BMJ Open

Mothers' experiences of perinatal care in Belgian public hospitals: exploring the social inequalities. Protocol for a cross-sectional survey

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To cite: Schönborn C, Castetbon K, Sow M, *et al*. Mothers' experiences of perinatal care in Belgian public hospitals: exploring the social inequalities. Protocol for a cross-sectional survey. *BMJ Open* 2020;**10**:e038400. doi:10.1136/bmjopen-2020-038400

► Prepublication history for this paper is available online. To view these files, please visit the journal online (http://dx.doi.org/10.1136/bmjopen-2020-038400).

Received 09 March 2020
Revised 28 October 2020
Accepted 05 November 2020

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ABSTRACT

Introduction In Europe, the social inequalities in perinatal health are usually found to be to the disadvantage of non-European immigrants and women with lower levels of education and income. Among the possible underlying mechanisms are inadequate access to healthcare services and suboptimal care. To explore this hypothesis in the Belgian context, our research will describe detailed maternal socioeconomic and migration characteristics, explore how these factors relate to each other, and how they relate to women's perinatal care trajectories and experiences of care.

Methods Using a modified version of the Migrant-Friendly Maternity Care Questionnaire, we will survey 900 mothers of Belgian nationality or a nationality from a North or Sub-Saharan African country, and having given birth in four maternity wards in Brussels. The questionnaire has been adapted to the study objectives and the Belgian context. Interviewers will administer the 116-item questionnaire to all women agreeing to participate and meeting inclusion criteria, within 14 days of having given birth. Clinical information will be extracted from hospital records.

Analysis We will estimate the associations of women's socioeconomic and migration characteristics with:

- Women's antenatal care trajectories (timing of first antenatal consultation, minimum recommended number of consultations, and problems accessing care).
- Obstetric practices such as episiotomies, emergency caesarean sections, and inductions.
- Patient experience such as feelings of discrimination, respect, and understanding of information.

We will use descriptive statistics, multiple correspondence analysis, and simple and multiple logistic regressions.

Ethics and dissemination Ethical approval has been obtained from the hospital Ethics Committees and from the Université libre de Bruxelles (No: P2017/055/B406201730877). Written informed consent will be sought from all participants.

In addition to disseminating findings and recommendations to the scientific community through open-source journal articles and conferences, we will also address local organisations and healthcare professionals via a written report and seminars.

Strengths and limitations of this study

- This research will analyse women's perinatal care experiences in depth and will take into account their detailed socioeconomic and migration characteristics.
- The study includes several public hospitals caring for mothers with different profiles, yielding a diverse sample of Belgian, North and Sub-Saharan African mothers in Brussels.
- The data collection is based on an international questionnaire, adapted to the Belgian context, which will provide some comparability with studies using the Migrant-Friendly Maternity Care Questionnaire in other contexts.
- One limitation of this study is that the validity and reliability of the questionnaire items have not been formally tested.
- The research will not quantitatively measure the content or quality of care from the professionals' perspective.

INTRODUCTION

The 20th century's astonishing improvements in maternal and child health have not benefited all women alike. Even within countries with widely accessible high quality healthcare, health inequalities related to the socioeconomic status (SES) of women and their countries of origin have been reported.[1] Lower education, unemployment, single motherhood and lack of healthcare coverage have all been associated with adverse birth outcomes such as preterm birth and low birth weight.[2–5] Migration is less consistently found to be a risk factor, as its effects depend on women's country of origin and on their new host country.[1] In Brussels, a multicultural capital, women from non-European countries are overall more exposed to adverse birth outcomes; for instance, newborns of Moroccan mothers have almost twice the risk of dying by their first week of life than

those of Belgian mothers.[6] Two studies carried out in a public hospital in Brussels, showed that immigrant women lacking healthcare coverage were more likely to have babies born prematurely or with a low birth weight,[5] and that recently arrived immigrants had higher rates of obstetrical and neonatal complications compared with long-term residents, although, in the latter study, effects disappeared when adjusting for age, parity, health status and healthcare coverage.[7]

