Maternity care for recently migrated women in Oslo, Norway

The MiPreg project

Sukhjeet Bains

Institute of Health and Society
Faculty of Medicine
University of Oslo
December 2021

Series of dissertations submitted to the
Faculty of Medicine, University of Oslo

ISBN 978-82-348-0037-5

Cover: Hanne Baadsgaard Utigard.
Photo cover: Amalie Huth Hovland, UiO
Print production: Graphics Center, University of Oslo.

Table of Contents

Acknowledgments

I have many people to acknowledge for the guidance, inspiration, and support they have provided me throughout my PhD, some perhaps more aware of their contribution than others. The work in the thesis is part of a bigger project; the MiPreg study, which was funded by the Norwegian Research Council.

First, I am grateful for my supervisors for giving me the opportunity to be a part of the great MiPreg research team. My main supervisor, Ingvil K. Sørbye, thank you for the encouragement and guidance throughout the research process, from questionnaire development, analysis, drafting manuscripts to preparing presentations for conferences. I sincerely appreciate everything you have taught me during this period - this thesis would not have been possible, and this journey would not have been as pleasant, without you. My co-supervisor, Benedikte V. Lindskog, I am grateful for your guidance in qualitative methods and supporting me with your expertise knowledge on the subject. Thank you for great conversations and for furthering my thinking about identity and vulnerability. My second co-supervisor, Johanne Sundby, thank you for continuously supporting me with comments and recommendations, both related to my specific PhD project, but also in academia in general.

A big thank you to the whole MiPreg team, with Hanna Ottesen, Katrine Owe, Susanne Skråning, Mackenzie Kay and Fatou Jatta for discussions and great engagement in this project. To midwives Susan Ibrahim, Maria Stivang and Kerstin Adolfsson for fantastic collaboration in conducting the questionnaire-study. A special thanks to Lien Diep for the guidance and patience while helping me with statistics.

Thanks to the head of Norwegian Research Centre for Women's health, Siri Vangen, for offering a stimulating learning environment, from the valuable PhD seminars to the informal lunch meetings. You have generously shared from your experiences and contributed to making my PhD journey a delightful one. I would like to thank all my wonderful colleagues at the Norwegian Research Centre for Women's health, for taking their time to discuss and enrich my work. Although not always directly related to my thesis, nonetheless equally valuable were the corridor chats with Silje Pettersen, Ingrid Langen, Marte Reigstad, Sølvi Taraldsen, Nina Gunnes, Åshild Bjørnerem, Malin Eberhard-Gran, Pernille Frese, Maria Nydal, Katariina Laine and Iqbal Al-Zirqi for everything from general life advice, career guidance and conversations.

I feel privileged to have been working alongside all the passionate and highly experienced researchers at Department of Obstetrics and Gynecology at Oslo University. I have benefitted from watching, participating, and conversing with great researchers at the weekly research-lunch meetings at the department, especially Annetine Staff for being a role model and motivator for a young researcher. The experiences at the Norwegian Research Centre for Women's health and Department of Obstetrics and Gynecology at Oslo University Hospital will leave marks beyond this thesis.

I am thankful for my family for their continued support and encouragement throughout my work, you mean a lot to me. I am grateful for my parents, Parkash Kaur Bains and Gurmail Singh Bains, for having taught me the value and importance of knowledge and education. A big thank you to my brother, Hardeep, for valuable comments on the manuscripts and for challenging me in discussions on the subjects relevant for this thesis and in life in general. I believe these discussions have broaden my worldview and made me a better researcher. To my partner, Torstein, thank you for your excitement, patience, IT support and unfaltering belief in me. You helped me take my mind off work and remind me that there is more to life. Thank you to my friends for the love and for cheering on me.

Finally, I would like to all the women and health care workers for their invaluable contributions in our study. I feel privileged and grateful for the shared stories and experiences. I sincerely hope this research will improve the health care response to vulnerable migrant women.

Oslo, December 2021

Sukhjeet Bains

Summary

Maternity care for recently migrated women in Oslo, Norway

- The MiPreg project

Background

Migrant women constitute a growing proportion of women giving birth across Europe. Previous research has shown an increased risk of adverse maternal and neonatal outcomes in sub-groups of migrant women. Migrants may face many barriers, not limited to legal, social, and economic, making migration a key determinant of health. This thesis investigates health-care related factors that contribute to inequity in maternity care among recent migrant women and identifies potential barriers to optimal use of maternal health services in Norway.

Aims

The overall aim of this thesis was to provide knowledge regarding experiences in receiving maternal health care for recently arrived migrant women in Norway. We attempted to address the overall aim through three objectives:

- Paper 1: To examine factors associated with recently migrated women's satisfaction with maternity care.
- Paper 2: To explore factors associated with poor understanding of information provided by health care personnel among recent migrants. In addition, to investigate which maternal health topics in particular that women had received inadequate information about.
- Paper 3: To identify challenges and barriers recently migrated women face in accessing and utilizing maternity health care services.

Methods

The MiPreg-project is a multidisciplinary, mixed method project. This thesis includes three articles grounded in both qualitative and quantitative methods. The first two articles use a structured questionnaire (Paper 1 and Paper 2), and the last article combines findings from the structured questionnaire study and in-depth qualitative interviews (Paper 3). For the structured questionnaire we used a modified version of the Migrant Friendly Maternity Care Questionnaire among migrant women giving birth at Oslo University Hospital and Akershus University Hospital. For the qualitative part we conducted in-depth interviews with migrant women and midwives from the hospitals and the Maternal and Child Health Centres in Oslo.

We included internationally migrated, recently pregnant women born in a low or middle-income country (based on the Global Burden of Disease classification system) and with a length of stay in Norway ≤ 5 years, giving birth in urban Oslo.

Results

- Paper 1: Overall satisfaction with maternal health care was high (72%). However, having a Norwegian partner, higher education, and high Norwegian language comprehension, were associated with greater odds of being dissatisfied with care.
- Paper 2: One-third of the women reported a poor understanding of the information provided to them by health care personnel. Low Norwegian language proficiency, refugee status, no completed education, unemployment, and reported interpreter need were associated with poor understanding. Women who needed but did not get a professional interpreter were at the highest risk of poor understanding. Family planning, infant formula feeding, and postpartum mood changes were reported as the most frequent insufficiently covered topics.
- Paper 3: Four main themes of challenges and barriers faced by the migrant women were identified: (1) Navigating the health care system, (2) Language, (3) Psychosocial and structural factors, and (4) Expectations of care.

Conclusions

Our findings provide a baseline for potential improvement and the best balance between "same care for all" and specialised care, to capture migrants with special needs.

- Paper 1: The negative health care experiences and factors associated with satisfaction identified, have implications for health system planning, education of health care personnel and strategies for quality improvement.
- Paper 2: To achieve optimal understanding, increased awareness of the needs of a growing, linguistically diverse population, and the benefits of interpretation services in health service policies and among health care personnel, are needed.
- Paper 3: A combination of individual, structural and institutional barriers hinder recently migrated women in achieving optimal maternal health care. Suggested strategies to address the challenges include improved provision of information about health care structure to migrant women, appropriate psychosocial support and strengthening diversity- and intercultural competence training among health care personnel.

List of papers

Paper 1:

Bains S, Sundby J, Lindskog BV, Vangen S, Diep LM, Owe KM, Sorbye IK.

Satisfaction with maternity care among recent migrants: an interview questionnaire-based study.

BMJ Open. 2021 Jul 16;11(7):e048077. doi: 10.1136/bmjopen-2020-048077

Paper 2:

Bains S, Sundby J, Lindskog BV, Vangen S, Sørbye IK.

Newly Arrived Migrant Women's Experience of Maternity Health Information: A Face-to-Face Questionnaire Study in Norway.

Int J Environ Res Public Health. 2021 Jul 15;18(14):7523. doi: 10.3390/ijerph18147523

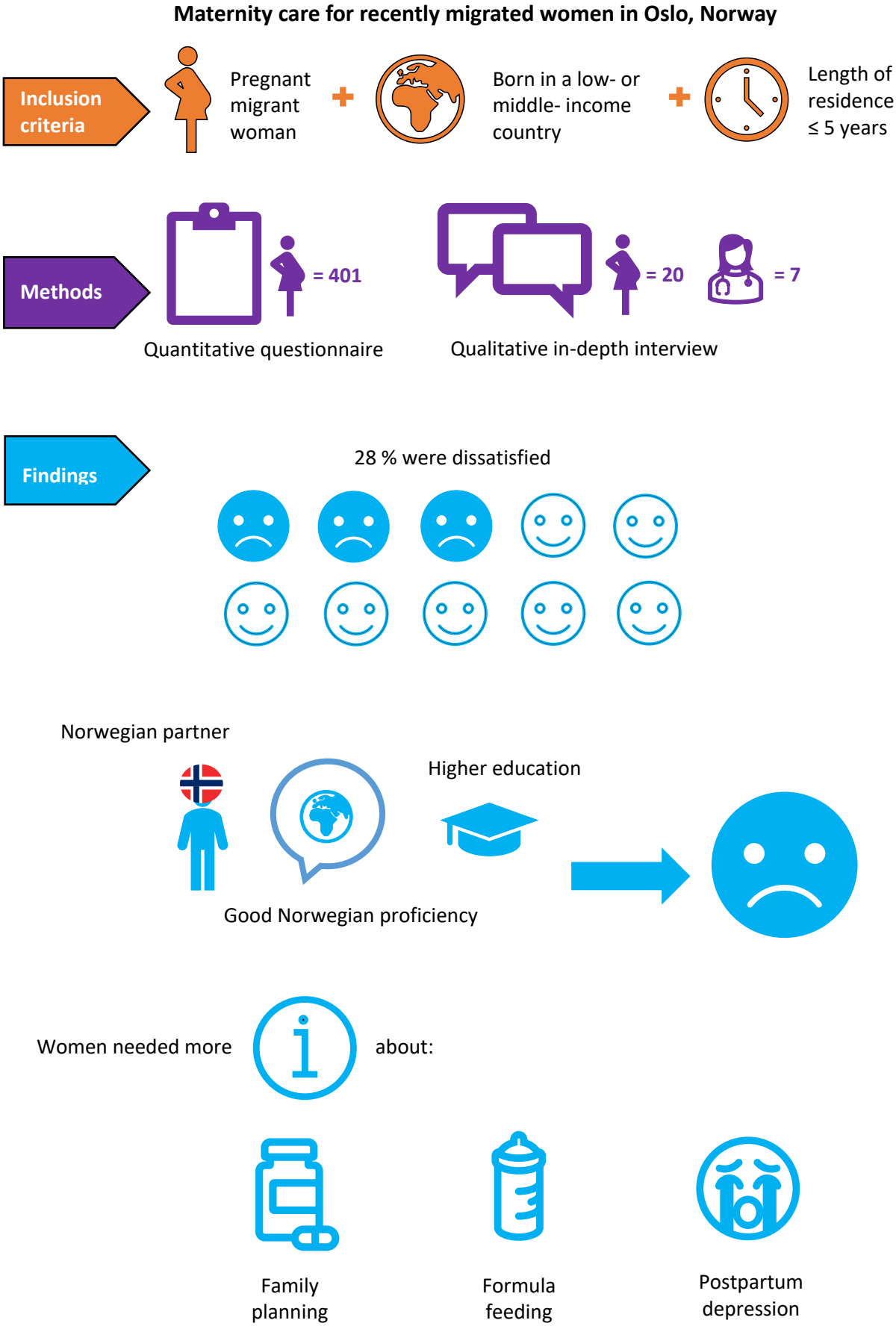
Paper 3:

Bains S, Skråning S, Sundby J, Vangen S, Sørbye IK, Lindskog BV.

Challenges and barriers to optimal maternity care for recently migrated women - a mixed-method study in Norway.

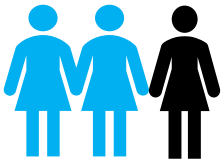
BMC Pregnancy Childbirth. 2021 Oct 7;21(1):686. doi: 10.1186/s12884-021-04131-7

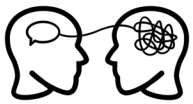
Thesis at a glance



Maternity care for recently migrated women in Oslo, Norway

1/3 had poor understanding of information

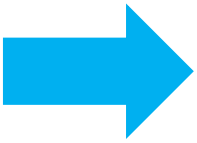


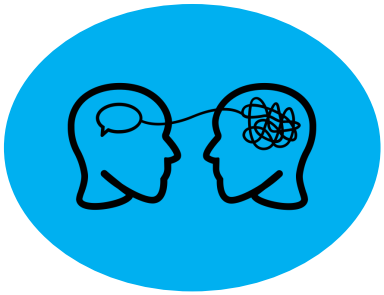


Interpreter need

No education

Refugee





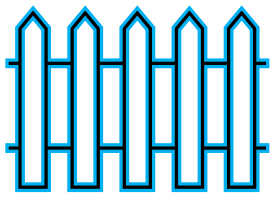
Low Norwegian proficiency

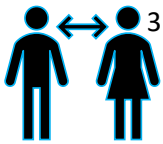
Unemployment

Barriers to optimal care:

1.Navigating the health care system

2. Communication





3. Psychosocial factors

4. Expectations of care

Implications

Best balance between “same care for all”
and specialised care,
to capture migrants with special needs

Sammendrag på norsk

Svangerskap- og fødselsomsorg for nyankomne migrantkvinner – MiPreg prosjektet

Migrantkvinner utgjør en økende andel av fødende i mange land, også i Norge. For mange nyankomne innvandrerkvinner er svangerskap og fødselsomsorgen deres første møte med det norske helsevesenet. Undergrupper av migrantkvinner har økt risiko for uheldige maternelle og neonatale utfall. Mange årsaksfaktorer kan spille inn, for eksempel kommunikasjonsbarrierer, lav helsekompetanse og manglende tilrettelegging av helsetjenester for en økende heterogen befolkning.

Dette doktorgradsarbeidet er en del av et større tverrfaglig prosjekt, MiPreg prosjektet. Formålet med denne studien var å kartlegge erfaringer og identifisere barrierer for optimal bruk av maternelle helsetjenester blant nyankomne migrantkvinner i urbane Oslo. Spesifikt ønsket vi å undersøke faktorer knyttet til nyankomne migrerte kvinners tilfredshet med svangerskaps- og fødselsomsorgen (artikkel 1). Videre ønsket vi å utforske hvilke faktorer som var assosiert med dårlig forståelse av informasjon formidlet av helsepersonell og hvilke svangerskapsrelaterte temaer kvinnene ikke hadde fått nok informasjon om (artikkel 2). Vi ønsket også å identifisere utfordringer nyankomne migrantkvinner møtte i svangerskap- og fødselsomsorgen i Norge (artikkel 3).

Vi inkluderte kvinner født i et lav- eller mellominntektsland og med botid i Norge ≤ 5 år, som fødte i Stor-Oslo. Vi intervjuet 401 kvinner med et strukturert spørreskjema etter fødsel på sykehus (artikkel 1 og artikkel 2). Videre kombinerte vi funn fra det strukturerte spørreskjemaet, i tillegg dybdeintervju med 20 migrantkvinner og 7 jordmødre på helsestasjon og på sykehus (artikkel 3).

Vi fant at 72% av kvinnene var tilfredse med svangerskap- og fødselsomsorgen. Det å ha en norsk partner, høyere utdanning og god norsk språkforståelse var forbundet med høyere risiko for å være misfornøyd med omsorgen (artikkel 1). En tredjedel av kvinnene hadde dårlig forståelse av helseinformasjon formidlet av helsepersonell. Familieplanlegging, morsmelkerstatning og humørsvingninger etter fødselen var temaene som oftest var utilstrekkelig dekket (artikkel 2). I den siste artikkelen undersøkte vi utfordringer migrantkvinner har i møte med svangerskaps- og fødselsomsorgen i Norge og identifiserte følgende hovedutfordringer: (1) Navigering i helsevesenet, (2) Språk, (3) Psykososiale og strukturelle faktorer, og (4) Forventninger til omsorg (artikkel 3).

Våre funn har konsekvenser for helsesystemplanlegging og utdanning av helsepersonell. For å oppnå optimal helseforståelse er det behov for økt bevissthet om viktighet av god kommunikasjon og tilstrekkelig bruk av tolketjenester. I tillegg indikerer våre funn at migrantkvinner kan ha nytte av forbedret informasjon om helsetjenestestruktur, psykososial støtte og styrking av mangfolds- og interkulturell kompetanse blant helsepersonell.

Abbreviations

aOR: adjusted Odds Ratio

CI: Confidence Interval

GBD: Global Burden of Disease

MCHC*:* Maternal and Child Health Centre

MFMCQ: Migrant Friendly Maternity Care Questionnaire

OR: Odds Ratio

SD: Standard Deviation

UK: United Kingdom

WHO: World Health Organization

1. Background

1.1 Introduction

Migration has dominated media and political discourses in Europe in recent years. With increasing international migration and diversity within countries, it is increasingly important to understand the health of migrants. The Norwegian health care system is internationally recognised as a successful national health care system with universal health coverage, which promotes equality in access to services regardless of ethnicity and socioeconomic background. Nevertheless, disparities in health care outcomes, access and use of health care services exist. The Norwegian health system and health policies are designed to cater to the needs of the majority population and are not necessarily adapted to migrant women's health needs.

Migrant women constitute a heterogeneous group, facing a diverse range of challenges due to the complex interplay between migration, cultural background, socioeconomic factors and social context in the host country (1). Migrant women are often of reproductive age and bring with them their culturally diverse health beliefs and practices as well as distinct experiences of care. For many, the maternity care is the first contact with the health care system in the host country. Almost one in every five newborns in Norway has migrant parents, and this number is even higher in metropolitan cities like Oslo (2). As a consequence, societies are becoming more multicultural, which highlights the issues of equal access to maternal health care services (3).

Data from a large number of studies suggest that migrant women have an increased risk of poor maternity care and limited access to health services (4, 5), adverse pregnancy outcomes (6) and several obstetric complications (7-9). This is a major public health concern; in addition to negative outcomes for the woman, the newborn child and indirectly, the whole family may also be affected (10). Furthermore, these outcomes are frequently preventable.

It is important to gain more knowledge about the determinants of migrant women's experiences with maternity care to improve the quality of care. The aim is to gain an understanding of recently migrated women's experiences with and barriers to optimal maternity care in Norway. Increased knowledge about these factors may contribute to policy implementations to improve the health care system for a vulnerable population.

1.2 International migration

1.2.1 Definitions and classification

People have been moving to new places and settling down in foreign countries for a long time. Among many things that are different now is the increasing rate of migrants in general and especially migrants in displacement, largely caused by conflicts outside actual war zones (11). With the world being increasingly interconnected, international migration affects almost everyone, either directly or indirectly. According to the world migration report from United Nations, in 2020 there were approximately 281 million international migrants in the world, accounting for around 3.6 percent of the global population (12).

The terms immigrant, migrant and foreigner are often used interchangeably. Some distinguish between migrant and immigrant, and define the latter as people who are or intend to be settled in the new country, whereas migrants are temporarily residents. We use the International Organisation for Migration´s definition of a migrant as an umbrella term for

> "*any person who is moving or has moved across an international border or within a state away from his/her habitual place of residence, regardless of the person's legal status; whether the movement is voluntary or involuntary; what the causes for the movement are; or what the length of the stay is*" (13).

Migrant women are thus defined as women who have emigrated from their country of birth and have crossed an international border to a new receiving country.

1.2.2 Migrants in Norway

The first migrants in Norway came mainly from countries such as Morocco and Turkey, followed by some Asian countries, including Pakistan and India (11). They were typically young single men who came for work and were later followed by their wives and children. After this, in the 1970s and 1980s, the large refugee groups began to arrive: first Vietnamese, then Chilean followed by Sri Lankans. In the 1990s, following the Balkan war, many Bosnians migrated to Norway. After the European Union agreement in 2000, Norway saw an increase in asylum seekers, migrants based on family reunification and migration due to labour. People from Pakistan had long been the largest migrant group in Norway, but this changed in 2007 when Polish migrants became the largest group (11). In 2016, for the first time since 2004, more people migrated to Norway because of war instead of work (11).

Norway has experienced strong growth in migration in recent decades. In 2010, migrants accounted for 9.5% of the total population, and this increased to 14.8% in 2021 (14). Currently, more than 800.000 persons in Norway are registered as foreign-born (2). Migration due to labour (45.6%) was the most common reason for migration in 2020, followed by family reunification (33.9%) (15) (Figure 1).

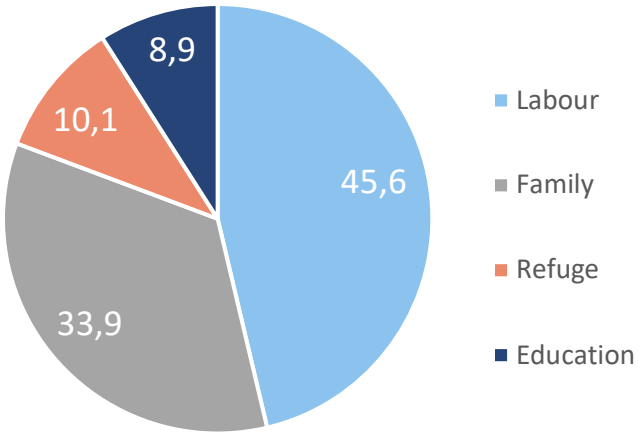


Figure 1: The percentage of all migration by reason for migration to Norway in 2020. Source: Statbank, Statistics Norway (15)

1.2.3 Migrant women in Norway

Europe, followed by Asia and Africa, are the largest regions of birth for migrant women to Norway (16). The top three countries of birth for migrant women in 2021 were Poland, Sweden and Thailand (Figure 2).

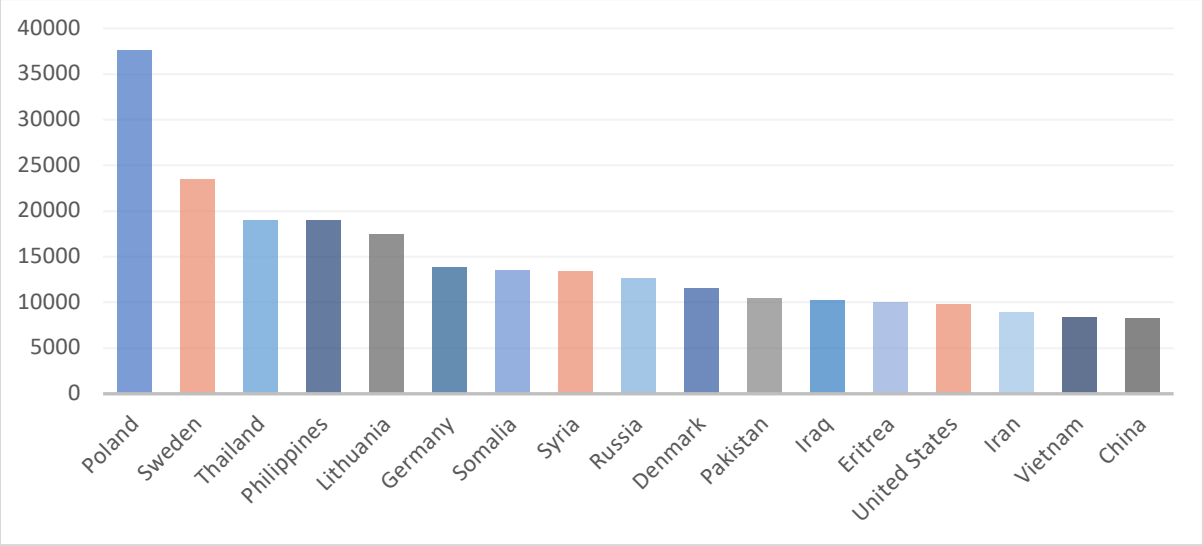


Figure 2: Foreign-born women by country of birth in Norway, 2021. Source: Statbank, Statistics Norway (16)

Approximately one-third (28.0%) of all migrants had lived in Norway for five years or less in 2021 (17). There are significant differences in length of residence between migrants by

country of birth, often followed by migration patterns of the various migrant groups due to, for instance, war and political disturbance.

Although there are migrants living in all municipalities of Norway, their distribution varies greatly, and migrants are usually concentrated in larger cities. Currently, the highest proportion of migrants live in Oslo, where they make up 25.4% of the population, followed by Viken County, with 16.8% (14). As a result, these cities and counties are increasingly becoming more multicultural.

A growing number of newborns are born to two migrant parents in Norway; in 2016, this number was 19% (18). Approximately 30% (3,200 newborns) of these had parents born in Asia, while almost as many had parents born in European countries in Central and Eastern Europe. The largest group of newborns had parents born in Poland (1,500 newborns), followed by parents born in Somalia (1,100 newborns) (18).

1.3 Migrants and health

1.3.1 Equity in health and health care

Several researchers have demonstrated ethnic disparities in health outcomes in a variety of settings. These disparities may either reflect true biological differences or may result from variations in environmental exposure, lifestyle and cultural factors, access to care, and treatment options. Despite the huge variability in skin colour, hair colour, and sometimes bodily features, human beings are, for some perhaps surprisingly, genetically very similar. With the sequencing of the human genome in the early 2000s, it became increasingly clear that social and cultural factors are the most significant drivers of health differences between different ethnic groups (19).

Health inequality refers to differences and variations in the health of individuals and groups (20). Some inequalities, such as differences in the prevalence of melanoma in different skin types, stem from physiological characteristics. Other inequalities are considered unjust because they reflect an unfair distribution of underlying social determinants of health, for instance, inadequate access and use of health care services (Figure 3). The term *health inequity* or *disparity* as applied in the United States, describes health inequalities that are unfair or unjust (20).

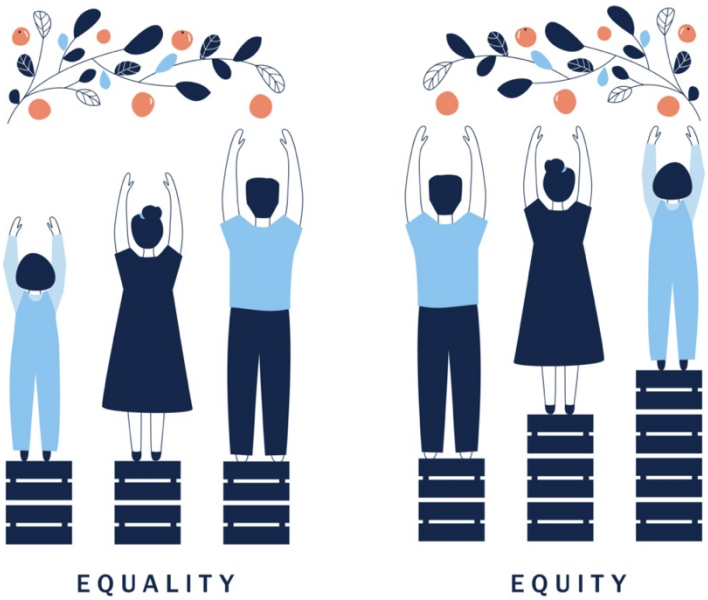


Figure 3: Illustration of the difference between the concept equality and equity. By permission ©juliabatsheva – stock.adobe.com.

There is extensive research indicating that health care systems can either mitigate or contribute to health disparities based on relative differences in health care access and quality of care between sections of the population (21). Gagnon et al.(22) sought to provide an analytical framework for understanding health equity among migrants and identified the following themes: equity in (a) policy and financing of health care systems, (b) access to health care services, (c) delivery of health care services, and (d) health status outcomes (Figure 4). Health care policy refers to the assessment of how just or fair a country's policies are on ensuring equity, for instance, integration policies or different financing mechanisms for health care systems. Access to health care services measures different aspects of availability, affordability and acceptability of health care services for the target population (23). Quality of care or delivery of adequate and appropriate health care services refers to how fairly health care services are delivered to populations with different needs. Last, health status outcomes typically measure disparities in clinical outcomes, such as complications during labour.

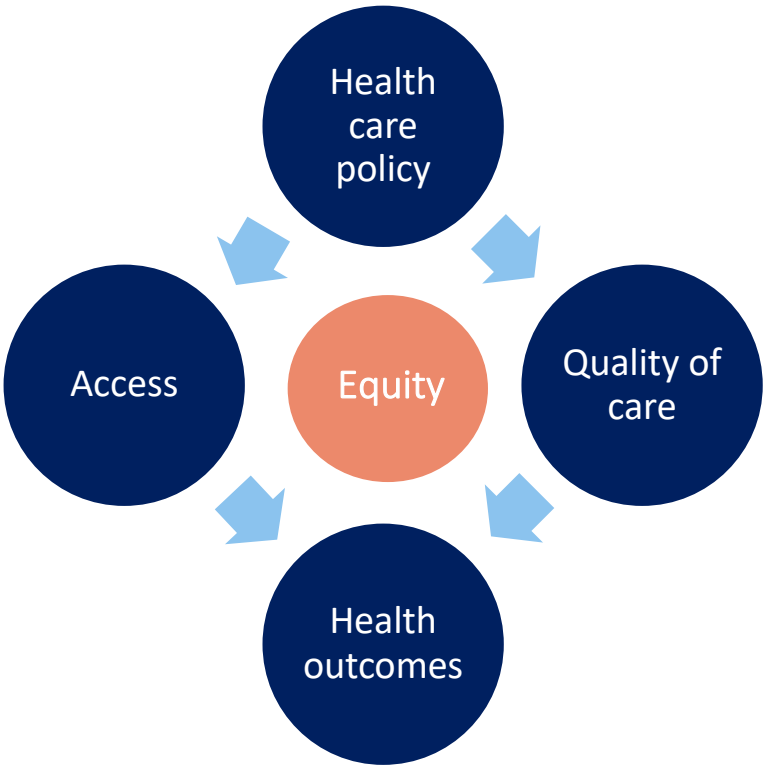


Figure 4: Framework for equity in health care, adapted from Gagnon et al.(22)

1.3.2 Migration as a social determinant of health

There are many approaches to understanding the relationship between migration and health. The most commonly used frameworks are behavioural, cultural and structural frameworks (24). Here, we will use and see migration through a social determinant of health lens.

It is well established that social determinants of health, i.e., "*the conditions in the environments where people are born, live, learn, work, play, worship, and age",* can contribute to wide health disparities (25). In other words, factors such as education, income and occupation can have a major impact on people's health and contribute to health inequalities. Migration may even exaggerate health inequalities, and some argue that migration must be positioned as a social determinant in its own right (24). Migration can impact a range of social determinants of health (26) (Figure 5). For example, migrants may encounter challenges in accessing and benefitting from the health care system due to factors on the demand side, such as language barriers, low health literacy, economic difficulties, and lack of psychosocial support. On the supply side, factors such as low transcultural proficiency of health care personnel and implicit bias may play a role (4, 27).

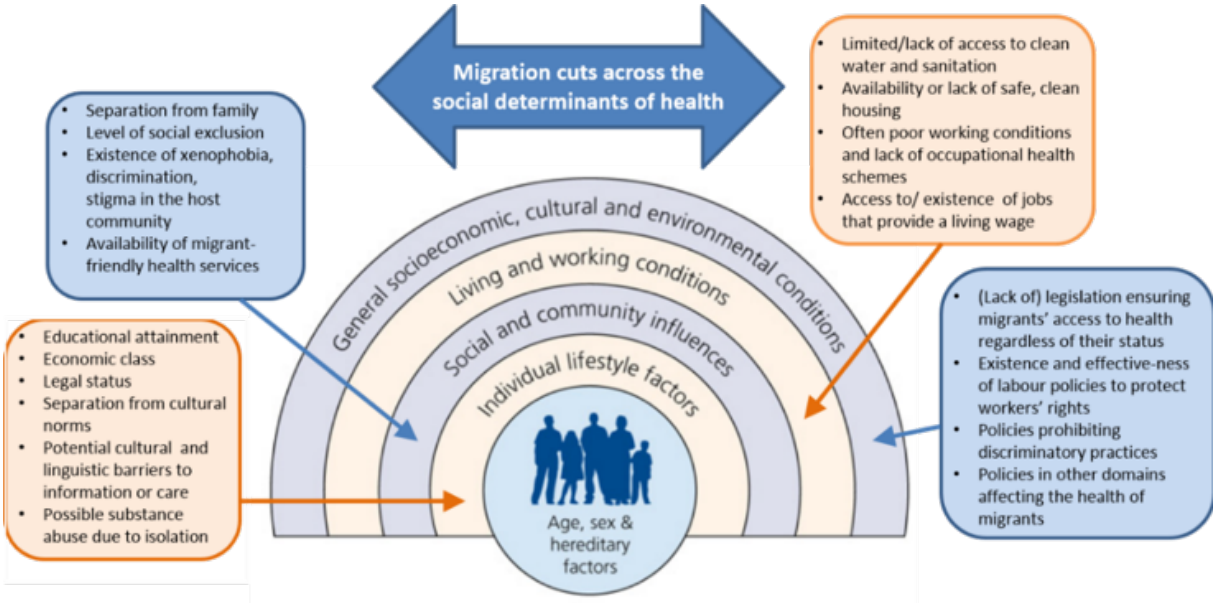


Figure 5: Migration and Social Development of Health adapted from Final Report of the Commission on Social Determinants of Health. With permission, source: (26)

Migrant women constitute a heterogeneous group with varying backgrounds, for instance, from highly educated to those with minimal education. Recently migrated women may be particularly vulnerable and at higher risk of disadvantages due to less proficiency in the majority language and health system literacy and possible negative migration experiences with a loss of social network (28). Furthermore, women born in low- or middle-income countries may be at higher risk due to their lower socioeconomic status, particularly exposure to low socioeconomic status in childhood (29). Discrepancies also exist between migrants with different reasons for migration. People who migrate due to work and education tend to be wealthier and have less risk for adverse outcomes than refugees and asylum seekers, who seem to have a higher risk for adverse outcomes (30).

1.4 The health care system in Norway

Norway has universal health coverage, defined by WHO as:

> *"all people have access to the health services they need, when and where they need them, without financial hardship. It includes the full range of essential health services, from health promotion to prevention, treatment, rehabilitation, and palliative care"(31).*

All legal citizens in Norway are automatically enrolled in the Norwegian National Insurance Scheme. Undocumented migrants have access only to emergency acute care (32). Insurance

coverage is funded by general taxes and by payroll contributions shared by employers and employees. Services covered include primary care, maternity care, mental health, hospital care, and selected outpatient prescription medicines. Patients pay copayments for some services; however, most services have limits on out-of-pocket expenses. Most of the health services are public, and only 10 percent of the population has private insurance (32).

1.4.1 Maternity care in Norway

Maternal health refers to the health of women during pregnancy, delivery and the postpartum period, usually up to six weeks. Maternity care is the care provided during pregnancy, called antenatal care, during labour and after delivery, called postnatal care. Essential maternity care is free of charge. Persons without legal residence have the right to health care; if they are unable to pay for maternity services, they are exempted (33). For low-risk pregnancies, the normal prenatal package comprises eight consultations, as well as one routine ultrasound examination around week 18. In low-risk pregnancies, prenatal care is delivered by a general practitioner or midwife, and in high-risk pregnancies, by obstetricians. During birth and the early postpartum period, care is provided by interdisciplinary teams at the hospital. Almost all births in Norway are institutionalized and occur in hospitals. There are no private hospitals for delivery in Norway; hence, all deliveries in hospitals take place in public hospitals. After discharge from the hospital, the Maternal and Child Health Centre (MCHC) and the general practitioner provide postnatal follow-up (34).

In Norway, all patients have a legal right to receive health care information in a language they understand, free of charge. It is the responsibility of the health care worker to arrange for an interpreter (35). It is recommended that professional interpreters be used, while family members or children should be avoided as interpreters.

1.4.2 Policy context on migration health and maternity care

Norway has a strong commitment to ensuring an equal society and equality in health care for all migrants. Therefore, the government issued a national strategic document on the health of migrants in the period 2013–2017 (36). The policy document's goal was to ensure that all health care personnel had knowledge of different migrant groups´ disease patterns and of the cultural challenges associated with securing equality in health. Furthermore, recognizing

the importance of good communication, the policy document emphasized the health care personnel's duty to facilitate good communication by assessing interpreter needs and using qualified interpreters.

In 2009, the Ministry of Health and Care Services in Norway issued a white paper on maternity care and the continuity of care throughout pregnancy, birth and the postnatal period (37). In the paper, migrant women´s need for special attention was highlighted and recommended as a priority. Specifically, communication barriers and the appropriate use of professional interpreters were emphasised as important. The paper focused on the provision of holistic and coherent maternity care, including the whole course of the health-care event (i.e., from pregnancy to postnatal care). In 2020, the Directorate of Health published a report that showed an increase in deliveries by migrant women, who in general have an increased risk of adverse maternity outcomes (38). Again, the importance of using professional interpreters and ensuring sufficient information for pregnant women was emphasized.

1.5 Are migrant women in Norway at increased risk of adverse maternal outcomes?

1.5.1 Adverse outcomes during pregnancy

Studies from Norway have shown that subgroups of migrants have an increased risk of hyperemesis gravidarum (39, 40), gestational diabetes (41-46) and prepregnancy diabetes (47) compared with non-migrant women. Furthermore, in studies on vitamin and mineral deficiency, low folate intake has been reported among migrants (48, 49), as well as severe vitamin D deficiency (50), iron deficiency and anaemia (51). In contrast to the abovementioned increased risk of adverse outcomes, preeclampsia has been indicated to be more common among Norwegian-born women than among migrant women (52-54). Studies on physical activity and nutrition have found that some women with minority ethnic backgrounds were less physically active during pregnancy (55, 56), ate less healthily (57), had greater weight gain during pregnancy compared with women born in Western Europe, (58, 59) and had more abdominal obesity (46) compared with European-born women.

1.5.2 Adverse outcomes during delivery

Studies on caesarean sections in Norway found that the incidence of the prcedure varied considerably by national background, and increased risk was found in subgroups of migrants

(60-62). Furthermore, women originating from East, Southeast and Central Asia have been shown to have an increased risk of instrumental deliveries, postpartum haemorrhagging, and low Apgar scores (7, 60). In particular women from sub-Saharan Africa have been reported to be at higher risk of adverse obstetric outcomes. For instance, some studies have reported that women born in Somalia have an increased risk of obstetric complications, including induction of labour and operative delivery (9, 63). Additionally, migrant women from Ethiopia have been shown to have increased odds of placental abruption when giving birth in Norway (64).

An increased risk of stillbirth was found among various groups of migrant women in Norway in one study (65). Interestingly, a study reported that migrant women with a Norwegian-born partner had lower odds of stillbirth than births registered with a non-Norwegian-born father (66). Another study wanted to examine whether there was a difference in risk for adverse outcomes between a migrant woman living in Norway and in the woman's country of birth, for instance, a Pakistani migrant woman in Norway compared with a Pakistani woman living in Pakistan. They found higher perinatal mortality among women living in their country of birth compared with migrants in Norway born in the same country (67). However, they also found that migrant women had a higher risk of perinatal mortality compared with Norwegian-born women (67).

1.5.3 Adverse outcomes postpartum

Studies on postpartum depression are not conclusive, as some studies have reported a higher incidence of postpartum depression among migrant women in Norway (68), while two smaller studies found a lower incidence (69, 70). In a qualitative study on breastfeeding practices among migrants, Somali women were found to express a wish for breastfeeding, but most were unfamiliar with the concept of exclusive breastfeeding, which is often recommended for a given period of time (71).

1.6 Maternity care for migrant women

1.6.1 Three-delay framework and quality of care

As introduced earlier, the disparities in health outcomes between migrant and host populations can be linked to the patient, provider and/or health system. Binder introduced the "*migration `three-delay' framework*"", which describes factors influencing women´s care-

seeking and use of health care in urban high-income settings (72). The "three-delay" framework was originally created to understand maternal care-seeking in low-income settings (73). The three phases were 1: deciding to seek care, 2: identifying and reaching medical facilities and 3: receiving adequate and appropriate treatment. Binder identified several factors influencing these three phases of delay, the most important being delays due to broken mutual trust between the patient and the provider, miscommunication, and suboptimal interpreter use (Figure 6).

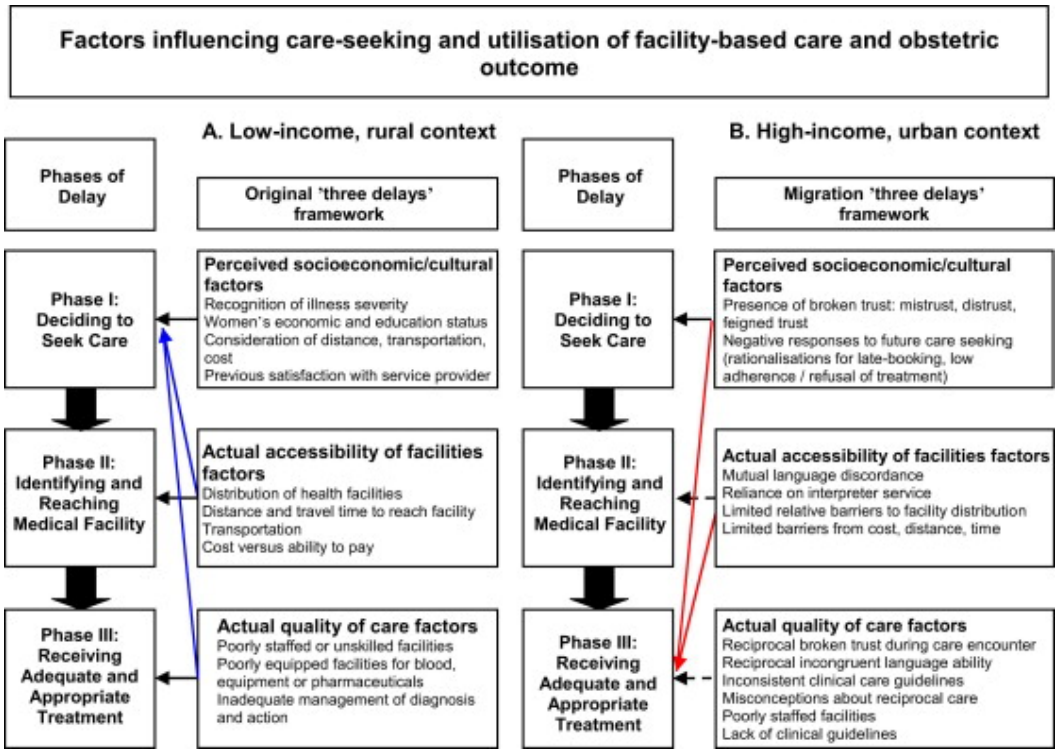


Figure 6: The Migration 'three delays' framework from Binder et al.(72)

Interestingly, some studies found no differences in the use of and access to health care services between migrant and non-migrant women (5) (74). This may imply that the reported disparities in health outcomes reflect quality, not quantity, of care. Indeed, substandard maternity care for migrant women has been frequently reported in several countries (75-77). Quality of health care can be defined as "…*the degree to which health services for individuals and populations increase the likelihood of desired health outcomes. It is based on evidence-based professional knowledge and is critical for achieving universal health coverage*" (78). It is a complex term and can be difficult to assess. Donabedian introduced a framework for the assessment of the quality of care where *structure*, *process* and *outcome* are key components (79). Examples of indicators of *structure* are the economy,

adherence to guidelines and patient satisfaction and experience (80). One of the most widely used indications for high-quality care in research is the patient experience.

