by community midwives, maternity care assistants and Preventive Child Healthcare professionals, a qualitative study. Midwifery 2019;78:25–31, http://dx.doi.org/10.1016/j.midw.2019.07.012.
[20] Ezzati M, Webster CJ, Doyle YG, Rashid S, Owusu G, Leung GM. Cities for global health. BMJ 2018;363:k3794, http://dx.doi.org/10.1136/bmj.k3794.
[21] Wittmayer JM, Schäpke N. Action, research and participation: roles of researchers in sustainability transitions. Sustainability Science 2014;9(4):483–96.
[22] Loorbach D, Frantzeskaki N, Avelino F. Sustainability transitions research: transforming science and practice for societal change. Annual Review of Environment and Resources 2017;42:599–626.
[23] Bertens LCM, Burgos Ochoa L, Van Ourti T, Steegers EAP, Been JV. Persisting inequalities in birth outcomes related to neighbourhood deprivation. Journal of Epidemiology and Community Health 2020;74(3):232–9, http://dx.doi.org/10.1136/jech-2019-213162.

[24] Greenwood DJ, Levin M. Introduction to action research: social research for social change. SAGE Publications; 2006.
[25] Bartels KPR, Wittmayer JM. Action research in policy analysis: critical and relational approaches to sustainability transitions. Routledge; 2018.
[26] Yin RK. Applications of case study research. SAGE Publications; 2011.
[27] Devers KJ, Frankel RM. Study design in qualitative research–2: sampling and data collection strategies. Educa Health (Abingdon) 2000;13(2):263–71, http://dx.doi.org/10.1080/13576280050074543.
[28] Biernacki P, Waldorf D. Snowball sampling: problems and techniques of chain referral sampling. Sociological Methods & Research 1981;10(2):141–63.
[29] Longhurst R. Semi-structured interviews and focus groups. Key Methods in Geography 2003;3(2):143–56.
[30] Loorbach D. Transition management for sustainable development: a prescriptive, complexity-based governance framework. Governance 2010;23(1):161–83.
[31] Sijpkens MK, van Voorst SF, de Jong-Potjer LC, Denktaş S, Verhoeff AP, Bertens LCM, et al. The effect of a preconception care outreach strategy: the Healthy Pregnancy 4 All study. BMC Health Services Research 2019;19(1):60, http://dx.doi.org/10.1186/s12913-019-3882-y.
[32] Sijpkens MK, Lagendijk J, Van Minde MRC, de Kroon MLA, Bertens LCM, Rosman AN, et al. Integrating interconception care in preventive child health care services: the Healthy Pregnancy 4 all program. PLoS One 2019;14(11):e0224427, http://dx.doi.org/10.1371/journal.pone.0224427.
[33] van Minde MRC, Blanchette LMG, Raat H, Steegers EAP, Kroon MLA. Reducing growth and developmental problems in children: development of an innovative postnatal risk assessment. PLoS One 2019;14(6):e0217261, http://dx.doi.org/10.1371/journal.pone.0217261.
[34] Vos AA, Van Veen MJ, Birnie E, Denktaş S, Steegers EAP, Bonsel GJ. An instrument for broadened risk assessment in antenatal health care including non-medical issues. International Journal of Integrated Care 2015;15:e002, http://dx.doi.org/10.5334/ijic.1512.