When systematic differences in health arise because of social and political circumstances, they are considered avoidable and therefore unjust, constituting 'health inequities'. The Commission on Social Determinants of Health have called for 'closing the gap in a generation', emphasising the importance of building equity from the early years of life.[8] Intervening around the period of pregnancy may also allow breaking the vicious cycle of health disadvantage that is passed on from one generation to another.[9] In order to reduce inequalities, it is vital to guarantee universal access to healthcare regardless of income, social status or residency, to empower women to use health services and that these are adapted to their needs.[8 10]

The relationship between SES, migration and perinatal health is intricate.[11] In previous studies we observed that the effect of nationality on perinatal health varied significantly by SES; for instance, among poorer women, immigrants had better perinatal outcomes, whereas among richer women, they were more at risk.[12] This underlined the importance of taking into account both migration background and SES in future studies.

Despite often being studied in a binary way, 'migration' and 'SES' are multifaceted concepts. Migrants are a heterogeneous group of people; their perinatal health risks and socioeconomic realities may depend on multiple factors, including whether they are first, second or third-generation migrants, their country of birth, the reason for leaving, the duration of residence in their new home country, their knowledge of the host language or their level of integration.[1 13]

Similarly, it is reductive to study SES purely through women's level of education or their working status. As for studies carried out in the USA[14], data from Brussels[12] shows that these two indicators do appear to be predictive of perinatal health in the host country population, but not in some groups of foreign nationality.

This suggests that, for Belgian women, their working status and level of education approximate the other dimensions of their socioeconomic situation, such as working and living conditions, including their financial situation, housing conditions, social networks or isolation. Conversely, it appears that immigrants' living and working conditions do not go hand in hand with their level of education or their income, possibly because their insertion in the job market and access to services is more difficult and less related to their SES. This research proposes to study migration and SES with finer indicators that allow us to capture the complexity of women's social and economic situations and explore how the indicators relate to one another.

There is an abundant literature on the description of social inequalities in perinatal health,[1 2 15] but fewer studies investigate the causes.[2 16–18] Though medical factors and health behaviours are cited among the probable causes, they do not suffice to provide a full explanation.[19] Other causes have been proposed, both by researchers and healthcare professionals, such as inequity of healthcare delivery, suboptimal care and lack of adaptation of health services to the needs of immigrants and women with low incomes.[16 17]

Perinatal health services (including antenatal and peripartum care) are crucial for the health of mothers and babies, as they screen for congenital and maternal diseases such as diabetes and pre-eclampsia for which lifesaving interventions can be given; they provide health advice, psychological support and often open the door to support from social services. Late or infrequent use is associated with poorer birth and maternal outcomes, including low birth weight and mortality.[20] Widely and freely accessible antenatal care is certainly fundamental; yet, it does not suffice to ensure that all women benefit alike, given that other factors affect their access. First of all, undocumented immigrants and other extremely vulnerable groups are often excluded from simple and direct access to antenatal care. In Belgium, for instance, women who are not covered by comprehensive health insurance, have the right to access perinatal care, but first need to apply for 'emergency healthcare coverage' which clearly acts as a first barrier for some. In fact, women who have emergency healthcare coverage have been found to enter antenatal care later than women with comprehensive coverage (12 vs 9 weeks), and women with no coverage at all even later (16 weeks).[5] What is more, a recent review has shown that late initiation of care is influenced by poor understanding of the content and the value of early antenatal care, sometimes due to language barriers or social isolation.[21] The review suggested that women with particularly challenging life circumstances, as a result of poverty or substance abuse for instance, may not consider antenatal care their priority. Practical issues such as transport and childcare, or financial hardship were also potential barriers, including when care was free. Language difficulties and cultural or religious factors were also shown to influence antenatal care access.[21]