1.6.2 Migrant women's use of and experience with maternal health care

Timely and adequate antenatal care is considered crucial in preventing adverse pregnancy outcomes for women and offspring. Nonetheless, studies have shown late initiation of antenatal care and fewer antenatal visits among migrant women in several European countries (4, 81-83).

Systematic reviews of mainly qualitative studies examining migrant women´s experiences of maternity care in Europe found that communication and language barriers were among the most important barriers to optimal care (84, 85). Health care personnel's lack of training in culturally competent care and women´s fear of deportation were also important themes. Studies including specifically humanitarian migrants, i.e., asylum seekers, refugees, and undocumented migrants, found that women experienced discrimination and sometimes declined access to maternity care due to their legal status (86).

1.6.3 What do we know about maternity care experiences among migrants in Norway?

Substandard care has been reported to be disproportionately more common among non-Western migrants in cases of stillbirth (87). The authors of the study conclude that poor communication and limited utilization of maternity care among migrants were contributing factors. A qualitative study concluded that to achieve optimal care, Norwegian maternity care needs to be more differentiated and better equipped to embrace cultural diversity (88). Migrant women with obesity expressed difficulties in following dietary advice, as it was often based on a typical Norwegian diet and not adjusted to different dietary preferences (89). Furthermore, a study showed that limited knowledge about the health care system hindered women from achieving optimal care (90). On the other hand, health care personnel's desire to be culturally sensitive hindered their provision of optimal care to women with female genital mutilation (91).

1.7 Rationale for the thesis

Maternity care in Norway is generally considered to be of good quality. Nevertheless, migrant women are at an increased risk of a number of adverse maternal outcomes and suboptimal maternity care compared with the host population. Recently migrated women may be at an increased risk.

The quality of care must be improved to decrease health disparities between migrants and the host population. To provide optimal care, we need a better understanding of migrant women's experiences of maternity care in Norway. However, to date, most questionnaire studies in Norway exclude patients who do not speak Norwegian or English, as it can be very challenging and time-consuming to recruit, translate and conduct interviews in this population. Thus, we included women regardless of language proficiency to explore recently migrated women's own experiences of maternity care in urban Oslo.

1.7.1 Paper 1

Satisfaction with care is considered a key predictor of utilization of health care services, which in turn can be a modifiable risk factor for adverse outcomes (5, 92-95). Therefore, the World Health Organization recommends measuring maternal satisfaction of care in order to improve quality of health care (96). As suggested in the literature, different forms of care experiences, such as support from health care professionals and participation in decision-making, are the most important determinants of maternal satisfaction. (97-99). Reproductive history, age and socioeconomic status are other known factors influencing perceived maternal satisfaction (100).

➡ Therefore, in order to improve care, we need to assess the predictors of satisfaction with maternity care among recent migrants in Norway.

1.7.2 Paper 2

Use of a professional interpreter has been shown to reduce the language barrier and improve quality of care (101-103). In contrast to more complex factors such as socioeconomic status, the provision of interpretation services is a modifiable component that can be managed from within the health care system. Consequently, a number of European countries aim to provide interpreter services to migrants (104). This is particularly important in Norway, which in contrast to countries like United Kingdom and Canada, has little linguistic diversity among

health care personnel.

We know that the health information need is particularly high during pregnancy and birth, due to significant physical and psychological changes, in addition to concerns about the foetus (105). Moreover, the health information need is critical, as behaviours can have long-term consequences for the woman and her offspring (10). Poor understanding may influence timely access to maternity care services as well as the relationship between the patient and the provider (106). Ultimately, it may lead to poor compliance, and in worst case, adverse outcomes (107, 108).

➡ Therefore, we need to assess the understanding of information and health information needs of a vulnerable group in maternity care in Norway.

1.7.3 Paper 3

Even though maternity care in Norway is generally considered to be of good quality, sub-optimal maternity care (6, 77) and barriers to health care access (109, 110) among migrants have been reported. Previous systematic reviews have examined migrant women's experiences of accessing the maternal health care in host countries (84-86). However, acculturalisation occurs over time and there is sparse data on *recently* migrated women's perceived barriers to optimal maternity care. Furthermore, quantitative research exploring recently migrated women's patterns of access and utilisation of maternity care in Norway is lacking. Previous studies have often focused on problems of accessing care, while the quality of care provided to migrants once they are in a service, has received comparatively less attention in the literature.

➡ Therefore, in order to develop efficient interventions, we need to map the current patterns of access and utilisation, and better understand the challenges this group faces.

2. Aims and objectives

This thesis investigates health-care related factors that contribute to inequity in maternity outcomes among recently migrated women and assesses potential barriers to adequate use of maternal health services in Norway. Exploring these factors among recent migrants provide an opportunity to address them through appropriate targeted actions within existing maternal health services.

The overall aim of this thesis was to provide knowledge about experiences in receiving maternal health care for recently arrived migrant women in Norway. I attempted to bridge knowledge gaps and addressed the overall aim through three studies. The specific objectives raised were the following:

- *Paper 1*: To examine factors associated with recently migrated women's satisfaction with maternity care in urban Oslo, Norway.
- *Paper 2*: To explore factors associated with poor understanding of information provided by health care personnel among recent migrants in Oslo, Norway. In addition, we investigated which maternal health topics in particular women had received inadequate information about.
- *Paper 3*: To identify challenges and barriers recently migrated women face in accessing and utilizing maternity health care services in Oslo, Norway.

3. Methods

This thesis is based on two work packages from the larger MiPreg research project, which is a multidisciplinary, mixed method project with a variety of study designs. This thesis includes three articles with qualitative and quantitative methodological approach: two articles using a structured questionnaire among migrant women (paper 1 and paper 2) and one combining the structured questionnaire study and in-depth qualitative interviews with migrants and health care personnel (paper 3) (Table 1). I will first present the method for the questionnaire study, then the methods for the in-depth interviews, and finally present the data analyses for the quantitative and qualitative approaches separately.

Table 1: Overview of the studies in this thesis with design, sample size, outcome variables, exposure variables and statistical methods used in paper 1-3.

	Paper 1	Paper 2	Paper 3
Design			
Cross-sectional	X	X	X
In-depth interviews			X
Sample			
401 migrant women at postpartum ward in hospitals	X	X	X
20 pregnant/recently pregnant migrant women at MCHM			X
7 midwives working at hospital or MCHM			X
Outcome variables			
Satisfaction of care	X		
Negative health care experiences	X		
Understanding of health information		X	
Maternity care topics		X	
Challenge and barrier			X
Exposure variables			
Region of birth	X		
Reason for migration	X		
Maternal education	X		
Economic status			
Norwegian partner			
Majority language proficiency			
Need for and offer of a professional interpreter			
Statistical methods			
Descriptive statistics	X	X	X
Logistic regression	X	X	
Thematic analysis			X

3.1 Study design, study material and inclusion criteria

3.1.1 Questionnaire study

We used a modified version of the Migrant Friendly Maternity Care Questionnaire (MFMCQ) which is a quantitative questionnaire, with a few open-ended questions (111). We included migrant women born in a low or middle-income country and with a length of stay in Norway ≤ 5 years, giving birth in urban Oslo. We used the Global Burden of Disease (GBD) regional classification system, which is based on epidemiological similarity and geographic closeness, and excluded migrant women born in high-income countries (112).

In the following section, I will present the various steps in choosing and modifying the questionnaire (Figure 7).

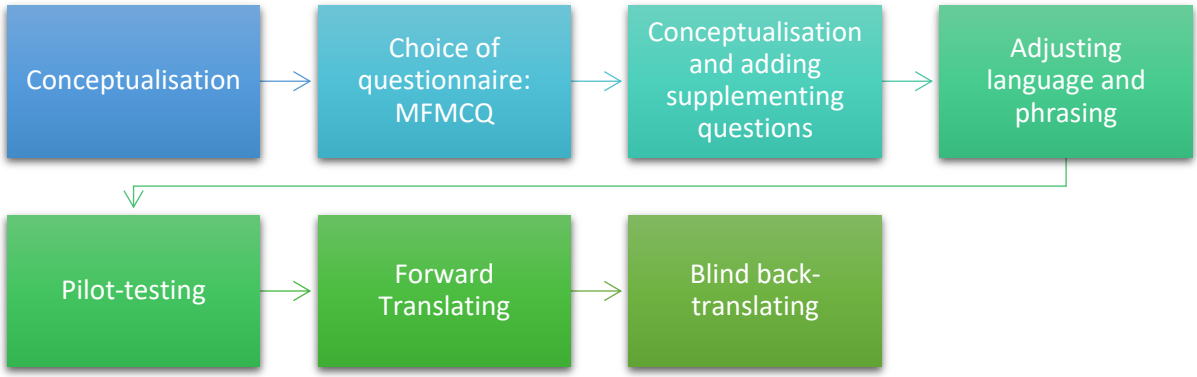


Figure 7: Steps in the development of the questionnaire. MFMCQ= Migrant Friendly Maternity Care Questionnaire.

- Step 1: Conceptualisation

Conceptualisation is the process of development and clarification of concepts (113). In this step we transformed the knowledge gained through literature, previous research and experiences to broad statements and questions. We identified dimensions and variables, and made sure the questionnaire covered the themes of interests for our subject. A concept can have more than one dimension, for instance socio-economic status can mean wealth, power, or prestige. A more concrete (and hence less abstract) level is 'indicator'. For instance, prestige can be measured by level of education, number of publications and salary. 'Variable' on the other side is a statistical term and both dimensions and indicators can be a variable (113). Since a good conceptualisation results in high content validity, we spent a good amount of time ensuring we got a thorough understanding of our subject.

- Step 2: Choice of questionnaire

The MFMCQ is a structured questionnaire on maternity care from pregnancy, through labour and birth, to postpartum care (111). It includes information on maternal socio-demographic, migration, and obstetrical characteristics as well as perceptions of care during pregnancy and birth. Originally the MFMCQ consisted of a 112-item questionnaire, which we narrowed down to include only the most relevant parts, thus making it more attainable. It has been used in a variety of settings with some published articles and protocols for planned studies (114-119).

- Step 3: Conceptualisation revised

Next, we made a draft questionnaire and worked further on with that to establish validity. Validity is the amount of systematic error in the measurement (113). It is established using a panel of experts and a field test. Which type of validity (content, construct, criterion, and/or face) to use depends on the objectives of the study. The following questions were addressed in this step: "*Is the questionnaire valid*? *In other words, is the questionnaire measuring what it intended to measure?*", "*Does it represent the content?", "Is it appropriate for the population or sample*?", "*Is the questionnaire comprehensive enough to collect all the information needed to address the purpose and goals of the study*?" and "*Does the instrument look like a questionnaire?*".

- Step 4: Adding supplementing questions

After multiple rounds of assessing the questions, prioritising the dimensions and variables, and making sure our questionnaire covered all subject of interest, we included a few more questions. For instance, questions on socio-economic background from previous surveys in Norway, including survey on migrants from Statistics Norway, were incorporated in the questionnaire.

- Step 5: Adjusting language and phrasing

In this step, we focused especially on language and readability, using migrant women as liaisons, and made changes as appropriate. We did not use a readability tool, but focused on keeping the sentences short and simple, avoiding metaphors and colloquialisms. We attempted to write the questions at a level that required no more than five years of formal

education to understand, as recommended (120). Thereafter we focused on selection of appropriate scales of measurements, question ordering and questionnaire layout. We used the *MFMCQ Translation and Cultural Validation Protocol* as guidance *(121)*. However, as we were conducting the interviews face-to-face and only using the written questionnaire as aid, we did not follow all of the steps in the protocol.

- Step 6: Pilot-testing: Adjusting for cultural sensitivity and cultural validation

We conducted a pilot-testing of the interview in Norwegian, both with and without a professional interpreter, and in English on eight women. All the included women in the pilot testing fit the inclusion criteria of the study and were recruited at the postpartum ward. The pilot test was used to answer questions like "*Does the questionnaire consistently measure whatever it is supposed to measure*?", "*Are some of the words/phrases difficult to understand*?", "*Are the women able to answer the questions, considering they are at the postpartum ward and probably tired?".* We also paid special attention to questions with missing answers and questions where the answers did not fit the response scales. We noted duration of time to completion and attempted to adjust the questionnaire so that it took approximately 45 mins to complete. Some of the adjustments made after comments from the pilot-testing are shown in the box below (Table 2).

Table 2: Questions, comments, and adjustments from the pilot-testing.

Question	Comment from the women	Adjustment
Q4.5: "Did you experience any difficulties in this pregnancy?" with response options "Anaemia", "Nausea" etc.	Need to specify what we mean with the different difficulties	Added instructions in guidebook: Nausea —> must have been admitted to a hospital Anaemia —> must be taking iron supplement
Q4.6:" Which of the following offers did you accept during pregnancy?" with response option "ultrasound"	Need to distinguish between routine ultrasound and ultrasound for foetal diagnostics currently offered to certain patient groups	Included two response options; "Routine ultrasound, Week 18" and "Ultrasound foetal diagnostics at the hospital"
Q in segment 6: questions on experiences with care, with response scales.	In case we do not have the translated questionnaire in the women's language: Need to explain the structure of response scales before we start the first question	A reminder in the guidebook

Q on migration history	Some women found these questions to be sensitive and needed further explanations why we wanted them.	Moved the questions on migration till the end, so that they do not come up abruptly or appear unconnected with the rest of the questionnaire
General	A woman was hesitant to participate in the study and was unsure if her response would influence her stay at the hospital	Important to emphasise confidentiality and the purpose of the study

- Step 7: Forward Translating

We used a certified translating company that have a contract with the hospitals we recruited women from. The company has employees with many years of experience with health care, hence ensuring the translators have knowledge about technical and pregnancy related terminology. We chose the languages that were most commonly requested for a professional interpreter at the hospitals. The questionnaire was provided in nine languages: Arabic, Dari, English, French, Norwegian, Somali, Sorani, Tigrinya and Urdu.

- Step 8: Blind back-translating and adaptation of the questionnaire

The back-translating was done blinded by employees at the translating company fluent in both the target and source language. Thereafter, we systematically compared the back-translated questionnaire with the source language version noting all discrepancies between the intended meaning of each question and what the back-translator understood. The questionnaire was sent back to the company for further adjustments and optimal wording.

3.1.2 In-depth interviews

For this qualitative part we conducted in-depth interviews with both migrant women and health care personnel. We included pregnant migrant women in Oslo, with a length of stay ≤ 5 years in Norway and born in a low- or middle-income country. The included midwives had extensive experience providing maternity care for migrant women from hospitals and the MCHC in Oslo. Midwives frequently provide most of the maternity care during pregnancy and postpartum in Norway. Throughout the pregnancy, they often have a relational and social

approach to the migrant women and their families. Therefore, we decided to include midwives as representatives for health care personnel.

The interview with migrant women, lasting from 50 minutes to 1.5 hours, explored in detail the women's experiences with maternity care in Norway, including potential barriers and facilitators. The interview with midwives lasted between 1-2 hours and covered topics such as their experiences and perceptions of maternity care provided to migrant women, challenges faced in their daily work and structural limitations related to time, resources and organisation of maternity care.

3.2 Data collection

In both the questionnaire study and the in-depth interviews with migrant women we strived for a diverse sample in terms of the women´s country of birth, parity, educational level and reason for migration.

3.2.1 Questionnaire study

The questionnaire-based study was conducted between January 2019 and January 2020. Eligible women were recruited from the two public hospitals that serve urban Oslo: Oslo University Hospital and Akershus University Hospital. Together, they have approximately 14 800 births annually. The eligible women were recruited either upon admission for delivery or at the postnatal ward by study-midwives (Figure 8). The study-midwives informed about the study in the women´s preferred language and gained a written consent if she wanted to participate. One medical doctor and three study-midwives conducted the interviews face-to-face in the women's own language of choice postpartum, using an interpreter when necessary. A copy of the written translations of the interview questions were given as a supplement to the women to aid in understanding of the structure of the

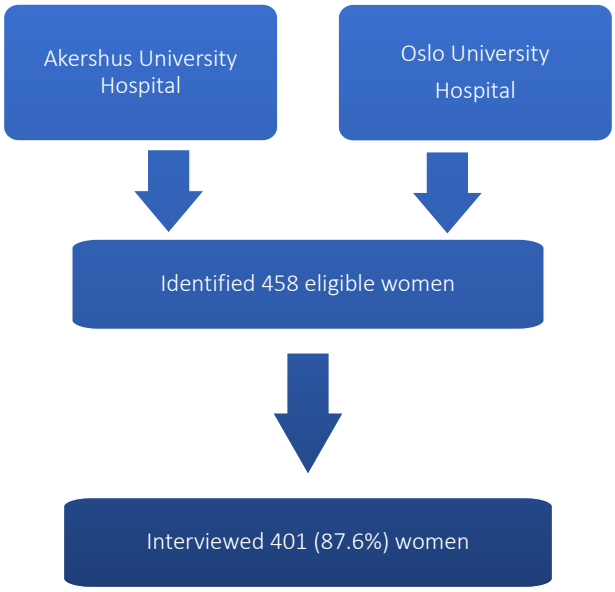


Figure 8: Flowchart of inclusion of participants in the questionnaire study.

question and the answer options. Before we started recruitment, we held a workshop for all the interviewers where we systematically assessed the questionnaire step by step to ensure high quality and consistent response to the questions. We also created a guidebook for the interviewers, to aid in the interview process. Throughout the inclusion period, the four interviewers met regularly for discussion and sharing of experiences.

3.2.2 In-depth interviews

From March to December 2019, two anthropologists with vast experience in qualitative methods conducted in-depth, semi-structured interviews with 20 migrant women. The eligible women were identified by midwives working at the MCHC, who passed on contact information to the researchers upon gaining a written consent from the woman. The interviews took place at three MCHC in three different city districts in Oslo, all with large migrant populations. The migrant women were interviewed face-to-face, with the majority of the interviews conducted using a professional interpreter. We ensured variation in country of origin in the sampling process. To provide sufficient experience with the whole range of maternity health care services, 15 of the participants were in their third trimester, while the rest had recently given birth. A reimbursement of 250 NOK at a grocery store was given to the included migrant women for their participation.

In addition, the two anthropologists conducted in-depth interviews with seven midwives, three from the hospitals serving urban Oslo and four from MCHC in Oslo. The age of the midwives ranged from 31 to 57 years old. We had initially planned 10 interviews with health care personnel, but we had to stop the inclusion due to the coronavirus pandemic. We started analysing the obtained material and established that data saturation had been achieved. Data saturation was determined to be attained when no new topics or information emerged in subsequent interviews. As a result, we decided to discontinue further data collection.

3.3 Variables

3.3.1 Main variables

In paper 1, the main variable was ‘satisfaction of care’. We also measured a range of variables collectively called ‘negative health care experiences’. In paper 2, the main variable was ‘understanding of information provided by health care workers’. In this paper, we also

evaluated a variable called 'inadequate maternal health information'. In paper 3, the variable or topic of interest was 'barriers' and 'challenges' faced by the migrant women.

- Satisfaction of care was measured with the question *"Overall, were you satisfied with the care you received?"* combined for the three time periods; care during pregnancy, care during birth and care postpartum. The response options were "always", "sometimes", "rarely" and "never". We categorized the data to be binary since the distribution of satisfaction data was strongly skewed, with "*satisfied*" (including "always satisfied") and "*dissatisfied*" (combining "sometimes", "rarely" and "never").
- Negative health care experiences comprise 11 specific questions on different health care experiences (Table 3). Most of the questions had the response options were "always", "sometimes", "rarely" and "never", while a few were binary. All were categorized to be binary.

Table 3: The eleven questions on negative health care experiences.

- "During labour, were you satisfied with how the health care professionals helped you to manage your pain?"
- "Do you feel that the length of stay after giving birth was too short/too long/just right?"
- "During labour and birth, or after birth, did you have any preferences about care or any particular custom or practice you wanted to follow but couldn't because the health care professional(s) wouldn't allow it?"
- "Is there anything you think the health care professionals could do differently or better?"
- "The health care professionals asked me if I had any questions»
- "I felt my worries were taken seriously by the health care professionals"
- "Overall, do you feel that you were treated differently to other people by health care professionals, for example: because of your language or accent, culture, race or skin colour, religion, migration status, or health insurance status?"
- "Did you understand the information provided by the health care professionals?"
- "I had to wait too long to receive care"
- "Decisions were made by the health care professionals without my wishes being taken into account" "Did the health care professionals spend enough time providing explanations?"

- Understanding information provided by health care worker was measured by the question "*Did you understand the information provided by the health care*

professionals?" combined for the three time periods; care during pregnancy, care during birth and care after birth. As the distribution of response data was strongly skewed, we categorized the data to be binary, with "*good understanding*" (including "*always understood information*") and "*poor understanding*" (combining "*sometimes*", "*rarely*" and "*never*").

- Inadequate maternal health information was measured by asking the women whether or not they had gotten enough information about various topics in the course of their pregnancy or birth by health care worker.
- A 'barrier' was defined as anything that restricts access, use or benefit from health care services, while a 'challenge' was defined as a subjective experience of something that requires great effort in order to succeed and, in contrast to "problem", is an opportunity for growth.

3.3.2 Other variables

- Maternal country of birth was grouped into super-regions following the GBD classifications; Latin America & Caribbean; Sub-Saharan Africa; North Africa & Middle East; South East Asia, East Asia & Oceania; South Asia; Central Europe, Eastern Europe & Central Asia; High-income (122).
- Reason(s) for migration was measured using the national classification based on the legal grounds for immigration. We grouped women into one out of three categories: refugee, work/education, and family reunification.
- Maternal education was measured with six response options, from "I have no schooling" to "University, long (4 years or more)". When doing the analysis, the variable was classified into three groups: No completed education, primary and secondary school, or university.
- Economic status was measured by asking the women if she had experienced difficulties making ends meet and paying monthly expenses, with responses "yes often", "yes occasionally" or "no never".
- Having a Norwegian partner implied that the partner was born in Norway, regardless of ethnicity.
- Majority language proficiency was determined by asking the level of fluency for oral, reading, writing and comprehension skills with the response options "*fluent*", "*good*",

"*some difficulty*" and "*not at all*". A sum-score ranging from 4 to 16 was created and we grouped the variable into three quartiles; "*Low*" with sum-score 4-7; "*Moderate*" with sum-score 8 to 11; "*High*" with sum-score 12 to 16.

- Need for and offer of a professional interpreter was assessed for the three time-periods; during pregnancy, during birth and after birth. However, as the variable *need for and offer of a professional interpreter during pregnancy* compromised the time-period where most women needed and got offered a professional interpreter, we chose to include only the latter in the regression model.

3.4 Data analyses

3.4.1 Quantitative part

The collected quantitative data from the questionnaire was plotted into in the program *Epidata*. After cleaning the data, it was exported to *IBM SPSS Statistics version 26* for analysis. Descriptive statistics as mean with standard deviation (SD) and frequencies with percentages were calculated for categorical and continuous variables. To test significant differences between 'satisfied/dissatisfied' and 'poor/good understanding', we used chi-square tests for all categorical variables and Mann-Whitney Tests for the continuous variables with non-normally distribution. Univariable and multivariable logistic regressions were used to examine associations between main outcome and other socio-demographic and clinical variables. The association was expressed as odds ratio (OR) with 95% CI. We measured the goodness of fit for the logistic regression models and checked for multicollinearity. Two-sided p-values were reported, and the significance level was set at 0.05.

3.4.2 Qualitative part

The qualitative data, i.e. the open-ended questions from the questionnaire and from the in-depth interviews with migrant women and midwives, were analysed by thematic analysis. Reading and reviewing the data, highlighting significant words and recurring subjects, and developing initial thematic codes were all part of the process. To identify recurring themes and sub-themes, the audio recorded qualitative interviews were transcribed and analysed using an inductive technique. After reading the transcript, the researchers coded relevant sections which were further discussed and adjusted if needed. Themes and sub-themes were identified, and descriptive narrations were written and compared with the quantitative data

material, drawing out quotes from migrant women and midwives highlighting the four main themes identified in the transcribed interviews.

We used triangulation which is defined as: *"… a general approach whereby the convergence, complementarity and dissonance of results on related research questions, obtained from different methodological approaches, sources, theoretical perspective, or researchers are explored" (123)*. Triangulation can be used to improve the validity in research because it combines different approaches to solve a research question. Triangulation was achieved with mixed methods and the collection of data from two distinct but interrelated groups – women and midwives (Figure 9). Furthermore, we interviewed health care personnel to supplement our results from the in-depth interviews with migrant women and the cross-sectional study. This provided a new perspective on our research goal, allowing us to gain a more thorough and comprehensive understanding of the challenges and barriers recently migrated women experience.

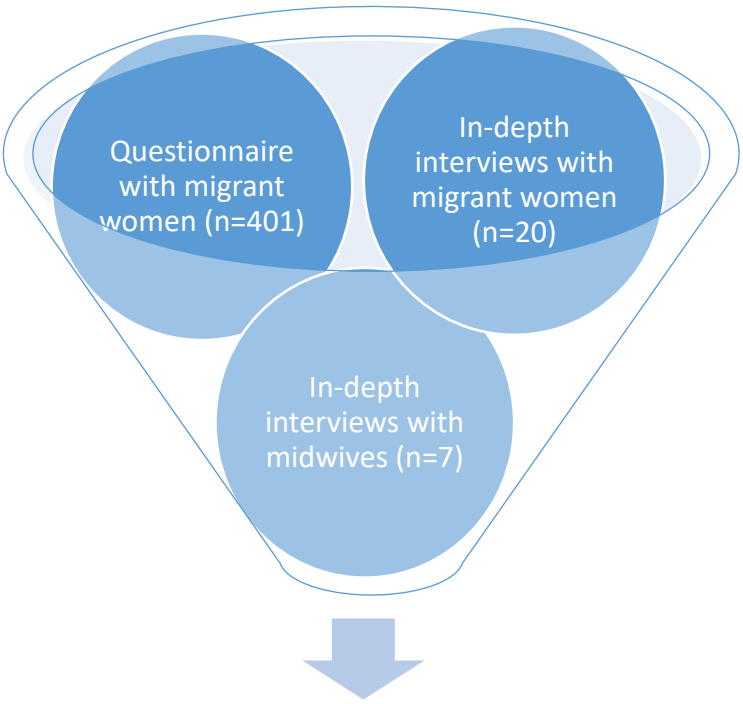


Figure 9: The triangulation of findings from structured questionnaire and in-depth interview with migrant women, and in-depth interview with health care personnel

4. Results

4.1 Characteristics of data cohort

Table 4: Distribution of selected background variables in the questionnaire study and in-depth interviews with migrant women.

Characteristics	Questionnaire study (n=401)	In-depth interviews (n=20)
Mean age, in years (SD)	29.8 (4.7)	30 (4.7)
Mean length of residency, in months (SD)	35.6 (19.4)	19 (14.2)
Maternal region of birth (%)		
Central/Eastern Europe and Central Asia	132 (32.9)	2 (10.0)
Latin America and Caribbean	13 (3.2)	1 (5.0)
North Africa and Middle East	76 (19.0)	5 (25.0)
South Asia	81 (20.2)	5 (25.0)
Southeast Asia, East Asia and Oceania	37 (9.2)	1 (5.0)
Sub-Saharan Africa	62 (15.5)	6 (30.0)
Parity (%)		
Primiparous	229 (57.1)	11 (55.0)
Multiparous	172 (42.9)	9 (45.0)
Education (%)		
No completed school	16 (4.0)	3 (15.0)
Primary/secondary school	151 (37.7)	8 (40.0)
University	234 (58.4)	9 (45.0)
Reason for migration (%)		
Refugee	41 (10.2)	7 (35.0)
Family reunification	183 (45.6)	10 (50.0)
Education/work	177 (44.1)	3 (15.0)

4.2 Paper 1

Satisfaction with maternity care among recent migrants: an interview questionnaire-based study

We examined the overall satisfaction and other health care-related experiences in maternity care among recent migrant women in Oslo. Using the questionnaire study, we included 401 women giving birth in Oslo. The included women originated from 66 different countries.

The overall satisfaction with maternal health care was high (71.82%). Women with a non-Norwegian partner were less likely than women with a Norwegian partner to be

dissatisfied with overall care (adjusted OR 0.38, 95% CI 0.18-0.82). When comparing to those with higher education, the women who had completed only primary and secondary education were less likely to be dissatisfied (adjusted OR 0.39, 95% CI 0.22-0.73). Women with a lower comprehension of Norwegian language had reduced likelihood of being dissatisfied (adjusted OR 0.26 and 0.24, 95% CI 0.09-0.71 and 0.09-0.62). Furthermore, women with unplanned pregnancies had greater odds of being dissatisfied with care. Other migrant-specific factors such as mother´s region of birth, reason for migration, and length of residency had no significant association with satisfaction.

We found a higher proportion of negative responses for different health care experiences than the overall dissatisfaction with care. Antenatal care was the period with the highest proportion of negative health care experiences (Figure 10). One-third of the women did not understand the information provided by the health care personnel. Of these, 85% said that they would have understood the information better in a different language. More than a quarter of the women experienced that health care personnel did not ask if they had questions and did not spend enough time providing explanations.

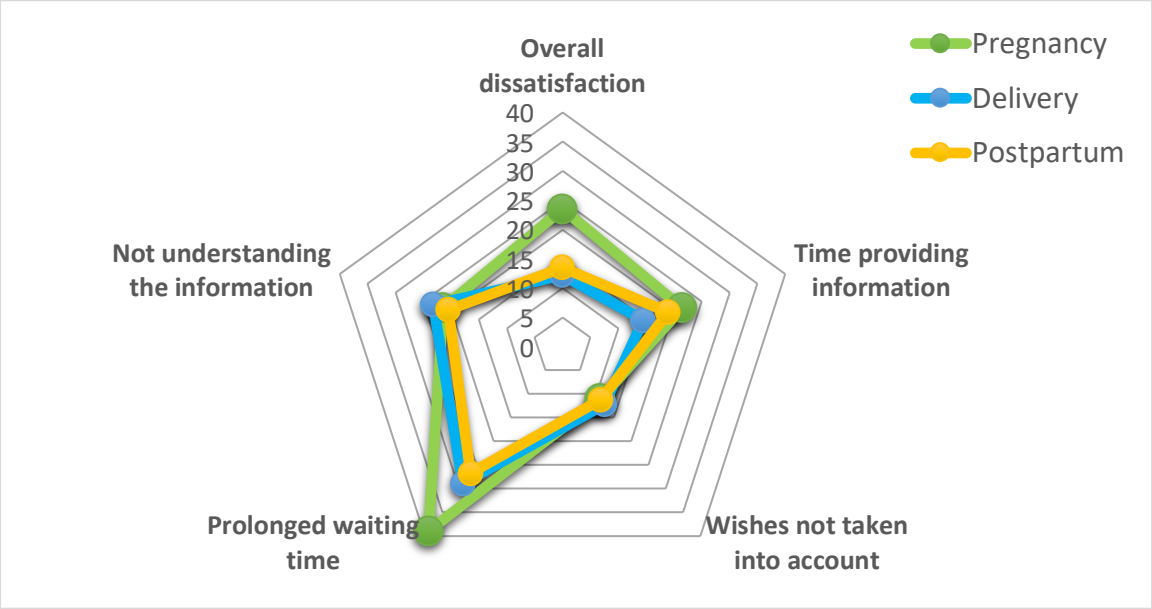


Figure 10: Proportion of women who reported negative health care experiences for the different time periods; during pregnancy(green), delivery (blue) and postpartum (yellow).

More refugee women felt treated differently by health care personnel (24.4% vs 9.3%, *p* 0.022) and understood less information (51.2% vs 27.2%, *p* 0.008), compared to women who migrated due to family reunification and work/education, respectively.

In summary, we found that having a Norwegian partner, higher education, and high Norwegian language comprehension, were associated with greater odds of being dissatisfied with care.

4.3 Paper 2

Newly Arrived Migrant Women's Experience of Maternity Health Information: A Face-to-Face Questionnaire Study in Norway

We examined newly arrived migrant women´s understanding of health information provided by health care personnel and associated factors. Using a questionnaire among 401 women we found that one-third (33.4%) of the women reported poor understanding during pregnancy, birth or after birth. More women with low majority language proficiency, without any completed education and refugee women reported poor understanding. The highest need for a professional interpreter was reported during pregnancy (42.1%), whereas the highest unmet need for a professional interpreter was during birth (19.0%)

Low majority language proficiency, being a refugee, low educational level, unemployment, and offer of a professional interpreter during pregnancy were associated with poor understanding of information. Compared with women who did not need a professional interpreter, those who needed but were not offered a professional interpreter were 2.8 times more likely, and those who needed and were offered one were 2.1 times more likely, to have a poor understanding of information.

More than half of the women reported insufficient coverage on the topic of family planning (58%), infant formula feeding (56%), and postpartum mood changes (53%) (Figure 11). On the contrary, the lowest reported proportion of insufficient coverage was for information about recommended medical tests in pregnancy (17%).

In summary, one-third of the women reported a poor understanding of the information given to them. Women who needed but did not get a professional interpreter were at the highest risk of poor understanding. Family planning, infant formula feeding, and postpartum mood changes were reported as the most frequent insufficiently covered topics.

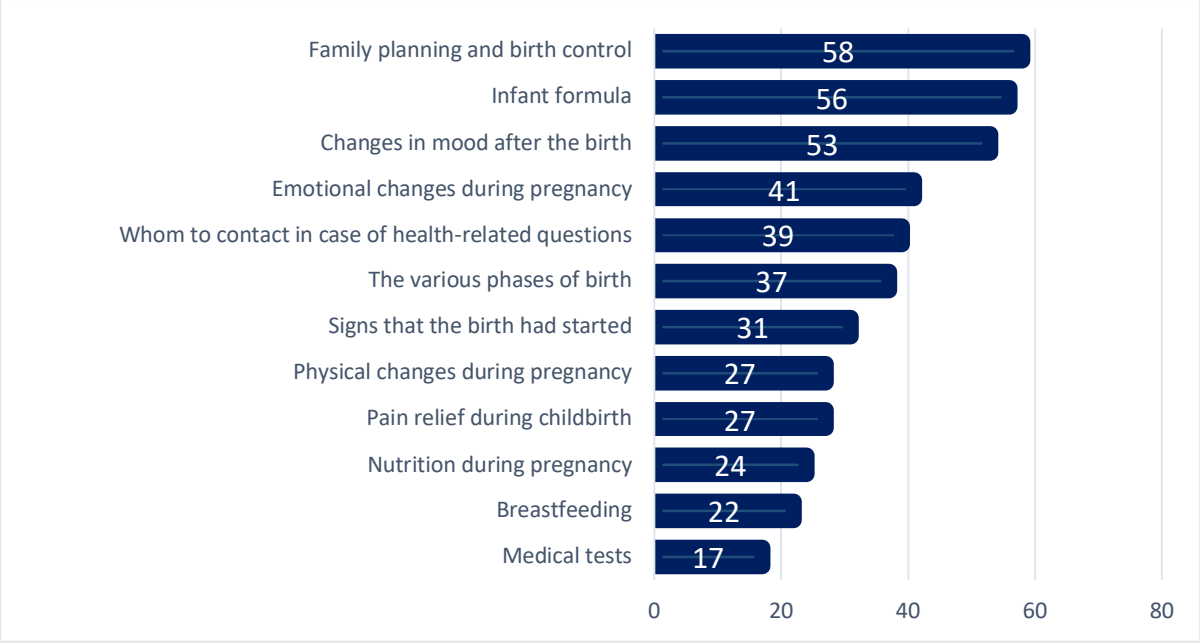


Figure 11: Proportion of all women who reported receiving insufficient coverage of various maternal health topics.

4.4 Paper 3

Challenges and barriers to optimal maternity care for recently migrated women - a mixed-method study in Norway

By triangulating our findings from the questionnaire study and in-depth interviews with migrant women and midwives, we examined challenges and barriers related to accessing and utilizing maternity care. Combined, the following four main themes in terms of challenges and barriers were identified: navigating the health care system, language, psychosocial and structural factors, and expectations of care (Figure 12).

Figure 12: The main themes identified as challenges and barriers, combining material from in-depth interview with migrant women, in-depth interview with health care personnel and structured questionnaire with migrant women.

Navigating the health care system was the most frequent barrier to receiving optimal health care, experienced by almost half of the women (46.1%). The median (IQR) time for

scheduling the first antenatal care appointment was eight weeks (6 to 12), with 83.6% of the women scheduling it by gestational week 12 (Figure 13).

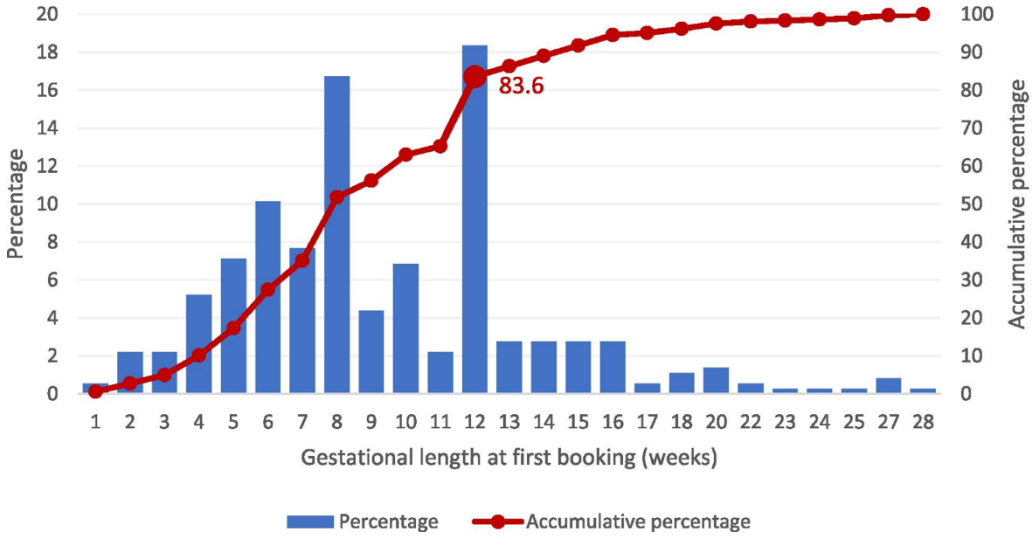


Figure 13: First antenatal booking by recently arrived migrant women from the questionnaire study, in percentage of all women (blue bars) and accumulative percentage (red line) by gestational length in weeks

Language issues was the second most frequent barrier to receiving optimal health care, experienced by almost one-third of the women. The Norwegian language proficiency among the women was low; 22.9% of the women could not speak or understand Norwegian at all, and 38.7% with difficulty. Various challenges related to use of a professional interpreter, concerns about anonymity, and use of relatives as interpreters emerged as barriers to optimal care.

Psychosocial and structural factors emerged as the third main theme. Almost 20% had experienced financial difficulties occasionally or often. Loneliness in the host country, often due to limited social network, hindered women in basic practicalities of everyday life. In varying degrees, women reported symptoms of being afraid or anxious (24%), of hopelessness for the future (15%) and of loneliness (30%).

Expectations of care and conflicting recommendations often led to women not knowing which advice to follow related to pregnancy and childbirth, especially in regard to physical activity.

In summary, four main themes of challenges and barriers faced by the women were identified: (1) Navigating the health care system, (2) Language, (3) Psychosocial and structural factors, and (4) Expectations of care.

5. Discussion of main findings

This thesis contributes to a growing body of knowledge about migrant women's perceptions of maternity care. We found overall high satisfaction with maternity care. Nonetheless, a higher likelihood of dissatisfaction was found among women who had a Norwegian partner, higher education, and high Norwegian language comprehension. A significant proportion did not understand the information health care personnel provided. Women lacked information about several important maternity topics. Navigating the health care system, language, psychosocial and structural factors, and finally, expectations of care were important barriers to optimal maternity care. In the following, I will interpret and discuss our findings across Papers 1–3.

5.1 Satisfaction of care and other health care related experiences

Measures of satisfaction are important because they can reflect quality of care. Consistent with the existing literature, we found an overall high level of satisfaction with maternity care (124, 125). In contrast, we found a high rate of negative responses for some health care experiences. This can be explained by the fact that satisfaction is considered both a measure of the care received and a reflection of the patients' expectations (126). As such, high satisfaction can indicate good care received but also low expectations and vice versa (127). This is especially true for the perinatal period, when it may be difficult to distinguish between the childbirth experience and the actual care received (128). The varying backgrounds of recently arrived migrant women will likely also affect their expectations, depending on, for example, previous birth experience in the country of origin, cultural context and knowledge about the Norwegian health care system (129).

We measured care and satisfaction during three time periods: during pregnancy, during labour and after childbirth. Care during pregnancy was the time period with the highest proportion of dissatisfaction in our study. In contrast, a Dutch study showed that non-Western migrants were most satisfied with antenatal care (130), while a British study found little difference in satisfaction between the three periods (124). These differences might be explained by different ways of organizing maternity care between countries, for instance, a more non-intervening approach to perinatal care and more homebirths in the Netherlands compared to Norway. Maternal care in Norway is fragmented, and continuity of

care is uncommon. Some continuity of care may exist, as the same midwives may attend to the patient during pregnancy and postpartum at the MCHM; however, continuity across the continuum of pregnancy, labour and the early postpartum period is rare.

5.2 Communication barrier and poor understanding

Good communication is one of the foundations of health care and is considered pivotal in maternity care. Every interaction between a patient and health care personnel relies on effective communication, from making an appointment for a visit to describing symptoms, discussing risks and benefits of treatments, and understanding instructions. Communication contains several levels: the lowest is that of passively receiving messages, while the highest involves effective two-way communication where the women are active partners. Language proficiency, health literacy and cultural understanding are important components of communication.

In line with our findings, communication barriers have been highlighted as the main obstacles to achieving high-quality care for migrant women in numerous studies (5, 84-86, 131-133). Specifically, migrant women's poor understanding of information provided by maternity staff is also well documented in qualitative studies (85, 86). A WHO report identified interpretation, translation, cultural mediation and education of health care personnel as the most significant strategies for reducing communication barriers among migrants in Europe (134)

One solution to the communication barrier is to use bilingual staff as interpreters. This is possible in countries with a high proportion of linguistic diversity among maternity staff (135). However, as this is not the case in Norway, bilingual maternity staff were seldom used as interpreters in our study. This emphasizes the need for other strategies to overcome language barriers in countries with less linguistic diversity among health care personnel. Consistent with our findings, using family members as interpreters was a common strategy to overcome language barriers; however, according to national guidelines, this is not recommended (135-137).