Some studies analysing the social determinants of healthcare use during pregnancy focus on migration: European studies have shown that migrant women tend to use antenatal services later and less frequently than non-migrants,[22 23] but the reasons for non-attendance have been less explored so far. A study from England suggested that a series of legal, structural and institutional barriers were at the heart of the underuse of antenatal services.[24] In another study, undocumented migrants, asylum seekers and refugees were likely to underuse antenatal services for fear of costs or arrest.[25] These results may not be generalisable across countries, as there are

significant differences in healthcare systems, migrants' legal rights and social insertion policies, and because migrant women are themselves a heterogeneous cultural and socioeconomic group.

Social and migration factors may also affect the quality of the healthcare provided, and women's experiences of it: in high-income countries, for example, higher caesarean section rates have been reported among women from Africa, South Asia and Latin America, independent of medical factors.[26] Further studies point to suboptimal care linked to discriminatory or stereotyping attitudes or implicit bias.[27 28] Immigrant women have been shown to be treated differently in terms of likelihood of being induced, having continuous fetal monitoring, or having an episiotomy and to have poorer patient experience.[29–31] However these results are not universal[32] and need to be further explored. For instance, a recent study from Brussels showed that recent immigrants had similar induction and caesarean section rates to long-term residents.[7]

Investigating such hypotheses is particularly relevant for Brussels, where the perinatal mortality rate is above the European average, and significant inequalities exist.[6] Furthermore, in Brussels, three-quarters of births are to mothers with an immigrant background,[33] and around 3.8% are to women who are not in the Belgian register (mostly undocumented),[34] for whom the administrative procedures to access healthcare can sometimes be prohibitive.[35] The Belgian healthcare system is, according to users, one of Europe's most complex and difficult to navigate.[36] The population in Brussels is also particularly poor: 41% of children are born in a household that is at risk of poverty, and chances are even higher for babies born to a mother from North or Sub-Saharan Africa.[12]

This research aims to describe detailed maternal socioeconomic and migration characteristics, explore how these factors relate to each other, and how much they are associated with women's perinatal care trajectories and experiences of care in Brussels.

METHODS AND ANALYSIS

Population

We invite all mothers with a current Belgian or African nationality, 16 years old or above, who are on the maternity or neonatal ward, to participate in the survey. We include all women, regardless of health insurance, legal status or literacy. We include women speaking French, Dutch, Arabic, Riff, Peul, English or Spanish. Women not speaking either of these languages are excluded. We also exclude women who are considered by their midwife to be too unwell to be approached. The participants are recruited, and the interviews carried out between 1 and 14 days postpartum. We offer participants to do the interview in hospital, or, once they have left, over the phone or at home.

To reduce selection bias, we recruit mothers in hospital after having given birth. We will only miss mothers having given birth outside of hospital and not going in for postnatal care. In Brussels, the percentage of mothers giving birth outside of hospital is very small (0.5%) and mainly represents well-off Belgian or French women.[37] Of these, some transfer to hospital for postnatal or neonatal care. Furthermore, in order to assess the potential participation bias, we will compare the nationalities of women accepting to participate in the research and those refusing. On a preliminary sample (n=757), no significant difference was found.

We have chosen to focus on women with a Belgian nationality and women with a nationality from a North or Sub-Saharan African country, as the two latter are the largest non-European nationality groups in terms of births in Brussels (9.5% and 6.9% respectively).[37] Furthermore, they are interesting to compare because despite some socioeconomic similarities, their perinatal health profiles are quite different.[12] Despite European immigrants being the largest group of immigrants in Brussels, we have chosen not to focus the study on this group because their perinatal health profiles are very similar to the Belgians and they do not stand out as being at risk of adverse perinatal outcomes or socioeconomic situations.[6]

We have selected four hospitals (CHU Brugmann, CHU St Pierre, Erasme and Iris-sud Ixelles) with the highest proportion of women with African nationalities, two with more socially disadvantaged patients and two with more affluent ones, thus aiming to include a range of socioeconomic situations.

Sample size

The following hypotheses have been set: alpha risk at 5% and beta risk at 20% (ie, statistical power at 80% minimum). We first based the calculation of the theoretical sample size on the ability to estimate a difference between the different nationality and socioeconomic groups in terms of various perinatal care-related outcomes. For instance, in a previous Belgian study,[38] percentages of late initiation of care were 9% in non-European women and 1.5% in Europeans, yielding a minimal sample size of 163 in each group. Based on percentages of inadequate care according to the school level (12.1% in women with low education and 7.5% in women with high education), the estimated theoretical sample is 563 in each group. Depending on the outcome, most samples were lower than 1000. In addition, a minimum of 100 women from the least-represented nationality group (namely Sub-Saharan African nationalities) is considered as necessary. Since 12% of births come from this group in the selected hospitals (Van Leeuw, personal communication, 2017), a minimal sample including 900 women is called for.

Data collection tools

This survey is based on the adaptation of the Migrant-Friendly Maternity Care Questionnaire (MFMCQ),[39] which was developed by the ROAM ('Reproductive Outcomes And Migration') collaboration.[40] It is available in different languages and has been or is being used by researchers in different countries (Canada, Portugal and

Germany).[41 42] The MFMCQ was originally intended to measure the migrant-friendliness of healthcare services but it lends itself to capturing the experiences of non-migrants too.

The original version has 112 items and covers a number of aspects on care received during pregnancy, labour and postpartum.[39] It also includes items on maternal sociodemographic, migration and obstetrical characteristics, and language competency. A supplementary set of 35 questions, developed by the steering committee, includes maternal comorbidity, living circumstances, planning of pregnancy (desire for pregnancy and use of contraception), dental health, female genital mutilation, migration trajectory and health behaviours. The MFMCQ has been conceived to be administered via face-to-face interview.

We adapted the original French questionnaire to the purpose of this study and to the Belgian context. We removed the questions that were not relevant for this research, such as questions on the postpartum period beyond the first few days. We used some items from the supplementary questionnaire, and added new ones, including questions on antenatal care such as difficulty consulting a midwife or gynaecologist, and continuity of care. We also added questions on socioeconomic background, such as the type of housing (social housing, temporary accommodation and so on), and social welfare.

For items on legal status, educational level and health insurance, we adapted the response categories to the Belgian context. Finally, we removed a few clinical questions from the questionnaire and collected this data in hospital records instead so as to shorten the interview time, and we regrouped the questions by theme. This modified version of the MFMCQ has 116 items, and takes between 25 and 45 min to administer. The questionnaire is available from the corresponding author on reasonable request.

We piloted the modified questionnaire on 20 women, including women with significant socioeconomic vulnerability. Most women had no suggestions for improvement, and found the interview acceptable and the questions clear. Eight women found that one or more of the original questions were difficult to understand, so we simplified the language where appropriate. Women's answers during the pilot also revealed that some answer options were not exhaustive or mutually exclusive, and some questions were ambiguous; we thus adapted these items.

All questions and modifications were discussed with an advisory committee (two midwives, one gynaecologist and two researchers). As per 'MFMCQ translation and cultural validation protocol',[43] modifications to the MFMCQ were made if the issue was raised by several discussion group members; was raised by several participants in the pilot; or was expected to compromise study participants' comfort or ability to respond. We re-tested the questionnaire with modifications as an iterative process.

The final version was translated into English, as suggested,[43] that is, translated by a native speaker, back-translated and tested with a native speaker. Using the same procedure, the questionnaire has been translated and recorded orally into Moroccan Arabic.

We created an electronic version of the questionnaire for administration via tablets using the Census and Survey Programming System (CSPro).[44] Evidence shows that using a software programme can reduce erroneous or missing data during data entry and encoding,[45] and is time-efficient.[46]

With participants' consent, we also collected clinical data from hospital notes, including gestation, birth weight, complications during pregnancy, birth and postpartum, medical interventions, obstetric history, number of antenatal consultations and timing of first consultation.