Another solution is the appropriate use of interpretation services. However, limited training and the discouragement of using professional interpreters by health facilities may contribute to the underuse of interpreting services (138). Therefore, increased awareness

and education of policy-makers and health care personnel about their responsibility to provide measures for better patient understanding is needed, as indicated by a previous Norwegian study (139). Targeted actions, such as reminders and encouragement, to use professional interpreters during birth have shown positive results (140).

Additionally, interventions designed to increase the understanding of information among patients with low health literacy, such as adding video to written information or pictograms, have led to improved understanding (141). This is particularly important, as communication barriers entail more than just language proficiency, as indicated in our in-depth interviews; that is, even when a professional interpreter was used, communication barriers sometimes persisted.

Recently, due to the COVID-19 pandemic, we have learned how virtuality can present new possibilities for exploring other ways of connecting with each other. During the study period, the interpreter services used at hospitals in Norway were mainly offered by phone or onsite. Interpretation services were strongly affected during the pandemic. Therefore, health care facilities had to adapt, and the implementation of new technologies and devices with remote interpreting services, such as through video, have been increasingly in demand. Such technological advances are needed to provide interpretation services that are convenient and immediately available.

5.3 Predictors of satisfaction and poor understanding

5.3.3 Language proficiency

Low proficiency in the majority language may lead to an inability to communicate effectively in health care settings. It is associated with poor access to health care, lower quality of care, and poor satisfaction with care (142). It is even a patient safety concern, as it has been shown to increase the risk of iatrogenic adverse events (143).

We found that women with low Norwegian language proficiency had increased satisfaction. One possible explanation for this finding may be that health care personnel indeed do provide high-quality care to migrant women. However, several studies have reported suboptimal care provision. Thus, it is more likely that our findings may be due to lower expectations. Gürbüz et al., who also used the questionnaire tool MFMCQ, found no association between language proficiency and satisfaction (144). The authors note that the

finding is surprising, as previous literature indicate the opposite relationship. They attribute their finding to the high proportion of refugees in their study and suggest more research on the link between language and satisfaction.

In Paper 2, we found that women with low Norwegian proficiency had a poor understanding of information. This is consistent with other studies showing that majority language proficiency is undoubtedly an important factor in understanding information (145, 146). However, as mentioned before, language is not the only component of understanding information and good communication. This may explain why a substantial portion of women with low and moderate language proficiency in our study, who we would otherwise expect to have low understanding, actually reported adequate understanding. This finding may also be linked to good English proficiency.

We also found that low attendance in pregnancy preparation courses was partially due to low Norwegian proficiency, in agreement with others (147, 148). Therefore, offering pregnancy preparation courses in English and other major languages could be beneficial in increasing attendance among non-Norwegian speaking women.

5.3.4 Professional interpreter

The use of interpretation services is probably one of the most efficient tools and easily modifiable factors to limit communication barriers. We show that being offered a professional interpreter was associated with a better understanding of information. We also found an unmet need for professional interpreter services, consistent with the literature (85, 135, 136, 139).

Antenatal care was the period with the highest offer of a professional interpreter. This was expected due to the structured nature of the appointments with a predetermined time frame and hence easier logistics. The provision of interpretation services during birth may be more challenging. Nevertheless, a good understanding of information during birth is crucial, not only to minimize adverse maternal outcomes such as perineal tears but also to improve the birth experience. However, only 19% of the women who needed interpretation during birth were offered it, in line with an Australian study (149). In conclusion, although the use of professional interpreters is important, our findings suggest that the recommended standards for providing patients with interpretation services in Norway are not followed.

5.3.2 Education

Education is a commonly applied measure of socioeconomic position, as it reflects an individual's material and non-material resources. It is closely linked with occupation and income and often used as a substitute for income in research when measuring income is difficult.

In our study, women with low levels of education were more satisfied, compared to those with higher education. This finding could be explained by higher quality of care provided to women with less education. However, as with language proficiency, less education is associated with lower expectations, and our finding is therefore more likely explained by different expectations (125). In contrast, a study from Italy that included all women, regardless of migration status, found higher satisfaction among women with higher education (150). They also note that the high satisfaction among highly educated women very much depends on the fulfilment of their expectations. Another study found no association between education and satisfaction (151). Interestingly, multiple studies from developing countries have found that women who are illiterate or with only primary education were more satisfied than those with higher education (152, 153), in line with our findings.

5.3.1 Reason for migration

Zimmerman et al. developed a framework for understanding the migratory process and how multiple phases, predeparture, travel, destination and interception, affect health (154). The framework makes it easier to understand how the influence of each of these periods probably varies for different reasons for migration. For instance, refugees and asylum seekers often have worse health outcomes than people who migrate for work or family reunification (155).

In our studies we found more negative health care experiences and poor understanding of information among refugees. Consistent with our study, a recent review of maternity care in Nordic countries reported experiences of care-related discrimination among refugees (86). These findings may suggest implicit or unconscious bias among health care personnel. This is important because negative implicit bias among health care personnel

has the potential to contribute to disparities in health (156). Although research frequently speculates on health personnel's unconscious bias, few studies have measured implicit bias and its consequences; hence, more research is needed. Furthermore, our findings of poor understanding of information among refugees may partially explain the insufficient access and utilization of antenatal care found for this subgroup of migrants in other studies (157, 158).

5.3.5 Partner and country of birth

Having a Norwegian partner increased the odds of being dissatisfied in our study. This may seem surprising, as the literature has reported that having a native-born partner has a protective effect in studies on the risk of adverse neonatal outcomes among migrant women (159) (160) (161). In another MiPreg study on the risk of obstetric anal sphincter injury, we found that having a Norwegian-born partner, compared to a foreign-born partner, reduced the risk (162). The protective effect is thought to be due to the partner´s facilitating role through communication and familiarity with the health care system. Thus, it is likely that our findings may reflect expectations rather than the actual quality of care.

The mother´s region of birth was not associated with overall satisfaction in our study, in agreement with other studies (99, 163, 164), including one conducted in Norway (165). Some comparative studies have found higher satisfaction among migrants than among non-migrants (125, 152, 166), while other studies have found the opposite (150). Satisfaction is dependent on many factors, which could vary in different countries and thus explain the inconsistent findings. Although it would have been interesting to include non-migrants in our study for comparison, our focus was on the mechanisms behind the negative outcomes among migrants. As such, our aim was to explore migrant-specific factors, and the comparison of migrants versus non-migrants was not as relevant.

5.4 Unmet need for information on maternal health topics

We found a high proportion of insufficient coverage of several maternal health topics provided by health care personnel. Among women who reported a poor understanding of information, a greater proportion of topics were reported to be insufficiently covered. In 2013, a national survey on experiences with maternity care in Norway among women who had given birth and their partners was undertaken (167). Almost 5,000 women returned the

survey, with a response rate of approximately 20%. As with most national surveys, the questionnaire was only available in English and Norwegian, and women born in low- or middle-income countries constitute less than 8% of the sample. Consistent with our study, the national survey suggest that information about physical changes during pregnancy was comparatively sufficiently covered. The percentages who reported sufficient information on the topics of postpartum mood changes, emotional changes during pregnancy and pain relief were almost the same as those in our study (167).

Information about family planning and birth control was reported to be insufficiently covered by almost 60% of the women in our study. Similarly, a German study found that despite the government providing free family planning services, there was a large knowledge gap among groups of refugees (168). Previous research on induced abortion from Norway has reported higher rates among subgroups of migrants (169). Lower use of hormonal contraceptives among migrants in Norway has also been detected (170). These findings emphasize the need for interventions with the aim of increasing knowledge about family planning among migrants. It may be even more important among subgroups of migrants, as some originate from countries with minimal sexual and reproductive education in school.

Information about infant formula feeding was the second most frequent topic, with 56% of the women reporting insufficient coverage. In Norway, exclusive breastfeeding is recommended for the first six months and, if possible, throughout the first year of life and preferably longer. Generally, breastfeeding is more common among women living in low- or middle-income countries than among women living in high-income countries (171). However, migration to a high-income country generally has a negative impact on breastfeeding practices in terms of less breastfeeding and more use of supplements with infant formula feeding (172, 173). As a result, maternity staff may be cautious in providing information about infant formula, fearing that it can lead to overuse of formula feeding among migrant women. According to a systematic review, the higher use of early supplementation with formula among African migrants was attributed to a belief that formula was necessary to achieve larger, and thus healthier, babies (174). Therefore, there may be a need for better education about indications, benefits and disadvantages regarding infant formula feeding among subgroups of migrants.

Insufficient coverage about postpartum mood changes was reported by 53% of the women in our study. Migrants have been reported to have higher rates of perinatal

depression (175). The consequences of perinatal depression are potentially serious and long-lasting, predisposing women to chronic depression and impairing their ability to provide childcare which may lead to several adverse outcomes for the child (176, 177). Therefore, ensuring better education about symptoms and the importance of seeking help in time is crucial, as insufficient information and stigma about depression have an impact on help-seeking behaviour (178).

5.5 Knowledge about and use of maternity care

In agreement with previous studies, we found that migrant women lacked information about the health care system in host countries, including administrative procedures, which led to women not using the variety of available maternity care services (85, 179, 180). Educating migrant women about the structure of the health care system may be a solution to reduce the barriers to navigating the health care system.

We found timely initiation of antenatal care among migrants in our study. National guidelines in Norway recommend that the first antenatal care consultation be booked by the end of gestational week 12 (181), which was done by 83.6% of the women in our study. Our findings are consistent with findings from a national survey from 2013 in Norway that showed that 53% of the women had their first antenatal consultation at gestational weeks 8-12 and approximately 30% before week 8 (167). In contrast, studies from European countries have indicated later initiation of antenatal care among migrants compared with non-migrants (82, 182), migrants compared with descendent of migrants (183), and minority ethnic groups compared with majority women (82, 184); later initiation of antenatal care was especially profound among recently migrated women (185).

One standard routine ultrasound conducted at approximately week 18 is part of the antenatal care package in Norway. We found a slightly lower attendance rate for this ultrasound: 93.5% in our study, compared to 97% in a national survey (186). We also found that 13.2% of the women underwent early ultrasound. This is a service that is often paid for privately, as it is not a part of routine antenatal care in Norway, except for groups with an elevated risk of foetal chromosomal abnormality. Our finding of early ultrasound use is low compared to local surveys in Norway, suggesting that half of the women had an early ultrasound in the first trimester (186).

The high percentage of women with timely initiation of antenatal care and high attendance of routine ultrasound might seem unexpected. However, it is important to remember that we have a relatively high number of women from Central and Eastern Europe included in our study. Thus, our findings may be due to the different practices and guidelines for antenatal care, with earlier and more frequent check-ups with ultrasound in some countries (187). Furthermore, midwives from the in-depth interviews experienced that subgroups of migrants, such as undocumented migrants, started antenatal care late. Therefore, our findings should be further explored by research on subgroups with low language proficiency, low levels of acculturation and among undocumented migrants (109). Women often reported using the emergency outpatient clinics in case of medical concerns, in line with a previous study that found more frequent use of emergency outpatient clinic by migrants compared with the host population (188). Our findings of timely initiation of antenatal care support the previously discussed distinction between limited access to care and poor quality of care provided.

5.6 Limited social networks

Lack of social support has been reported to be associated with a variety of adverse outcomes, including postpartum depression (189, 190), low birth weight (191) and preterm birth (192). We found that some recently migrated women lacked social support, had limited social networks, and struggled to adjust to the differences in community and familial support between their birth country and Norway. Previous research on social support among migrants is not conclusive: some is consistent with our findings (184), and others report no indication of limited social support (193) or even increased social support in migrant groups (193, 194). A longer length of stay in the host country usually results in larger social networks. This may explain why the recently migrated women in our study found limited social networks to be challenging, both psychosocially and in terms of practical and emotional support. Identifying women who lack or have little social support and providing additional social services for them is critical, as it may improve their psychosocial well-being more generally and may potentially reveal additional vulnerability factors that can be addressed.

5.7 How can optimal maternity care be achieved for migrants in Norway?

The changing demographics and migration patterns in Norway have implications for planning and developing guidelines for maternity care. In general, health care services in Norway are of a high standard (195). The fact that accessibility and quality have been so high may lead to increased service delivery expectations and a lower threshold for criticizing the health system. Nonetheless, our findings do imply that action is needed to increase the quality of care for some subgroups of migrant women. These women had variable layers of vulnerability factors that influenced their ability to navigate the health system and use available health services. According to our findings, to ensure high quality of care, there is a need for migrant-friendly communication, which includes access to professional interpreter services, training of health care personnel in intercultural communication, improved provision of health system structure and identification of subgroups at risk, such as women with limited social networks.

Intercultural communication requires health personnel to care for patients as unique individuals while considering their cultural background and is crucial for optimal delivery of care. Minimal training in cultural competence is offered in the course of professional education for nurses and doctors in Norway. Therefore, efforts to include more targeted training for health personnel, both during professional education and as continued learning, could provide increased awareness and self-reflexivity. Often misunderstood, the goal of intercultural communication is not to gain in-depth knowledge about every ethnic group and culture. As explained by Phillimore et al. (180), the focus should be on intercultural competence and treating patients individually while being culturally sensitive.

Although guidelines for maternity care exist in Norway, no practice recommendations or guidelines are developed specific to maternity care for migrants, in contrast to other high-income countries such as Australia (196). Even the national strategic document for 2013–2017 on the health of migrants was discontinued, which was criticised by several migration researchers (197). They argue that the absence of a separate strategy for migrant health has led to less attention to this group, and migrants' needs are thus less visible when health policies are planned. An examination of the Norwegian health care system's ability and means to provide differentiated maternity care to at-risk migrant women is warranted. A

newly published scoping review on different models of antenatal care targeted at migrant women, including group antenatal care and specialized clinics, found that the models increased access to care (198).

When recommending policy and interventions to improve migrant health, the question of 'health-related deservingness', in other words, who 'deserves' or has the right to access health services or who should or should not be financially supported when accessing services, is often discussed (199). The question of who deserves it most and the extent to which various migrant groups can claim state welfare benefits are often grounded in moral judgement, notions of exclusive citizen rights, and moral ideas about having to 'earn' access to goods. Assessments of some women as being less deserving than others can exacerbate unequal access to and provision of health care. The extent to which these assumptions of deservingness exist among health care personnel and their implications for health care provision in Norway needs further exploration.

6. Methodological considerations

The results in this thesis should be interpreted in the context of some methodological considerations. Primarily, as this is a cross-sectional study, true cause and effect relationships cannot be assessed. I will start this section with a discussion of the overall strength of the study methods. Thereafter, I will discuss the psychometric considerations, selection bias, information bias, statistical measurement issues, confounding issues, quality in qualitative research and external validity. Finally, I will end this section with a personal reflection, which is an important approach for evaluating quality in research for both the quantitative and qualitative parts of this thesis.

6.1 Strengths

To my knowledge, this is the first study to include such a large cohort of recently arrived migrant women who were interviewed face-to-face with professional interpreters, providing unique data based on the women's own perceptions. This was a major strength, as it allowed all women to participate regardless of their language or reading level. In this way, we were also able to limit the misinterpretation of questions, as the interviewers could explain a question if it was not understood by the woman. Missing data are a common problem in epidemiological studies, especially in questionnaires. In contrast to the self-administered questionnaire, where patients do not answer all the questions for various reasons, the face-to-face interview probably contributed to the lack of missing data for most of our variables of interest. Another major strength is the high response rate in our study, which limits the chance of bias and ensures a representative sample. Furthermore, the research participants' clinical features were also comparable to national statistics on obstetric interventions and delivery complications (200). The usage of the MFMCQ questionnaire tool allows for cross-national comparison, as several research groups are currently using the tool. For the qualitative part, we chose in-depth interviews instead of focus-group interviews. In this way, we could more easily establish rapport with women to make them feel more comfortable, which probably generated more insightful responses, especially regarding sensitive topics. In addition, we believe the research process was strengthened by using highly experienced interviewers.

6.2 Psychometric considerations of the questionnaire

Reliability is the ability of a measurement tool to reproduce the same results across different test administrations, in other words, the precision of a measurement tool (113). It can be assessed through various methods, such as internal consistency, test-retest reliability, or interrater reliability. We assessed the internal consistency of the modified MFMCQ using Cronbach's alpha. Cronbach's alpha measures the average correlation between all the items that make up a scale (113). The values range from <0.50 (=unacceptable), 0.50–0.59 (=poor), 0.60–0.69 (=questionable), 0.70–0.79 (=acceptable), 0.80–0.89 (=good) and ≥ 0.90 (=excellent) (113). In general, Cronbach's alpha values are greater than 0.7, meaning that more than 70% of the variance in an item is accounted for by the underlying variables, which is considered good. The Cronbach alpha of our main outcome variable satisfaction of care was 0.83, indicating high internal consistency and a low risk of type 2 errors, a statistical term used to describe the probability of incorrectly retaining the null hypothesis. We did not perform a test-retest of our modified version of the MFMCQ questionnaire, which could have been beneficial to our study. However, as the objective of my research was not to validate the MFMCQ and we already had a high level of internal consistency, we chose to not perform further reliability testing.

Validity is the accuracy of an instrument, in other words, the extent to which the questionnaire measures what it is intended to measure (113). It can be measured through various methods. We assessed construct validity by observing whether the questionnaire performed well in the pilot testing according to our hypothesis. We found similarities or strong correlations with measures of similar constructs. Furthermore, we assessed face validity, or the extent to which a questionnaire is subjectively viewed as covering the concepts it is supposed to measure and found it to be sufficient.

6.3 Selection bias

When the sample chosen or collected in a study is not representative of the general population, selection bias arises (201). It can occur if patients are chosen from a group having a higher or lower risk of acquiring a disease than the general population or if the exposed and unexposed groups differ in ways that predict the result of the study. In the questionnaire study, as previously mentioned, we had a high response rate, and we did not find differences

in responders versus non-responders for factors such as age, length of residence or region of birth (Table 5).

Table 5: Showing characteristics of the non-responders and responders in the questionnaire study.

Characteristics	Participating women (n=401)	Non-participating women (n=57)
Mean age, in years (SD)	29.8 (4.7)	29.3 (5.2)
Mean length of residency, in months (SD)	35.6 (19.4)	35.0 (16.1)
Mother region of birth (%)		
Central/Eastern Europe and Central Asia	132 (32.9)	19 (33.3)
Latin America and Caribbean	13 (3.2)	0 (0.0)
North Africa and Middle East	76 (19.0)	7 (12.3)
South Asia	81 (20.2)	14 (25.0)
Southeast Asia, East Asia and Oceania	37 (9.2)	7 (12.3)
Sub-Saharan Africa	62 (15.5)	10 (17.5)

There is a theoretical chance that a woman with severe complications following childbirth was not asked to participate, as the midwife assumed she would be tired. The interview midwives recruited eligible women once a week at the hospitals based on admission charts at the ward. Most days, they had time to visit all the eligible women and invite them to participate. However, there is a chance that on busy days, they prioritized women who had had uncomplicated deliveries, who may have been more satisfied than those with complications.

In the in-depth interviews, the midwives at the MCHC recruited eligible migrant women. Thus, the women included may represent a more integrated group of migrants, excluding those who were most isolated and did not attend MCHC. For the in-depth interviews with the midwives, a purposive sampling method was applied. Therefore, it is unknown how representative the midwives' opinions are of all health care personnel working with migrant women. Furthermore, we chose to sample only midwives and only those with considerable experience working with migrant women. As a result, our findings may overrepresent the viewpoints of health care personnel who have more training and expertise in addressing migrant-specific needs than the average health care personnel.

We chose to include only recently migrated women as a proxy for vulnerabilities such as limited language proficiency and health literacy. However, women with a short length of residence are not always more vulnerable. Thus, it may have been more appropriate to

have, for instance, poor majority language proficiency as an inclusion criterion, but it would make the inclusion more complicated and time-consuming.

6.4 Information bias

When crucial study variables are assessed, gathered, or interpreted incorrectly, information bias occurs (201). First, the questionnaire was completed a few days after birth. Immediately after birth, women tend to express high satisfaction levels, the so-called "*halo effect*", where the woman is relieved about having a having a healthy child (202). However, there is no consensus as to the right time for administering a questionnaire postpartum (99). We chose this timing to obtain a response from hard-to-reach groups, as the postpartum check-up of women occurs in numerous facilities in the Norwegian health system and has a large drop-out rate. Thus, recruiting women after discharge through the MCMHs, for instance, would mean we would not have been able to include everyone, with a bias towards women with higher health literacy. This strategy was endorsed by the Ethical Hospital Boards.

Second, the only source of information about medical history and obstetric complications was the migrant women themselves, as we did not look up information from medical records. A few days after giving birth, women may be tired, which may have introduced recall bias and the tendency of responders to not remember previous experiences accurately. Although we strived for training in interview techniques, intercultural competency among the interviewers and the use of professional interpreters, there may have been misunderstandings between the migrant women and the interviewers due to linguistic and cultural differences. Nonetheless, we believe that the interviewers' degree of training improved the validity of the interview method and compensated for some of these challenges.

Social desirability bias— the tendency of the responders to overreport good behaviour or underreport undesired answers—could also affect the answers, especially since the interviews were held at the maternity wards by health care personnel. To minimize social desirability bias, I tried out different presentations, for instance, by presenting myself as a doctor or as a researcher as suggested by wearing a doctor's coat or civilian clothing during the pilot interviews. I discussed the different approaches with migrant women and raised some valid considerations. First, as I was not working as a clinical doctor at the ward, the

women from the pilot interviews believed that it would not create bias. Second, they emphasized the cultural differences in social status and respect towards certain professions, such as doctors, and thus wearing a doctor´s coat could increase the study´s credibility. They explained that due to previous negative experiences with governments, some people had less trust in researchers and government officials than in doctors. I therefore chose to present myself as a doctor, while at the same time stressing the fact that I did not work at the clinic and, hence, would not tell the personnel about the migrant women's responses or be offended in any way.

In Papers 1 and 2, we measured satisfaction and understanding of information by dichotomizing the original four-response variable to "satisfied"/"dissatisfied" and "poor"/"good" understanding. In general, statisticians advise against dichotomization of continuous variables since it can result in the loss of information, misclassification and erroneous effect sizes (203). However, when the analysis provides clear support for the existence of two distinct classes or when the distribution of a variable is highly skewed, it can be justified (204). Our main outcome variables for Papers 1 and 2 were highly skewed, and we therefore chose to dichotomize them. We did, however, also perform the analysis with the original four-response variable and found similar results, albeit lacking statistical power.

We grouped the women's country of birth into a region of birth using the GBD classification system. Grouping them in these broad regions, although based on both geographical closeness and epidemiological similarity, may hide heterogeneity and introduce a problem with generalization.

6.6 Confounding

Confounding may occur in analytical cross-sectional studies when a variable is associated with exposure and influences the outcome (201). We did not have information about some important variables, such as expectations and partners' majority language proficiency. Especially in Paper 1, our understanding of variables such as education and parity may have been constrained due to a lack of measurement of expectations (205). In Paper 2, we probably limited our interpretation of language proficiency on an understanding of information by not including a variable that measured the woman's English proficiency. Because the women who had low/moderate Norwegian proficiency and at the same time

good comprehension may represent those who spoke English, the language variable may be more strongly connected to understanding than what our findings suggest.

6.7 Quality of research in the qualitative part

Herein, I will discuss the methodological considerations specifically for qualitative research, addressing the criteria of trustworthiness. I will do this by using the terms credibility, dependability, confirmability, and transferability (206).

Confirmability means the level of confidence that the study results are based on the participants' experiences rather than potential researcher biases (206). To ensure confirmability, all the in-depth interviews were audio-recorded, transcribed, and translated into English. In addition, most of the findings from the in-depth interviews in Paper 3 are supported by quotes from a broad range of study participants. Furthermore, two research team members, myself and an experienced anthropologist, independently coded the transcripts and then systematically compared and discussed the differences as needed.

Credibility is similar to internal validity in quantitative research, which means that data are representative of the participants and their experiences (206). To ensure this in Paper 3, we adopted two appropriate research methods: in-depth interviews and a questionnaire study. We triangulated these two data collection methods to ensure validity. The findings obtained from each of the study methods were similar, indicating a reliable indicator of credibility. We also obtained feedback from our user-representative on the data analysis and interpretations to verify accuracy and to further establish credibility.

Transferability means that the methods and findings can be applied to other studies in other contexts (206). Dependability is similar to reliability in quantitative research and entails writing the methods chapter in detail so that future researchers will be able to understand all the decisions along the way while conducting the study (206). To ensure these two elements, we explained all the details of the sample, recruitment and implementation in the methods chapter. We also provided the interview guides as attachments. Although our findings depend on several context-specific factors, we strived to include migrant women with a variety of backgrounds and believe our findings can be used in related contexts.

6.8 External validity

External validity concerns the degree to which the study findings may be generalized to populations outside of the study sample (113). The response rate in our questionnaire study was high, suggesting high representativeness. However, different cities and countries may have a composition of migrants that varies a lot from urban Oslo. For instance, the group of women born in countries belonging to the region Latin America and Caribbean was small in our sample. Furthermore, limiting the sample from only a diverse urban area may restrict the generalisability of the findings in rural areas. Majority language proficiency was generally low in our sample and can be interpreted as an indicator of acculturation. In contrast, in English-speaking countries, the language proficiency may be higher and might not be as strongly associated with level of acculturation. Furthermore, the health care organisation in Norway, with universal access to free maternity care, may also not be applicable to other settings. As a result, caution should be taken when generalizing our findings beyond other Scandinavian countries.

6.9 Personal reflexivity

Personal reflexivity is especially important in my project, where researchers and participants can have differing lifeworlds, and the risk of asymmetric power positions between researchers and participants is more prevalent. Although researchers strive to achieve objective and unbiased research, it is important to recognize that researchers' beliefs and attitudes cannot be completely removed and, thus, may affect the research process and interpretation. As explained by Finlay and Gough reflexivity can be translated as *"self-aware analysis of the intersubjective dynamics between researcher and the researched. Reflexivity requires critical self-reflection of the ways in which researchers' social background, assumptions, positioning and behaviour impact on the research process*" (207). The researcher's position can influence the process in three main ways (208): (1) by facilitating access to participants, as they may be less suspicious of sharing information with someone they perceive as knowledgable about their situation, (2) by shaping the information the participants are willing to share, and finally (3) by the researcher's choice of lens, which may direct the meaning and conclusions of the study. A principal goal of reflexivity is, therefore, to identify these influences and, by doing so, increase the credibility and accuracy of the research.

Throughout my research, I consistently reflected on how my own personal and professional experiences relate to my PhD topic. As a Norwegian born to migrant parents from India, growing up in a welfare state and having unlimited education and work possibilities, I consider myself highly privileged. However, at a young age, when travelling to and learning about the lives of people in India, I was exposed to inequalities in life. This fostered a profound awareness of injustice and a deep commitment to work for reducing inequalities globally. Therefore, unsurprisingly, I was interested in global health issues early on. With a desire to broaden my understanding, I participated in internships in different parts of the world, which provided me with invaluable knowledge about the challenges people meet in accessing and utilizing health care. Later, as a medical doctor working in various parts of Norway and being exposed to migrant families at different stages of their lives, I encountered the challenges some migrants face in meetings with health care services in Norway. These personal and professional experiences inevitably shaped me and affected the lens through which I conducted the interviews and interpreted the results. My preconceived assumptions were challenged by the participating women, discussions in the research team and personal reflections.

From a personal perspective, a shared experience of being a non-native person seemed to enable a connection with many migrant women, even though I am not a migrant myself. My Indian appearance and name appeared to have led some migrant women to consider me an "insider", as expressed by the women calling me their "*sister*" and leaving sentences unfinished with an expression like "*you understand*", implying that there is a mutual understanding based on shared cultural backgrounds. Although acknowledging my cultural background, I encouraged migrant women to try and explain what they meant to avoid misunderstandings. Because of my fluency in Punjabi, Hindi and Urdu, some of the interviews were held in these languages, if not entirely, at least supplemented by using English or even a professional interpreter. For migrant women, being able to speak in their mother tongue may have eased communication and provided richer responses. My migrant background gave me cultural insights into certain topics, which I believed made it easier to comprehend the women´s perspectives. For instance, this helped with understanding the difficulties with contradictory recommendations for pregnancy-related behaviours or the challenges of understanding the different dialects in Norway, as seen in Paper 3.

Having said that, my migrant background could possibly have prevented some women from talking openly to me due to fear of me not maintaining confidentiality and information being spread into the community. However, as most of the information was not highly sensitive and I did not interview anyone belonging to my own migrant community, I believe this did not influence the responses to a significant degree. Furthermore, owing to my migrant background, my assumptions about health-related deservingness may have differed from those of newly arrived migrants. The perception of deservingness and belonging can be exemplified by a quote from Minhas, a British woman with Indian parents (209). In a collection of personal essays written by migrants in the United States on a feeling of "otherness", she writes about the difference in expectations among generations of migrants:

> "*My grandparents migrated to the UK with only the dream of opportunity…they knew better than to carry over with them any hope for acceptance. My sisters and I were sold a different dream, one of equality" (209).*

Accordingly, I believe my expectations and demands from government institutions, to ensure equity is probably higher than for newly arrived migrants. One risk when doing research is projecting your own beliefs onto the participants while conducting the interviews or when interpreting your findings. It was therefore crucial to ensure that I let the migrant women speak for themselves and not impose my values or push them in any particular direction. For instance, when conducting the questionnaire interviews and measuring satisfaction, I ran the risk of projecting my expectations of health care services on migrant women.

From a professional perspective, on the one hand, my medical background served as a strength, as I was familiar with biomedical terms and the health care system. This enabled me to describe procedures and medical expressions to women needing explanations. On the other hand, it may have placed me in a power position, perpetuating power imbalances between the researcher and the migrant women. Moreover, it could potentially have made it more difficult for migrant women to talk openly about their negative pregnancies and birth experiences, as migrant women would perceive me as one of the clinical health care workers. After data collection, my interpretation might have been influenced by the defensiveness of colleagues and a tendency to minimise the women's criticism of health care workers. One example of this is when analysing the migrant women´s experiences of health care workers and criticising them for not giving them enough time during consultations. As a doctor

myself, I sometimes would put myself in the shoes of the health care worker and relate to their heavy workloads, thereby running the risk of downplaying the experiences of the migrant women.

7. Ethics

7.1 Approvals

We received ethical approval from the Regional Ethics Committee Southeast for the overall MiPreg project (approval no. 2018/1086, see attachment 12.4). For the questionnaire study and the in-depth interviews, we additionally received approval from the local ethics committee at Oslo University Hospital and Akershus University Hospital (approval no. 18/15786 and 18/05310/53_2019, see attachment 12.4).

7.2 Ethical considerations

Pregnant migrant women are a particularly vulnerable group, as they might have negative experiences with the migration process and may face socioeconomic disadvantages and social isolation after moving to Norway. Merry and colleagues provide strategies and suggest ethically responsible approaches for researching migrant women (210). Guided by their approach, I will discuss the considerations and challenges that require attention when conducting research on migrant women in health care during pregnancy and birth.

7.2.1 Diversity within the migrant group

Migrant women are a heterogenous group of women with a variety of migration histories and experiences. They are multilingual and have different cultural backgrounds. Furthermore, as global migration patterns change, the category of "recent migrants" changes as well. This makes it difficult to compare research from countries with varying migrant populations, as well as to track trends over time within the same country. As a result, it is evident that the inclusion of migrants can pose challenges and lead to problems of representativeness.

Migrants do, nevertheless, share some common characteristics, particularly the experience of moving to a new country. We sought to include women from a variety of countries with varying migratory backgrounds and levels of education to accommodate such a diverse group. However, to facilitate interpretation, we also made sure to include important migration indicators such as length of residence, country of birth, mother tongue and majority language proficiency. We also recognized the need for trained interviewers in

addressing sensitive topics related to migration, as well as basic knowledge about key migration terms and the migration system in Norway.

7.2.2 Consent

Medical research should seek voluntary and informed consent, according to the Helsinki Declaration. However, specific challenges related to educational level, health literacy, and language barriers may arise when obtaining consent from migrants. Some migrants may have trust issues with authorities as a result of previous experiences and be hesitant to participate. Others may feel obligated to participate because of fear that refusal to participate could jeopardize their application to stay in the country. In both the qualitative and quantitative studies, all participants were informed orally and in writing in their preferred language about the studies. Following that, the women were given a chance to ask questions before signing the individual informed consent forms, as well as the option to withdraw participation at any time without explanation. We made it clear to the women that their participation or refusal would have no bearing on their immigration application or access to health care. Throughout the studies, we accepted the participants' self-identified country of birth, length of residence and reason for migration.

The participating women had varying years of formal education. Therefore, we chose to conduct face-to-face interviews instead of a self-administered questionnaire. We also accepted oral consent among women with low literacy and where the women were suspicious of written consent forms. The health care professionals asking the questions introduced potential issues. For instance, there may be terminology and idioms that researchers consider common knowledge but that are unfamiliar to migrant women. We may not have been successful in ensuring that all participants had enough information before consenting to participate due to variable levels of health literacy in our study population.

Language issues are another reason why obtaining consent for research on migrant women may be difficult. We translated the consent form into several languages to ensure that we were able to provide sufficient information to the participants. However, it is well known that there are several challenges with translating medical texts. Sometimes words are lacking for a specific term in one language, making it difficult to grasp the exact meaning in another language. Other times, there are metaphors that cannot be translated directly.

Hence, when translating, we sometimes may not have been able to precisely communicate the information we intended. Furthermore, in many languages, there may also be cultural barriers, such as it may be taboo to use the words for specific anatomical body parts, especially female genitalia. We attempted to overcome this problem by using professional interpreters with longstanding experience in health care settings.

For the questionnaire study, we gained consent and conducted postpartum interviews before the woman was discharged from the postnatal ward. The time leading up to labour is often a stressful period for pregnant women; hence, asking for consent and expecting them to understand what this consent implies might be challenging. Pregnant women may also feel obliged to participate, fearing that health personnel may treat her differently if she declines to participate. Thus, we chose to ask for consent after delivery. The interviews took place at the postnatal ward after labour and before discharge from the hospital. This can be a very exhausting period for the new mother, the family, and health personnel. For the in-depth interviews, the participating women received a reimbursement of 250 NOK. The amount was selected after careful consideration to avoid undue inducement.

7.2.3 Confidentiality and privacy

Some of the women included in our studies had backgrounds that few other people in Oslo, or even Norway, share, including their country of origin, mother tongue, or cultural traditions during pregnancy and birth. Despite the fact that all of the women's directly identifiable information, such as their name or identification number, was anonymised, there was always a slight risk of identification based on a combination of the previously listed variables, such as age, country of birth and language.

For the women who did not speak Norwegian or English, we used a professional interpreter. Migrants with similar backgrounds often tend to form communities in the new country, and we know of several examples of these communities in Oslo. As there may be a limited number of members in these communities, the members are often known to each other. Using an interpreter from the same community could, therefore, potentially compromise privacy and confidentiality.

7.2.4 Potential for stigmatising subgroups

Focusing on negative results among migrants, such as dissatisfaction and barriers, might create a biased picture and contribute to the greater stigmatisation of migrants. Although we tried to make every effort to avoid reinforcing ethnic or racial prejudices during the publication and dissemination of our findings, it is possible that it will be used for that purpose by others. Our findings that migrant women face prejudice from health care personnel or that maternity health staff spend too little time providing information or are disrespectful to women may have the potential to be misinterpreted by the media, for example, by characterizing this group of women as unappreciative or demanding. On the other hand, our results that indicate that the majority of women were satisfied with their health care during pregnancy, delivery, and postpartum may serve as an argument for high-quality health services that do not need any change. The results may be persuasive that we do not need to invest any more resources to ensure good-quality health care for this group, as they are already satisfied. With the rise of fake news and increased publicity of some extremist groups, such as far-right groups or anti-immigration groups, it is possible that our findings will be used to promote their political views. Ultimately, this may cause discrimination towards the migrant population.

7.2.5 Inducing distress or trauma

Another concern raised when conducting interviews with pregnant migrant women was that participation could potentially result in distress when we, for instance, asked details regarding their migration history. We made clear to the women at the start of the interviews that they did not have to talk about issues they found difficult or too personal. Some of the women had been through long migration processes for years and had experienced war, persecution, and violence. When they brought up traumatic issues on their own accord, we made sure to inform them that they could talk to their midwives about this and be further directed if professional help was needed.

8. Conclusions

This thesis has provided knowledge about recently migrated women's perception of maternity care in Norway. The findings suggest that recently arrived migrant women have distinct challenges in obtaining and receiving adequate maternity care. Specifically, the findings indicate the following:

Paper 1: This study identified factors associated with maternal satisfaction with maternity care and health care related experiences, and found:

- A considerable proportion of migrant women were satisfied with the received health care
- Women with an unplanned pregnancy, higher education, good language skills and a Norwegian partner were more dissatisfied
- Women reported greater extent of negative health care experiences
- Women with refugee background more often felt treated differently by the health care personnel because of factors such as religion, language, and skin colour, than women who migrated due to family reunification

Paper 2: This study explored factors related to communication and understanding of information provided by the health care personnel, and found:

- One-third of all women did not to understand the information provided by the health care personnel
- An unmet need for professional interpreters, especially during delivery
- Low Norwegian language proficiency, refugee status, no completed education, unemployment, and interpreter need were associated with poor understanding
- Inadequate information about several important maternity-related subjects

Paper 3: This article investigated potential barriers and challenges to optimal maternity care for migrant women, and found:

- Navigating the health care system, language, psychosocial and structural factors, and expectations of care were the most important challenges

- Low familiarity with the health care system and limited social network in the host country hinder recently arrived migrant women in navigating and utilising the maternity services
- Possible solutions include improved provision of health system structure, appropriate use of professional interpreter, broader range of social services offered to women with limited social network and increased cultural competency among health care personnel.

9. Clinical and public health implications

This thesis provides a foundation of evidence-based findings that can aid the development of guidelines and new policy to improve maternity care to make it more "migrant-friendly". Furthermore, it encourages to explore the best balance between "same care for all" and specialized organisation for at-risk migrant women. The findings will be useful for general practitioner, obstetricians, midwives, and public health professionals. Specifically, the findings of this thesis have the following implications:

- Health care policy makers should acknowledge the importance of good communication and implement targeted interventions to adapt health care services to women with limited health literacy and majority language proficiency.
- The identified subgroups of migrant women with increased risk of poor understanding should get special attention by health service providers in order to improve care, for instance offer of professional interpreter when needed and multilingual antenatal classes to ensure relevant maternity-related information is provided.
- Health care personnel should assess health literacy and identify women with unmet need for health information. Taking measures to overcome language barriers by providing information in a clear language and avoiding medical language is important. Adequate provision of information about various maternity-related can lead to improved compliance with treatment and recommendations from health care personnel, for instance for signs for postpartum depression, prevention of gestational diabetes and contraception needs after delivery.
- Health care personnel assessing the pregnant women´s expectations, and pregnancy intention, would assist in better identifying the women in need for additional support services to ensure higher satisfaction with care and better use of health care services.
- As low familiarity with the health care system among recently arrived migrant women can hinder them in navigating and utilising the maternity services, improved provision of information about health system structure is needed.
- Migrant women's needs go beyond their pregnancy and include psychosocial- and structural factors. As such, a broader range of social services should be offered to

women with limited social network, such as social service groups for women who speak the same language.

- Establishment of specific guidelines describing maternity care for at-risk migrant women should be considered for midwives, general practitioner, obstetricians, and other health personnel working with maternity care.
- A comprehensive approach to improving the quality of care should also include cultural competency among health care personnel.

10. Future studies

This thesis has answered important questions and provided new knowledge regarding a particular vulnerable population in maternity care in Norway. However, several new research questions emerged while conducting this study and these are presented below:

- Measure health literacy: There is little evidence available that map the knowledge of recently migrated women and their partners health literacy level. Future research efforts should include large cross-sectional studies to explore this and inform interventions targeting specific information needs.
- Interventions to increase health literacy: Recognising the knowledge gaps on maternity related topics and health care organisation found in our studies, future research and interventions should focus on how to easily provide accessible information. Technological devices like online resource groups, led by health care professionals, or apps may be a solution to facilitate easy access to information of good quality.
- Interventions to improve health system organisation: There is also little knowledge about how the health care system can better facilitate a diverse patient group with distinct challenges such as language barriers. Future research should therefore investigate how health care organisations provide services to patients with different health literacy levels and more adaptive care. Initiatives to meet the patients' needs should further be systematized as quality indicators in future health care.
- Measure impact of interventions, such as for interpreter services and multicultural doulas. Multicultural doulas started as a local project at Oslo University Hospital in 2017 and have now expanded to many hospitals, with more than 230 migrant women using this service till date.
- Language proficiency: We found an association between majority language proficiency and limited understanding and dissatisfaction. However, knowledge about the association between majority language proficiency and adverse maternal and neonatal outcomes are lacking and should be investigated. Both paternal and maternal language proficiency should be examined.
- Subgroup of recent migrant women: Research that includes more women from certain vulnerable subgroups such as refugees and undocumented migrants in future

studies would assist in deeper and more fully understanding of mechanism associated with poor maternal health and maternity care

- Partner: Measuring the partner's perception of care and determinants for satisfaction would further assist is improving satisfaction and quality of care.
- Implicit bias: Our finding of more negative experiences of care-related discrimination among refugees may indicate implicit bias among health care personnel and should be further explored.

11. References

1. World Health Organization. Report on the health of refugees and migrants in the WHO European Region: No public health without refugees and migrant health. 2018. [Available from: https://www.euro.who.int/en/publications/abstracts/report-on-the-health-of-refugees-and-migrants-in-the-who-european-region-no-public-health-without-refugee-and-migrant-health-2018
2. Statistics Norway. Immigrants and Norwegian-born to immigrant parents 2021. Accessed 02.08.2021 [Available from: https://www.ssb.no/en/befolkning/innvandrere/statistikk/innvandrere-og-norskfodte-med-innvandrerforeldre.
3. International Organization for Migration. World Migration Report 2018. International Organization for Migration Publications; Geneva. [Available from: https://www.iom.int/sites/g/files/tmzbdl486/files/country/docs/china/r5_world_migration_report_2018_en.pdf
4. Heaman M, Bayrampour H, Kingston D, Blondel B, Gissler M, Roth C, et al. Migrant women's utilization of prenatal care: a systematic review. Matern Child Health J. 2013;17(5):816-36.
5. Almeida LM, Caldas J, Ayres-de-Campos D, Salcedo-Barrientos D, Dias S. Maternal healthcare in migrants: a systematic review. Matern Child Health J. 2013;17(8):1346-54.
6. Bains S, Maeland KS, Vik ES. Prenatal health of immigrant women in Norway - an exploratory literature review. Tidsskr Nor Laegeforen. 2021;141(2).
7. Bakken KS, Skjeldal OH, Stray-Pedersen B. Higher risk for adverse obstetric outcomes among immigrants of African and Asian descent: a comparison study at a low-risk maternity hospital in Norway. Birth. 2015;42(2):132-40.
8. Sorbye IK, Daltveit AK, Sundby J, et al. Preterm subtypes by immigrants' length of residence in Norway: a population-based study. BMC Pregnancy and Childbirth.
9. Vangen S, Stoltenberg C, Johansen REB, Sundby J, Stray-Pedersen B. Perinatal complications among ethnic Somalis in Norway. Acta Obstetricia et Gynecologica Scandinavica. 2002;81(4):317-22.
10. Barker DJ. Maternal nutrition, fetal nutrition, and disease in later life. Nutrition. 1997;13(9):807-13.
11. Odden G. Internasjonal migrasjon: en samfunnsvitenskapelig innføring. Bergen: Fagbokforl.; 2018.
12. United Nations Department of Economic and Social Affairs. Report on International Migration 2020 Highlights. 2020. [Available from: https://www.un.org/en/desa/international-migration-2020-highlights
13. International organization for migration. Who is a migrant? 2021 Accessed 02.08.2021 [Available from: https://www.iom.int/who-is-a-migrant.
14. Statistics Norway. Immigrants and Norwegian-born to immigrant parents, by immigration category, country background, contents and year. 2021 Accessed 10.08.2021 [Available from: https://www.ssb.no/en/statbank/table/09817/.
15. Statistics Norway. Immigrants by reason for immigration 2021. Accessed 28.08.2021 [Available from: https://www.ssb.no/en/befolkning/innvandrere/statistikk/innvandrere-etter-innvandringsgrunn.
16. Statistics Norway. Foreign-born, by country background (world region) and sex (M) 1970 - 2021 Accessed 02.08.2021 [Available from: https://www.ssb.no/en/statbank/table/07109/.
17. Statistics Norway. Immigrants, by country background and duration of stay (C) 2005 - 2021 2021. Accessed 02.08.2021. [Available from: https://www.ssb.no/en/statbank/table/10598/.
18. Sandnes T. Report Immigrats in Norway 2017 (Innvandrere i Norge 2017). Statistics Norway; 2017. [Available from: https://www.ssb.no/befolkning/artikler-og-publikasjoner/_attachment/332154?_ts=SA155_web.pdf
19. Yudell M, Roberts D, DeSalle R, Tishkoff S. Science and society. Taking race out of human genetics. Science. 2016;351(6273):564-5.

20. Kawachi I, Subramanian SV, Almeida-Filho N. A glossary for health inequalities. J Epidemiol Community Health. 2002;56(9):647-52.
21. Fiscella K, Franks P, Gold MR, Clancy CM. Inequality in quality: addressing socioeconomic, racial, and ethnic disparities in health care. JAMA. 2000;283(19):2579-84.
22. Gagnon AJ, Small R, Sarasua I, Lang C. Measuring perinatal health equity and migration indicators for international comparisons. Health Care Women Int. 2015;36(6):684-710.
23. Levesque JF, Harris MF, Russell G. Patient-centred access to health care: conceptualising access at the interface of health systems and populations. Int J Equity Health. 2013;12:18.
24. Castaneda H, Holmes SM, Madrigal DS, Young ME, Beyeler N, Quesada J. Immigration as a social determinant of health. Annu Rev Public Health. 2015;36:375-92.
25. Marmot M, Wilkinson R. Social determinants of health: Oup Oxford; 2005.
26. International organization for migration. Migration health and the sustainable development agenda 2021. Accessed 24.09.2021. [Available from: https://www.iom.int/migration-health-and-sustainable-development-agenda.
27. Abebe DS, Elstad JI, Lien L. Utilization of somatic specialist services among psychiatric immigrant patients: the Norwegian patient registry study. BMC Health Serv Res. 2018;18(1):852.
28. Saunders CL, Steventon A, Janta B, Stafford M, Sinnott C, Allen L, et al. Healthcare utilization among migrants to the UK: cross-sectional analysis of two national surveys. J Health Serv Res Policy. 2021;26(1):54-61.
29. van den Akker T, van Roosmalen J. Maternal mortality and severe morbidity in a migration perspective. Best Pract Res Clin Obstet Gynaecol. 2016;32:26-38.
30. Gagnon AJ, Redden KL. Reproductive health research of women migrants to Western countries: A systematic review for refining the clinical lens. Best Pract Res Clin Obstet Gynaecol. 2016;32:3-14.
31. World Health Organization. Universal health coverage 2021. Accessed 10.09.2021. [Available from: https://www.who.int/health-topics/universal-health-coverage#tab=tab_1.
32. The Commonwealth Fund. International Health Care System Profiles: Norway 2020. Accessed 01.10.21. [Available from: https://www.commonwealthfund.org/international-health-policy-center/countries/norway.
33. The Norwegian Directorate of Health. Healthcare for persons without legal residence in Norway 2020. Accessed 10.10.2021. [Available from: https://www.helsenorge.no/en/foreigners-in-norway/healthcare-for-persons-without-legal-residence/.
34. The Norwegian Directorate of Health. Follow-up care during the post-natal period 2020 Accessed 10.10.2021. [Available from: https://www.helsenorge.no/en/etter-fodsel/follow-up-care-during-the-post-natal-period/.
35. The Norwegian Directorate of Health. Interpreter in the health services in Norway 2019. Accessed 10.10.2021. [Available from: https://www.helsenorge.no/en/health-rights-in-norway/right-to-an-interpreter/.
36. Ministry of Health and Care Services Services. Likeverdige helse- og omsorgstjenester – god helse for alle. Nasjonal strategi om innvandreres helse 2013–2017 [Equitable health care - health for all. National Strategy on immigrants' health 2013–2017]. Oslo. 2013.
37. Ministry of Health and Care Services Services. En gledelig begivenhet. Om en sammenhengende svangerskaps-, fødsels- og barselomsorg. [A happy event. About a comprehensive pregnancy, birth and post natal care]. Stmeldnr 12 (2008–2009) [Report no 12 to the Storting (2008–2009)]. Oslo: Departementenes servicesentert; 2009.
38. The Norwegian Health Department. Endring i fødepopulasjon og konsekvenser for bemanning og finansieringssystem [Change in women giving birth and consequences for staffing and financing system]. Oslo; 2020.
39. Nesheim BI. Hyperemesis gravidarum in a contemporary population in Oslo. Acta Obstetricia et Gynecologica Scandinavica. 2000;79(8):640-3.

40. Vikanes A, Grjibovski AM, Vangen S, Magnus P. Variations in prevalence of hyperemesis gravidarum by country of birth: A study of 900,074 pregnancies in Norway, 1967-2005. Scandinavian Journal of Public Health.36(2):135-42.
41. Eggemoen AR, Waage CW, Sletner L, Gulseth HL, Birkel, KI, et al. Vitamin D, Gestational Diabetes, and Measures of Glucose Metabolism in a Population-Based Multiethnic Cohort. Journal of Diabetes Research. 2018;2018:8939235.
42. Holan S, Vangen S, Hanssen K, Stray-Pedersen B. [Pregnancy in diabetes among Asian, African and Norwegian women]. Tidsskrift for Den Norske Laegeforening. 2008;128(11):1289-92.
43. Jenum AK, Richardsen KR, Berntsen S, Mörkrid K. Gestational diabetes, insulin resistance and physical activity in pregnancy in a multi-ethnic population - a public health perspective. Norsk Epidemiologi.23(1):45-54.
44. Morkrid K, Jenum AK, Sletner L, Vardal MH, Waage CW, Nakstad B, et al. Failure to increase insulin secretory capacity during pregnancy-induced insulin resistance is associated with ethnicity and gestational diabetes. European Journal of Endocrinology. 2012;167(4):579-88.
45. Sommer C, Jenum AK, Waage CW, Morkrid K, Sletner L, Birkel, et al. Ethnic differences in BMI, subcutaneous fat, and serum leptin levels during and after pregnancy and risk of gestational diabetes. European Journal of Endocrinology. 2015;172(6):649-56.
46. Sommer C, Mørkrid K, Jenum AK, Sletner L, Mosdøl A, Birkel, et al. Weight gain, total fat gain and regional fat gain during pregnancy and the association with gestational diabetes: a population-based cohort study. International Journal of Obesity. 2014;38(1):76-81.
47. Vangen S, Stoltenberg C, Holan S, Moe N, Magnus P, Harris JR, et al. Outcome of pregnancy among immigrant women with diabetes. Diabetes Care. 2003;26(2):327-32.
48. Braekke K, Staff AC. Periconceptional use of folic acid supplements in Oslo. Acta Obstetricia et Gynecologica Scandinavica. 2003;82(7):620-7.
49. Kinnunen TI, Sletner L, Sommer C, et al. Ethnic differences in folic acid supplement use in a population-based cohort of pregnant women in Norway. BMC Pregnancy and Childbirth.
50. Eggemoen ÅR, Falk RS, Knutsen KV, Lagerløv P, Sletner L, Birkel, et al. Vitamin D deficiency and supplementation in pregnancy in a multiethnic population-based cohort. BMC Pregnancy & Childbirth. 2016;16:1-10.
51. Naess-Andresen ML, Eggemoen AR, Berg JP, Falk RS, Jenum AK. Serum ferritin, soluble transferrin receptor, and total body iron for the detection of iron deficiency in early pregnancy: a multiethnic population-based study with low use of iron supplements. American Journal of Clinical Nutrition. 2019;109(3):566-75.
52. Baker Sole K, Staff AC, Laine K, et al. The association of maternal country of birth and education with hypertensive disorders of pregnancy: a population?based study of 960 516 deliveries in Norway. Acta Obstetricia et Gynecologica Scandinavica.97(10):1237-47.
53. Naimy Z, Grytten J, Monkerud L, Eskild A. The prevalence of pre-eclampsia in migrant relative to native Norwegian women: a population-based study. BJOG: An International Journal of Obstetrics & Gynaecology. 2015;122(6):859-65.
54. Nilsen RM, Vik ES, Rasmussen SA, Small R, Moster D, Schytt E, et al. Preeclampsia by maternal reasons for immigration: a population-based study. BMC Pregnancy & Childbirth. 2018;18(1):423.
55. Berntsen S, Richardsen KR, Mørkrid K, Sletner L, Birkel, KI, et al. Objectively recorded physical activity in early pregnancy: A multiethnic population-based study. Scandinavian Journal of Medicine & Science in Sports. 2014;24(3):594-601.
56. Richardsen KR, Falk RS, Jenum AK, Mørkrid K, Martinsen EW, Ommundsen Y, et al. Predicting who fails to meet the physical activity guideline in pregnancy: a prospective study of objectively recorded physical activity in a population-based multi-ethnic cohort. BMC Pregnancy & Childbirth. 2016;16:1-11.
57. Sommer C, Sletner L, Jenum AK, Morkrid K, Andersen LF, Birkel, et al. Ethnic differences in maternal dietary patterns are largely explained by socio-economic score and integration score: a population-based study. Food & Nutrition Research. 2013;57.

58. Kinnunen TI, Richardsen KR, Sletner L, et al. Ethnic differences in body mass index trajectories from 18 years to postpartum in a population-based cohort of pregnant women in Norway. BMJ Open.
59. Kinnunen TI, Waage CW, Sommer C, Sletner L, Raitanen J, Jenum AK. Ethnic Differences in Gestational Weight Gain: A Population-Based Cohort Study in Norway. Maternal & Child Health Journal. 2016;20(7):1485-96.
60. Mael, KS, e RK, Bing-Jonsson PC. Risk for delivery complications in Robson Group 1 for non-Western women in Norway compared with ethnic Norwegian women - A population-based observational cohort study. Sexual and Reproductive Healthcare.20:42-5.
61. Sorbye IK, Daltveit AK, Sundby J, Stoltenberg C, Vangen S. Caesarean section by immigrants' length of residence in Norway: a population-based study. European Journal of Public Health. 2015;25(1):78-84.
62. Vangen S, Stoltenberg C, Skrondal A, Magnus P, Stray-Pedersen B. Cesarean section among immigrants in Norway. Acta Obstetricia et Gynecologica Scandinavica. 2000;79(7):553-8.
63. Bakken KS, Skjeldal OH, Stray-Pedersen B. Immigrants from conflict-zone countries: an observational comparison study of obstetric outcomes in a low-risk maternity ward in Norway. BMC Pregnancy & Childbirth. 2015;15:163.
64. Maeland KS, Morken NH, Schytt E, Aasheim V, Nilsen RM. Placental abruption in immigrant women in Norway: A population-based study. Acta Obstet Gynecol Scand. 2021;100(4):658-65.
65. Sorbye IK, Stoltenberg C, Sundby J, Daltveit AK, Vangen S. Stillbirth and infant death among generations of Pakistani immigrant descent: a population-based study. Acta Obstetricia et Gynecologica Scandinavica. 2014;93(2):168-74.
66. Vik ES, Aasheim V, Schytt E, Small R, Moster D, Nilsen RM. Stillbirth in relation to maternal country of birth and other migration related factors: a population-based study in Norway. BMC Pregnancy & Childbirth. 2019;19(1):5.
67. Naimy Z, Grytten J, Monkerud L, Eskild A. Perinatal mortality in non-western migrants in Norway as compared to their countries of birth and to Norwegian women. BMC Public Health. 2013;13:37.
68. Shakeel N, Sletner L, Falk RS, Slinning K, Martinsen EW, Jenum AK, et al. Prevalence of postpartum depressive symptoms in a multiethnic population and the role of ethnicity and integration. Journal of Affective Disorders. 2018;241:49-58.
69. Bjerke SEY, Vangen S, Nordhagen R, Ytterdahl T, Magnus P, Stray-Pedersen B. Postpartum depression among Pakistani women in Norway: Prevalence and risk factors. Journal of Maternal-Fetal and Neonatal Medicine. 2008;21(12):889-94.
70. Løvlie A, Madar A. Postpartum Depression Among Somali Women in Norway. Journal of Immigrant & Minority Health. 2017;19(3):638-44.
71. el M, Terragni L, Nguyen C, Lyngstad J, Amundsen M, de Paoli M. Breastfeeding among Somali mothers living in Norway: Attitudes, practices and challenges. Women & Birth. 2016;29(6):487-93.
72. Binder P, Johnsdotter S, Essen B. Conceptualising the prevention of adverse obstetric outcomes among immigrants using the 'three delays' framework in a high-income context. Soc Sci Med. 2012;75(11):2028-36.
73. Thaddeus S, Maine D. Too far to walk: maternal mortality in context. Soc Sci Med. 1994;38(8):1091-110.
74. Esscher A, Haglund B, Hogberg U, Essen B. Excess mortality in women of reproductive age from low-income countries: a Swedish national register study. Eur J Public Health. 2013;23(2):274-9.
75. Esscher A, Binder-Finnema P, Bodker B, Hogberg U, Mulic-Lutvica A, Essen B. Suboptimal care and maternal mortality among foreign-born women in Sweden: maternal death audit with application of the 'migration three delays' model. BMC Pregnancy Childbirth. 2014;14:141.
76. Philibert M, Deneux-Tharaux C, Bouvier-Colle MH. Can excess maternal mortality among women of foreign nationality be explained by suboptimal obstetric care? BJOG. 2008;115(11):1411-8.
77. Saastad E, Vangen S, Froen JF. Suboptimal care in stillbirths - a retrospective audit study. Acta Obstet Gynecol Scand. 2007;86(4):444-50.

78. World Health Organization. Quality of care 2020. Accessed 10.10.2021. [Available from: https://www.who.int/health-topics/quality-of-care#tab=tab_1.
79. Donabedian A. Evaluating the quality of medical care. 1966. Milbank Q. 2005;83(4):691-729.
80. Nylenna M, Bjertnaes, Øyvind A., Saunes, I. S., & Lindahl, A. K. What is Good Quality of Health Care? Professions and Professionalism. 2015;5(1).
81. Alderliesten ME, Vrijkotte TG, van der Wal MF, Bonsel GJ. Late start of antenatal care among ethnic minorities in a large cohort of pregnant women. BJOG. 2007;114(10):1232-9.
82. Cresswell JA, Yu G, Hatherall B, Morris J, Jamal F, Harden A, et al. Predictors of the timing of initiation of antenatal care in an ethnically diverse urban cohort in the UK. BMC Pregnancy Childbirth. 2013;13:103.
83. Kupek E, Petrou S, Vause S, Maresh M. Clinical, provider and sociodemographic predictors of late initiation of antenatal care in England and Wales. BJOG. 2002;109(3):265-73.
84. Balaam MC, Akerjordet K, Lyberg A, Kaiser B, Schoening E, Fredriksen AM, et al. A qualitative review of migrant women's perceptions of their needs and experiences related to pregnancy and childbirth. J Adv Nurs. 2013;69(9):1919-30.
85. Fair F, Raben L, Watson H, Vivilaki V, van den Muijsenbergh M, Soltani H, et al. Migrant women's experiences of pregnancy, childbirth and maternity care in European countries: A systematic review. PLoS One. 2020;15(2):e0228378.
86. Leppala S, Lamminpaa R, Gissler M, Vehvilainen-Julkunen K. Humanitarian migrant women's experiences of maternity care in Nordic countries: A systematic integrative review of qualitative research. Midwifery. 2020;80:102572.
87. Saastad E, Vangen S, Frooen JF. Suboptimal care in stillbirths - A retrospective audit study. Acta Obstetricia et Gynecologica Scandinavica. 2007;86(4):444-50.
88. Lyberg A, Viken B, Haruna M, Severinsson E. Diversity and challenges in the management of maternity care for migrant women. Journal of Nursing Management. 2012;20(2):287-95.
89. Garnweidner LM, Sverre Pettersen K, Mosdøl A. Experiences with nutrition-related information during antenatal care of pregnant women of different ethnic backgrounds residing in the area of Oslo, Norway. Midwifery. 2013;29(12):e130-7.
90. Egge H, Kvellestad K, Glavin K. Immigrants' experiences of pregnancy, childbirth and the postnatal period in Norway - a qualitative study. Nordisk Tidsskrift for Helseforskning.14(1):1-19.
91. Johansen RE. Care for infibulated women giving birth in Norway: an anthropological analysis of health workers' management of a medically and culturally unfamiliar issue. Medical Anthropology Quarterly. 2006;20(4):516-44.
92. Fitzpatrick R. Surveys of patient satisfaction: II--Designing a questionnaire and conducting a survey. BMJ. 1991;302(6785):1129-32.
93. Kincey J, Bradshaw P, Ley P. Patients' satisfaction and reported acceptance of advice in general practice. J R Coll Gen Pract. 1975;25(157):558-66.
94. Cleary PD, McNeil BJ. Patient satisfaction as an indicator of quality care. Inquiry. 1988;25(1):25-36.
95. Guldvog B. Can patient satisfaction improve health among patients with angina pectoris? Int J Qual Health Care. 1999;11(3):233-40.
96. World Health Organization. Standards for improving quality of maternal and newborn care in health facilities. World Health Organization; 2016. Accessed 10.10.2021. [Available from: https://cdn.who.int/media/docs/default-source/mca-documents/advisory-groups/quality-of-care/standards-for-improving-quality-of-maternal-and-newborn-care-in-health-facilities.pdf?sfvrsn=3b364d8_2
97. Wilde-Larsson B, Sandin-Bojo AK, Starrin B, Larsson G. Birthgiving women's feelings and perceptions of quality of intrapartal care: a nationwide Swedish cross-sectional study. J Clin Nurs. 2011;20(7-8):1168-77.
98. Henriksen L, Grimsrud E, Schei B, Lukasse M, Bidens Study G. Factors related to a negative birth experience - A mixed methods study. Midwifery. 2017;51:33-9.

99. Hodnett ED. Pain and women's satisfaction with the experience of childbirth: a systematic review. Am J Obstet Gynecol. 2002;186(5 Suppl Nature):S160-72.
100. Srivastava A, Avan BI, Rajbangshi P, Bhattacharyya S. Determinants of women's satisfaction with maternal health care: a review of literature from developing countries. BMC Pregnancy Childbirth. 2015;15:97.
101. Karliner LS, Jacobs EA, Chen AH, Mutha S. Do professional interpreters improve clinical care for patients with limited English proficiency? A systematic review of the literature. Health Serv Res. 2007;42(2):727-54.
102. Flores G. The impact of medical interpreter services on the quality of health care: a systematic review. Med Care Res Rev. 2005;62(3):255-99.
103. Jimenez N, Moreno G, Leng M, Buchwald D, Morales LS. Patient-reported quality of pain treatment and use of interpreters in spanish-speaking patients hospitalized for obstetric and gynecological care. J Gen Intern Med. 2012;27(12):1602-8.
104. Mladovsky P, Rechel B, Ingleby D, McKee M. Responding to diversity: an exploratory study of migrant health policies in Europe. Health Policy. 2012;105(1):1-9.
105. Ghiasi A. Health information needs, sources of information, and barriers to accessing health information among pregnant women: a systematic review of research. J Matern Fetal Neonatal Med. 2021;34(8):1320-30.
106. Boerleider AW, Wiegers TA, Mannien J, Francke AL, Deville WL. Factors affecting the use of prenatal care by non-western women in industrialized western countries: a systematic review. BMC Pregnancy Childbirth. 2013;13:81.
107. Berkman ND, Sheridan SL, Donahue KE, Halpern DJ, Crotty K. Low health literacy and health outcomes: an updated systematic review. Ann Intern Med. 2011;155(2):97-107.
108. Kilfoyle KA, Vitko M, O'Conor R, Bailey SC. Health Literacy and Women's Reproductive Health: A Systematic Review. J Womens Health (Larchmt). 2016;25(12):1237-55.
109. Kvamme E YS. Barriers to health care access among undocumented migrant women in Norway. Society, Health & Vulnerability,. 2015;6:1.
110. Lyberg A, Viken B, Haruna M, Severinsson E. Diversity and challenges in the management of maternity care for migrant women. J Nurs Manag. 2012;20(2):287-95.
111. Gagnon AJ, DeBruyn R, Essen B, Gissler M, Heaman M, Jeambey Z, et al. Development of the Migrant Friendly Maternity Care Questionnaire (MFMCQ) for migrants to Western societies: an international Delphi consensus process. BMC Pregnancy Childbirth. 2014;14:200.
112. The Institute for Health Metrics and Evaluation. What is GBD and why is it important? What countries are in each region? 2020. Accessed 09.09.2021. [Available from: http://www.healthdata.org/gbd/faq#What%20is%20GBD%202010%20and%20why%20is%20it%20important?
113. Streiner DL, Norman GR, Cairney J. Health Measurement Scales: A Practical Guide to Their Development and Use. Fifth edition. ed. Oxford: Oxford: Oxford University Press; 2015.
114. Gurbuz B, Grosskreutz C, Vortel M, Borde T, Rancourt RC, Stepan H, et al. The influence of migration on women's satisfaction during pregnancy and birth: results of a comparative prospective study with the Migrant Friendly Maternity Care Questionnaire (MFMCQ). Arch Gynecol Obstet. 2019;300(3):555-67.
115. Byrskog U, Ahrne M, Small R, Andersson E, Essen B, Adan A, et al. Rationale, development and feasibility of group antenatal care for immigrant women in Sweden: a study protocol for the Hooyo Project. BMJ Open. 2019;9(7):e030314.
116. Doetsch J, Almendra R, Carrapatoso M, Teixeira C, Barros H. Equitable migrant-friendly perinatal healthcare access and quality in public maternity units in Portugal. Eur J Public Health. 2021;31(5):951-7.
117. Hamwi S, Lorthe E, Barros H. Language Proficiency and Migrant-Native Disparities in Postpartum Depressive Symptoms. Int J Environ Res Public Health. 2021;18(9).

118. Lisi C, de Freitas C, Barros H. The Impact of Formula Industry Marketing on Breastfeeding Rates in Native and Migrant Mothers. Breastfeed Med. 2021;16(9):725-33.
119. Schonborn C, Castetbon K, Sow M, Racape J, De Spiegelaere M. Mothers' experiences of perinatal care in Belgian public hospitals: exploring the social inequalities. Protocol for a cross-sectional survey. BMJ Open. 2020;10(11):e038400.
120. Estey A, Musseau A, Keehn L. Comprehension levels of patients reading health information. Patient Education and Counseling. 1991;18(2):165-9.
121. The ROAM Collaboration. MFMCQ (Migrant Friendly Maternity Care Questionnaire). Translation and Cultural Validation Protocol. 2014. [Available from: https://static-content.springer.com/esm/art%3A10.1186%2F1471-2393-14-200/MediaObjects/12884_2013_1090_MOESM1_ESM.pdf
122. Institute for Health Metrics and Evaluation. What countries are in each region? 2020. Accessed 20.08.2021. [Available from: http://www.healthdata.org/gbd/faq.
123. Adams J BB, Becker F, et al. . Effectiveness and acceptability of parental financial incentives and quasi-mandatory schemes for increasing uptake of vaccinations in preschool children: systematic review, qualitative study and discrete choice experiment. Library; SUNJ, editor. Health Technology Assessment, No. 19.94: Southampton (UK): NIHR Journals Library;; 2015.
124. van Teijlingen ER, Hundley V, Rennie AM, Graham W, Fitzmaurice A. Maternity satisfaction studies and their limitations: "What is, must still be best". Birth. 2003;30(2):75-82.
125. Galle A, Van Parys AS, Roelens K, Keygnaert I. Expectations and satisfaction with antenatal care among pregnant women with a focus on vulnerable groups: a descriptive study in Ghent. BMC Womens Health. 2015;15:112.
126. Sitzia J, Wood N. Patient satisfaction: a review of issues and concepts. Soc Sci Med. 1997;45(12):1829-43.
127. Sofaer S, Firminger K. Patient perceptions of the quality of health services. Annu Rev Public Health. 2005;26:513-59.
128. Rudman A, El-Khouri B, Waldenstrom U. Women's satisfaction with intrapartum care - a pattern approach. J Adv Nurs. 2007;59(5):474-87.
129. Ng C, Newbold KB. Health care providers' perspectives on the provision of prenatal care to immigrants. Cult Health Sex. 2011;13(5):561-74.
130. Peters IA, Posthumus AG, Steegers EAP, Denktas S. Satisfaction with obstetric care in a population of low-educated native Dutch and non-western minority women. Focus group research. PLoS One. 2019;14(1):e0210506.
131. Santiago Mda C, Figueiredo MH. Immigrant women's perspective on prenatal and postpartum care: systematic review. J Immigr Minor Health. 2015;17(1):276-84.
132. Brown S, Lumley J. Changing childbirth: lessons from an Australian survey of 1336 women. Br J Obstet Gynaecol. 1998;105(2):143-55.
133. Small R, Roth C, Raval M, Shafiei T, Korfker D, Heaman M, et al. Immigrant and non-immigrant women's experiences of maternity care: a systematic and comparative review of studies in five countries. BMC Pregnancy Childbirth. 2014;14:152.
134. McGarry O, Hannigan A, De Almeida MM, Severoni S, Puthoopparambil SJ, MacFarlane A. What strategies to address communication barriers for refugees and migrants in health care settings have been implemented and evaluated across the WHO European Region? Themed issues on migration and health, IX. WHO Health Evidence Network Synthesis Reports. Copenhagen2018.
135. Gill PS, Beavan J, Calvert M, Freemantle N. The unmet need for interpreting provision in UK primary care. PLoS One. 2011;6(6):e20837.
136. Schenker Y, Perez-Stable EJ, Nickleach D, Karliner LS. Patterns of interpreter use for hospitalized patients with limited English proficiency. J Gen Intern Med. 2011;26(7):712-7.
137. Bischoff A, Hudelson P. Communicating with foreign language-speaking patients: is access to professional interpreters enough? J Travel Med. 2010;17(1):15-20.

138. Hudelson P, Vilpert S. Overcoming language barriers with foreign-language speaking patients: a survey to investigate intra-hospital variation in attitudes and practices. BMC Health Serv Res. 2009;9:187.
139. Kale E, Syed HR. Language barriers and the use of interpreters in the public health services. A questionnaire-based survey. Patient Educ Couns. 2010;81(2):187-91.
140. Yelland J, Biro MA, Dawson W, Riggs E, Vanpraag D, Wigg K, et al. Bridging the language gap: a co-designed quality improvement project to engage professional interpreters for women during labour. Aust Health Rev. 2017;41(5):499-504.
141. Sheridan SL, Halpern DJ, Viera AJ, Berkman ND, Donahue KE, Crotty K. Interventions for individuals with low health literacy: a systematic review. J Health Commun. 2011;16 Suppl 3:30-54.
142. Bauer AM, Alegria M. Impact of patient language proficiency and interpreter service use on the quality of psychiatric care: a systematic review. Psychiatr Serv. 2010;61(8):765-73.
143. Divi C, Koss RG, Schmaltz SP, Loeb JM. Language proficiency and adverse events in US hospitals: a pilot study. Int J Qual Health Care. 2007;19(2):60-7.
144. Gurbuz B, Groskreutz C, Vortel M, Borde T, Rancourt RC, Stepan H, et al. The influence of migration on women's satisfaction during pregnancy and birth: results of a comparative prospective study with the Migrant Friendly Maternity Care Questionnaire (MFMCQ). Archives of Gynecology & Obstetrics. 2019;300(3):555-67.
145. Sentell T, Braun KL. Low health literacy, limited English proficiency, and health status in Asians, Latinos, and other racial/ethnic groups in California. J Health Commun. 2012;17 Suppl 3:82-99.
146. Feinberg I, O'Connor MH, Owen-Smith A, Ogrodnick MM, Rothenberg R. The Relationship Between Refugee Health Status and Language, Literacy, and Time Spent in the United States. Health Lit Res Pract. 2020;4(4):e230-e6.
147. Higginbottom GM, Morgan M, Alexandre M, Chiu Y, Forgeron J, Kocay D, et al. Immigrant women's experiences of maternity-care services in Canada: a systematic review using a narrative synthesis. Syst Rev. 2015;4:13.
148. Glavin K, Sæteren B. Cultural Diversity in Perinatal Care: Somali New Mothers´ Experiences With Health Care in Norway. 2016.
149. Mander S, Miller YD. Perceived Safety, Quality and Cultural Competency of Maternity Care for Culturally and Linguistically Diverse Women in Queensland. J Racial Ethn Health Disparities. 2016;3(1):83-98.
150. Tocchioni V, Seghieri C, De Santis G, Nuti S. Socio-demographic determinants of women's satisfaction with prenatal and delivery care services in Italy. Int J Qual Health Care. 2018;30(8):594-601.
151. Fumagalli S, Colciago E, Antolini L, Riva A, Nespoli A, Locatelli A. Variables related to maternal satisfaction with intrapartum care in Northern Italy. Women Birth. 2020.
152. Kebede DB, Belachew YB, Selbana DW, Gizaw AB. Maternal Satisfaction with Antenatal Care and Associated Factors among Pregnant Women in Hossana Town. Int J Reprod Med. 2020;2020:2156347.
153. Onyeajam DJ, Xirasagar S, Khan MM, Hardin JW, Odutolu O. Antenatal care satisfaction in a developing country: a cross-sectional study from Nigeria. BMC Public Health. 2018;18(1):368.
154. Zimmerman C, Kiss L, Hossain M. Migration and health: a framework for 21st century policy-making. PLoS Med. 2011;8(5):e1001034.
155. Diaz E, Kumar BN, Gimeno-Feliu LA, Calderon-Larranaga A, Poblador-Pou B, Prados-Torres A. Multimorbidity among registered immigrants in Norway: the role of reason for migration and length of stay. Trop Med Int Health. 2015;20(12):1805-14.
156. FitzGerald C, Hurst S. Implicit bias in healthcare professionals: a systematic review. BMC Med Ethics. 2017;18(1):19.
157. Eslier M, Deneux-Tharaux C, Sauvegrain P, Schmitz T, Luton D, Mandelbrot L, et al. Association between Migrant Women's Legal Status and Prenatal Care Utilization in the PreCARE Cohort. Int J Environ Res Public Health. 2020;17(19).

158. Stewart EW, De Souza LR, Yudin MH. Access to Prenatal Care for Pregnant Refugee Women in Toronto, Ontario, Canada: An Audit Study. J Health Care Poor Underserved. 2018;29(2):687-700.
159. Urquia ML, Qiao Y, Ray JG, Liu C, Hjern A. Birth outcomes of foreign-born, native-born, and mixed couples in Sweden. Paediatr Perinat Epidemiol. 2015;29(2):123-30.
160. Vik ES, Aasheim V, Nilsen RM, Small R, Moster D, Schytt E. Paternal country of origin and adverse neonatal outcomes in births to foreign-born women in Norway: A population-based cohort study. PLoS Med. 2020;17(11):e1003395.
161. Vik ES, Aasheim V, Schytt E, Small R, Moster D, Nilsen RM. Stillbirth in relation to maternal country of birth and other migration related factors: a population-based study in Norway. BMC Pregnancy Childbirth. 2019;19(1):5.
162. Sorbye IK, Bains S, Vangen S, Sundby J, Lindskog B, Owe KM. Obstetric anal sphincter injury by maternal origin and length of residence: a nation-wide cohort study. BJOG. 2021.
163. Sadler LC, Davison T, McCowan LM. Maternal satisfaction with active management of labor: a randomized controlled trial. Birth. 2001;28(4):225-35.
164. Conesa Ferrer MB, Canteras Jordana M, Ballesteros Meseguer C, Carrillo Garcia C, Martinez Roche ME. Comparative study analysing women's childbirth satisfaction and obstetric outcomes across two different models of maternity care. BMJ Open. 2016;6(8):e011362.
165. Sjetne IS, Iversen HH. Do experiences with pregnancy, birth and postnatal care in Norway vary by the women's geographic origin? a comparison of cross-sectional survey results. BMC Pregnancy Childbirth. 2017;17(1):37.
166. Fumagalli S, Colciago E, Antolini L, Riva A, Nespoli A, Locatelli A. Variables related to maternal satisfaction with intrapartum care in Northern Italy. Women Birth. 2021;34(2):154-61.
167. Sjetne IS KJ, Iversen HH, Holmboe O. Brukererfaringer med svangerskaps-, fødsels- og barselomsorgen. Nasjonale resultater. PasOpp-rapport nr. 4–2013. . Oslo: Nasjonalt kunnskapssenter for helsetjenesten; 2013.
168. Inci MG, Kutschke N, Nasser S, Alavi S, Abels I, Kurmeyer C, et al. Unmet family planning needs among female refugees and asylum seekers in Germany - is free access to family planning services enough? Results of a cross-sectional study. Reprod Health. 2020;17(1):115.
169. Vangen S, Eskild A, Forsen L. Termination of pregnancy according to immigration status: a population-based registry linkage study. BJOG. 2008;115(10):1309-15.
170. Omland G, Ruths S, Diaz E. Use of hormonal contraceptives among immigrant and native women in Norway: data from the Norwegian Prescription Database. BJOG. 2014;121(10):1221-8.
171. Victora CG, Bahl R, Barros AJ, Franca GV, Horton S, Krasevec J, et al. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. Lancet. 2016;387(10017):475-90.
172. Hawkins SS, Lamb K, Cole TJ, Law C, Millennium Cohort Study Child Health G. Influence of moving to the UK on maternal health behaviours: prospective cohort study. BMJ. 2008;336(7652):1052-5.
173. Nguyen ND, Allen JR, Peat JK, Schofield WN, Nossar V, Eisenbruch M, et al. Growth and feeding practices of Vietnamese infants in Australia. Eur J Clin Nutr. 2004;58(2):356-62.
174. Odeniyi AO, Embleton N, Ngongalah L, Akor W, Rankin J. Breastfeeding beliefs and experiences of African immigrant mothers in high-income countries: A systematic review. Matern Child Nutr. 2020;16(3):e12970.
175. Fellmeth G, Fazel M, Plugge E. Migration and perinatal mental health in women from low- and middle-income countries: a systematic review and meta-analysis. BJOG. 2017;124(5):742-52.
176. Howard LM, Molyneaux E, Dennis CL, Rochat T, Stein A, Milgrom J. Non-psychotic mental disorders in the perinatal period. Lancet. 2014;384(9956):1775-88.
177. Stein A, Pearson RM, Goodman SH, Rapa E, Rahman A, McCallum M, et al. Effects of perinatal mental disorders on the fetus and child. Lancet. 2014;384(9956):1800-19.
178. Haque S, Malebranche M. Impact of culture on refugee women's conceptualization and experience of postpartum depression in high-income countries of resettlement: A scoping review. PLoS One. 2020;15(9):e0238109.

179. Sami J, Quack Lotscher KC, Eperon I, Gonik L, Martinez de Tejada B, Epiney M, et al. Giving birth in Switzerland: a qualitative study exploring migrant women's experiences during pregnancy and childbirth in Geneva and Zurich using focus groups. Reprod Health. 2019;16(1):112.
180. Phillimore J. Migrant maternity in an era of superdiversity: New migrants' access to, and experience of, antenatal care in the West Midlands, UK. Soc Sci Med. 2016;148:152-9.
181. The Norwegian Directorate of Health. Check-ups during pregnancy 2020. Accessed 10.08.2021. [Available from: https://www.helsenorge.no/en/pregnancy-and-maternity-care-in-norway/check-ups-during-pregnancy/.
182. Seidel V, Gurbuz B, Grosskreutz C, Vortel M, Borde T, Rancourt RC, et al. The influence of migration on women's use of different aspects of maternity care in the German health care system: Secondary analysis of a comparative prospective study with the Migrant Friendly Maternity Care Questionnaire (MFMCQ). Birth. 2020;47(1):39-48.
183. Chote AA, Koopmans GT, de Groot CJ, Hoefman RJ, Jaddoe VW, Hofman A, et al. Differences in timely antenatal care between first and second-generation migrants in the Netherlands. J Immigr Minor Health. 2014;16(4):631-7.
184. Henderson J, Gao H, Redshaw M. Experiencing maternity care: the care received and perceptions of women from different ethnic groups. BMC Pregnancy Childbirth. 2013;13:196.
185. Brenne S, David M, Borde T, Breckenkamp J, Razum O. [Are women with and without migration background reached equally well by health services? The example of antenatal care in Berlin]. Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz. 2015;58(6):569-76.
186. Lauvrak V NI, Hagen G et al. Early ultrasound in maternity care (Tidlig ultralyd i svangerskapsomsorgen). Norwegian Knowledge Centre for the Health Services.; 2012.
187. Dempsey M, Peeren S. Keeping things under control: exploring migrant Eastern European womens' experiences of pregnancy in Ireland. Journal of Reproductive and Infant Psychology. 2016;34(4):370-82.
188. Ruud SE, Aga R, Natvig B, Hjortdahl P. Use of emergency care services by immigrants-a survey of walk-in patients who attended the Oslo Accident and Emergency Outpatient Clinic. BMC Emerg Med. 2015;15:25.
189. Falah-Hassani K, Shiri R, Vigod S, Dennis CL. Prevalence of postpartum depression among immigrant women: A systematic review and meta-analysis. J Psychiatr Res. 2015;70:67-82.
190. Dennis CL, Merry L, Gagnon AJ. Postpartum depression risk factors among recent refugee, asylum-seeking, non-refugee immigrant, and Canadian-born women: results from a prospective cohort study. Soc Psychiatry Psychiatr Epidemiol. 2017;52(4):411-22.
191. Sorbye IK, Vangen S, Juarez SP, Bolumar F, Morisaki N, Gissler M, et al. Birthweight of babies born to migrant mothers - What role do integration policies play? SSM Popul Health. 2019;9:100503.
192. Orr ST. Social support and pregnancy outcome: a review of the literature. Clin Obstet Gynecol. 2004;47(4):842-55; discussion 81-2.
193. Schmidt NC, Fargnoli V, Epiney M, Irion O. Barriers to reproductive health care for migrant women in Geneva: a qualitative study. Reprod Health. 2018;15(1):43.
194. Campos B, Schetter CD, Abdou CM, Hobel CJ, Glynn LM, Sandman CA. Familialism, social support, and stress: positive implications for pregnant Latinas. Cultur Divers Ethnic Minor Psychol. 2008;14(2):155-62.
195. Saunes IS HT, Tomic O, Lindahl AK. Health in Norway – 2017: Commentary report for OECD comparison of health in different countries. 2017.
196. Directorate of Health. Pregnancy Care Guidelines: 4 Pregnancy care for migrant and refugee women: Australian Government 2020. Accessed 10.10.2021. [Available from: https://www.health.gov.au/resources/pregnancy-care-guidelines/part-a-optimising-pregnancy-care/pregnancy-care-for-migrant-and-refugee-women.
197. Bhargava S DE, Skogstad S, Linnestad H, Rogstad J, Solheim P. Manglende strategi for innvandrerhelse skaper ulikhet (Lack of strategy for immigrant health creates inequality). Aftenposten. 2021. [Available from:

https://www.aftenposten.no/meninger/debatt/i/bnxpAv/manglende-strategi-for-innvandrerhelse-skaper-ulikhet
198. Rogers HJ, Hogan L, Coates D, Homer CSE, Henry A. Responding to the health needs of women from migrant and refugee backgrounds-Models of maternity and postpartum care in high-income countries: A systematic scoping review. Health Soc Care Community. 2020;28(5):1343-65.
199. Willen S, Cook J. Health-Related Deservingness. In book: Handbook of Migration and Health (pp95-118): Edward Elgar; 2016. p. 95-118.
200. Medical Birth Registry of Norway. Medisinsk fødselsregister - statistikkbank Norwegian institute of public health 2020. Accessed 10.10.2021. [Available from: http://statistikkbank.fhi.no/mfr/.
201. Wang X, Cheng Z. Cross-Sectional Studies: Strengths, Weaknesses, and Recommendations. Chest. 2020;158(1S):S65-S71.
202. Britton JR. The assessment of satisfaction with care in the perinatal period. J Psychosom Obstet Gynaecol. 2012;33(2):37-44.
203. Dawson NV, Weiss R. Dichotomizing continuous variables in statistical analysis: a practice to avoid. Med Decis Making. 2012;32(2):225-6.
204. MacCallum RC, Zhang S, Preacher KJ, Rucker DD. On the practice of dichotomization of quantitative variables. Psychol Methods. 2002;7(1):19-40.
205. Linder-Pelz S. Social psychological determinants of patient satisfaction: a test of five hypothesis. Soc Sci Med. 1982;16(5):583-9.
206. Korstjens I, Moser A. Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. Eur J Gen Pract. 2018;24(1):120-4.
207. Finlay L, Gough B. Reflexivity: A Practical Guide for Researchers in Health and Social Sciences: Wiley; 2008.
208. Berger R. Now I see it, now I don't: researcher's position and reflexivity in qualitative research. Qualitative Research. 2013;15(2):219-34.
209. Nikesh Shukla CS. The Good Immigrant: 26 Writers Reflect on America. Publishers Weekly. 2019;266(1):48.
210. Merry L, Low A, Carnevale F, Gagnon AJ. Participation of childbearing international migrant women in research: the ethical balance. Nurs Ethics. 2016;23(1):61-78.