Table 1 shows some of the key indicators that will be collected, almost all of them as categorical variables.

Data collection

We recruited female interviewers that were students in Public Health Masters or Midwifery. We chose to work with female interviewers because gender matching (especially female interviewers with female study participants) has been shown to improve survey participation.[47] Furthermore, our study participants are mostly interviewed in intimate circumstances (they may be wearing pyjamas, may not be wearing traditional headscarves and might breastfeed during the interview). Also, our study population includes many women of Muslim culture, who might consider childbirth to be a matter that concerns women only.[48 49] Under all these circumstances, we thus hope to increase the response rate and reduce the likelihood of social desirability bias by working with female interviewers.

The training of interviewers ran over a week and consisted of (a) a session to run across the questionnaire item by item, ensuring full comprehension, and discussing any doubts; (b) each interviewer carried out three mock interviews: two with potential participants, and one with the principal investigator. The latter was an opportunity to assess their interviewing skills and to give feedback. If there were no major issues with the interviews and completed questionnaires, the interviewer was hired.

Data collection is ongoing, it ran from January 2019 to February 2020, and from July 2020 until September 2020.

Analysis

We will analyse the questionnaire data with unsupervised and supervised statistical methods, using R (FactoMineR) and Stata V.14, respectively. Analyses will include:

1. Descriptive analyses of all questions with frequencies, means and medians, as appropriate. We will describe the sociodemographic characteristics of participants and their experiences of care. The latter will be compared by hospital (anonymised) and by nationality group.
2. Exploratory analyses through clustering and multiple correspondence analysis, to identify the different profiles of women's socioeconomic and migration characteristics. We will then relate these profiles with the

Table 1 List of key indicators grouped by themes

Theme	Indicators
Socioeconomic situation	Household income
	Housing condition (rooms/inhabitant, and 8-item score)
	Postcode
	Single motherhood
	Professional status (e.g. working, student, job-seeker, on social benefits .)
	Health insurance status
	Social welfare
Demography and migration background	Maternal age
	Country of birth
	Nationality (of origin and current)
	Duration of residence
	Legal status
	Maternal parents' countries of birth
	Paternal country of birth
Care trajectories	Late start of antenatal care
	Number of consultations
	Type of follow-up (midwife versus gynaecologist)
	Access barriers
	Continuity of care
Patient experience	Feeling respected
	Feeling discriminated
	Understanding of information
	Feeling at ease to ask questions
	Taking into account of preferences
	Satisfaction
Clinical data	Parity
	Conception type
	Maternal morbidity during pregnancy (eg, gestational diabetes, pre-eclampsia)
	Newborn morbidity (Apgar, morbidity, neonatal intensive or semi-intensive care)
	Mode of delivery
	Medical interventions at delivery
	Birth weight
	Prematurity
	Obstetric history
Health behaviours	Smoking (before and during pregnancy)
	Alcohol consumption
	Vitamin intake
	Desire for pregnancy
	Family planning

various indicators of care trajectory and experience (as supplementary variables).

3. After checking for possible collinearity between explanatory variables, we will carry out multivariable and multinomial logistic regression models to estimate the associations of sociodemographic and migration characteristics (ie, explanatory variables) with: (a) outcome measures: women's antenatal care trajectories (timing of first antenatal consultation, minimum recommended number of consultations, self-reported problems accessing antenatal care and type of follow-up); adjusting for age, parity, gestation, comorbidity,

obstetric risk and hospital; (b) outcome measures: obstetric practices such as episiotomies, emergency caesarean sections and inductions according to women's socioeconomic and migration characteristics; adjusting for age, parity, comorbidity and hospital; (c) outcome measures: patient experience including feelings of discrimination, respect and understanding of information; adjusting for age, parity and hospital.