12. Appendices

MIPREG QUESTIONNAIRE

1. GENERAL

1.1 What country were you born in?

_____

1.2. What country was the father of your child born in?

_____

1.3. How long have you lived in Norway?

_____

1.4. How old are you?

_____

1.5. What language do you use most often at home?

_____

1.6. How good is your Norwegian?

Oral –	Fluent	Good	Some difficulty	Not at all
Reading –	Fluent	Good	Some difficulty	Not at all
Writing –	Fluent	Good	Some difficulty	Not at all
Comprehension –	Fluent	Good	Some difficulty	Not at all

_____

1.7. What is your postal code?

_____

1.8. What is your marital status?

- Single
- Married/cohabiting
- Divorced
- Widow

_____

1.9. Who do you live with?

- ☐ Partner
- ☐ Your family (your mother/father, your brother/sister)
- ☐ In-laws (parent in-law, your partner's brother/sister)
- ☐ Friends/colleagues
- ☐ Children (in addition to your newborn child)
- ☐ None, I live alone

_____

1.10 a) Do you have anyone you trust with whom you can speak in confidence?

Yes

No

_____

1.10 b) If the answer is YES, who is this person?

- Partner
- Your family (your mother/father, your brother/sister)
- In-laws (parent in-law, your partner's brother/sister)
- Friends/colleagues

_____

1.11 What is the highest level of education you completed?

- I have no schooling
- Begun, but not completed compulsory education
- Primary/lower secondary school (first 7 to 10 years of schooling)
- High school/upper secondary (the next 1-3 years of education)
- Tertiary/university, short (up to 4 years)
- Tertiary/university, long (4 years or more)

_____

1.12 Have you had paid work since coming to Norway?

- Yes
- No

_____

1.13 In the course of the last 12 months, have you or your family had difficulties making ends meet and paying monthly expenses (food, transport, housing etc.)?

- Yes, often
- Yes, occasionally
- No, never
- Do not know/prefer not to answer

2. YOUR HEALTH BEFORE PREGNANCY

2.1. Did you have any illnesses or ailments before becoming pregnant?

- Yes
  - ☐ Diabetes
  - ☐ Heart/vascular disorder (including hypertension)
  - ☐ Autoimmune illness (rheumatoid illness, metabolic disorder, trans-plantation)
  - ☐ Systemic Lupus Erythematosus (SLE)
  - ☐ Anaemia (iron deficiency and thalassemia)
  - ☐ Kidney disease
  - ☐ Treated tuberculosis
  - ☐ HIV, hepatitis
  - ☐ Overweight
  - ☐ Neurological illness (such as epilepsy)
  - ☐ Lung illness (such as asthma)
  - ☐ Mental disorder (such as depression)
  - ☐ Other: i)_____ii)_____
- No

_____

2.2 a) How much did you weigh before pregnancy?
2.2 b) What is your height?

_____

2.3 How would you assess your health for the time being. How would you describe your health?
... good / neither good nor bad / poor?

_____

2.4 Describe your situation: Not troubled, A little troubled, Very troubled or Extremely troubled ...
a)... being constantly afraid or anxious?
- not troubled / a little troubled /very troubled / extremely troubled

b)... a sense of hopelessness for the future?
- not troubled / a little troubled /very troubled / extremely troubled
c)... a sense of loneliness?
- not troubled / a little troubled /very troubled / extremely troubled

_____

We have some questions about how you planned this pregnancy and if you used birth control/contraception.

2.5 Was this pregnancy planned?

- Yes (go to part 3)
- No
- Do not know/unsure

_____

2.5 If the pregnancy was not planned or you are not sure if it was planned, did you use any form of contraception to avoid pregnancy?

Yes

2.7 What did you use?
- Barrier methods (condom, dia-phragm)
- Non-hormonal methods/natural methods (interrupted inter-course/safe periods, breast feed-ing)
- Hormonal contraceptives (The pill, mini-pill, pregnancy prevention patches, vaginal ring)
- LARC (hormonal and/or copper spi-ral/IUD, contraceptive injection)
- Other (specify) _____

No

2.8 Why did you not want to use birth control?
- ☐ Too expensive
- ☐ Did not have enough information about different methods/options
- ☐ I did not know where I could get hold of these
- ☐ No access to doctor/nurse
- ☐ Side effects
- ☐ Religious reasons
- ☐ Husband/partner/family did not want it
- ☐ Other (specify)_____

3. OBSTETRIC CLINICAL HISTORY

3.1 How many children have you born, in total (including your new child)?

_____

3.2 How many births have you had (past week 23)?

_____

3.3 How many of your children were born in Norway (including your newborn)?

_____

3.4 Have you had difficulties in previous pregnancies and births?

- Yes, which:

☐ Cesarean section
☐ Nausea during pregnancy
☐ Hemorrhages/bleeding/anaemia
☐ High blood pressure
☐ Preeclampsia
☐ Deep vein thrombosis (blood clot in the leg)
☐ Gestational diabetes
☐ Low-lying placenta
☐ Abruptio placenta
☐ Urinary tract infection
☐ Symphysiolysis
☐ Premature birth (<37 weeks)
☐ Premature birth (<34 weeks)
☐ Early rupture of membrane
☐ Intrauterine growth retardation (decreasing growth indicated by series measurements)
☐ Foetal death
☐ Congenital abnormalities in foetus
☐ Sphincter rupture (grade 3+4)
☐ Postpartum depression
☐ Other (please specify):_____

- No, first birth
- No, I have not had any complications

4. CURRENT PREGNANCY

4.1 Were you pregnant with your newborn child when you came to Norway?

- Yes
- No
- Do not remember/do not know

_____

4.2 Did you receive any form of health care for the pregnancy before birth from a health care provider (doctor, nurse, midwife) in Norway?

- Yes
- No

_____

4.3 Who provided health care for your pregnancy in Norway?

☐ GP/Family doctor
☐ Specialist (obstetrician) at the hospital
☐ The midwife at the health clinic
☐ Other _____

_____

4.4 How many weeks pregnant were you when you first received health care for this pregnancy in Norway?

_____

4.5 Did you experience any difficulties in this pregnancy?

- Yes, which

☐ Cesarean section
☐ Nausea during pregnancy
☐ Anaemia
☐ High blood pressure
☐ Preeclampsia
☐ Deep vein thrombosis (blood clot in the leg)
☐ Gestational diabetes
☐ Low-lying placenta
☐ Abruptio placenta
☐ Urinary tract infection

- ☐ Symphysiolysis
- ☐ Premature birth (<37 weeks)
- ☐ Premature birth (<34 weeks)
- ☐ Early rupture of membrane
- ☐ Intrauterine growth retardation (decreasing growth indicated by series measurements)
- ☐ Foetal death
- ☐ Congenital abnormalities in foetus
- ☐ Postpartum depression
- ☐ Other (please specify):_____
- No, I had no complications

4.6. Which of the following offers did you accept during pregnancy?

- ☐ Municipal help (pregnancy course, prepare for birthing course, parental guidance)
- ☐ Other offers from non-governmental organizations (Bydelsmødre etc.)
- ☐ Contact with health care providers in your home country
- ☐ Alternative medicine/rituals
- ☐ Child Welfare Services
- ☐ Ultrasound foster diagnostics at the hospital (for special patient groups)
- ☐ Routine ultrasound, Week 18
- ☐ Other (please specify)_____

4.7. Of the offers mentioned above, are there any you would have liked to use but felt they were not available during your pregnancy?

- Yes, specify (from the options above)_____
- No

4.8. Have the following factors prevented you from taking advantage of an offer from the public health service?

- Practical limitations (transportation, work, lack of time) Yes – No
- Language barriers Yes – No
- Lack of information about offers (not aware they existed, did not know how Norway's health care system works, did not think I was entitled) Yes – No
- Afraid that it could affect my visa/residency application process Yes – No
- Afraid of medical examinations and tests Yes – No
- Other (please specify): _____

4.9. What were your <u>2 main sources</u> of information about pregnancy and birth during this pregnancy?

- Previous pregnancies/births
- Family/friends
- Religious/spiritual leader
- Health care providers
- Offers from my neighbourhood/district (courses)
- Mass media (books, TV, internet)
- Other (please specify): _____

4.10. Did you get <u>enough</u> information about the following topics in the course of this pregnancy/birth?

- Physical changes during pregnancy Yes – No
- Emotional changes (feelings) during pregnancy Yes – No
- Recommended medical tests (HIV, hepatitis) Yes – No
- Nutrition during pregnancy Yes – No
- Signs that the birth had started Yes – No
- The various phases of birth Yes – No
- Pain relief during childbirth Yes – No
- Changes in mood after the birth Yes – No
- Breastfeeding Yes – No
- Infant formula Yes – No
- Where and who you could contact if you needed advice or had questions about your health or your newborn child's health Yes – No
- Family planning and birth control Yes – No

4.11. Did you take daily vitamin supplements during pregnancy?

- Yes (skip to question 4.12
- No (go to next question)

4.12. If NO, why not?

- ☐ Did not know why it should be taken
- ☐ Could not find it at the store
- ☐ Too expensive
- ☐ Did not need it
- ☐ Was not told/asked about taking it
- ☐ Other (please specify):_____

4.13. Which of the following statements best describes your habits during pregnancy?

- Smoking: I did not smoke, I smoked occasionally, I smoked daily
- Snuff: I did not take snuff, I took snuff occasionally, I took snuff daily
- Alcohol: I did not drink alcohol, I drank alcohol occasionally, I drank alcohol every day

5. BIRTH

5.1. How many weeks were you pregnant before giving birth?

5.2. How many baby(is) were born?

5.3. Were any of the following procedures performed during the birth?

- ☐ Labour induction
- ☐ Use of a vacuum
- ☐ Use of forceps
- ☐ Cesarean section
- ☐ Episiotomy (cutting near the opening of the vagina)
- ☐ Epidural/Spinal anaesthesia as pain relief
- ☐ Pudendal blockade as pain relief
- ☐ Other (please specify):_____

5.4. Did you have any complications during the birth?

- Yes
  - ☐ Sphincter rupture (grade 3-4)
  - ☐ Bleeding that needed transfusion
  - ☐ The infant was moved to the neonatal ward
  - ☐ Use of antibiotics
  - ☐ Other (please specify):_____
- No

5.5. If your child was born via caesarean section, what was the reason for it?

- It was scheduled because the doctor recommended it for medical reasons
- It was planned, but you do not know why
- It was scheduled because you wanted it, but not for medical reasons
- It was not planned, but the birth took a long time
- It was not planned but the baby/foetus was in danger
- It was not planned but you were in danger
- It was not planned and you do not know why it was done
- Other (please specify):_____

5.6. Are you satisfied with the help you received from the health care provider to relieve your pain?

- Yes
- No
- Not a vaginal birth, I had a caesarean section

5.7. Were you allowed to have a family member or other support person (including a doula) with you in the birthing room?

- Yes
- No

5.8. Do you feel that the duration of your hospitalisation after birth was:

- Too short
- OK/suitable
- Too long

6. OVERALL EXPERIENCE OF PREGNANCY CARE RECEIVED

6.1. Did the health care provider refuse any care, special practice or ritual during or after birth that you requested?

Yes

No (go to question 6.4)

6.2. If yes, what were these wishes?

i)_____ ii)_____

6.3. If YES, what reason did the health care provider give for not allowing your wishes?

i)_____ ii)_____

6.4. Is there anything you think the health care provider could have done differently or better during the pregnancy, birth or after birth?

- Yes, please specify what could have been done differently or better

---

and by whom_____

- No

6.5. Overall, were you satisfied with the health care you got? Did you feel welcome, was the health care provider helpful and respectful?

a) During pregnancy – Always – Sometimes – Rarely – Never

b) During the birth – Always – Sometimes – Rarely – Never

c) After birth – Always – Sometimes – Rarely – Never

6.6. Did you understand the information the health care provider tried to convey to you?

a) During pregnancy – Always – Sometimes – Rarely – Never

b) During the birth – Always – Sometimes – Rarely – Never

c) After birth – Always – Sometimes – Rarely – Never

6.7. Do you think you would have understood the information that was conveyed to you better in another language, such as your native language?

- Yes
- No

6.8. Were you offered an interpreter?

a) During pregnancy – yes/no/did not need an interpreter

b) During the birth – yes/no/did not need an interpreter

c) After birth – yes/no/did not need an interpreter

6.9. If you had someone there to interpret for you, who was it?

- Partner/other adult family member/friend
- Child (<18 years)
- Health care provider
- Professional interpreter
- Other_____

6.10. Were you happy with their interpretation?

- Yes
- No

6.11. The health care provider asked me if I had any questions.

Always – Sometimes – Rarely – Never

6.12. I felt that my concerns were taken seriously by the health care providers

Always – Sometimes – Rarely – Never

6.13. I had to wait a long time before I got help.

a) During pregnancy – Always – Sometimes – Rarely – Never

b) During the birth – Always – Sometimes – Rarely – Never

c) After birth – Always – Sometimes – Rarely – Never

6.14. The health care providers made decisions without asking my opinion

a) During pregnancy – Always – Sometimes – Rarely – Never
b) During the birth – Always – Sometimes – Rarely – Never
c) After birth – Always – Sometimes – Rarely – Never

6.15. The health care provider spent enough time explaining things to me.

a) During pregnancy – Always – Sometimes – Rarely – Never
b) During the birth – Always – Sometimes – Rarely – Never
c) After birth – Always – Sometimes – Rarely – Never

6.16. Overall, do you feel that you were treated differently by the health care providers, compared with other people? (i.e. because of language, culture, religion)?

Always – Sometimes – Rarely – Never

6.17. If yes, why do you think you were treated differently?

- ☐ Language
- ☐ Culture
- ☐ Ethnic background
- ☐ Skin colour
- ☐ Religion
- ☐ Migration status/immigrant background
- ☐ Other reasons (please specify):_____

7. MIGRATION

7.1. What was the legal basis for your residency permit in Norway? Is it ...

- Work/partner's work
- Reunion with family
- Marriage
- Refuge (resettlement refugee, quota refugee, humanitarian grounds, asylum)
- Education
- Undocumented
- Other (please specify):_____

7.2. Did you live at a reception centre for asylum-seekers while you were pregnant with this child?

- Yes
- No

7.3. If yes, how long did you live there?

7.4. Do you have a work permit in Norway?

- Yes
- No

7.5 How satisfied or dissatisfied are you with your life after coming to Norway?

- Dissatisfied
- Neither satisfied or dissatisfied
- Satisfied

7.6 How satisfied or dissatisfied were you with life in your home country before you came to Norway?

- Dissatisfied
- Neither satisfied or dissatisfied
- Satisfied

12.2 Interview guide for in-depth interview with migrant women and health care personnel

The MiPreg Project:
Closing the gap in migrant maternity care in Oslo

Intervjuguide

Intervju med kvinne	**Intervju med helsepersonell**
Fase 1 – informasjon	**Fase 1 – Informasjon**
Jeg/Vi er (navn, forsker, institusjon) *Vi vil gjerne snakke med deg fordi du har samtykket til å delta i MiPreg-studien. Studien er et forskningsprosjekt som har som mål å bedre svangerskaps- og fødselsomsorgen for nylig innvandrede kvinner i Oslo. En viktig del av studien er å bedre forstå hvordan nylig innvandrede gravide kvinner opplever og erfarer oppfølging av svangerskapet.* *Vi vil gjerne stille deg noen spørsmål om hvordan du opplever din egen graviditet og eventuelle tidligere erfaringer med graviditeter/fødsler før du kom til Norge. I tillegg ønsker vi å spørre deg om din opplevelse av svangerskapsoppfølging her i Oslo – hva du tenker er bra eller dårlig, og hva du føler er viktig for deg og ditt svangerskap.* *Det finnes ikke noen riktige eller gale svar på spørsmålene vi stiller – vi er først og fremst interessert i dine egne opplevelser og tanker. Utover at du er en pasient her på Helsestasjonen vet vi ikke noe om deg eller din helse.* *Vi tar opptak av denne samtalen. Samtalen mellom oss vil bli lagret i en fil på Oslo Universitetssykehus' sitt hjemmeområde som kun forskerne i studien har tilgang til og vil umiddelbart etter bli slettet fra opptaksenheten. Lydopptaket vil bli skrevet ned - uten navn eller sted og lagret på samme hjemmeområde. Filene vil bli slettet innen 5 år etter prosjektet er avsluttet.* *Er det noe som er uklart? Har du noen spørsmål?*	*Jeg/Vi er (navn, forsker, institusjon)* *Vi vil gjerne snakke med deg fordi du har samtykket til å delta i MiPreg-studien. Studien er et forskningsprosjekt som har som mål å bedre svangerskaps- og fødselsomsorgen for nylig innvandrede kvinner i Oslo. En viktig del av studien er å bedre kunnskapen om hvordan nylig innvandrede gravide kvinner opplever og erfarer oppfølging av svangerskapet.* *Vi vil gjerne stille deg noen spørsmål for å forstå dine opplevelser og erfaringer som jordmor i møte med nylig ankomne migranter på Helsestasjonen. Vårt mål er å kartlegge ulike erfaringer med –og eventuelle utfordringer dere som jordmødre har i deres møter med disse kvinnene. Vi ønsker i tillegg å stille deg enkelte spørsmål om hvordan du opplever kommunikasjonen med denne pasientgruppen og hvordan du tenker at kvinnenes tidligere migrasjonserfaringer, kulturelle bakgrunn og livssituasjon virker inn på ditt daglige arbeid med svangerskapsomsorg.* *Vi vil også presisere at det ikke finnes noen riktige eller gale svar på spørsmålene vi stiller - vi er først og fremst interessert i dine erfaringer, tanker og opplevelser.* *Samtalen vil bli tatt opp for å forenkle analyseprosessen og vil bli lagret i en fil på Oslo Universitetssykehus' sitt hjemmeområde som kun forskerne i studien har tilgang til og vil umiddelbart etter bli slettet fra opptaksenheten. Lydopptaket vil så bli transkribert og anonymisert og lagret på samme hjemmeområde. Filene vil bli slettet innen 5 år etter prosjektet er avsluttet.* *Er det noe som er uklart? Har du noen spørsmål?*

Fase 2 – Bakgrunnsspørsmål	**Fase 2 – Bakgrunnsspørsmål**
1) ***Hvor gammel er du?*** 2) ***Hvor lenge har du bodd i Norge?*** 3) ***Har du noen barn fra før?*** 4) ***Er du gift/samboer?*** 5) ***Har du utdannelse?*** 6) ***Tidligere og nåværende arbeid/profesjon?*** 7) ***Hva er ditt opprinnelsesland?*** 8) ***Hvor lenge har du bodd i Norge?*** 9) ***Har du lyst til å si noe om hvorfor du forlot _____ (opprinnelsesland)?*** Hvis nei på dette spørsmålet, gå videre til Fase 3. Hvis ja på dette spørsmålet: *Probe 1: Før du forlot _____ (opprinnelsesland), var det noen utfordringer som var spesielt vanskelige for deg/familien din?* *Probe 2: Har du nær familie som er igjen i landet? Bekymrer du deg for disse?*	1) ***Hvor gammel er du?*** 2) ***Hva er din profesjonelle bakgrunn?*** 3) ***Hvor lenge har du arbeidet med svangerskapsomsorg?***

Probe 3: Møtte du eller familie/venner du reiste med noen spesielle utfordringer på reisen til Norge? *Probe 4: (Kun hvis kvinnen selv innleder til samtale om livssituasjon i Norge): Har du noen spesielle utfordringer med livssituasjonen her i Norge du har lyst til å fortelle om?*	

Fase 3 - Introduksjonsspørsmål	**Fase 3 - Introduksjonsspørsmål**
Fase 3 del I	**Fase 3 del I**
Nå skal jeg/vi stille deg flere spørsmål knyttet til dine opplevelser av din egen graviditet nå (hvis aktuelt: tidligere graviditeter/fødsler)	*Nå skal jeg/vi stille deg flere spørsmål knyttet til din arbeidshverdag og dine opplevelser av ditt arbeid med svangerskapsoppfølging av nylige ankomne migranter*
1) Hvor langt på vei er du? ***2) Hvordan føler du at graviditeten din har gått til nå?*** *Probe 1: Har du hatt noen spesielle utfordringer? (graviditeten, andre sykdommer, livssituasjon)* ***3) Hvor mange ganger har du vært til kontroll under graviditeten din?***	***1) Kan du fortelle litt om arbeidshverdagen din? Hvordan ser en typisk arbeidsdag eller uke ut?*** *Probe 1: Hvor mange undersøkelser/samtaler har du hver dag?* *Probe 2: Hvor mye tid er satt av til hver undersøkelse/samtale?* *Probe 3: Er det satt av tid til hjemmebesøk hos kvinnene som har født?*
4) Har du oppsøkt andre helsetjenester knyttet til graviditeten din? For eksempel fastlege, private klinikker, sykehus, eller andre? ***5) Hvor søker du hvis du ønsker å finne ut av noe du lurer på i forhold til graviditet eller hvis du kjenner noe fysisk forandring i kroppen din? internett, venner, familie?*** ***6) Har det opplevd noen fysiske endringer i kroppen din som har gjort at du har bekymret deg?*** ***7) Hvis du kjenner noen endringer i kroppen din eller bekymrer deg for noe, tar du kontakt med helsestasjonen, eller andre steder?*** *Probe 2: Har du familie eller venner i Norge eller utenfor Norge som du kan snakke med om disse tingene?*	***2) Hvordan takler dere økt antall innvandrere her på denne helsestasjonen?*** *Probe 4: Er dette noe dere snakker om?* *Probe 5: Er det satt av nok ressurser til å imøtekomme disse?* *Probe 6: Hvordan organiserer dere svangerskapsomsorgen med tanke på at dere har en større andel innvandrerkvinner?* ***3) På ukentlig basis, hvor mange kvinnelige migranter antar du at dere har til undersøkelse/samtale?*** ***4) Hvor mange av disse antar du er nylig ankomne (mindre enn fem år)?*** ***5) Er det noen spesielle utfordringer som knytter seg til denne gruppen gravide?*** *Probe 4: For eksempel i forhold til avsatt tid, behov for tolk, oppklaring av språklige misforståelser, andre medisinske behov/utfordringer utover graviditeten.* ***6) Føler du at du har ressurser nok til å ta tak i disse utfordringene?*** ***7) Føler du at det er allokert nok tid til hver enkelt kvinne og***

	eventuelt medfølgere?

Fase 3 del II	**Fase 3 del II**
Intro: svangerskapsomsorg	**Intro: svangerskapsomsorg**
1) Hvordan opplever du oppfølgingen av deg og din graviditet her på helsestasjonen? ***2) Føler du at dine behov og ønsker blir tatt hensyn til?*** ***3) Hvis du er eller skulle bli bekymret over din egen helse eller barnets, føler du at disse bekymringene blir tatt alvorlig?*** ***4) Opplever du at du at dine ønsker blir tatt med i avgjørelser som omhandler din egen helse og graviditeten?*** ***5) Føler du at du har nok tid med jordmor de gangene du kommer til kontroll?*** ***6) Er det noe du tenker er spesielt vanskelig i forhold til jordmor de gangene du er på kontroll, for eksempel vanskeligheter i forhold til språk?*** ***7) Føler du at du forstår informasjonen jordmor eller annet helsepersonell gir deg?*** *Probe 1: Tenker du at det blir satt av nok tid slik at du forstår ordentlig den informasjonen som gis deg?* ***8) Har du noen tanker om hvordan du best kunne få relevant og viktig informasjon?*** ***9) Har du hatt, eller har du ønsket å ha, en tolk under samtalene med jordmor?*** ***Hvis ja til spørsmålet:*** *Probe 1: Hvem har vært tolk for deg? Eller hvem kunne du ønske å ha som tolk?* *Probe 2: Har du vært fornøyd med tolk de gangene du har hatt det?* *Probe 3: Føler du at du får kommunisert godt nok til jordmor hvordan du har det og hvordan du selv opplever graviditeten?* ***10) Er det noe du ønsker skulle vært bedre eller som du føler du mangler i svangerskapsoppfølgingen på helsestasjonen?***	***1) Føler du at du har nok tid til å formidle informasjon på en god måte til kvinnene (nylig ankomne migranter)?*** ***2) Hvordan opplever du selv at du har mulighet til å imøtekomme kvinnenes ønsker og behov?*** ***3) Er det enkelte ønsker og behov som du opplever som uforenlig med enten norsk helsepraksis eller ikke overkommelig med tanke på tid og ressursbruk?*** ***4) Tenker du at du har nok tid til hver enkelt, og hvis ikke – hvor mye ekstra tid tenker du at det ideelt sett skulle vært avsatt til hver kvinne?*** ***5) Hvordan opplever du selv kommunikasjonen med kvinnene?*** ***6) Er det ofte behov for tolk? I hvor stor grad?*** *Probe 2: Hvem/hvilke instanser bruker dere som tolk?* *Probe 3: Er du fornøyd med tolketjenestene? Dekker tjeneste de språkene kvinnene snakker?* *Probe 4:* Hvis nei på spørsmålet: *Har du noen tanker om hvordan tjenestene kan forbedres?* *Probe 5: Hvordan opplever du selv bruk av tolk/telefontolk? Påvirker det flyten og kommunikasjonen mellom deg og kvinnen?* ***7) Føler du selv at du klarer å få formidlet viktig informasjon om svangerskapet og mors/barnets helse til kvinnene?*** ***8) Er det noe i svangerskapsomsorgen for denne spesifikk gruppen kvinner du tenker er viktig å sette søkelyset på eller endre?***

Fase 3 del III	**Fase 3 del III**
Intro: Kulturelle aspekter/helsepraksiser	Intro: Kulturelle aspekter/helsepraksiser
1) Har du noen tidligere erfaringer fra fødelandet ditt eller andre land du har bodd i forhold til svangerskapsoppfølging og fødsel som du tenker er annerledes enn her i Norge?	***1) Syntes du det er viktig for god svangerskapsomsorg at man tar hensyn til og har en forståelse for kvinnens egne kulturelle praksiser knyttet til svangerskapsomsorg og fødsel?***

2) ***Føler du at dine egne tidligere erfaringer knyttet til helse/graviditet/fødsler blir lyttet til eller tatt hensyn til?*** *Probe 1: Har du lyst til å fortelle litt om ulike tanker eller praksiser som knytter seg til graviditet og fødsel fra ditt eget fødeland?* 3) ***Ønsker du, eller er det viktig for deg, å følge noen spesielle kulturelle praksiser eller kunnskap om graviditet/fødsel?*** 4) ***Ønsker du at disse praksisene og/eller tradisjonene skal bli tatt hensyn til eller av helsepersonell?*** *Probe 2: Hvis ja: hvorfor er det viktig for deg?* *Probe 3: Hvilke praksiser/tradisjoner tenker du er viktigst?* *Probe 4: Er det noen av disse praksisene/tradisjonene som du tenker kan være vanskelig for helsepersonell å forstå eller ta hensyn til?* 5) ***Føler du at de blir tatt hensyn til og respektert av helsepersonell?*** 6) ***Opplever du at helsepersonell spør deg om hva du selv ønsker og hvilke tanker du selv har om graviditet og fødsel?***	2) ***Og som oppfølging til dette: I hvilken grad prøver dere å fange opp kvinnens egne tidligere erfaringer? Og tenker du dette er viktig i svangerskapsomsorgen du tilbyr?*** 3) ***I hvilken grad tenker du at du har kapasitet til å samtale om eller følge opp når kvinnene gir uttrykk for frykt for sin egen – eller barnets helse, eller befinner seg i en vanskelig livssituasjon?*** 4) ***Er det noen ganger du kjenner at kvinnens egen kunnskap om praksiser for å ivareta sin egen –og barnets helse noen ganger kommer i konflikt med din egen kunnskap og erfaring?*** *Probe 1: Har du noen eksempler på situasjoner der du har opplevd nettopp dette?* *Probe 2: Hvordan håndterer du en slik situasjon?* *Probe 3: Føler du at du har nok kunnskap knyttet til denne tematikken?*

Fase 3 del IV - behov/barrierer/tiltak	**Fase 3 del IV - behov/barrierer/tiltak**
1) ***Er det noe ved svangerskapsomsorgen du har fått/får som du er spesielt fornøyd med?*** 2) ***Er det noe du tenker burde endres eller noe du er misfornøyd med?*** *Probe 1: Har du noen tanker om hva som har bidratt til at du ikke har fått den helseomsorgen du ønsket?* *Probe 2: Har det da vært noen barrierer eller faktorer som har gjort at du ikke har fått eller hatt tilgang til helsetjenester under graviditeten? (språk; mange barn hjemme; vanskeligheter med transport; manglende kunnskap om svangerskapstjenester og/eller det norske helsesystemet; frykt, redsel eller liten tiltro til helsevesenet; frykt for at de skulle påvirke tillatelse for opphold i Norge)*	1) ***Er det noen faktorer du tenker kunne bidratt positivt til svangerskapsomsorgen for nyankomne gravide migrantkvinner?*** 2) ***Er det noen barrierer eller viktige faktorer som spiller inn i ditt eget daglige arbeid med svangerskapsomsorg for denne gruppen kvinner?*** 3) ***Hva tenker du er viktigst for å opprettholde eller bedre svangerskapsomsorgen for denne gruppen kvinner?***

Fase 4 – Oppsummering	**Fase 4 – Oppsummering**
Er det noe du vil legge til? *Tusen takk for ditt bidrag!*	*Er det noe du vil legge til?* *Tusen takk for ditt bidrag!*

12.3 Consent forms

Versjon 04.mai 2018

MiPreg

Oslo universitetssykehus

Forespørsel om deltakelse i forskningsprosjekt

MiPreg-prosjektet (WP3):

Bedret svangerskapsomsorg til kvinner i Oslo med migrantbakgrunn

Bakgrunn
Mange kvinner som er nye i Norge blir gravide og føder barn i løpet av de første årene etter ankomst. Vi er et forskningsteam som er interessert i innvandrerkvinner som er nye i Norge og deres erfaringer fra svangerskaps- og fødselsomsorgen i Oslo.

Tidligere studier har vist at kvinner som har flyttet fra et land til et annet kan ha økt sjanse for komplikasjoner i svangerskapet eller for den nyfødte sammenlignet med resten av befolkningen. Mange årsaksfaktorer kan spille inn. Få studier har spurt kvinnene selv om hvordan de har opplevd møtet med norske helsevesen som gravide eller fødende.
I denne studien, MiPreg, ønsker vi nettopp å få vite hvilke erfaringer du som gravid har hatt i møtet med helsetjenesten, din helse før og under svangerskap og fødsel, om du har fått dekket de behov du har hatt i svangerskapet og om det er viktige ting du har savnet i svangerskapsoppfølgingen.
Det endelige formålet med studien er å bedre svangerskaps- og fødselsomsorgen for kvinner som er nye i Norge.

Hva innebærer studien?
Du vil på barselavdelingen. etter at du har kommet deg etter fødselen, bli forespurt om du kan tenke deg å svare muntlig på noen spørsmål før hjemreise.

Vår prosjektmedarbeider (lege, jordmor eller annet utdannet helsepersonell) vil stille deg noen spørsmål om det følgende:

- Hvilket land du er vokst opp i, din utdannelse, om du er gift og om du har barn fra før
- Hvor lenge du har vært i Norge og hvorfor du kom til Norge
- Din helse før svangerskapet og din helse under dette svangerskapet og under fødsel
- Dine erfaringer med helsevesenet under graviditet, fødsel og barsel når det gjelder ivaretakelse av dine fysiske, psykiske, språklige og andre behov

Intervjuene finner sted i en privat atmosfære. Dersom du har behov for eller vil føle deg mest komfortabel med å svare muntlig på spørsmålene på ditt eget morsmål vil du få tilbud om at en tolk er med under samtalen. Du kan velge og ikke besvare spørsmål som du oppfatter som ubehagelige. Det vil ikke få konsekvenser for din videre oppfølging og behandling. Intervjuene finner sted på barselavdelingen nært der du er. Intervjuet tar i gjennomsnitt 35 minutter.

Mulige fordeler og ulemper
Du vil ikke ha noen spesielle fordeler av studien i dette svangerskapet, men du hjelper oss å få mer kunnskap som vi håper kan gi enda bedre oppfølging av gravide kvinner med innvandrerbakgrunn i framtida.

Hva skjer med informasjonen om deg?
Alle opplysningene om deg vil bli behandlet anonymt, det vil si uten navn, fødselsnummer eller andre direkte gjenkjennende opplysninger. Kun personer knyttet til prosjektet har tilgang til informasjonen om deg. Det vil ikke være mulig å identifisere deg når resultatene av studien publiseres.
Du kan be om å få se, og eventuelt endre registrerte opplysninger om deg. Hvis du trekker deg fra studien kan du be om å få slettet opplysningene. Opplysningene blir slettet senest 5 år etter at prosjektet er avsluttet.

Frivillig deltakelse
Det er frivillig å delta i studien, og du kan når som helst trekke deg uten å oppgi grunn. Deltakere er i henhold til helseforskningsloven §50 dekket av pasientskadeloven (NPE-ordningen).
Dersom du ønsker å delta, undertegner du samtykkeerklæringen nedenfor.

Hvis du senere ønsker å trekke deg fra studien, kan du skrive til prosjektleder Dr. Ingvil Sørbye på e-post isorbye@ous-hf.no eller kontakte oss på tlf. 23 07 00 00.

Samtykke til deltakelse i studien

«Bedret svangerskapsomsorg til kvinner i Oslo med migrantbakgrunn»

Jeg er villig til å delta i studien:

_____ Dato:_____
Signatur deltaker

Bekreftelse på at informasjon er gitt om deltakelse:

_____ Dato:_____
Signatur prosjektmedarbeider

Versjon 04.mai 2018

MiPreg

Oslo universitetssykehus

Forespørsel om deltakelse i forskningsprosjekt

MiPreg-prosjektet (WP2):

Bedret svangerskapsomsorg til kvinner i Oslo med migrantbakgrunn

Bakgrunn
Mange kvinner som er nye i Norge blir gravide og føder barn i løpet av de første årene etter ankomst. Vi er et forskningsteam som er interessert i innvandrerkvinner som er nye i Norge og deres erfaringer fra svangerskaps- og fødselsomsorgen i Oslo.

Tidligere studier har vist at kvinner som har flyttet fra et land til et annet kan ha økt sjanse for komplikasjoner i svangerskapet eller for den nyfødte sammenlignet med resten av befolkningen. Mange årsaksfaktorer kan spille inn. Få studier har spurt kvinnene selv om hvordan de har opplevd møtet med norske helsevesen som gravide eller fødende.

I denne studien, MiPreg, ønsker vi nettopp å få vite hvilke erfaringer du som gravid har hatt i møtet med helsetjenesten, din helse før og under svangerskap og fødsel, om du har fått dekket de behov du har hatt i svangerskapet og om det er viktige ting du har savnet i svangerskapsoppfølgingen.
Det endelige formålet med studien er å bedre svangerskaps- og fødselsomsorgen for kvinner som er nye i Norge.

Hva innebærer studien?
Du vil på helsestasjonen, når du er på svangerskapskontroll, bli forespurt av jordmor om du kan tenke deg å bli intervjuet.

Vår prosjektmedarbeider vil stille deg noen spørsmål om det følgende:
- Hvilket land du er vokst opp i, din utdannelse, om du er gift og om du har barn fra før
- Dine erfaringer med helsevesenet i Norge under graviditet, fødsel og barsel når det gjelder ivaretakelse av dine fysiske, psykiske, språklige og andre behov.
- Dine tidligere erfaringer og kunnskap knyttet til svangerskap og fødsel fra ditt opprinnelsesland.

Intervjuene finner sted i en privat atmosfære. Dersom du har behov for eller vil føle deg mest komfortabel med å svare muntlig på spørsmålene på ditt eget morsmål vil du få tilbud om at en tolk er med under samtalen. Du kan velge og ikke besvare spørsmål som du oppfatter som ubehagelige. Det vil ikke få konsekvenser for din videre oppfølging og behandling. Intervjuene finner sted på barselavdelingen nært der du er. Intervjuet tar i gjennomsnitt 1 time.

Mulige fordeler og ulemper
Du vil ikke ha noen spesielle fordeler av studien i dette svangerskapet, men du hjelper oss å få mer kunnskap som vi håper kan gi enda bedre oppfølging av gravide kvinner med innvandrerbakgrunn i framtida.

Hva skjer med informasjonen om deg?
Alle opplysningene om deg vil bli behandlet anonymt, det vil si uten navn, fødselsnummer eller andre direkte gjenkjennende opplysninger. Kun personer knyttet til prosjektet har tilgang til informasjonen om deg. Det vil ikke være mulig å identifisere deg når resultatene av studien publiseres.
Du kan be om å få se, og eventuelt endre registrerte opplysninger om deg. Hvis du trekker deg fra studien kan du be om å få slettet opplysningene. Opplysningene blir slettet senest 5 år etter at prosjektet er avsluttet.

Frivillig deltakelse
Det er frivillig å delta i studien, og du kan når som helst trekke deg uten å oppgi grunn. Deltakere er i henhold til helseforskningsloven §50 dekket av pasientskadeloven (NPE-ordningen).
Dersom du ønsker å delta, undertegner du samtykkeerklæringen nedenfor.

Hvis du senere ønsker å trekke deg fra studien, kan du skrive til prosjektleder Dr. Ingvil Sørbye på e-post isorbye@ous-hf.no eller kontakte oss på tlf. 23 07 00 00.

Samtykke til deltakelse i studien

«Bedret svangerskapsomsorg til kvinner i Oslo med migrantbakgrunn»

Jeg er villig til å delta i studien:

_____ Dato:_____
Signatur deltaker

Bekreftelse på at informasjon er gitt om deltakelse:

_____ Dato:_____
Signatur prosjektmedarbeider

Versjon 04.mai 2018

MiPreg

Oslo universitetssykehus

Forespørsel om deltakelse i forskningsprosjekt

MiPreg-prosjektet (WP2):

Bedret svangerskapsomsorg til kvinner i Oslo med migrantbakgrunn

Bakgrunn
Mange kvinner som er nye i Norge blir gravide og føder barn i løpet av de første årene etter ankomst. Vi er et forskningsteam som er interessert i innvandrerkvinner som er nye i Norge og deres erfaringer fra svangerskaps- og fødselsomsorgen i Oslo.

Tidligere studier har vist at kvinner som har flyttet fra et land til et annet kan ha økt sjanse for komplikasjoner i svangerskapet eller for den nyfødte sammenlignet med resten av befolkningen. Mange årsaksfaktorer kan spille inn. Få studier har spurt kvinnene selv om hvordan de har opplevd møtet med norske helsevesen som gravide eller fødende.

Vi vil gjerne stille deg noen spørsmål for å forstå dine opplevelser og erfaringer som jordmor i møte med nylig ankomne migranter på helsestasjon og/eller sykehus. Vårt mål er å kartlegge ulike erfaringer med –og eventuelle utfordringer dere som jordmødre har i deres møter med disse kvinnene. Vi ønsker i tillegg å stille deg enkelte spørsmål om hvordan du opplever kommunikasjonen med denne pasientgruppen og hvordan du tenker at kvinnenes tidligere migrasjonserfaringer, kulturelle bakgrunn og livssituasjon virker inn på ditt daglige arbeid med svangerskapsomsorg. Videre ønsker vi å spørre deg om dine tanker knyttet til organiseringen av svangerskapsomsorgen ved din arbeidsplass; utfordringer og eventuelle barrierer. Det endelige formålet med studien er å bedre svangerskaps- og fødselsomsorgen for kvinner som er nye i Norge.

Hva innebærer studien?
Du vil bli forespurt av forskere i MiPreg-studien om du kan tenke deg å bli intervjuet av prosjektets forskere. Intervjuene finner sted i en privat atmosfære på din arbeidsplass. Du kan velge å ikke besvare spørsmål som du oppfatter som ubehagelige. Intervjuet tar i gjennomsnitt 1 time. Samtalen vil bli tatt opp på en båndopptaker, skrevet ned og umiddelbart slettet fra opptaksenheten, og vil bli lagret på en sikker server hos TSD (Tjenester for Sensitive Data) ved Universitet i Oslo.

Mulige fordeler og ulemper
Du vil ikke ha noen spesielle fordeler av studien i dette svangerskapet, men du hjelper oss å få mer kunnskap som vi håper kan gi enda bedre oppfølging av gravide kvinner med innvandrerbakgrunn i framtida.

Hva skjer med informasjonen om deg?
Alle opplysningene om deg vil bli behandlet avidentifisert, det vil si uten navn, fødselsnummer eller andre direkte gjenkjennende opplysninger. Kun personer knyttet til prosjektet har tilgang til informasjonen om deg. Det vil ikke være mulig å identifisere deg når resultatene av studien publiseres. Du kan be om å få se, og eventuelt endre registrerte opplysninger om deg. Hvis du trekker deg fra studien kan du be om å få slettet opplysningene. Opplysningene blir slettet senest 10 år etter at prosjektet er avsluttet.

Kontakte deg igjen?
Vi ønsker å kunne kontakte deg igjen for en oppfølgingssamtale innen 2 år etter det første intervjuet for å høre dine erfaringer av svangerskapsoppfølgingen ved din arbeidsplass de siste to årene. Du kan selv velge hvorvidt du da ønsker å delta når vi igjen kontakter deg.

Frivillig deltakelse
Det er frivillig å delta i studien, og du kan når som helst trekke deg uten å oppgi grunn. Deltakere er i henhold til helseforskningsloven §50 dekket av pasientskadeloven (NPE-ordningen).
Dersom du ønsker å delta, undertegner du samtykkeerklæringen nedenfor.

Hvis du senere ønsker å trekke deg fra studien, kan du skrive til prosjektleder Dr. Ingvil Sørbye på e-post isorbye@ous-hf.no eller kontakte oss på tlf. 23 07 00 00.

Samtykke til deltakelse i studien

«Bedret svangerskapsomsorg til kvinner i Oslo med migrantbakgrunn»

Jeg er villig til å delta i studien:

_____ Dato:_____
Signatur deltaker

Bekreftelse på at informasjon er gitt om deltakelse:

_____ Dato:_____
Signatur prosjektmedarbeider

12.4 Approvals

REK
REGIONALE KOMITEER FOR MEDISINSK OG HELSEFAGLIG FORSKNINGSETIKK

Region:	Saksbehandler:	Telefon:	Vår dato:	Vår referanse:
REK sør-øst	Tor Even Marthinsen	22845521	27.06.2018	2018/1086/REK sør-øst C
			Deres dato:	**Deres referanse:**
			07.05.2018	

Vår referanse må oppgis ved alle henvendelser

Ingvil Krarup Sørbye
Kvinneklinikken Rikshospitalet

2018/1086 MIPREG-studien:Bedret svangerskapsutfall blant nyankomne migrantkvinner i Norge

Forskningsansvarlig: Oslo universitetssykehus HF
Prosjektleder: Ingvil Krarup Sørbye

Vi viser til søknad om forhåndsgodkjenning av ovennevnte forskningsprosjekt. Søknaden ble behandlet av Regional komité for medisinsk og helsefaglig forskningsetikk (REK sør-øst) i møtet 07.06.2018. Vurderingen er gjort med hjemmel i helseforskningsloven (hfl.) § 10.

Prosjektomtale
Tidligere internasjonale og norske studier har vist at innvandrerkvinner fra visse regioner og land har økt sjanse for komplikasjoner i svangerskapet eller for den nyfødte sammenlignet med resten av befolkningen. Mange årsaksfaktorer kan spille inn, slik som mangel på god kommunikasjon mellom brukere og helsesektoren, manglende helsekunnskap og egenomsorg og manglende tilrettelegging av tjenester for en heterogen befolkning. Få studier har studert denne sammenhengen fra brukerne, eller de gravide, sitt perspektiv. Med forskningsstudien MIPREG ønsker vi å fylle nettopp dette kunnskapsgapet ved å bruke nylig innvandrede gravides egne erfaringer og opplevelser fra møte med svangerskaps- og fødselsomsorgen i Oslo. Studien består av tre faser, hvor vi i siste fase vil designe en intervensjon der 200 migrantkvinner er målgruppen for ekstra tiltak i svangerskapet som ekstra tid ved helsekontroller, tilpassede tolketjenester og bruk av interaktiv flerspråklig informasjonapplikasjon ("app").

Vurdering
Helseforskningsloven gjelder for medisinsk og helsefaglig forskning, det vil si «virksomhet som utføres med vitenskapelig metodikk for å skaffe til veie ny kunnskap om helse og sykdom», jf. helseforskningsloven § 2, jf.§ 4.

Slik komiteen oppfatter dette pilotprosjektet, som er inndelt i 4 arbeidspakker (W1-W4), er målsettingen å undersøke hvor innvandringsvennlig norsk svangerskapsomsorg er, og å utvikle tiltak for å forbedre den. Prosjektet består av 4 arbeidspakker:

WP1: Undersøke sammenheng mellom migrasjonsstatus og svangerskapsutfall.
WP2: Kartlegg svakheter i svangerskapsomsorgen for innvandrere.
WP3: Måle innvandringsvennligheten til svangerskapsomsorgen med et skjema.
WP4: Utvikle og pilotere tiltak for bedring av innvandringsvennlig svangerskapsomsorg.

I WP2, WP3 og WP4 ønsker man gjennom kvalitative intervjuer og fokusgrupper å få en dypere innsikt i opplevelser og erfaringer fra både kvinner og helsepersonell relatert til svangerskapsomsorgen. WP4 har som langsiktig mål å bedre mødrenes og barnas helse, men i selve prosjektet er det bare gjennomførbarheten

Besøksadresse: Gullhaugveien 1-3, 0484 Oslo
Telefon: 22845511
E-post: post@helseforskning.etikkom.no
Web: http://helseforskning.etikkom.no/

av tiltakene som skal testes ut. Formålet er i all hovedsak å undersøke, og forbedre, helsetjenesten som sådan, og komiteen mener, basert på den fremlagte dokumentasjon, at WP2, WP3 og WP4 således ikke har til formål å skaffe til veie ny kunnskap om helse og sykdom, slik dette forstås i helseforskningsloven § 4. Disse deler av prosjektet oppfattes som helsetjenesteforskning.

WP2, WP3 og WP4 kan gjennomføres uten godkjenning av REK innenfor de ordinære ordninger for helsetjenesten med hensyn til for eksempel regler for taushetsplikt og personvern. Søker bør derfor ta kontakt med enten forskerstøtteavdeling eller personvernombud for å avklare hvilke retningslinjer som er gjeldende.

WP1 er en omfattende registerstudie hvor det skal hentes en lang rekke variabler fra Medisinsk fødselsregister, som skal kobles med opplysninger om landbakgrunn, utdanning og innvandringsstatus fra Statistisk sentralbyrå og Folkeregisteret. Formålet er å finne estimater på prevalens av helseproblemer i utvalgte grupper, og komiteen mener denne delen av prosjektet faller inn under helseforskningslovens virkeområde.

Det vil i prosjektet bli etablert en kontrollgruppe som vil bestå av kvinner født i Norge uten migrantbakgrunn.

Det søkes fritak fra kravet om innhenting av samtykke**.** Dette begrunnes med at resultatene av forskningen anses å være av stor betydning for samfunnet generelt og helsetjenesten i Norge i spesielt, da del-studien vil kunne identifisere grupper med økt risiko for uønsket svangerskapsutfall. Det påpekes at helseregistre er viktigste kilde for informasjon om innvandreres svangerskapsutfall, da mange er ekskludert fra aktuelle kohorter, slik som Mor-Barn studien.

Det anføres videre at samtykke anses som svært vanskelig å innhente grunnet høyt antall studieantall. Fritak fra samtykke anses heller ikke å påvirke personers integritet, personvern eller velferd ettersom det kun er rutineinformasjon som innhentes.

Komiteen mener det er gitt en god begrunnelse for fritak fra samtykke. Prosjektet oppfattes som samfunnsnyttig forskning. Det gis en tilfredsstillende redegjørelse for alle variablene man trenger fra de forskjellige registrene, samt prosedyren for kobling av dem. Det er kobling av mye data fra sensitive registre, men verdien av resultatene har etter komiteen mening potensial til å oppveie personvernulempen, ettersom man i prosjektet har et troverdig system for håndtering av dataene (web-basert TDI ved UiO).

<u>Utlevering av opplysninger fra Medisinsk fødselsregister</u>
De sentrale helseregistrene har egne forskrifter som regulerer utlevering av opplysninger i forskningsøyemed. I henhold til kapittel 3 i de enkelte forskriftene vil en forhåndsgodkjenning av medisinske og helsefaglige forskningsprosjektet etter helseforskningsloven § 33, jf. § 9, innebære at databehandlingsansvarlig ved de sentrale helseregistrene kan utlevere data uten hinder av lovpålagt taushetsplikt.

Komiteen har etter en samlet vurdering kommet til databehandlingsansvarlig ved Medisinsk fødselsregister kan utlevere identifiserbare helseopplysninger i tråd med prosjektsøknad og protokoll uten hinder av lovpålagt taushetsplikt.

Når det gjelder data fra Statistisk sentralbyrå og Folkeregisteret, presiserer komiteen at man kun har tatt stilling til og godkjent at data kan inngå i prosjektets forskningsfil. Komiteen forutsetter at tilgangsspørsmålet avklares med aktuelle instanser, og at nødvendige tillatelser derfra innhentes.

Vedtak

1. Etter søknaden fremstår WP2, WP3 og WP4 ikke som medisinsk og helsefaglig forskning, og disse delene av prosjektet faller derfor utenfor helseforskningslovens virkeområde, jf. helseforskningsloven § 2.

2. WP1 godkjennes, jf. helseforskningslovens §§ 9 og 33.

Godkjenningen innebærer at databehandlingsansvarlig ved Dødsårsaksregisteret kan utlevere opplysninger i henhold til søknad og protokoll uten hinder av lovpålagt taushetsplikt.
Tillatelsen er gitt under forutsetning av at prosjektet gjennomføres slik det er beskrevet i søknaden og protokollen, og de bestemmelser som følger av helseforskningsloven med forskrifter.

Tillatelsen gjelder til 30.04.2027. Av dokumentasjons-og oppfølgingshensyn skal opplysningene likevel bevares inntil 30.04.2032. Opplysningene skal lagres avidentifisert, dvs. atskilt i en nøkkel-og en opplysningsfil. Opplysningene skal deretter slettes eller anonymiseres, senest innen et halvt år fra denne dato.

Komiteens avgjørelse var enstemmig.

Komiteens vedtak kan påklages til Den nasjonale forskningsetiske komité for medisin og helsefag, jfr. helseforskningsloven § 10, tredje ledd og forvaltningsloven § 28. En eventuell klage sendes til REK sør-øst C. Klagefristen er tre uker fra mottak av dette brevet, jfr. forvaltningsloven § 29.

Med vennlig hilsen

Britt Ingjerd Nesheim
professor dr. med.
leder REK sør-øst C

Tor Even Marthinsen
seniorrådgiver

Kopi til:calsan@ous-hf.no

Oslo universitetssykehus HF

Postadresse:
Postboks 4950 Nydalen
0424 Oslo

Sentralbord:
02770

Org.nr:
NO 993 467 049 MVA

www.oslo-universitetssykehus.no

PERSONVERNOMBUDETS TILRÅDING

Til:	Ingvil Krarup Sørbye
Kopi:	
Fra:	Personvernombudet ved Oslo universitetssykehus
Saksbehandler:	Stian Moltke-Hansen Tveten
Dato:	04.09.2018
Offentlighet:	Ikke unntatt offentlighet
Sak:	Personvernombudets tilråding til behandling av personopplysninger
Saksnummer:	18/15786

Personvernombudets tilråding til behandling av personopplysninger for:

«MIPREG prosjektet: Bedret svangerskapsutfall hos migrantkvinner i Oslo»

Formål:
«Hovedmål: Undersøke hvor innvandringsvennlig norsk svangerskapsomsorg er og å utvikle tiltak for å forbedre den.

Delmål:
WP1: Undersøke sammenhengen mellom migrasjonsstatus og svangerskapsutfall
WP2: Kartlegge svakheter i svangerskapsomsorgen for innvandrere
WP3: Måle innvandringsvennligheten til svangerskapsomsorgen og kvinners opplevelse av den.
WP4: Utvikle og pilotere tiltak for forbedring av innvandringsvennlig svangerskapsomsorg.»

Tidsrom: 04.09.2018 til 30.04.2022

Vi viser til innsendt melding om behandling av personopplysninger.

Med hjemmel i forordning (EU) nr. 2016/679 (generell personvernforordning) artikkel 37, er det oppnevnt personvernombud ved Oslo Universitetssykehus (OUS).

Den behandlingsansvarlige skal sikre at personvernombudet på riktig måte og i rett tid involveres i alle spørsmål som gjelder vern av personopplysninger, jf. artikkel 38. Artikkel 30 pålegger OUS å føre oversikt over hvilke behandlinger av personopplysninger virksomheten har. Behandling av personopplysninger meldes derfor til sykehusets personvernombud.

Før det foretas behandling av helseopplysninger, skal den behandlingsansvarlige rådføre seg med personvernombudet, jf. personopplysningsloven § 10. Ved rådføringen skal det

vurderes om behandlingen vil oppfylle kravene i personvernforordningen og øvrige bestemmelser fastsatt i eller med hjemmel i loven her. Rådføringsplikten gjelder likevel ikke dersom det er utført en vurdering av personvernkonsekvenser etter personvernforordningen artikkel 35.

Databehandlingen tilfredsstiller forutsetningene for melding etter forordning (EU) nr. 2016/679 (generell personvernforordning) artikkel 30.

Personvernombudet tilrår at databehandlingen gjennomføres under forutsetning av følgende:

1. Oslo universitetssykehus HF ved adm. dir. er behandlingsansvarlig virksomhet.
2. Avdelingsleder eller klinikkleder ved OUS har godkjent databehandlingen.
3. Databehandlingen skjer i samsvar med og innenfor det formål som er oppgitt i meldingen.
4. Data lagres som oppgitt i meldingen og i samsvar med sykehusets retningslinjer.
5. For den delen av studien som omfatter lydopptak skal det kun benyttes utstyr som er eid av OUS. Lydopptakene skal transkriberes og lagres på forsvarlig måte. Lydopptakene skal slettes når det ikke lenger er behov for dem. Lydopptaker må til enhver tid oppbevares forsvarlig nedlåst hvor kun prosjektdeltakere har tilgang til lydopptakeren.
6. Oppslag i journal med formål å identifisere potensielle deltagere til studien gjøres av ansatte ved sykehuset som har selvstendig lovlig grunnlag for oppslaget. Se http://ehandboken.ous-hf.no/.
7. Studien er frivillig og samtykkebasert. Det innmeldte samtykke skal benyttes.
8. Eventuelle fremtidige endringer som berører formålet, utvalget inkluderte eller databehandlingen må forevises personvernombudet før de tas i bruk.
9. Den behandlingsansvarlige har rådført seg med personvernombudet, jf. personopplysningsloven § 10.
10. Kryssliste som kobler avidentifiserte data med personopplysninger lagres som angitt i meldingen og i samsvar med sykehusets retningslinjer.
11. Det må etableres en databehandleravtale med TSD.
12. Publisering i tidsskrift forutsettes å skje uten at deltagerne kan gjenkjennes, hverken direkte eller indirekte.
13. Denne tilrådningen omfatter ikke den eventuelle utviklingen av en applikasjon. Dersom dette blir aktuelt forutsettes det at personvernombudet rådføres på forhånd.
14. Eventuelle krav fra tidsskrift om at grunnlagsdataene utleveres, skal behandles som en utlevering av helse- og personopplysninger, jf. sykehusets eHåndbok og dokumentet «Utlevering av personopplysninger», dokumentID 15408. Se http://ehandboken.ous-hf.no/. Denne tilråding dekker ikke slik utlevering.
15. Data slettes eller anonymiseres 10 år etter prosjektslutt i 2032 ved at krysslisten slettes og eventuelle andre identifikasjonsmuligheter i databasen fjernes. Når formålet med registeret er oppfylt sendes melding om bekreftet sletting til personvernombudet.

Prosjektet er registrert i sykehusets offentlig tilgjengelig database over forsknings- og kvalitetsstudier.

Med hilsen

Stian Moltke-Hansen Tveten
Personvernrådgiver

Oslo universitetssykehus HF
Stab fag, pasientsikkerhet og samhandling
Avdeling for informasjonssikkerhet og personvern

E-post: personvern@oslo-universitetssykehus.no
Web: www.oslo-universitetssykehus.no/personvern

AKERSHUS UNIVERSITETSSYKEHUS

Akershus universitetssykehus HF

Postadresse:
Postboks 95
1478 Lørenskog

Sentralbord:
02900

Org.nr:
NO 983 971 636 MVA

www.ahus.no

PERSONVERNOMBUDETS UTTALELSE

Til:	Anne Eskild, Kvinneklinikken, Akershus Universitetssykehus HF
Kopi:	Nina Schmidt, Kvinneklinikken, Akershus Universitetssykehus HF
	Ingvild Sørbye, Kvinneklinikken, Oslo Universitetssykehus
Fra:	Personvernombudet ved Akershus universitetssykehus
Dato:	15.04.2019
Offentlighet:	Ikke unntatt offentlighet

Saksnummer/ Personvernnummer:	18/05310/ 53_2019

Personvernombudets uttalelse til innsamling og behandling av personopplysninger for forskning i prosjektet "MIPREG-studien:Bedret svangerskapsutfall blant nyankomnemigrantkvinner i Norge"

Prosjektbeskrivelse:
"Tidligere internasjonale og norske studier har vist at innvandrerkvinner fra visse regioner og land har økt sjanse for komplikasjoner i svangerskapet eller for den nyfødte sammenlignet med resten av befolkningen. Mange årsaksfaktorer kan spille inn, slik som mangel på god kommunikasjon mellom brukere og helsesektoren, manglende helsekunnskap og egenomsorg og manglende tilrettelegging av tjenester for en heterogen befolkning. Få studier har studert denne sammenhengen fra brukerne, eller de gravide, sitt perspektiv. Med forskningsstudien MIPREG ønsker vi å fylle nettopp dette kunnskapsgapet ved å bruke nylig innvandrede gravides egne erfaringer og opplevelser fra møte med svangerskaps- og fødselsomsorgen i Oslo. Studien består av tre faser, hvor vi i siste fase vil designe en intervensjon der 200 migrantkvinner er målgruppen for ekstra tiltak i svangerskapet som ekstra tid ved helsekontroller, tilpassede tolketjenester og bruk av interaktiv flerspråklig informasjonapplikasjon ("app")."

Viser til innsendt melding om behandling av personopplysninger / helseopplysninger. Det følgende er et formelt svar på meldingen. Forutsetningene nedenfor må være oppfylt før rekruttering av pasienter og behandling av personopplysninger i prosjektet kan starte.

Med hjemmel i forordning (EU) nr. 2016/679 (generell personvernforordning) artikkel 37, er det oppnevnt personvernombud ved Akershus Universitetssykehus (Ahus).

Den behandlingsansvarlige skal sikre at personvernombudet på riktig måte og i rett tid involveres i alle spørsmål som gjelder vern av personopplysninger, jf. artikkel 38. Artikkel 30 pålegger Ahus å føre oversikt over hvilke behandlinger av personopplysninger virksomheten har. Behandling av personopplysninger meldes derfor til sykehusets personvernombud.

Personvernombudet har vurdert det til at den planlagte databehandlingen av personopplysninger / helseopplysninger tilfredsstiller de krav som stilles i personvern- og helseforskningslovgivningen. Personvernombudet har ingen innvendinger til at den planlagte databehandlingen av personopplysninger / helseopplysninger kan igangsettes under forutsetning av følgende:

1. Forskningsansvarlig / dataansvarlig Oslo Universitetssykehus ved adm. direktør.
2. Avdelingsleder og forskningsansvarlig i divisjonen/klinikken har godkjent gjennomføringen av prosjektet.
3. Behandling av personopplysningene / helseopplysninger i prosjektet skjer i samsvar med og innenfor det formål som er oppgitt i meldingen.
4. Ved inklusjon av deltakere, vil aktuelle pasienter identifiseres og forespørres av behandler eller andre ansatte ved Ahus med selvstendig lovlig grunnlag for å gjøre oppslaget.
5. Studien er frivillig og samtykkebasert.
6. Samtykkeskriv vedlagt meldingen skal benyttes. Under «Hva skjer med opplysnigner om deg» endres «anonymt» med «uten direkte indentifiserende kjennetegn».
7. Data lagres som oppgitt i meldingen.
8. Lydopptak, og studien for øvrig, gjennomføres som forutsatt av Personvernombudet ved OUS.
9. Kodeliste som kobler avidentifiserte data (*indirekte identifiserbare helseopplysninger)* med personopplysninger lagres som angitt i meldingen og i samsvar med sykehusets retningslinjer.
10. Publisering i tidsskriver vil skje uten at deltagerne kan identifiseres, direkte eller indirekte. Dersom det vil benyttes opplysninger som vil kunne innebære bakveisidentifisering, vil dette omfattes av pasientens samtykke.
11. Prosjektslutt er 31.12.2019. Av dokumentasjonshensyn skal opplysningene likevel bevares inntil 31.12.2024, da skal data slettes eller anonymiseres ved at kodelisten slettes og eventuelle andre identifikasjonsmuligheter i databasen fjernes.
12. Dersom formålet, utvalget av inkluderte eller databehandlingen endres må personvernombudet gis forhåndsinformasjon om dette i likhet med REK.

Prosjektet er registrert i oversikten over tilrådinger og uttalelser til forskning og kvalitetsprosjekter som Personvernombudet fører for sykehuset. Oversikten er offentlig tilgjengelig.

Lykke til med studien!

Med vennlig hilsen
for personvernombudet

Line Mostad Samuelsen
Jurist/ personvernrådgiver

Akershus universitetssykehus HF

Epost: forskning.personvern@ahus.no
Web: www.ahus.no

Dokumentet er signert elektronisk

13. Paper 1-3

13.1 Paper 1

BMJ Open

Satisfaction with maternity care among recent migrants: an interview questionnaire-based study

Sukhjeet Bains ,[1,2] Johanne Sundby,[2] Benedikte V. Lindskog,[3] Siri Vangen,[1,4] Lien M. Diep,[5] Katrine M. Owe,[6] Ingvil K. Sorbye[1]

To cite: Bains S, Sundby J, Lindskog BV, *et al*. Satisfaction with maternity care among recent migrants: an interview questionnaire-based study. *BMJ Open* 2021;**11**:e048077. doi:10.1136/bmjopen-2020-048077

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (http://dx.doi.org/10.1136/bmjopen-2020-048077).

Received 16 December 2020
Accepted 06 July 2021

For numbered affiliations see end of article.

Correspondence to
Dr Sukhjeet Bains;
sukhjeetkb@gmail.com

ABSTRACT

Objective To examine factors associated with recently migrated women's satisfaction with maternity care in urban Oslo, Norway.

Design An interview-based cross-sectional study, using a modified version of Migrant Friendly Maternity Care Questionnaire.

Setting Face-to-face interview after birth in two maternity wards in urban Oslo, Norway, from January 2019 to February 2020.

Participants International migrant women, ≤5 years length of residency in Norway, giving birth in urban Oslo, excluding women born in high-income countries.

Primary outcome Dissatisfaction of care during pregnancy and birth, measured using a Likert scale, grouped into satisfied and dissatisfied, in relation to socio-demographic/clinical characteristics and healthcare experiences.

Secondary outcome Negative healthcare experiences and their association with reason for migration.

Results A total of 401 women answered the questionnaire (87.6% response rate). Overall satisfaction with maternal healthcare was high. However, having a Norwegian partner, higher education and high Norwegian language comprehension were associated with greater odds of being dissatisfied with care. One-third of all women did not understand the information provided by the healthcare personnel during maternity care. More women with refugee background felt treated differently because of factors such as religion, language and skin colour, than women who migrated due to family reunification.

Conclusions Although the overall satisfaction was high, for certain healthcare experiences such as understanding information, we found more negative responses. The negative healthcare experiences and factors associated with satisfaction identified in this study have implications for health system planning, education of healthcare personnel and strategies for quality improvement.

Strengths and limitations of this study

- ► Face-to-face interviews with interpreter enabled all women to participate, regardless of language proficiency and literacy.
- ► The use of the questionnaire tool, Migrant Friendly Maternity Care Questionnaire, enables comparability across countries.
- ► Timing of questionnaire shortly after birth may introduce a bias as birth outcome might influence perception of maternity care.
- ► As the interviews were conducted in the postnatal ward, some women may have been reluctant to share negative experiences about inpatient care.

INTRODUCTION

With rising proportions of births to migrant women across Europe, there is a growing need for more knowledge about the reproductive health of migrants.[1] Many migrants are of childbearing age and some have their first contact with the healthcare system in the new country when seeking maternity care. Higher maternal mortality and morbidity have been found among migrants compared with the host population in a number of European countries.[2–5] Several reasons for the elevated risk of adverse obstetric outcomes exist, such as substandard care and varying risk profiles for subgroups of migrants.[2] Other reasons include late initiation of antenatal care and fewer antenatal visits among migrants, which in turn can be caused by low health literacy.[6–10]

Satisfaction with care is considered a key predictor of utilisation of healthcare services, which in turn can be a modifiable risk factor for adverse outcomes.[2 11–14] The WHO recommends measuring maternal satisfaction of care to improve quality of healthcare.[15] Sitzia and Wood define 'satisfaction' as both a measure of the care received and a reflection of the patients as it consists of the patient's personal preferences, the expectations and the actual care received.[16] Literature suggests that different experiences of care, for instance, support from healthcare personnel and involvement in decision-making, are the most important predictors of maternal satisfaction.[17–19] Reproductive history, age and socioeconomic status are other known factors influencing perceived maternal satisfaction.[20]

Socioeconomic status is a predictor of inadequate antenatal care among migrants and as such, women born in low-income or middle-income countries are at a higher risk.[10] Recently arrived pregnant women are particularly vulnerable. In addition to their migration experience, that for many implies a loss of social network and socioeconomic disadvantage, they are more likely to have less majority language proficiency and health system literacy.[21] Discrepancies exist within subgroups of migrants, where refugees and asylum-seekers seem to have higher risk for adverse outcomes, in contrast to people who migrate because of work and education, who tend to be wealthier and have better health.[22]

Disparities in maternal health outcomes and suboptimal quality of maternity care for migrants are also reported from Norway.[4 9 23 24] In order to improve quality of care, it is important to gain more knowledge about determinants of migrated women's satisfaction with maternity care. A literature gap exists regarding these determinants, especially for the most recently arrived groups of migrants. The main objective of this study was, therefore, to examine factors associated with recently migrated women's satisfaction with maternity care. The secondary objective was to examine the association between healthcare experiences and subgroups of migrants by reason for migration. We examined these factors among women in urban Oslo, the region with the highest proportions of migrants in Norway, in a setting of free universal access to maternity care.

METHODS

Study design and setting

This interview questionnaire-based study is part of the MiPreg project and was conducted between January 2019 and January 2020. The Mipreg project is a multidisciplinary, mixed method project that seeks to identify factors that explain disparities in pregnancy outcomes among recently migrated women in Norway. Norway has universal health coverage and essential maternity care is free of charge for all legal citizens. Persons without legal residence have right to healthcare but must pay for it.[25] Pregnant women can choose between follow-up by a general practitioner or a midwife at a maternity and child healthcare centre.[26] The standard antenatal package includes 8 consultations, including 1 routine ultrasound examination around weeks 17–19. Almost all births in Norway occur in public hospitals. After discharge from hospital, the maternity and child healthcare centre provide the postnatal follow-up.[27]

Study participants

We included internationally migrated, recently pregnant women with a length of stay in Norway ≤5 years, giving birth in urban Oslo. We excluded migrants born in high-income countries, according to the Global Burden of Disease framework. Eligible women were recruited from the two public hospitals that serve urban Oslo with approximately 14 800 births annually: Oslo University Hospital and Akershus University Hospital.

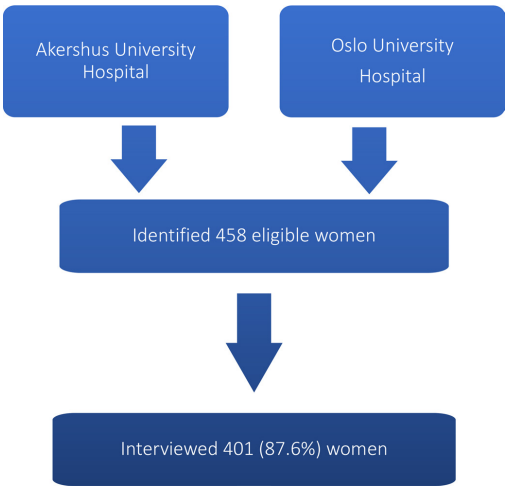


Figure 1 Flowchart inclusion.

Questionnaire

We applied a quantitative questionnaire, using a modified version of the Migrant Friendly Maternity Care Questionnaire (MFMCQ) (online supplemental file 1). MFMCQ is a structured questionnaire on maternity care developed to be used in migrant populations.[28] It includes information on maternal socio-demographic, migration and obstetric characteristics as well as satisfaction of care and other healthcare experiences during pregnancy and birth. The original questionnaire was adapted to the health system setting of Norway and modified after inputs from pilot testing. An interview guidebook was produced and training workshops for all the research personnel, one medical doctor and three midwives, were conducted. The interviewers met regularly to discuss challenges and experiences.

Data collection

The maternal healthcare in Norway is fragmented, meaning the healthcare before, during and after birth is administered by independent institutions. Therefore, to elicit responses from hard-to-reach groups that we would otherwise miss, the eligible women were recruited either on admission for delivery or at the postnatal ward (figure 1). The research personnel informed women about the study and a written consent was obtained. Thereafter, they conducted the interviews face to face in the women's own language of choice after birth, using an interpreter when needed. In addition, to aid the women in understanding the structure of the question and the answer options, written translations of the questionnaire were provided in nine languages: Arabic, Dari, English, French, Norwegian, Somali, Sorani, Tigrinya and Urdu.

The questionnaire was forward-translated by a certified translating company with extensive knowledge about medico-technical-related and pregnancy-related terms. The back-translating was performed blinded. We further systematically compared the back-translated questionnaire with the source language version, noting all discrepancies and adjusted accordingly.

Outcome variable

Satisfaction of care was assessed using the question, 'Overall, were you satisfied with the care you received?', combined for the two time periods: care during pregnancy and care during birth, with the response options 'always', 'sometimes', 'rarely' and 'never'. As the distribution of satisfaction data was strongly skewed, we categorised the data to be binary, with 'satisfied' (including 'always satisfied') and 'dissatisfied' (combining 'sometimes', 'rarely' and 'never'). There were no missing values.

Explanatory variables

Country of birth was grouped into super-regions following the Global Burden of Disease classifications, based on epidemiological similarity and geographic closeness: Latin America and Caribbean; Sub-Saharan Africa; North Africa and Middle East; South East Asia, East Asia and Oceania; South Asia; and Central Europe, Eastern Europe and Central Asia.[29] As to reason(s) for migration, we used the national classification based on the legal grounds for immigration. We grouped women into one out of three categories: refugee, work/education and family reunification. Maternal education was classified into three groups: no completed education, primary and secondary school, or university. Economic status was measured by asking the women if she had experienced difficulties making ends meet and paying monthly expenses, with responses 'yes often', 'yes occasionally' or 'no never'. Having a Norwegian partner implied that the partner was born in Norway, regardless of ethnicity. Healthcare experiences were examined by asking the women about 11 specific healthcare experiences, grouped binary as positive or negative experiences.

Statistical analysis

A sample size of approximately 360 women was required to detect a difference of 14% between 2 groups with and without full satisfaction, assuming that the proportion of fully satisfied women was 73% as the reference/control group.[30] A two-sided significance level of 0.05 and 80% power were used. We decided to include approximately 400 women to take potential missing values into account. The calculation of sample size was performed with Stata/SE V.16.1. Descriptive statistics as mean with SD and frequencies with percentages were calculated for categorical and continuous variables. The difference between two independent proportions of 'always satisfied' and 'not always satisfied' was tested by using a χ^2 test. Association between socio-demographic and clinical variables with primary and secondary outcomes was examined by using univariable and multivariable logistic regressions. The association was expressed as the OR with 95% CI and the Hosmer-Lemeshow test was used to inspect global goodness of fit for the logistic regression models. Two-sided p values were reported, and the significance level was set at 0.05. χ^2 test was used for the healthcare experiences among different migrant groups and if a significant association was found, we conducted a pairwise z-test post-hoc analysis with Bonferroni correction. The analyses were performed with IBM SPSS V.25.

Patient and public involvement

The MiPreg project has, from the design phase throughout the implementation phase, involved user representatives from non-governmental organisations and relevant migrant communities within the greater Oslo area. The user representatives gave feedback on readability, validity and cultural sensitivity of the questionnaire before data collection. After data collection, preliminary findings were presented, and interpretations were discussed with user representatives.

RESULTS

Socio-demographic and clinical characteristics of study participants

In total, 401 women completed the interview, 160 women from Akershus University Hospital and 241 women from Oslo University Hospital, giving an 87.6% response rate (figure 1). The 57 non-participating women did not differ from the participants in terms of age, length of residence or region of birth. The main reason for not participating was 'being tired' and 'not having the time'. The mean completion time for the interview was 44 min (SD: 13 min). All boroughs in the city of Oslo were represented, including surrounding counties which constitute the 'greater Oslo region'. The median age for primiparous women was 29 years and for multiparous women was 31 years. In total, the women originated from 66 different countries. Twenty-eight per cent of the women had lived in Norway for up to 1 year and 11 months, 37% for 2 years up to 3 years and 11 months and 35% for 4 years up to 5 years. The majority of women were primiparous. Almost one in four women had induction of labour (24.2%) and almost every fifth women had a caesarean section (18.0%). No difference in dissatisfaction was found for women receiving maternity care from a general practitioner (28.7%), a midwife (29.0%) or an obstetrician (28.1%) (table 1).

Socio-demographic and clinical factors associated with women's dissatisfaction

Women with a non-Norwegian partner had decreased odds of being dissatisfied with overall care, compared with women with a Norwegian partner (adjusted OR: 0.38, 95% CI 0.18 to 0.82, figure 2). Having completed primary and secondary education reduced the odds of being dissatisfied compared with those with higher

Table 1 Socio-demographic and clinical characteristics of all study participants and for overall dissatisfaction, n (%) or mean (SD)

Socio-demographic and clinical characteristics	All (n=401)	Dissatisfied* (n=113)
Socio-demographic characteristics		
Age (years), mean (SD)	29.8 (4.7)	29.8 (4.7)
Mother's region of birth (GBD), n (%)		
Central Europe, Eastern Europe and Central Asia	132 (32.9)	37 (32.7)
Latin America and Caribbean	13 (3.2)	7 (6.2)
North Africa and Middle East	76 (19.0)	24 (21.2)
South Asia	81 (20.2)	21 (18.6)
Southeast Asia, East Asia and Oceania	37 (9.2)	8 (7.1)
Sub-Saharan Africa	62 (15.5)	16 (14.2)
Partner's region of birth (GBD), n (%)†		
Central Europe, Eastern Europe and Central Asia	123 (30.7)	30 (26.5)
High-income countries	65 (16.2)	28 (24.8)
Latin America and Caribbean	1 (0.2)	1 (0.9)
North Africa and Middle East	74 (18.5)	20 (17.7)
South Asia	68 (17.0)	18 (15.9)
Southeast Asia, East Asia and Oceania	15 (3.7)	3 (2.7)
Sub-Saharan Africa	54 (13.5)	12 (10.6)
Partner Norwegian, n (%)		
Yes	54 (13.5)	22 (19.5)
No	347 (86.5)	91 (80.5)
Length of residency (months), mean (SD)	35.6 (19.4)	38.3 (18.1)
Education, n (%)		
No completed education	16 (4.0)	6 (5.3)
Primary/secondary school	151 (37.7)	27 (23.9)
University	234 (58.4)	80 (70.8)
Marital status, n (%)		
Single/divorced	21 (5.2)	5 (4.4)
Cohabitant/married	380 (94.8)	108 (95.6)
Economic status, n (%)		
Very low–low	19 (4.7)	8 (7.1)
Low–moderate	60 (15.0)	21 (18.6)
High	313 (78.1)	82 (72.6)
Unknown	9 (2.2)	2 (1.8)
Employment status, n (%)		
Employed	228 (56.9)	69 (61.1)
Unemployed	173 (43.1)	44 (38.9)
Reason for migration, n (%)		
Refugee	41 (10.2)	12 (10.6)
Family reunification	183 (45.6)	51 (45.1)
Work/education	177 (44.1)	50 (44.2)
Norwegian comprehension, n (%)		
None	69 (17.2)	20 (17.7)
With difficulties	149 (37.2)	39 (34.5)
Good	158 (39.4)	40 (35.4)
Fluently	25 (6.2)	14 (12.4)
Clinical characteristics		
BMI, mean (SD)	23.2 (4.0)	23.3 (4.1)
Number of children, mean (SD)	1.6 (0.8)	1.6 (0.8)
GA first antenatal visit, mean (SD)	9.5 (4.5)	9.5 (4.5)
Care received by‡, n (%)		
General practitioner	328 (81.8)	94 (83.2)
Midwife	331 (83.0)	96 (85.7)
Obstetrician	114 (28.4)	32 (28.3)
Parity, n (%)		
Primiparous	229 (57.1)	74 (65.5)
Multiparous	172 (42.9)	39 (34.5)
Evaluation of own health, n (%)		
Good	363 (90.5)	104 (92.0)
Neither good nor bad	33 (8.2)	7 (6.2)
Bad	5 (1.2)	2 (1.8)
Comorbidity, n (%)		
Yes	79 (19.7)	17 (15.0)
No	322 (80.3)	96 (85.0)
Pregnancy complication, n (%)		
Yes	213 (53.1)	69 (61.1)
No	187 (46.6)	44 (38.9)
Obstetric interventions, n (%)		
Induction	97 (24.2)	33 (29.2)
Vacuum	52 (13.0)	18 (15.9)
Caesarean section	72 (18.0)	22 (19.5)
Episiotomy	91 (22.7)	27 (23.9)
Epidural	242 (60.3)	70 (61.9)

Continued

Table 1 Continued

Socio-demographic and clinical characteristics	All (n=401)	Dissatisfied* (n=113)
Pudendal	21 (5.2)	9 (8.0)
Complications during birth, n (%)		
Postpartum haemorrhage	19 (4.7)	7 (22.6)
Transfer to NICU	27 (6.7)	8 (25.8)
Antibiotic treatment	55 (13.7)	16 (51.6)
Planned pregnancy, n (%)		
Yes	300 (74.8)	78 (69.0)
No	101 (25.2)	35 (31.0)

*Percentages are column percentages.
†One missing.
‡More than one healthcare provider possible.
.BMI, Body mass index; GA, Gestational age ; GBD, Global Burden of Disease; NICU, Neonatal intensive care unit.

education (adjusted OR: 0.39, 95% CI 0.22 to 0.73). Women with a Norwegian language comprehension categorised as 'good' or 'with difficulties', as compared with 'fluently', had decreased odds of being dissatisfied (adjusted OR: 0.26 and 0.24, 95% CI 0.09 to 0.71 and 0.09 to 0.62, respectively). Not having a planned pregnancy were associated with greater odds of being dissatisfied with care. No significant association was found between satisfaction and migrant-specific variables such as mother's region of birth, reason for migration and length of residency. Overall dissatisfaction with care was most pronounced during pregnancy (23%) as compared with during birth (12%). For 'dissatisfaction in pregnancy', all the variables from figure 2 were significantly associated, in addition to being primiparous (online supplemental file 2). When analysing 'dissatisfaction during birth', none of the variables from figure 2 were significant, including birth-related factors: 'complications during birth' and 'caesarean section'.

Negative healthcare experiences and their association with women's dissatisfaction

We found a higher proportion of negative responses for different healthcare experiences as compared with the overall dissatisfaction of care (table 2). One-third of women (33.4%) had not understood the information provided by the healthcare personnel during a consultation or while being admitted to hospital. Of these, 85% said that they would have understood the information better in another language. Among the one-third, there was a higher proportion of less fluency in Norwegian and lower education, compared with the two-thirds who understood the information. More than one-fourth of the women experienced that healthcare personnel did not ask if they had questions and did not spend enough time providing explanations. Half of the women had experienced prolonged waiting time before receiving care. One in every five women had experienced that healthcare personnel made a decision without taking their wishes into account.

Healthcare personnel not taking the women's concerns seriously (OR: 6.8, 95% CI 4.2 to 11.2), not spending enough time providing information (OR: 6.0, 95% CI 3.8 to 9.7) and perceived prolonged waiting time for the migrant women (OR: 5.2, 95% CI 3.2 to 8.5) increased the odds of being overall dissatisfied the most (figure 3).

Negative healthcare experiences and their association with reason for migration

More refugee women felt treated differently by healthcare personnel because of religion, skin colour, language, etc (24.4% vs 9.3%, p=0.022) and understood less information (51.2% vs 27.2%, p=0.008), compared with women who migrated due to family reunification and work/education, respectively (table 2). The majority of refugee women originated from Eritrea (34.1%), Syria (19.5%), Iraq (7.3%) and Somalia (7.3%). Women who migrated due to family reunification were more dissatisfied with the pain management (17.5% vs 7.3%, p=0.01) and felt that decisions were made without their wishes being taken into account (24.6% vs 14.1%, p=0.03), compared with women who migrated due to work/education.

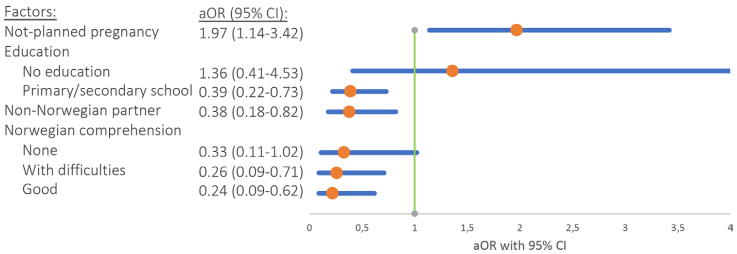


Figure 2 Association between socio-demographic and clinical factors with overall dissatisfaction with care (combined for during pregnancy and birth), with adjusted OR and 95% CI. Adjusted for Norwegian partner, education, Norwegian comprehension, parity, planned pregnancy, caesarean section, mother's region of birth, reason for migration, maternal age and length of residency.

Table 2 Negative healthcare experiences for all participants and for subgroups of migrants with refugee, family reunification and work/education, with frequency, N, and percentage, %

Negative healthcare experiences	All (n=401) N (%)	Refugee (n=41) N (%)	Family reunification (n=183) N (%)	Work/education (n=177) N (%)
HCP did not spend enough time providing explanations	123 (30.7)	14 (34.1)	58 (31.7)	51 (28.8)
Concerns were not taken seriously by HCP	101 (25.2)	12 (29.3)	52 (28.4)	37 (20.9)
Prolonged waiting time	201 (50.1)	17 (41.5)	89 (48.6)	95 (53.7)
Decisions were made without my wishes taken into account	80 (20.0)	10 (24.4)	45 (24.6)	25 (14.1)
There are things HCP could do differently	160 (39.9)	13 (31.7)	74 (40.4)	73 (41.2)
Preferences for care were not followed	17 (4.2)	3 (7.3)	8 (4.4)	6 (3.4)
Felt treated differently to other people by HCP	50 (12.5)	10 (24.4)	17 (9.3)	23 (13.0)
HCP did not ask if I had any questions	106 (26.4)	14 (34.1)	52 (28.4)	40 (22.6)
Dissatisfied with pain management	50 (12.5)	5 (12.2)	32 (17.5)	13 (7.3)
Dissatisfied with length of hospital stay	71 (17.7)	11 (26.8)	22 (12.0)	38 (21.5)
Did not understand information by HCP	134 (33.4)	21 (51.2)	65 (35.5)	48 (27.1)

HCP, healthcare personnel.

DISCUSSION

This study identified factors associated with maternal satisfaction with healthcare for recently arrived migrants. A substantial proportion of participants were satisfied with the received healthcare. However, the degree of dissatisfaction was higher among women with unplanned pregnancy, higher education, good language skills and a Norwegian partner. One-third of all women reported not to understand the information provided by the healthcare personnel during maternity care. In addition, more women with refugee background felt treated differently by the healthcare personnel because of factors such as religion, language and skin colour, than women who migrated due to family reunification.

Measures of satisfaction are important because it is assumed that they reflect quality of care. In consonance with the definition of satisfaction of care, 'high satisfaction' can indicate good care received but also 'low expectations' and vice versa.[31] This is especially true for the perinatal period where it may be difficult to distinguish between the childbirth experience and the actual care received.[32] The recently arrived migrant women's varying background can highly affect their expectations, depending on, for example, previous experience with healthcare in other countries, cultural context and knowledge about Norwegian healthcare system.[33] This is reflected in our results; even though the overall satisfaction was high, consistent with existing literature,[34 35] we found a high rate of negative responses for some healthcare experiences. This emphasises that an overall satisfaction score may not be adequate to measure quality of care. In agreement with our study, a recent review article on maternity care in Nordic countries also found experiences of care-related discrimination among refugees.[36] This may indicate implicit bias among healthcare personnel. However, this needs to be further explored, especially since negative implicit bias among healthcare personnel has the potential to contribute to disparities in health.[37]

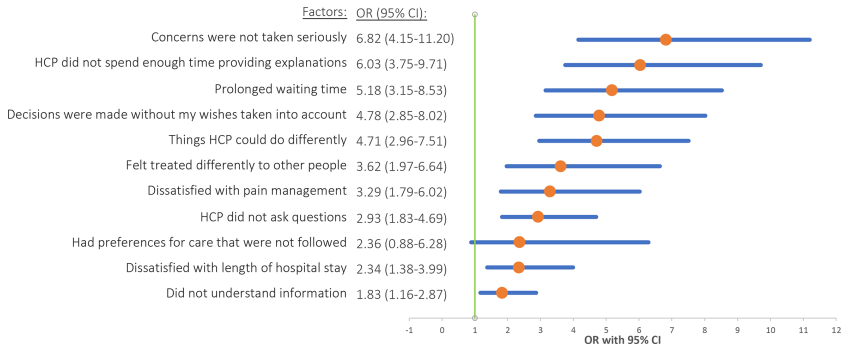


Figure 3 Association between negative healthcare experiences and overall dissatisfaction with care (combined for during pregnancy and birth), with crude OR and 95% CI.