Interactions between nationality groups and SES characteristics with the above outcomes will be addressed. Corrections for multiple testing will also be applied. At last, conditions of application for the modelling methods will be verified as appropriate.

Limitations

The original MFMCQ resulted from a four-stage project including selection of questions from existing questionnaires and a three-round consensus process with 89 international experts in migrant reproductive health and research. Furthermore, the adapted version of the MFMCQ has been discussed with an advisory committee and piloted before use. One of the limitations of this study is that the validity and reliability of the questionnaire items have not been formally tested.

Another limitation of this work is inherent to studying the causes of social inequalities in health. Indeed, several inter-related dimensions are likely to influence the results observed, and these aspects will thus be considered in the discussion of results. For instance, the analysis does not address factors related to the psychosocial context of women, such as women's relationships with their partners. Qualitative studies could help to better understand the link between such factors and women's experiences of using health services around birth.

Thirdly, it ought to be remembered that this study mainly captures women's points of view regarding their perinatal care (with the exception of items on healthcare use and obstetric interventions collected from medical records) and that other quality aspects of care, such as specific content or adequacy from the healthcare professionals' point of view are beyond the scope of this study.

Patient and public involvement

During the original MFMCQ development, migrant women were involved at two stages: the cultural validation, and the pilot in Canada.[39] Their feedback was taken into account to further adjust the questionnaire and the instructions for interviewers.

In our work of adapting the questionnaire for this study, we took into account the experiences and opinions of midwives and doctors (through the advisory committee) and, during our pilot, of potential participants. In fact, while piloting the questionnaire, we encouraged participants before starting to let us know when they did not understand a question during the interview, when they did not feel at ease answering or if they had any other comment; we also asked participants at the end of the interview how they had felt and whether they had any suggestions for improvement. We took their views into account during the adaptation process.

Ethics and dissemination

Ethics

The study has obtained ethical approval from the Ethics Committees from all four hospitals and from the Université libre de Bruxelles (Erasme Reference No P2017/055/B406201730877). Approval by the heads of Obstetrics of the four hospitals has also been obtained.

Written and oral information is given to all participants and written consent is sought (including for access to clinical data); participants are assured confidentiality and allowed to withdraw at any moment. Data is collected anonymously and stored securely.

Dissemination

We will share our results with the scientific community by publishing them as open-source peer-reviewed journal articles, presenting results at national and international conferences, and at ROAM network meetings.[40]

In addition, we aim to develop recommendations that derive from our results and that are meaningful for stakeholders. Our results and recommendations will then be shared at a local level through a written report and seminars or meetings with healthcare professionals and relevant organisations, including the hospitals where data was collected.

Acknowledgements We express our gratitude to all study participants, and to the heads of obstetrics and neonatal services of CHU Brugmann, CHU St Pierre, Erasme and Iris-Sud Ixelles hospitals for giving us permission to carry out the study. We also thank hospital staff (midwives and gynaecologists) for the logistic support in recruiting mothers and accessing clinical data. We are also grateful to the members of the steering committee, including Dr Barlow and Professor Godin, for guiding the design of this research. We would also like to thank the interviewers.

Contributors CS and MDS designed the study. CS, MDS and KC adapted the Migrant-Friendly Maternity Care Questionnaire, CS piloted the questionnaire and is coordinating the data collection. CS drafted this article and MDS, KC, MS and JR revised it critically for important intellectual content.

Funding This work was supported by an FNRS (Fund for Scientific Research https://www.frsfnrs.be/en/) FRESH doctoral grant for the first author, and a FER (Fonds d'Encouragement à la Recherche) grant from the Université libre de Bruxelles to carry out the data collection.

Competing interests None declared.

Patient and public involvement Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; externally peer-reviewed.

Data availability statement Data are available upon reasonable request. The data consists of anonymised participant data, and is available from the corresponding author upon reasonable request.

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