Care during pregnancy was the time period with highest proportion of dissatisfaction in our study. Contrary to this, a Dutch study showed that non-Western migrants were most satisfied with the antenatal care,[38] while a British study found little difference in satisfaction between the three periods.[34] These differences might be explained by different ways of organising the maternity care between countries, for instance, a more non-intervening approach to perinatal care, continuity of care and more home births in the Netherlands compared with Norway. Contradicting previous research, we found no difference in women's satisfaction with maternity care given by a general practitioner or a midwife.[39]

In our study, women with high education were less satisfied, compared with those with some education. This difference can be explained by different expectations, which in turn can be influenced by health system literacy. A study specifically measuring expectations with antenatal care among vulnerable women, including migrants, found low expectations among women with a lower level of education.[35] Contrary to our finding, studies not looking specifically at migrants have suggested the opposite[40] and no association between education and satisfaction.[41] Indeed, several studies from developing countries have showed that women who are illiterate or with only primary education were more satisfied compared with those with higher education,[42 43] in line with our findings.

Communication and language barriers have been pointed out as main obstacles in achieving high-quality care for migrant women,[2 30 44 45] yet few quantitative studies have included language proficiency as a determinant for satisfaction. We did, indeed, find that a high proportion of women had not understood the information delivered by healthcare personnel and the majority of them believed they would have better understanding in a different language. This language barrier is a worrying finding in terms of quality of care. In agreement with our finding, a recent study indicated 'effective communication' to be one of the strongest associated factors with overall satisfaction.[46] Hence, increased satisfaction among women with less fluency in Norwegian language as shown in our study can be due to lower expectations. Gürbüz *et al* who also used the questionnaire tool MFMCQ surprisingly found no association between language proficiency and satisfaction.[47] In order to ensure high quality of care, there is a need for migrant-friendly communication, which includes access to professional interpreter services, provision of written materials for migrants in their language and training of healthcare personnel in intercultural communication.

Having a Norwegian partner increased the odds of being dissatisfied in our study. A recent study from Norway found increased odds for adverse outcomes for babies with two migrant parents compared with one and linked it to disadvantages such as communication problems and levels of health system literacy.[23] Our findings may, therefore, reflect expectations rather than actual quality of care. We found no association between overall satisfaction and mother's region of birth in our study, in agreement with other studies,[19 48 49] including one conducted in Norway.[50] While some studies have found higher satisfaction among migrants compared with non-migrants,[35 41 42] other studies have found the opposite.[40] However, we did not include non-migrants, as our aim was not to compare migrant women to the majority population.

Strength and limitations

A strength of this study was the use of face-to-face interviews with interpreter when needed, enabling all women to participate, not limited by language or literacy. In this way, we were also able to reduce the chance of missing data and limiting misinterpretation of questions. The use of the questionnaire tool MFMCQ enables comparability across countries. The clinical characteristics of study participants were comparable with national statistics on obstetric interventions and complications during birth.[51] As this is a cross-sectional study, true cause-and-effect relationship cannot be assessed. The questionnaire was administered within some days after birth not only to ensure responses from hard-to-reach groups but also potentially introducing bias. Immediately after birth, women tend to show high satisfaction levels, the so-called 'halo effect', where the women are filled with relief for having a healthy baby.[52] Social desirability bias could also affect the answers, since the interviews were conducted by healthcare personnel in the postnatal ward. However, the interviewing healthcare personnel did not provide care to the participating women and there is no consensus as to the right time for a survey.[19] The lack of measurement of expectations may have limited our understanding of some of the variables such as education and parity.[53]

Practical implications of the study and recommendations for future research

The findings of this study provide usable information for the improvement of maternal care to become 'migrant friendly'. Healthcare personnel assessing the pregnant women's literacy, expectations and pregnancy intention would assist in better identifying the women in need for additional support services to ensure higher satisfaction with care and better use of healthcare services. To ensure optimal communication, tools such as provision of professional interpreter, support material in various languages and intercultural mediation are required. This study emphasises that in migrant population, specific healthcare experiences rather than overall satisfaction may be important to evaluate quality of care. Including more women from certain vulnerable subgroups such as refugees and undocumented migrants in future studies would assist in deeper and more fully understanding of factors associated with dissatisfaction. Additionally, it would be important to understand the relationship between being dissatisfied and the use of healthcare services as well as between dissatisfaction and maternity outcomes. Including the partner's perception of care and predictors for satisfaction would further assist in understanding pathways to achieve higher quality of care.

Author affiliations
[1]Norwegian Research Centre for Women's Health, Department of Obstetrics and Gynecology, Oslo University Hospital, Oslo, Norway

[2]Department of Community Medicine and Global Health, Institute of Health and Society, Faculty of Medicine, University of Oslo, Oslo, Norway
[3]Department of International Studies and Interpreting, Section for Diversity Studies, Oslo Metropolitan University, Oslo, Norway
[4]Institute of Clinical Medicine, Faculty of Medicine, University of Oslo, Oslo, Norway
[5]Centre for Biostatistics and Epidemiology, Oslo University Hospital, Oslo, Norway
[6]Division of Mental and Physical Health, Norwegian Institute of Public Health, Oslo, Norway

Acknowledgements We thank all the participating women and health staff at Oslo University Hospital and Akershus University Hospital that enabled us to perform this study. We thank midwives Zusan Ibrahim, Kerstin Adolfsson and Maria Stivang for their help in data collection and Hanna Ottesen for useful comments on the manuscript.

Contributors SB modified the questionnaire, collected survey data, conducted the analysis, interpreted results and wrote the first draft of the manuscript. JS developed the idea for the study, secured the funding, contributed to results interpretation and contributed to manuscript revisions. BVL and SV developed the idea for the study, secured the funding, helped interpreted results and contributed to manuscript revisions. LMD contributed to data and statistical analysis and manuscript revision. KMO helped interpreted results and contributed to manuscript revisions. IS developed the idea for the study, secured the funding, interpreted results and revised manuscript. All authors approved the final version of the manuscript.

Funding This work was supported by research council of Norway (grant number: 273328).

Competing interests None declared.

Patient consent for publication A written consent was obtained from those who volunteered to participate in the study.

Ethics approval This study was approved by Oslo University Hospital's ethical review committee (approval number: 18/15786) and Akershus University Hospital's ethical review committee (approval number: 18/05310). The overall MiPreg study was approved by regional committees for medical and health research ethics (approval number: 2018/1086).

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available upon reasonable request. The data that support the findings of this study are available from the corresponding author, SB, upon reasonable request. The data are not publicly available due to their containing information that could compromise the privacy of research participants.

ORCID iD
Sukhjeet Bains http://orcid.org/0000-0001-8720-4732

REFERENCES

1 Jakab DZ. Statement – the challenges of migration require migrant-sensitive health systems for today and for the future who regional office for Europe: who regional office for Europe, 2015. Available: https://www.euro.who.int/en/about-us/regional-director/regional-directors-emeritus/dr-zsuzsanna-jakab,-2010-2019/speeches-and-presentations-by-year/2015/statement-the-challenges-of-migration-require-migrant-sensitive-health-systems-for-today-and-for-the-future accessed 07102020 2020
2 Almeida LM, Caldas J, Ayres-de-Campos D, *et al*. Maternal healthcare in migrants: a systematic review. *Matern Child Health J* 2013;17:1346–54.
3 Dias S, Gama A, Cortes M, *et al*. Healthcare-seeking patterns among immigrants in Portugal. *Health Soc Care Community* 2011;19:514–21.
4 Gissler M, Alexander S, MacFarlane A, *et al*. Stillbirths and infant deaths among migrants in industrialized countries. *Acta Obstet Gynecol Scand* 2009;88:134–48.
5 Draper ES, Gallimore ID, Smith LK, Kurinczuk JJ, Smith PW, Boby T, Fenton AC, Manktelow BN, on behalf of the MBRRACE-UK Collaboration. MBRRACE-UK perinatal mortality surveillance report, UK perinatal deaths for births from January to December 2017. Leicester The Infant Mortality and Morbidity Studies, Department of Health Sciences, University of Leicester; 2019.
6 Alderliesten ME, Vrijkotte TGM, van der Wal MF, *et al*. Late start of antenatal care among ethnic minorities in a large cohort of pregnant women. *BJOG* 2007;114:1232–9.
7 Kupek E, Petrou S, Vause S, *et al*. Clinical, provider and sociodemographic predictors of late initiation of antenatal care in England and Wales. *BJOG* 2002;109:265–73.
8 Cresswell JA, Yu G, Hatherall B, *et al*. Predictors of the timing of initiation of antenatal care in an ethnically diverse urban cohort in the UK. *BMC Pregnancy Childbirth* 2013;13:103.
9 Bains S, Mæland KS, Vik ES. Prenatal health of immigrant women in Norway - an exploratory literature review. *Tidsskr Nor Laegeforen* 2021;141. doi:10.4045/tidsskr.20.0428. [Epub ahead of print: https://pubmed.ncbi.nlm.nih.gov/33528142/
10 Heaman M, Bayrampour H, Kingston D, *et al*. Migrant women's utilization of prenatal care: a systematic review. *Matern Child Health J* 2013;17:816–36.
11 Fitzpatrick R. Surveys of patient satisfaction: II--Designing a questionnaire and conducting a survey. *BMJ* 1991;302:1129–32.
12 Kincey J, Bradshaw P, Ley P. Patients' satisfaction and reported acceptance of advice in general practice. *J R Coll Gen Pract* 1975;25:558–66.
13 Cleary PD, McNeil BJ. Patient satisfaction as an indicator of quality care. *Inquiry* 1988;25:25–36.
14 Guldvog B. Can patient satisfaction improve health among patients with angina pectoris? *Int J Qual Health Care* 1999;11:233–40.
15 World Health Organization. Standards for improving quality of maternal and newborn care in health facilities, 2016. Available: https://www.who.int/maternal_child_adolescent/documents/improving-maternal-newborn-care-quality/en/ [Accessed 02 Oct 2020].
16 Sitzia J, Wood N. Patient satisfaction: a review of issues and concepts. *Soc Sci Med* 1997;45:1829–43.
17 Wilde-Larsson B, Sandin-Bojö A-K, Starrin B, *et al*. Birthgiving women's feelings and perceptions of quality of intrapartal care: a nationwide Swedish cross-sectional study. *J Clin Nurs* 2011;20:1168–77.
18 Henriksen L, Grimsrud E, Schei B, *et al*. Factors related to a negative birth experience - A mixed methods study. *Midwifery* 2017;51:33–9.
19 Hodnett ED. Pain and women's satisfaction with the experience of childbirth: a systematic review. *Am J Obstet Gynecol* 2002;186:S160–72.
20 Srivastava A, Avan BI, Rajbangshi P, *et al*. Determinants of women's satisfaction with maternal health care: a review of literature from developing countries. *BMC Pregnancy Childbirth* 2015;15:97.
21 van den Akker T, van Roosmalen J. Maternal mortality and severe morbidity in a migration perspective. *Best Pract Res Clin Obstet Gynaecol* 2016;32:26–38.
22 Gagnon AJ, Redden KL. Reproductive health research of women migrants to Western countries: a systematic review for refining the clinical lens. *Best Pract Res Clin Obstet Gynaecol* 2016;32:3–14.
23 Vik ES, Aasheim V, Schytt E, *et al*. Stillbirth in relation to maternal country of birth and other migration related factors: a population-based study in Norway. *BMC Pregnancy Childbirth* 2019;19:5.
24 Saastad E, Vangen S, Frøen JF. Suboptimal care in stillbirths - a retrospective audit study. *Acta Obstet Gynecol Scand* 2007;86:444–50.
25 The Norwegian Directorate of Health. Healthcare for persons without legal residence in Norway, 2020. Available: https://www.helsenorge.no/en/foreigners-in-norway/healthcare-for-persons-without-legal-residence/ [Accessed 19 Oct 2020].
26 The Norwegian Directorate of Health. Check-Ups during pregnancy, 2020. Available: https://www.helsenorge.no/en/pregnancy-and-maternity-care-in-norway/check-ups-during-pregnancy/ [Accessed 19 Oct 2020].
27 The Norwegian Directorate of Health. Follow-Up care during the post-natal period, 2020. Available: https://www.helsenorge.no/en/

etter-fodsel/follow-up-care-during-the-post-natal-period/ [Accessed 19 Oct 2020].
28 Gagnon AJ, DeBruyn R, Essén B, *et al*. Development of the migrant friendly maternity care questionnaire (MFMCQ) for migrants to Western societies: an international Delphi consensus process. *BMC Pregnancy Childbirth* 2014;14:200.
29 The Institute for Health Metrics and Evaluation. What countries are in each region? 2020. Available: http://www.healthdata.org/gbd/faq [Accessed 19 Oct 2020].
30 Brown S, Lumley J. Changing childbirth: lessons from an Australian survey of 1336 women. *Br J Obstet Gynaecol* 1998;105:143–55.
31 Sofaer S, Firminger K. Patient perceptions of the quality of health services. *Annu Rev Public Health* 2005;26:513–59.
32 Rudman A, El-Khouri B, Waldenström U. Women's satisfaction with intrapartum care - a pattern approach. *J Adv Nurs* 2007;59:474–87.
33 Ng C, Newbold KB. Health care providers' perspectives on the provision of prenatal care to immigrants. *Cult Health Sex* 2011;13:561–74.
34 van Teijlingen ER, Hundley V, Rennie A-M, *et al*. Maternity satisfaction studies and their limitations: "What is, must still be best". *Birth* 2003;30:75–82.
35 Galle A, Van Parys A-S, Roelens K, *et al*. Expectations and satisfaction with antenatal care among pregnant women with a focus on vulnerable groups: a descriptive study in Ghent. *BMC Womens Health* 2015;15:112.
36 Leppälä S, Lamminpää R, Gissler M, *et al*. Humanitarian migrant women's experiences of maternity care in Nordic countries: a systematic integrative review of qualitative research. *Midwifery* 2020;80:102572.
37 FitzGerald C, Hurst S. Implicit bias in healthcare professionals: a systematic review. *BMC Med Ethics* 2017;18:19.
38 Peters IA, Posthumus AG, Steegers EAP, *et al*. Satisfaction with obstetric care in a population of low-educated native Dutch and non-Western minority women. focus group research. *PLoS One* 2019;14:e0210506.
39 Harvey S, Rach D, Stainton MC, *et al*. Evaluation of satisfaction with midwifery care. *Midwifery* 2002;18:260–7.
40 Tocchioni V, Seghieri C, De Santis G, *et al*. Socio-Demographic determinants of women's satisfaction with prenatal and delivery care services in Italy. *Int J Qual Health Care* 2018;30:594–601.
41 Fumagalli S, Colciago E, Antolini L, *et al*. Variables related to maternal satisfaction with intrapartum care in northern Italy. *Women Birth* 2021;34:154–61.
42 Kebede DB, Belachew YB, Selbana DW, *et al*. Maternal satisfaction with antenatal care and associated factors among pregnant women in Hossana town. *Int J Reprod Med* 2020;2020:1–8.
43 Onyeajam DJ, Xirasagar S, Khan MM, *et al*. Antenatal care satisfaction in a developing country: a cross-sectional study from Nigeria. *BMC Public Health* 2018;18:368.
44 Santiago MdaCF, Figueiredo MH. Immigrant women's perspective on prenatal and postpartum care: systematic review. *J Immigr Minor Health* 2015;17:276–84.
45 Small R, Roth C, Raval M, *et al*. Immigrant and non-immigrant women's experiences of maternity care: a systematic and comparative review of studies in five countries. *BMC Pregnancy Childbirth* 2014;14:152.
46 Lazzerini M, Mariani I, Semenzato C, *et al*. Association between maternal satisfaction and other indicators of quality of care at childbirth: a cross-sectional study based on the who standards. *BMJ Open* 2020;10:e037063.
47 Gürbüz B, Großkreutz C, Vortel M, *et al*. The influence of migration on women's satisfaction during pregnancy and birth: results of a comparative prospective study with the migrant friendly maternity care questionnaire (MFMCQ). *Arch Gynecol Obstet* 2019;300:555–67.
48 Sadler LC, Davison T, McCowan LM. Maternal satisfaction with active management of labor: a randomized controlled trial. *Birth* 2001;28:225–35.
49 Conesa Ferrer MB, Canteras Jordana M, Ballesteros Meseguer C, *et al*. Comparative study analysing women's childbirth satisfaction and obstetric outcomes across two different models of maternity care. *BMJ Open* 2016;6:e011362.
50 Sjetne IS, Iversen HH, pregnancy Dexperienceswith. Do experiences with pregnancy, birth and postnatal care in Norway vary by the women's geographic origin? A comparison of cross-sectional survey results. *BMC Pregnancy Childbirth* 2017;17:37.
51 Medical Birth Registry of Norway. Norwegian Institute of public health, 2020. Available: http://statistikkbank.fhi.no/mfr/ accessed 26.09.2020
52 Britton JR. The assessment of satisfaction with care in the perinatal period. *J Psychosom Obstet Gynaecol* 2012;33:37–44.
53 Linder-Pelz S. Social psychological determinants of patient satisfaction: a test of five hypothesis. *Soc Sci Med* 1982;16:583–9.

13.2 Paper 2

International Journal of
Environmental Research and Public Health

MDPI

Article

Newly Arrived Migrant Women's Experience of Maternity Health Information: A Face-to-Face Questionnaire Study in Norway

Sukhjeet Bains [1,2,*], Johanne Sundby [2], Benedikte V. Lindskog [3], Siri Vangen [1,4] and Ingvil K. Sørbye [1]

[1] Norwegian Research Centre for Women's Health, Department of Obstetrics and Gynecology, Oslo University Hospital, 0424 Oslo, Norway; sirvan@ous-hf.no (S.V.); isorbye@ous-hf.no (I.K.S.)
[2] Department of Community Medicine and Global Health, Institute of Health and Society, University of Oslo, 0316 Oslo, Norway; johanne.sundby@medisin.uio.no
[3] Section for Diversity Studies, Department of International Studies and Interpreting, Oslo Metropolitan University, 0167 Oslo, Norway; benedik@oslomet.no
[4] Institute of Clinical Medicine, Faculty of Medicine, University of Oslo, 0316 Oslo, Norway
* Correspondence: sukhjeetkb@gmail.com

Abstract: Limited understanding of health information may contribute to an increased risk of adverse maternal outcomes among migrant women. We explored factors associated with migrant women's understanding of the information provided by maternity staff, and determined which maternal health topics the women had received insufficient coverage of. We included 401 newly migrated women (≤5 years) who gave birth in Oslo, excluding migrants born in high-income countries. Using a modified version of the Migrant Friendly Maternity Care Questionnaire, we face-to-face interviewed the women postnatally. The risk of poor understanding of the information provided by maternity staff was assessed in logistic regression models, presented as adjusted odds ratios (aORs), with 95% confidence intervals (CI). The majority of the 401 women were born in European and Central Asian regions, followed by South Asia and North Africa/the Middle East. One-third (33.4%) reported a poor understanding of the information given to them. Low Norwegian language proficiency, refugee status, no completed education, unemployment, and reported interpreter need were associated with poor understanding. Refugee status (aOR 2.23, 95% CI 1.01–4.91), as well as a reported interpreter need, were independently associated with poor understanding. Women who needed but did not get a professional interpreter were at the highest risk (aOR 2.83, 95% CI 1.59–5.02). Family planning, infant formula feeding, and postpartum mood changes were reported as the most frequent insufficiently covered topics. To achieve optimal understanding, increased awareness of the needs of a growing, linguistically diverse population, and the benefits of interpretation services in health service policies and among healthcare workers, are needed.

Keywords: language barriers; health disparities; quality of care; migrants; maternity care; health literacy; interpreter; maternal health

Citation: Bains, S.; Sundby, J.; Lindskog, B.V.; Vangen, S.; Sørbye, I.K. Newly Arrived Migrant Women's Experience of Maternity Health Information: A Face-to-Face Questionnaire Study in Norway. *Int. J. Environ. Res. Public Health* **2021**, *18*, 7523. https://doi.org/10.3390/ijerph18147523

Academic Editors: Alexandra Jablonka, Happle Christine and Iro Evlampidou

Received: 17 June 2021
Accepted: 13 July 2021
Published: 15 July 2021

1. Introduction

Due to increasing international migration, healthcare workers in host countries are providing care to an increasingly linguistically and culturally diverse patient group. Newly arrived migrants constitute a vulnerable group who, in addition to the loss of social status, discrimination, and socioeconomic marginalisation, may experience language barriers [1]. An increasing and considerable proportion of women giving birth in host countries are migrants. Thus, maternity care is often among the first exposures to a new healthcare system for migrant women. In addition, pregnancy and birth may exacerbate already existing vulnerability factors.

Disparities in maternal health outcomes and sub-optimal healthcare for migrants in Europe have been well documented [2,3]. Migrants have poorer access to, and inad-

equate utilisation of, available maternity healthcare services, which may be associated with socioeconomic status and the reason for migration [4]. Furthermore, women born in low- or middle-income countries represent a group with a higher risk-profile and in need of healthcare during pregnancy and birth [5,6]. While the causes of disparities are multifactorial, inadequate uptake of maternity health information and the ability to act on this information has been suggested as a major contributor, particularly for newly arrived migrants [7,8].

Adequate understanding of health information provided face-to-face by a health worker depends on several factors, such as health literacy, language proficiency, and the cultural competence and communication skills of both the patient and healthcare worker [9–12]. In addition, migrant background, educational level, and occupational and economic status can also influence the understanding of the health information of a patient [13–15].

The use of a professional interpreter has been shown to reduce the language barrier and improve the quality of care [16–18]. Provision of interpretation services is furthermore a modifiable factor that may be handled from within the healthcare system, in contrast to more complex factors such as socioeconomic status. Consequently, a number of European countries aim to provide interpreter services to migrants [19].

We know that the health information need is particularly high during pregnancy and birth, due to significant physical and psychological changes, in addition to the concerns about the foetus [20]. Moreover, the health information need is critical, as behaviours can have long-term consequences for women and their offspring [21]. Poor understanding can impact timely access to maternity care services, and impact the patient–provider relationship [22]. Ultimately, it may lead to poor compliance, and in the worst case, adverse outcomes [23,24].

Currently, little is known about newly arrived migrant women's experiences of receiving, and level of understanding, health information in maternity care. In this study, we conducted face-to-face structured interviews with newly arrived migrant women in Norway, a country where almost 30% of the children born in 2020 had a migrant mother [25]. We explored factors associated with newly arrived migrants' understanding of information provided by maternity staff. In addition, we determined which maternal health topics the women had received insufficient coverage of.

2. Materials and Methods

2.1. Study Design

This questionnaire study is a part of the larger MiPreg-project that is seeking to identify factors that explain disparities in maternity outcomes among newly migrated women in urban Oslo, Norway. The project is a multidisciplinary, mixed-method project with qualitative and quantitative work packages. For this quantitative study, we used a modified version of the Migrant Friendly Maternity Care Questionnaire (Supplementary Material File S1). This structured questionnaire on maternity care was developed to be used in migrant populations [26]. It includes information on maternal socioeconomic factors, migration and obstetric characteristics, and understanding of information and interpreter use. The original questionnaire was adapted to the health system setting of Norway and modified to include questions on socio-economic background from national surveys. Response options for questions about antenatal services used by the women were altered to fit current available services within the healthcare system in Norway. Furthermore, we conducted pilot-testing of the questionnaire and made adjustments accordingly.

2.2. Study Setting

Norway has universal health coverage, and essential healthcare before, during, and after birth is free of charge for all legal citizens. Persons without legal residence have the right to healthcare, and if they cannot pay for maternity services they are exempted [27]. The standard antenatal package offered to low-risk pregnancies, with eight consultations,

includes one routine ultrasound examination around week 18. Antenatal care is provided by a general practitioner or midwife in low-risk pregnancies, and by obstetricians in high-risk pregnancies. Patients have a legal right to receive healthcare information in a language they understand, free of charge [28]. It is the responsibility of the healthcare worker to book an interpreter, and it is recommended that relatives should not be used in place of a professional interpreter [28].

2.3. Study Population

We included international migrant women who gave birth in urban Oslo, with a length of stay in Norway ≤ 5 years. We excluded migrant women born in high-income countries, as defined by the Global Burden of Disease framework, which is based on epidemiological similarity and geographic closeness [29]. The woman's country of birth was further classified into the Global Burden of Disease super-regions; Latin America & the Caribbean, Sub-Saharan Africa, North Africa & the Middle East, South East Asia, East Asia & Oceania, South Asia and Central Europe, Eastern Europe & Central Asia.

2.4. Data Collection

From January 2019 to January 2020, eligible women were recruited by trained research personnel, a physician, and three midwives from the two public hospitals with a maternity ward that serve urban Oslo (approximately 14,800 births annually): Oslo University Hospital and Akershus University Hospital. Almost all births in Norway are institutionalised and occur in public hospitals. The research personnel went through the maternity ward list approximately once a week and identified eligible women by asking the midwife in charge about the women's country of birth and length of stay in Norway. As such, eligible participants were women admitted to the ward the days we recruited participants, i.e., consecutive selection was used. If eligible, written consent was obtained after informing the women about the study, using an interpreter if needed. The research personnel conducted the interviews face-to-face with the women at the postnatal ward 1–3 days after birth, in the woman's language of choice, using an interpreter, when needed. Training workshops for the research personnel were conducted, and an interview guidebook was produced to ensure accuracy and consistency in registration.

2.5. Outcome Variables

We explored the women's understanding of information by asking the question "*Did you understand the information the health care worker tried to convey to you*?" combined for three time periods; during pregnancy, during birth, and after birth. As the distribution of the response data was strongly skewed towards *always understood*, we categorised the data as a binary variable: *good understanding*, which included "*always understood the information*", and *poor understanding*, which included "*sometimes*", "*rarely*" and "*never understood the information*". Further, the women were asked to determine whether they had received sufficient or insufficient coverage of a range of maternal health topics during the course of their pregnancy.

2.6. Explanatory Variables

We determined majority language proficiency by asking about the level of Norwegian fluency for oral, reading, writing, and comprehension skills, with the response options "*fluent*", "*good*", "*some difficulty*", and "*not at all*". A sum-score ranging from 4 to 16 was created, and we grouped the variable into tertiles; "*Low*" with a sum-score of 4–7; "*Moderate*" with a sum-score of 8–11; and "*High*", with a sum-score of 12–16. As to the reason for migration, we used the national classification based on the legal grounds for immigration, grouping women into three categories: refugee, work/education, and family reunification. Completed maternal education was classified into three groups: no education, primary and secondary school, or university. The need for and offer of a professional interpreter was assessed for the three time periods: during pregnancy, during birth, and after birth.

2.7. Statistical Analysis

Descriptive statistics, such as the means with standard deviations (SD) and frequencies with percentages, were calculated for categorical and continuous variables. There were no missing values. To test differences between poor and good understanding, we used chi-square tests for all categorical variables, and Mann-Whitney Tests for the continuous variables. Associations between explanatory variables and poor understanding were estimated by univariable and multivariable logistic regressions, presented as crude (OR) and adjusted odds ratios (aOR) with 95% confidence intervals (CI). In Model A, we adjusted for majority language proficiency, the reason for migration, education, and employment. In Model B, we additionally included the variable offered interpreter during pregnancy. We only included the time period of pregnancy as it comprised the period where most women reported a need for a professional interpreter. In addition, we explored a possible interaction effect between majority language proficiency and if the woman had been offered an interpreter during pregnancy. However, as the interaction term was not significant in the model, we excluded it. We assessed the goodness of fit for the regression models and checked for multicollinearity. The significance level was set at 0.05. The analyses were performed with IBM SPSS version 25.

2.8. Ethics and Public Involvement

This study was approved by each hospital's Ethical Review Committee (approval 18/15786 + 18/05310). Written informed consent was obtained from the women who participated in the study. User representatives from migrant communities were involved from the design phase, and throughout the implementation phase, of the MiPreg study.

3. Results

3.1. Characteristics

A total of 401 newly migrated women, born in 65 different countries, were interviewed (87.5% response rate). Overall, one-third (33.4%) of the women reported a poor understanding of the information provided by maternity staff during their pregnancy, birth, or after birth. The majority of women were born in the Central/Eastern European and Central Asian regions, followed by South Asia and North Africa/the Middle East. As to the women's country of birth, the top five represented countries were Poland (10.2%), Pakistan (8.1%), India (7.7%), the Philippines (6.5%), and Eritrea (5.5%). The mean age was 29.8 years, and the mean length of residency was 36 months. Understanding of information did not differ significantly between primiparous and multiparous women. Among women reporting a poor understanding, most had a low majority language proficiency, while among women reporting a good understanding, most had high proficiency. Overall, more than half had a university education, and almost 60% were employed. More women without any completed education reported poor understanding (56.2%), while the majority of the women with a completed university degree reported good understanding (70.9%). Overall, the majority had migrated due to family reunification or work/education, while 10.2% were refugees. More refugees reported poor understanding (51.2%), while more women who migrated due to education/work reported a good understanding (72.9%). The women's need for an interpreter varied during the three time periods, with the highest need reported during pregnancy (42.1%). Among those who felt the need for an interpreter, most of them were offered one during pregnancy (56.2%), whereas few women were offered one during birth (19.0%) (Table 1).

The baseline characteristics varied between the women who needed but did not get an interpreter, those who needed and did get an interpreter, and those who did not need a professional interpreter (Supplementary Material Table S1). Women with refugee status were offered a professional interpreter during pregnancy, birth, and after birth most often (41.5%, 9.8%, and 29.3%, respectively). Partners or other adult family members were most commonly used as interpreters (74.0%), followed by a professional interpreter (19.2%) or a

bilingual healthcare worker (5.1%). Only one woman reported that her underage child had been used as an interpreter (data not shown).

Table 1. Characteristics of all study participants and according to poor or good understanding of information provided by maternity staff, n (%) or mean (SD).

Characteristics	All Participants (N = 401)	Poor Understanding (N = 134)	Good Understanding (N = 267)	*p*-Value
Mean age, in years (SD)	29.8 (4.7)	29.4 (4.5)	30.0 (4.8)	0.188 [a]
Mean length of residency, in months (SD)	35.6 (19.4)	32.9 (18.6)	37.0 (19.7)	0.044 [a]
Women region of birth (global burden of disease), n (%)				0.067 [b]
Central/Eastern Europe and Central Asia	132 (32.9)	37 (28.0)	95 (72.0)	
Latin America and the Caribbean	13 (3.2)	3 (23.1)	10 (76.9)	
North Africa and the Middle East	76 (19.0)	29 (38.2)	47 (61.8)	
South Asia	81 (20.2)	23 (28.4)	58 (71.6)	
Southeast Asia, East Asia and Oceania	37 (9.2)	12 (32.4)	25 (67.6)	
Sub-Saharan Africa	62 (15.5)	30 (48.4)	32 (51.6)	
Partner's background, n (%)				0.061 [b]
Norwegian	54 (13.5)	12 (22.2)	42 (77.8)	
Foreign	347 (86.5)	122 (35.2)	225 (64.8)	
Parity, n (%)				0.919 [b]
Primiparous	229 (57.1)	77 (57.5)	152 (56.9)	
Multiparous	172 (42.9)	57 (42.5)	115 (43.1)	
Majority language proficiency, n (%)				0.017 [b]
Low	112 (27.9)	47 (42.0)	65 (58.0)	
Moderate	173 (43.1)	59 (34.1)	114 (65.9)	
High	116 (28.9)	28 (24.1)	88 (75.9)	
Education, n (%)				0.030 [b]
No completed school	16 (4.0)	9 (56.2)	7 (43.8)	
Primary/secondary school	151 (37.7)	57 (37.7)	94 (62.3)	
University	234 (58.4)	68 (29.1)	166 (70.9)	
Employment, n (%)				0.017 [b]
Unemployed	173 (43.1)	69 (39.9)	104 (60.1)	
Employed	228 (56.9)	65 (28.5)	163 (71.5)	
Financial level, n (%)				0.028 [b]
High	313 (78.1)	96 (30.7)	217 (69.3)	
Low	88 (21.9)	38 (43.2)	50 (56.8)	
Reason for migration, n (%)				0.009 [b]
Refugee	41 (10.2)	21 (51.2)	20 (48.8)	
Family reunification	183 (45.6)	65 (35.5)	118 (64.5)	
Education/work	177 (44.1)	48 (27.1)	129 (72.9)	
Need for and offer of a professional interpreter during pregnancy, n (%)				<0.0001 [b]
Needed but did not get	74 (18.5)	37 (50.0)	37 (50.0)	
Needed and got	95 (23.7)	43 (45.3)	52 (54.7)	
Did not need	232 (57.9)	54 (23.3)	178 (76.7)	
Need for and offer of a professional interpreter during birth, n (%)				<0.0001 [b]
Needed but did not get	128 (31.9)	63 (49.2)	65 (50.8)	
Needed and got	30 (7.5)	15 (50.0)	15 (50.0)	
Did not need	243 (60.6)	56 (23.0)	187 (77.0)	
Need for and offer of a professional interpreter after birth, n (%)				
Needed but did not get	102 (25.4)	45 (44.1)	57 (55.9)	
Needed and got	54 (13.5)	33 (61.1)	21 (38.9)	<0.0001 [b]
Did not need	245 (61.1)	56 (22.9)	189 (77.1)	

[a] Mann-Whitney Test (2-tailed). [b] Pearson Chi-Square (2-sided).

3.2. Factors Associated with Poor Understanding of Information

The majority language proficiency, reason for migration, educational level, employment, and offer of a professional interpreter during pregnancy were associated with poor understanding of information in the crude analysis (Table 2). Needing but not getting offered a professional interpreter during pregnancy increased the risk of poor understanding of information (crude OR 3.30, 95% CI 1.91–5.70). In model A, women with low majority language proficiency (aOR 2.14, 95% CI 1.14–4.02) were more likely to have a poor understanding of information compared to those with high proficiency (Table 2). Furthermore, women who migrated as refugees (aOR 2.56, 95% CI 1.18–5.53, Table 2) had a higher risk of poor understanding compared to women who migrated due to education or work. In model B, the reason for migration and being offered a professional interpreter during pregnancy remained statistically significant (Table 2). The women who needed, but did not get offered, a professional interpreter were 2.8 times more likely to have a poor understanding of information, whereas those who needed and got one were 2.1 times more likely to have a poor understanding of information, compared to those who did not need a professional interpreter.

Table 2. Factors associated with poor understanding of information given by healthcare personnel during pregnancy, birth, and after birth.

Factors	Crude OR (95% CI)	Adjusted OR (95% CI) Model A	Adjusted OR (95% CI) Model B
Majority language proficiency			
Low	2.27 (1.29–4.01) *	2.14 (1.14–4.02) *	1.76 (0.92–3.40)
Moderate	1.63 (0.96–2.76)	1.51 (0.87–2.62)	1.26 (0.71–2.23)
High	1.00	1.00	1.00
Reason for migration			
Refugee	2.82 (1.41–5.66) *	2.56 (1.18–5.53) *	2.23 (1.01–4.91) *
Family reunification	1.48 (0.95–2.32)	1.40 (0.85–2.31)	1.37 (0.82–2.27)
Education/work	1.00	1.00	1.00
Education			
No completed school	3.14 (1.12–8.77) *	1.78 (0.60–5.29)	1.26 (0.41–3.86)
Primary/secondary school	1.48 (0.96–2.28)	1.13 (0.71–1.81)	0.93 (0.56–1.54)
University	1.00	1.00	1.00
Employment			
Unemployed	1.66 (1.10–2.53) *	1.16 (0.72–1.87)	1.05 (0.63–1.73)
Employed	1.00	1.00	1.00
Need for and offer of a professional interpreter during pregnancy			
Needed but did not get	3.30 (1.91–5.70) *		2.83 (1.59–5.02) *
Needed and got	2.73 (1.64–4.52) *		2.07 (1.14–3.76) *
Did not need	1.00		1.00

* Significant at $p < 0.05$. OR = Odds ratio. CI = confidence interval. GBD = global burden of disease. Model A: includes "*majority language proficiency*", "*reason for migration*", "*education*" and "*employment*". Model B: includes model A + "*offered professional interpreter during pregnancy*".

3.3. Insufficient Coverage of Maternal Health Topics

More than half of the women reported insufficient coverage on the topic of family planning (58%), infant formula feeding (56%), and postpartum mood changes (53%). Information about recommended medical tests had the lowest reported proportion of insufficient coverage (17%). For all topics, higher proportions of insufficient coverage were reported by the women with a poor understanding of information, compared to women with a good understanding (Figure 1).

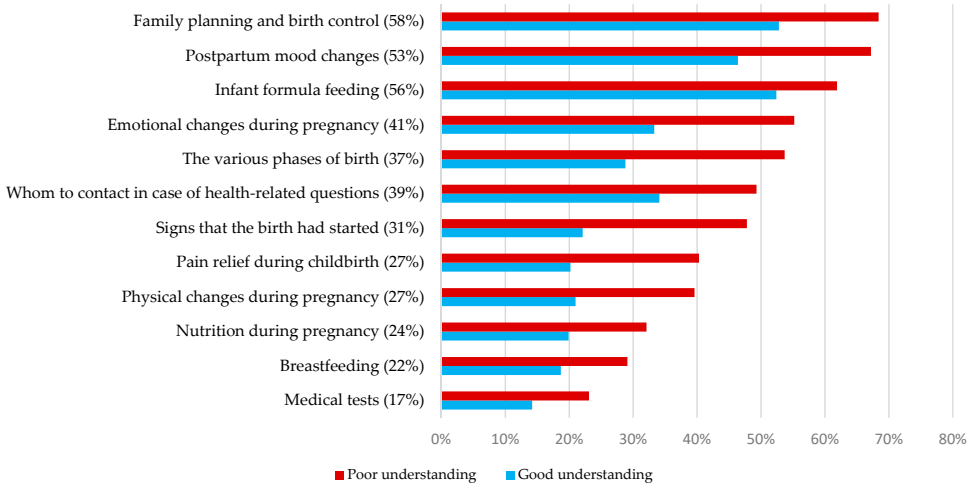


Figure 1. Proportion of women who reported receiving insufficient coverage of various maternal health topics (percentage of all) and by poor and good understanding of information provided by maternity staff.

4. Discussion

Among 401 newly arrived migrants, one-third (33.4%) reported a poor understanding of information provided by maternity staff during pregnancy, birth, or after birth. Needing, but not getting offered, a professional interpreter during pregnancy, compared to not needing one, increased the risk of poor understanding (aOR 2.83, 95% CI 1.59–5.02). In addition, refugee status, compared to having migrated due to education or work, also increased the risk of poor understanding (aOR 2.23, 95% CI 1.01–4.91). More than half of the women reported insufficient coverage of family planning, infant formula feeding, and postpartum mood changes.

4.1. Poor Understanding of Information

Migrant women's poor understanding of the information provided by maternity staff has been well documented in qualitative studies [30,31]. We show that being offered a professional interpreter was associated with a better understanding of information. We also found an unmet need for professional interpreter services, consistent with the literature [30,32–34]. Thus, these results suggest that more effort should be put into providing interpreting services, which compared to other factors, is a more easily modifiable factor. This is in line with a WHO report which identified interpretation, translation, cultural mediation, and education of healthcare workers as the most significant strategies for reducing communication barriers for migrants in Europe [35].

However, several factors can cause the underuse of interpreting services. A Swiss study reported that only 9% of healthcare workers had received training in the importance of, and how to work with, a professional interpreter [36]. In addition, very few healthcare workers expressed that their health facility encouraged using professional interpreters [36]. Increased awareness among policymakers, as well as continued education for healthcare workers about their responsibility to provide measures for better understanding, were indicated as important in a previous Norwegian study [32]. Targeted actions to increase the use of professional interpreters for women during birth has shown positive results [37]. Additionally, interventions designed to increase understanding of information among patients with low health literacy, such as adding video to written information or pictograms, has led to improved comprehension [38].

As expected, the offer of a professional interpreter was most common during antenatal care, possibly due to the structure of the consultations, with a set time frame and therefore easier logistics. Although ensuring a good understanding of information is crucial during birth, not only to avoid adverse maternal outcomes such as perineal tears but also for the birth experience of the woman, only 19% of the women who needed interpretation were offered it. Our findings, therefore, indicate that the recommended standards for providing patients with interpretation services in Norway are not being followed. This was also found in an Australian study, which reported that only 22% of the women who did not speak English had access to a professional interpreter during birth [39].

In contrast to countries with considerable linguistic diversity among maternity staff, such as the UK, bilingual maternity staff were seldom used as interpreters in our study [33]. This emphasises the need for other strategies to overcome language barriers in countries with less linguistic diversity among healthcare workers. Consistent with our findings, using family members as interpreters was a common strategy to overcome language barriers; however, this is not recommended, or in accordance with guidelines [33,34,40].

Our findings of a poor understanding of information among refugees may partially explain insufficient access and utilisation of antenatal care within this subgroup of migrants [4,41]. The majority language proficiency is undoubtedly an important factor in understanding information, as confirmed by other studies [42,43]. However, it can only partially explain differences, as a substantial proportion of women with low and moderate language proficiency reported adequate understanding. It is worth mentioning that our findings do not take into account whether or not the women spoke English, a language many healthcare workers in Norway have a good command of. Therefore, women with low to moderate Norwegian proficiency with good understanding might represent those who spoke English. In agreement with our study, parity has been shown to not be associated with the level of understanding of health information [44].

4.2. Insufficient Coverage of Maternal Health Topics

We found a high rate of insufficient coverage of several maternal health topics. Among women who reported poor understanding of information, a greater proportion of topics were reported to be insufficiently covered. In line with our findings of insufficient coverage about family planning, a German study found that although the government provided free family planning services, there was a big knowledge gap for refugees [45]. Interventions with the aim of increasing knowledge about family planning may be particularly important for migrants, as some originate from countries with minimal sexual and reproductive education in school. Infant formula feeding was the second most frequent topic with insufficient coverage. In Norway, exclusive breastfeeding is recommended for the first six months and, if possible, throughout the first year of life, and preferably longer. Although breastfeeding is more common among women in low- or middle-income countries [46], migration to a high-income country generally tends to have a negative impact on breastfeeding practices [47,48]. Maternity staff may therefore be hesitant to provide information on infant formula feeding, as they may fear that it leads to its overuse. A systematic review concluded that the high use of early supplementation with formula among African migrants was due to the belief that formula is necessary to achieve bigger, and thus healthier, babies [49]. Better education about indications, benefits, and disadvantages regarding infant formula feeding is needed. The women in our study also reported high rates of insufficient coverage of changes in mood postpartum. Higher rates of perinatal depression among migrants have been found previously [50]. As insufficient information and stigma about depression has an impact on help-seeking behaviour [51], ensuring better education about symptoms and the importance of seeking help in time is crucial.

4.3. Strengths and Limitations

A strength of this study was the use of extensive face-to-face interviews, with interpretation provided as needed. This enabled all women to participate, not excluding

illiterate women or limiting inclusion to certain languages. As such, it reduced the chance of selection bias and missing data, as well as information bias due to misinterpretation of questions. We had a high response rate of 87.5%, and the non-participating women did not differ from the participants in terms of age, length of residence in Norway, or region of birth.

Nevertheless, some limitations to our study should be addressed. First, the questionnaire was administered shortly after birth to ensure responses from hard-to-reach groups, as postpartum care is fragmented in Norway. However, as new mothers may be tired and might have a hard time remembering details about the pregnancy at this time, this might have impacted the answers. Second, social desirability bias, where the women over-report "good behaviour" and socially acceptable answers, may have affected our questionnaire since the interviews were held at the ward. However, the research staff did not partake in clinical patient care, which was carefully explained at recruitment. Third, not including a variable measuring English proficiency most likely limited our interpretation of language proficiency regarding the understanding of information. As English-speaking women may report good understanding despite having low Norwegian proficiency, the language variable may in reality be more strongly associated with understanding than what can be seen from our findings. Furthermore, as the consecutive selection was applied, the findings apply primarily to newly arrived migrants in urban Oslo. Due to heterogeneity in the composition of migrant women in different countries, caution must be taken when generalizing the results.

5. Conclusions

Our study contributes to the identification of modifiable factors that could improve newly arrived migrant women's understanding of maternity health information, as well as identifying gaps in the coverage of maternal health topics. Our findings of suboptimal provision of interpreting services, alongside an improved understanding among women who did get offered a professional interpreter, suggest that current policies are yet to be put into consistent practice. Targeted interventions should be applied to adapt healthcare services to linguistically diverse patients, including the provision of tailored health education and prenatal classes that consider the specific needs of newly arrived migrants.

Supplementary Materials: The following are available online at https://www.mdpi.com/article/10.3390/ijerph18147523/s1. File S1: MFMCQ-questionnaire, Table S1: Characteristics of women offered professional interpreter during pregnancy.

Author Contributions: Conceptualisation, S.B., J.S., B.V.L., S.V. and I.K.S.; methodology, S.B.; formal analysis, S.B.; writing—original draft preparation, S.B. and I.K.S.; writing—review and editing, S.B., I.K.S., B.V.L., J.S. and S.V.; visualisation, S.B.; supervision, J.S., B.V.L., S.V. and I.K.S.; project administration, I.K.S., B.V.L., J.S. and S.V.; funding acquisition, S.V., J.S., I.K.S. and B.V.L. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by the Research Council of Norway, grant number 273328.

Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by the Ethical Review Committee of Oslo University Hospital (approval 18/15786) and Akershus University Hospital (approval 18/05310). The overall MiPreg-study was approved by Regional Committees for Medical and Health Research Ethics (approval 2018/1086).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The datasets generated and analysed during the current study are not publicly available due to protection of individual participants' privacy and confidentiality, but are available from the corresponding author on reasonable request.

Acknowledgments: We thank all the participating women and health staff at Oslo University Hospital and Akershus University Hospital, who enabled us to perform this study.

Conflicts of Interest: The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results.

References

1. World Health Organization. *Report on the Health of Refugees and Migrants in the WHO European Region: No Public Health without Refugees and Migrant Health*; WHO: Geneva, Switzerland, 2018.
2. Almeida, L.M.; Caldas, J.; Ayres-De-Campos, D.; Barrientos, D.M.S.; Dias, S. Maternal Healthcare in Migrants: A Systematic Review. *Matern. Child Health J.* **2013**, *17*, 1346–1354. [CrossRef]
3. Bains, S.; Maeland, K.S.; Vik, E.S. Prenatal health of immigrant women in Norway—An exploratory literature review. *Tidsskr Nor. Laegeforen.* **2021**, *141*. [CrossRef]
4. Eslier, M.; Deneux-Tharaux, C.; Sauvegrain, P.; Schmitz, T.; Luton, D.; Mandelbrot, L.; Estellat, C.; Azria, E. Association between Migrant Women's Legal Status and Prenatal Care Utilization in the PreCARE Cohort. *Int. J. Environ. Res. Public Health* **2020**, *17*, 7174. [CrossRef] [PubMed]
5. Heaman, M.M.; Bayrampour, H.H.; Kingston, D.D.; Blondel, B.B.; Gissler, M.; Roth, C.C.; Alexander, S.; Gagnon, A.A. Migrant Women's Utilization of Prenatal Care: A Systematic Review. *Matern. Child Health J.* **2012**, *17*, 816–836. [CrossRef]
6. Dopfer, C.; Vakilzadeh, A.; Happle, C.; Kleinert, E.; Müller, F.; Ernst, D.; Schmidt, R.E.; Behrens, G.M.N.; Merkesdal, S.; Wetzke, M.; et al. Pregnancy Related Health Care Needs in Refugees—A Current Three Center Experience in Europe. *Int. J. Environ. Res. Public Health* **2018**, *15*, 1934. [CrossRef]
7. Suphanchaimat, R.; Kantamaturapoj, K.; Putthasri, W.; Prakongsai, P. Challenges in the provision of healthcare services for migrants: A systematic review through providers' lens. *BMC Health Serv. Res.* **2015**, *15*, 1–14. [CrossRef] [PubMed]
8. Ikhilor, P.O.; Hasenberg, G.; Kurth, E.; Asefaw, F.; Pehlke-Milde, J.; Cignacco, E. Communication barriers in maternity care of allophone migrants: Experiences of women, healthcare professionals, and intercultural interpreters. *J. Adv. Nurs.* **2019**, *75*, 2200–2210. [CrossRef]
9. Andrulis, D.P.; Brach, C. Integrating literacy, culture, and language to improve health care quality for diverse populations. *Am. J. Health Behav.* **2007**, *31*, S122–S133. [CrossRef] [PubMed]
10. Sørensen, K.; Broucke, S.V.D.; Fullam, J.; Doyle, G.; Pelikan, J.; Slonska, Z.; Brand, H.; (HLS-EU) Consortium Health Literacy Project European. Health literacy and public health: A systematic review and integration of definitions and models. *BMC Public Health* **2012**, *12*, 80. [CrossRef] [PubMed]
11. Ishikawa, H.; Kiuchi, T. Health literacy and health communication. *Biopsychosoc. Med.* **2010**, *4*, 18. [CrossRef]
12. Betancourt, J.R. Cross-cultural Medical Education. *Acad. Med.* **2003**, *78*, 560–569. [CrossRef]
13. Wångdahl, J.; Lytsy, P.; Mårtensson, L.; Westerling, R. Health literacy among refugees in Sweden—A cross-sectional study. *BMC Public Health* **2014**, *14*, 1030. [CrossRef] [PubMed]
14. Ward, M.; Kristiansen, M.; Sørensen, K. Migrant health literacy in the European Union: A systematic literature review. *Health Educ. J.* **2019**, *78*, 81–95. [CrossRef]
15. Villadsen, S.F.; Hadi, H.; Ismail, I.; Osborne, R.H.; Ekstrøm, C.T.; Kayser, L. Ehealth literacy and health literacy among immigrants and their descendants compared with women of Danish origin: A cross-sectional study using a multidimensional approach among pregnant women. *BMJ Open* **2020**, *10*, e037076. [CrossRef] [PubMed]
16. Karliner, L.S.; Jacobs, E.A.; Chen, A.H.; Mutha, S. Do Professional Interpreters Improve Clinical Care for Patients with Limited English Proficiency? A Systematic Review of the Literature. *Health Serv. Res.* **2007**, *42*, 727–754. [CrossRef] [PubMed]
17. Flores, G. The Impact of Medical Interpreter Services on the Quality of Health Care: A Systematic Review. *Med. Care Res. Rev.* **2005**, *62*, 255–299. [CrossRef]
18. Jimenez, N.; Moreno, G.; Leng, M.; Buchwald, D.; Morales, L.S. Patient-Reported Quality of Pain Treatment and Use of Interpreters in Spanish-Speaking Patients Hospitalized for Obstetric and Gynecological Care. *J. Gen. Intern. Med.* **2012**, *27*, 1602–1608. [CrossRef] [PubMed]
19. Mladovsky, P.; Rechel, B.; Ingleby, D.; McKee, M. Responding to diversity: An exploratory study of migrant health policies in Europe. *Health Policy* **2012**, *105*, 1–9. [CrossRef]
20. Ghiasi, A. Health information needs, sources of information, and barriers to accessing health information among pregnant women: A systematic review of research. *J. Matern. Neonatal Med.* **2021**, *34*, 1320–1330. [CrossRef]
21. Barker, D.J. Maternal nutrition, fetal nutrition, and disease in later life. *Nutrition* **1997**, *13*, 807–813. [CrossRef]
22. Boerleider, A.W.; Wiegers, T.A.; Manniën, J.; Francke, A.L.; Devillé, W.L.J.M. Factors affecting the use of prenatal care by non-western women in industrialized western countries: A systematic review. *BMC Pregnancy Childbirth* **2013**, *13*, 81. [CrossRef]
23. Berkman, N.D.; Sheridan, S.L.; Donahue, K.E.; Halpern, D.J.; Crotty, K. Low Health Literacy and Health Outcomes: An Updated Systematic Review. *Ann. Intern. Med.* **2011**, *155*, 97–107. [CrossRef]
24. Kilfoyle, K.A.; Vitko, M.; O'Conor, R.; Bailey, S.C. Health Literacy and Women's Reproductive Health: A Systematic Review. *J. Women's Health* **2016**, *25*, 1237–1255. [CrossRef]
25. Statistics Norway. Total Fertility Rate and Number of Live Births for Immigration Women, by Mother's Country Background 2011–2020. Available online: https://www.ssb.no/en/statbank/table/12481/ (accessed on 10 April 2021).

26. Gagnon, A.J.; DeBruyn, R.; Essén, B.; Gissler, M.; Heaman, M.; Jeambey, Z.; Korfker, D.; McCourt, C.; Roth, C. Development of the Migrant Friendly Maternity Care Questionnaire (MFMCQ) for migrants to Western societies: An international Delphi consensus process. *BMC Pregnancy Childbirth* **2014**, *14*, 200. [CrossRef] [PubMed]
27. The Norwegian Directorate of Health. Healthcare for Persons without Legal Residence in Norway: The Norwegian Directorate of Health. Available online: https://www.helsenorge.no/en/foreigners-in-norway/healthcare-for-persons-without-legal-residence/ (accessed on 15 April 2021).
28. The Norwegian Directorate of Health. Interpreter in the Health Services in Norway. Available online: https://www.helsenorge.no/en/health-rights-in-norway/right-to-an-interpreter/ (accessed on 15 April 2021).
29. The Institute for Health Metrics and Evaluation. What Is GBD and Why Is It Important? What Countries Are in Each Region? Available online: http://www.healthdata.org/gbd/faq#What%20is%20GBD%202010%20and%20why%20is%20it%20important? (accessed on 15 April 2021).
30. Fair, F.; Raben, L.; Watson, H.; Vivilaki, V.; Muijsenbergh, M.V.D.; Soltani, H.; The ORAMMA Team. Migrant women's experiences of pregnancy, childbirth and maternity care in European countries: A systematic review. *PLoS ONE* **2020**, *15*, e0228378. [CrossRef]
31. Leppälä, S.; Lamminpää, R.; Gissler, M.; Vehviläinen-Julkunen, K.; Satu, L.; Reeta, L.; Mika, G.; Katri, V.-J. Humanitarian migrant women's experiences of maternity care in Nordic countries: A systematic integrative review of qualitative research. *Midwifery* **2020**, *80*, 102572. [CrossRef]
32. Kale, E.; Syed, H.R. Language barriers and the use of interpreters in the public health services. A questionnaire-based survey. *Patient Educ. Couns.* **2010**, *81*, 187–191. [CrossRef] [PubMed]
33. Gill, P.S.; Beavan, J.; Calvert, M.; Freemantle, N. The Unmet Need for Interpreting Provision in UK Primary Care. *PLoS ONE* **2011**, *6*, e20837. [CrossRef] [PubMed]
34. Schenker, Y.; Pérez-Stable, E.J.; Nickleach, D.; Karliner, L. Patterns of Interpreter Use for Hospitalized Patients with Limited English Proficiency. *J. Gen. Intern. Med.* **2011**, *26*, 712–717. [CrossRef]
35. McGarry, O.; Hannigan, A.; De Almeida, M.M.; Severoni, S.; Puthoopparambil, S.J.; MacFarlane, A. *What Strategies to Address Communication Barriers for Refugees and Migrants in Health Care Settings Have Been Implemented and Evaluated Across the WHO European Region?* Themed Issues on Migration and Health, IX; WHO Health Evidence Network Synthesis Reports: Copenhagen, Denmark, 2018.
36. Hudelson, P.; Vilpert, S. Overcoming language barriers with foreign-language speaking patients: A survey to investigate intra-hospital variation in attitudes and practices. *BMC Health Serv. Res.* **2009**, *9*, 187. [CrossRef] [PubMed]
37. Yelland, J.; Biro, M.A.; Dawson, W.; Riggs, E.; Vanpraag, D.; Wigg, K.; Antonopoulos, J.; Morgans, J.; Szwarc, J.; East, C.; et al. Bridging the language gap: A co-designed quality improvement project to engage professional interpreters for women during labour. *Aust. Health Rev.* **2017**, *41*, 499. [CrossRef] [PubMed]
38. Sheridan, S.L.; Halpern, D.J.; Viera, A.J.; Berkman, N.D.; Donahue, K.E.; Crotty, K. Interventions for Individuals with Low Health Literacy: A Systematic Review. *J. Health Commun.* **2011**, *16*, 30–54. [CrossRef] [PubMed]
39. Mander, S.; Miller, Y.D. Perceived Safety, Quality and Cultural Competency of Maternity Care for Culturally and Linguistically Diverse Women in Queensland. *J. Racial Ethn. Health Disparities* **2015**, *3*, 83–98. [CrossRef] [PubMed]
40. Bischoff, A.; Hudelson, P. Communicating With Foreign Language–Speaking Patients: Is Access to Professional Interpreters Enough? *J. Travel Med.* **2010**, *17*, 15–20. [CrossRef] [PubMed]
41. Stewart, E.W.; De Souza, L.R.; Yudin, M.H. Access to Prenatal Care for Pregnant Refugee Women in Toronto, Ontario, Canada: An Audit Study. *J. Health Care Poor Underserved* **2018**, *29*, 687–700. [CrossRef] [PubMed]
42. Sentell, T.; Braun, K.L. Low Health Literacy, Limited English Proficiency, and Health Status in Asians, Latinos, and Other Racial/Ethnic Groups in California. *J. Health Commun.* **2012**, *17*, 82–99. [CrossRef]
43. Feinberg, I.; O'Connor, M.H.; Owen-Smith, A.; Ogrodnick, M.M.; Rothenberg, R. The Relationship Between Refugee Health Status and Language, Literacy, and Time Spent in the United States. *HLRP Health Lit. Res. Pract.* **2020**, *4*, e230–e236. [CrossRef]
44. Ohnishi, M.; Nakamura, K.; Takano, T. Improvement in maternal health literacy among pregnant women who did not complete compulsory education: Policy implications for community care services. *Health Policy* **2005**, *72*, 157–164. [CrossRef] [PubMed]
45. Inci, M.G.; Kutschke, N.; Nasser, S.; Alavi, S.; Abels, I.; Kurmeyer, C.; Sehouli, J. Unmet family planning needs among female refugees and asylum seekers in Germany–is free access to family planning services enough? Results of a cross-sectional study. *Reprod. Health* **2020**, *17*, 1–9. [CrossRef] [PubMed]
46. Victora, C.G.; Bahl, R.; Barros, A.J.D.; França, G.V.A.; Horton, S.; Krasevec, J.; Murch, S.; Sankar, M.J.; Walker, N.; Rollins, N.C.; et al. Breastfeeding in the 21st century: Epidemiology, mechanisms, and lifelong effect. *Lancet* **2016**, *387*, 475–490. [CrossRef]
47. Hawkins, S.S.; Lamb, K.; Cole, T.; Law, C. Influence of moving to the UK on maternal health behaviours: Prospective cohort study. *BMJ* **2008**, *336*, 1052–1055. [CrossRef] [PubMed]
48. Nguyen, N.D.; Allen, J.R.; Peat, J.K.; Schofield, W.N.; Nossar, V.; Eisenbruch, M.; Gaskin, K.J. Growth and feeding practices of Vietnamese infants in Australia. *Eur. J. Clin. Nutr.* **2004**, *58*, 356–362. [CrossRef] [PubMed]
49. Odeniyi, A.O.; Embleton, N.; Ngongalah, L.; Akor, W.; Rankin, J. Breastfeeding beliefs and experiences of African immigrant mothers in high-income countries: A systematic review. *Matern. Child Nutr.* **2020**, *16*, e12970. [CrossRef] [PubMed]

50. Fellmeth, G.; Fazel, M.; Plugge, E. Migration and perinatal mental health in women from low- and middle-income countries: A systematic review and meta-analysis. *BJOG Int. J. Obstet. Gynaecol.* **2016**, *124*, 742–752. [CrossRef] [PubMed]
51. Haque, S.; Malebranche, M. Impact of culture on refugee women's conceptualization and experience of postpartum depression in high-income countries of resettlement: A scoping review. *PLoS ONE* **2020**, *15*, e0238109. [CrossRef] [PubMed]

13.3 Paper 3

Bains *et al. BMC Pregnancy Childbirth* (2021) 21:686
https://doi.org/10.1186/s12884-021-04131-7

BMC Pregnancy and Childbirth

RESEARCH Open Access

Challenges and barriers to optimal maternity care for recently migrated women - a mixed-method study in Norway

Sukhjeet Bains[1,2*], Susanne Skråning[3], Johanne Sundby[2], Siri Vangen[1,4], Ingvil K. Sørbye[1] and Benedikte V. Lindskog[5]

Abstract

Background: Migrant women are at increased risk for complications related to pregnancy and childbirth, possibly due to inadequate access and utilisation of healthcare. Recently migrated women are considered a vulnerable group who may experience challenges in adapting to a new country. We aimed to identify challenges and barriers recently migrated women face in accessing and utilising maternity healthcare services.

Methods: In the mixed-method MiPreg-study, we included recently migrated (≤ five years) pregnant women born in low- or middle-income countries and healthcare personnel. First, we conducted 20 in-depth interviews with migrant women at Maternal and Child Health Centres (MCHC) and seven in-depth interviews with midwives working at either the hospital or the MCHCs in Oslo. Afterwards, we triangulated our findings with 401 face-to-face questionnaires post-partum at hospitals among migrant women. The data were thematically analysed by grouping codes after careful consideration and consensus between the researchers.

Results: Four main themes of challenges and barriers faced by the migrant women were identified: (1) Navigating the healthcare system, (2) Language, (3) Psychosocial and structural factors, and (4) Expectations of care. Within the four themes we identified a range of individual and structural challenges, such as limited knowledge about available healthcare services, unmet needs for interpreter use, limited social support and conflicting recommendations for pregnancy-related care. The majority of migrant women (83.6%) initiated antenatal care in the first trimester. Several of the challenges were associated with vulnerabilities not directly related to maternal health.

Conclusion: A combination of individual, structural and institutional barriers hinder recently migrated women in achieving optimal maternal healthcare. Suggested strategies to address the challenges include improved provision of information about healthcare structure to migrant women, increased use of interpreter services, appropriate psycho-social support and strengthening diversity- and intercultural competence training among healthcare personnel.

Keywords: Migrant, Maternity, Antenatal, Norway, Barriers, Migration, Vulnerability, Qualitative, Questionnaire

Background

Disparities in maternal health between migrants and host population in high-income countries remains a public health concern [1]. It is well established that migrant women have increased risk for several adverse outcomes during pregnancy and birth [2, 3]. The causes are complex. Both individual determinants, such as age,

*Correspondence: sukhjeetkb@gmail.com
[1] Department of Obstetrics and Gynecology, Norwegian Research Centre for Women's Health, Oslo University Hospital, Rikshospitalet; PO box 4950 Nydalen, 0424 Oslo, Norway
Full list of author information is available at the end of the article

gender and genetics; and structural determinants, such as legal, political and socio-economic frameworks; play important roles in an individual's health. Structural determinants can be especially important to a migrant's health – both physical and mental – during the different stages of the migration and integration process [4]. A migration experience may also be associated with loss of social network and direct economic loss [5]. In addition, previous experience with fragmented healthcare and poor quality can affect trust in the health system of the host country.

Although migrant women are a heterogeneous group of people with huge variability in socioeconomic status and risk profiles, they share the experience of being new to a country. As such, recently migrated women are more likely to have a relative disadvantage compared to migrants with residence of more than 5 years, many of whom arrived as children and thus have greater language proficiency and familiarity with the health systems in host countries. Furthermore, women born in low- or middle-income countries constitute a vulnerable group with higher risk of receiving inadequate antenatal care, compared to the migrant women born in high-income countries [6].

Migrants may encounter barriers and challenges in utilizing the healthcare system due to language barriers, low health literacy, socio-economic difficulties, lack of psychosocial support, cultural beliefs, and low-transcultural proficiency of healthcare personnel [6–9]. 'Barrier' is understood as anything that restricts access, use or benefit from healthcare services, and a 'challenge' as a subjective experience of something that requires great effort to succeed and, in contrast to ´problem´, is an opportunity for growth [7]. Health literacy includes both personal and organisational health literacy [10]. The former focuses on the individual's ability to find, understand and use information and healthcare services, whereas the latter focuses on the organisation's ability to enable individuals to find, understand and use information and healthcare services [10].

Even though maternity care in Norway is generally considered to be of good quality, sub-optimal maternity care [11, 12] and barriers to health care access [13, 14] among migrants have been reported. Previous systematic reviews have explored the experiences of migrant women in accessing and utilising the maternal healthcare in host countries [15–17]. However, acculturalisation occurs over time and there is limited research on *recently* migrated women's perceived barriers to optimal maternity care in Norway. Furthermore, quantitative research exploring the patterns of access and utilisation of maternal healthcare among recently migrated women is lacking.

This article is a part of the project "*The MiPreg Study: Closing the Gaps in Maternity Care to Migrant Women in Norway*". The results will be used to pilot an intervention to fill gaps in maternal healthcare that decrease health disparities between migrants and host population. In order to develop efficient interventions, we need to map the current patterns of access and utilisation, and better understand the challenges this group face. Thus, the aim of this article was to identify challenges and barriers recently arrived migrant women face in accessing and utilising the maternity healthcare service in Norway. We strive for a comprehensive approach by utilising both qualitative and quantitative methods, as well as including the perspectives of both migrant women and midwives.

Methods

Study setting

This study is set in urban Oslo, the city with the largest population of migrants in Norway, with migrants currently accounting for 26% of the population [18]. The highest proportion of recent migrants born in low- or middle-income countries to Oslo in 2020, in descending order, were from Poland, Syria, Lithuania, Eritrea and the Philippines [18]. Norway has universal health coverage and compulsory healthcare insurance paid through taxes, that covers all care rendered in hospitals. Essential maternity healthcare before, during and after birth is free of charge for all residents in the country with a national identification number or temporary identification number, including refugees and asylum seekers yet to receive a residence permit. Persons without legal residence, such as undocumented migrants, are entitled to healthcare during pregnancy and birth, but while antenatal services are offered free of charge, they are financially responsible for expenses related to childbirth [19]. Pregnant women can choose to have their follow-up at their family doctor or a midwife at a Maternal and Child Health Centre (MCHC) [20]. The standard antenatal package includes eight consultations, including one routine ultrasound screening at around week 18. Almost all births in Norway are institutionalised and there are only public hospitals for delivery. After discharge from hospital the midwives at MCHC provide the post-partum follow-up.

Inclusion criteria

We included pregnant migrant women in urban Oslo, with a length of stay $\leq$ 5 years in Norway and born in a low- or middle-income country. Thereafter, we used the Global Burden of Disease regional classification system, which is based on epidemiological similarity and geographic closeness, to classify women into different regions [21]. We included midwives with extensive experience in providing maternity care for migrant women

from hospitals and MCHCs in urban Oslo. In the Norwegian maternity care system, midwives often provide the majority of antenatal and post-partum care and deliver most normal births. They often have a relational and social approach to migrant women and their families throughout the pregnancy. Due to these factors, we chose to include midwives as representatives for healthcare personnel.

Study design and triangulation

The MiPreg project is a multidisciplinary, mixed-method project. It is organised into four parts, of which two are included in this article: quantitative part (structured questionnaire with migrant women) and qualitative part (in-depth interviews with migrants and healthcare personnel). We sought to triangulate our findings by technique, i.e., applying mixed-methods, with in-depth interviews from two different but interrelated groups – women and midwives, and a structured questionnaire among migrant women. Triangulation can be used to increase the validity in research as it combines different methods to answer a research question [22]. It enabled a different perspective to our study objective, and thus provided a more complete and comprehensive understanding about the subject of barriers and challenges migrant women face.

Quantitative part: structured questionnaire

In this part we applied a quantitative questionnaire, using a modified version of the Migrant Friendly Maternity Care Questionnaire (Supplementary file 1), that measures maternity care related factors in migrant populations [23]. To ensure accuracy and consistency of data collection the interviewers - three midwives and one physician, were trained and an interview guidebook was produced. In addition, the interviewers met regularly to discuss challenges and experiences. From January 2019 until February 2020 the interviewers at the two hospitals serving urban Oslo identified eligible pregnant women being admitted at the birth ward. The women were interviewed face-to-face in their own language of choice using an interpreter when needed, before discharge from the hospital. The mean completion time for the questionnaire was 44 min. A previously published article, provide detailed description on the methodology for the questionnaire-study [24].

Qualitative part: in-depth interviews with migrant women

In this part, two anthropologists experienced in qualitative methods conducted in-depth, semi-structured interviews with migrant women from March until December 2019. The interviews took place at three MCHC in Oslo with high proportions of migrants. We ensured variation in country of birth in the sampling process. Of the women recruited,15 were in their third trimester, and the remaining five had recently given birth. The eligible women were identified by midwives working at the MCHC, who passed on contact information to the researchers upon consent. The women were interviewed face-to-face, using a professional interpreter for most of the interviews. The interviews, lasting from 50 min to 1.5 h explored in detail the women's experiences with maternity care in Norway, including potential barriers and facilitators. The included women received a reimbursement of 250 NOK for their participation – a gift card for use in a grocery store.

Qualitative part: in-depth interviews with midwives

In the qualitative part we additionally conducted in-depth interviews with seven midwives, three from hospitals and four from MCHCs in urban Oslo. The age of the midwives varied from 31 to 57 years. The interviews lasted between 1 and 2 h and included themes that focused on experiences and perceptions of maternity care with pregnant migrant women, challenges faced in their daily work and structural limitations related to time, resources and organisation of maternity care. We had initially planned 10 interviews with healthcare workers, however due to coronavirus pandemic, we had to pause the inclusion of the last 3 interviews. After starting analysis of the obtained material, data saturation had been reached, judged to be attained when no new themes or information emerged in subsequent interviews. We therefore decided to stop further data collection.

Data analysis

The descriptive statistics from the quantitative data was analysed as mean with standard deviation (SD), median with interquartile range (IQR) and frequencies with percentage, using IBM SPSS version 25. The audio recorded in-depth interviews were transcribed and analysed using an inductive approach to identify recurring themes and sub-themes. The open-ended questions from the questionnaire and the qualitative data were analysed by thematic analysis. This involved reading and rereading the data, underlining key phrases and reoccurring topics and creating initial thematic codes. After reading the transcript, three researchers coded relevant sections separately, which were further discussed and modified if necessary. Themes and sub-themes were defined, and descriptive narrations were written and compared to the quantitative data material, drawing out quotes from migrant women and midwives that highlighted the four main themes identified in the transcribed interviews. In this article, the quotes from migrant women are followed by participant number, length of stay in Norway in whole

years and reason for migration. For midwives, they are followed by number and workplace.

Ethical considerations

The questionnaire study (approvals 18/15786 + 18/05310) and the in-depth interviews (approvals 18/15786) were approved by Oslo University Hospital and Akershus University Hospital's ethical review committees. Information about the study was provided both orally and written to the migrant women and midwives. Written consent, or oral consent based upon the women's preference, was obtained from those who volunteered to participate in the study. To ensure confidentiality, personal identification was removed, and all collected information including audio recordings, transcripts and questionnaires were securely stored and accessible only to the research team.

As the aim of this artice was on the barriers and challenges, we were conscious that participants reflections on these have the potential to reinforce negative ethnic or racial stereotypes as well as play into public discussions in media, especially on internet, on issues related to immigration, health-related deservingness and integration. Another important concern when conducting the in-depth interviews with pregnant migrant women was that participation may result in distress, or further trauma for those with a traumatic history. We made clear to the participants at the start of the interviews that they did not have to talk about issues they found difficult or too personal. If participants voluntarily shared traumatic issues, the research team informed participants of professional resources, including their midwives, for further support.

Results

Characteristics of migrant women

In the questionnaire study, 401 women participated, giving an 87.5% response rate. In total, the women were born in 66 different countries, with most belonging to the Central/Eastern European and Central Asian regions (Table 1). The five most frequent languages spoken at home were English, Polish, Arabic, Urdu and Tigrinya. For the in-depth interviews, 20 migrant women were included. The women were born in 12 different countries, with most belonging to the Sub-Saharan African region (Table 1). The languages Tigrinya, Arabic, Pashto, Sorani, Hindi, Portuguese, Russian and Uyghur were represented.

Table 1 Characteristics for recently migrated women from the questionnaire study and the in-depth interviews

Characteristics	Questionnaire study ($n = 401$)	In-depth interviews ($n = 20$)
Mean age, in years (SD)	29.8 (4.7)	30.1 (4.7)
Mean length of stay, in months (SD)	35.6 (19.4)	22.6 (14.2)
Maternal region of birth, n (%)		
Central/Eastern Europe and Central Asia	132 (32.9)	2 (10.0)
Latin America and Caribbean	13 (3.2)	1 (5.0)
North Africa and Middle East	76 (19.0)	5 (25.0)
South Asia	81 (20.2)	5 (25.0)
Southeast Asia, East Asia and Oceania	37 (9.2)	1 (5.0)
Sub-Saharan Africa	62 (15.5)	6 (30.0)
Parity, n (%)		
Primiparous	229 (57.1)	11 (55.0)
Multiparous	172 (42.9)	9 (45.0)
Education, n (%)		
No completed school	16 (4.0)	3 (15.0)
Primary/secondary school	151 (37.7)	8 (40.0)
University	234 (58.4)	9 (45.0)
Reason for migration, n (%)		
Refugee[a]	41 (10.2)	7 (35.0)
Family reunification	183 (45.6)	10 (50.0)
Education/work	177 (44.1)	3 (15.0)

[a] Refugee include undocumented migrants, asylum seekers and refugees

Main barriers and challenges

Several challenges and barriers related to accessing and receiving care during pregnancy and birth in the questionnaire study and in-depth interviews were discussed. Combined, four main themes for challenges and barriers were identified: navigating the healthcare system, language, psychosocial and structural factors, and expectations of care (Fig. 1).

Navigating the healthcare system

Navigating the healthcare system was the most frequent barrier to receiving optimal healthcare, experienced by 185 women (46.1%) in the questionnaire study. Difficulties in navigating the health system included not realising that the services were offered, eligibility for those services and/or not understanding how the maternity healthcare system works. The median (IQR) time for booking the first antenatal care was 8 weeks (6 to 12), with 83.6% of the women having it done by week 12 (Fig. 2). Only 2.5% of the women had their booking after week 21. No significant difference was found for the women's region of birth or migration background in terms of late antenatal booking (data not shown). The standard routine ultrasound conducted at around week 18 was attended by 93.5%. Early ultrasound, mainly done to detect health status or genetic characteristics of the foetus, which is currently not a part of routine antenatal care in Norway, was attended by 13.2%. Furthermore, less than one fifth (18.2%) had attended pregnancy courses through the MCHC or at the hospital prior to birth. During the study

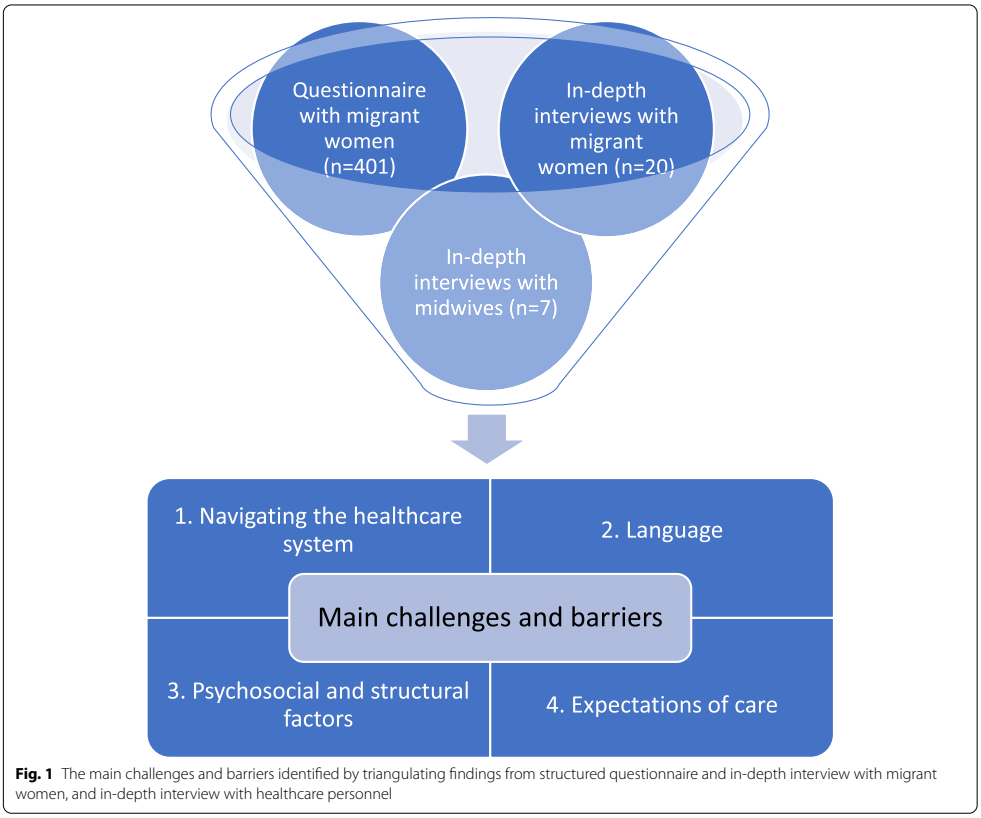


Fig. 1 The main challenges and barriers identified by triangulating findings from structured questionnaire and in-depth interview with migrant women, and in-depth interview with healthcare personnel

period, the pregnancy courses were only offered in Norwegian or, in very few places, English. Among the women who did not attend a course, 27.4% said they would attend a course if it was offered free of charge in a language they understood. Other services they would have liked to attend were courses about how the health system for maternity care is structured in Norway and a meeting place for pregnant women sharing the same language.

In the in-depth interviews, three sub-themes emerged: limited knowledge about the structure of healthcare system, long perceived waiting time for consultation and use of the emergency outpatient clinic. The majority of the women in the in-depth interviews stated low familiarity with the Norwegian healthcare system. Some had challenges with accessing appropriate healthcare due to lack of a personal identification number while others struggled to find information about their right to healthcare as foreigners in Norway. The Norwegian healthcare and welfare system is divided into different departments and this fragmented organisation can be especially difficult to navigate for recently arrived migrants. One woman described it this way:

> *I was quite disappointed when I was followed up by my family doctor, because she didn't give much information about how things happen in Norway... I have not lived here for long, she has to give some background.*
> *(Woman 9 - three years in Norway, education/work)*

Explaining how the healthcare system is built, what rights the pregnant woman have for maternity leave and help in filling out forms for the Norwegian welfare system were common requests from migrant women to midwives. The midwives reported that newly arrived

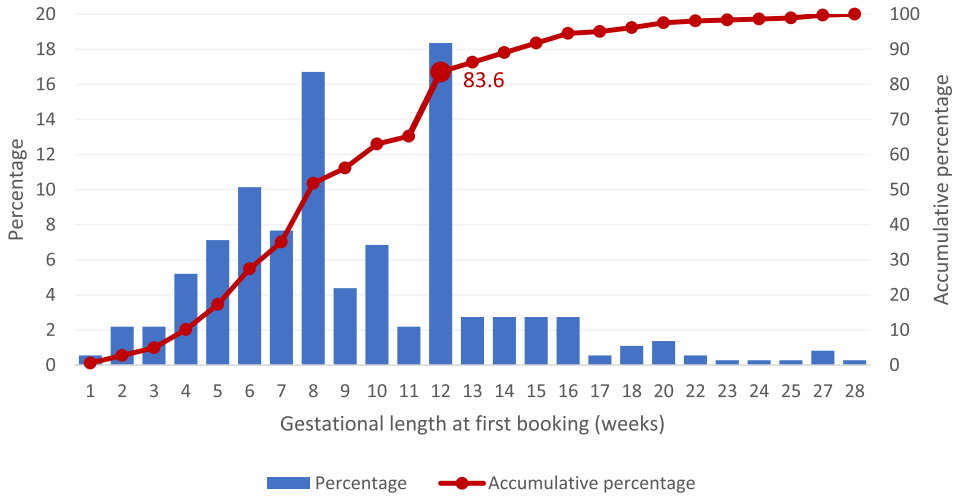


Fig. 2 First antenatal booking by recently arrived migrant women from the questionnaire study, in percentage of all women (blue bars) and accumulative percentage (red line) by gestational length in weeks

migrants struggled with a lack of familiarity with the Norwegian health and welfare systems, and their desire for orientation to accessible health services:

> *Some people do not know anything about how things work here [in Norway] …they don't know the system, for example how to apply for ultrasound, what they have a right to and can claim…there is a lot of information that must be conveyed [to the woman].*
> *(Midwife 1 - MCHC)*

An undocumented woman explained how her first antenatal check-up was delayed due to lack of knowledge about available healthcare services, such as the Health Centre for Undocumented Migrants:

> *I came to the health station [MCHC] very late because I did not know that I could get help there. My husband made inquiries, and since I was outside the system, they told us to get in touch with the health station and get help from them. In the beginning it was difficult since I did not have neither personal identification number nor a family doctor, and no one wanted to receive me.*
> *(Woman 10 - three years in Norway, undocumented migrant)*

Late initiation of routine antenatal care, especially among undocumented migrants posed a challenge for some midwives, with time-consuming consultations and concerns about best care for the remaining pregnancy and birth:

> *We had one here [undocumented woman] a while ago, she was in week 25, but never filled in a health card or applied for a birthing place [at a hospital].*
> *(Midwife 1 - MCHC)*

Several migrant women described unfamiliarity with the process of booking a consultation for antenatal care and perceived prolonged waiting time at the family doctor:

> *The system here is like you have to call to the family doctor and make an appointment…They give you time not on that same day…Maybe others have a [more] serious issue, you have not... But this is the bad thing, for me it's serious. So, you have to wait for two or three days.*
> *(Woman 1 - three years in Norway, family reunification)*

When the women had acute concerns or symptoms, either related to the pregnancy, or other healthcare issues, many did not know whom to contact and ended up going to the Emergency outpatient clinic. As antenatal care is free of charge in Norway, some women were

surprised when they had to pay for a consultation at the Emergency outpatient clinic:

> *When I had to go to the emergency outpatient clinic, they gave me an invoice. My husband talked to them and told them that I was pregnant and therefore should not pay. They refused and said that we had to pay. We still haven't paid that invoice, and now we have received warning of debt collection.*
> *(Woman 15 - two years in Norway, family reunification)*

Language

Language was the second most frequent barrier to receiving optimal healthcare, experienced by 112 women (27.9%) in the questionnaire study. Two-thirds (63.3%) of women would have understood the information during maternity care better if offered in another language. The Norwegian language proficiency among the migrant women was low; 22.9% of the women could not speak or understand Norwegian at all, 38.7% with difficulty and 38.4% had a good level. Almost one fifth of the women (17.2%) had contacted healthcare personnel in their country of birth for questions or concerns regarding their pregnancy and birth.

In the in-depth interviews, three sub-themes emerged: using a professional interpreter, anonymity and confidentiality, and use of relatives as interpreters. All migrant women mentioned language as an important barrier in accessing and using healthcare services, except those fluent in English. Even if they had relatively good Norwegian comprehension, there was a big gap between everyday language and medical terms, according to the women. Some women chose to have their antenatal care with their family doctor, as they had chosen a family doctor originating from the same country as themselves and therefore did not experience the language barrier. Corroborating the findings from the questionnaire study, some chose to speak to healthcare personnel in their country of birth, either digitally or even by visits to their country of birth for follow-up. Insufficient language proficiency was also one of the main challenges noted by healthcare personnel, that often lead to extended consultations to make sure they understood the concerns of the migrant woman or that the women understood the information provided by the healthcare personnel:

> *We take them in for an extra consultation because there is so low language proficiency on the phone, things we would have clarified on the phone to people who spoke the language well, we have to take in to be sure...sometimes we almost do not understand what they are calling for.*
> *(Midwife 7 - hospital).*

Challenges concerning use of interpreter was mentioned by many migrant women. Some women got an interpreter that spoke another dialect than they did and therefore encountered difficulties understanding the information:

> *When I was new in Norway, I was in a car accident. I was in the hospital and there was an interpreter. I did not understand her dialect, so a big mistake happened, a big misunderstanding. The doctor wrote a lot of things I did not say, I even used a lawyer to change the statements, but they insisted that I said it.*
> *(Woman 2- five years in Norway, refugee).*

Some migrant women were concerned about anonymity and confidentiality when using interpreting services. This was especially true for women who belonged to a community with a small number of people with the same ethnic background, and women who were suspicious of being under surveillance by authorities in their country of birth. One solution to language barriers and difficulties in getting a professional interpreter on time was using bilingual co-workers. Although midwives had good experiences with that, this option was not available for the majority of languages. Oftentimes the migrant woman's relative or partners was used, however several midwives had concerns related to using relatives as interpreter:

> *If you use relatives as interpreter, you do not really know how much they have understood. We do not really know what they are translating.*
> *(Midwife 2 - MCHC)*

Discussing sensitive topics with relatives as interpreters or even a professional interpreter can be challenging, both for the patient and the healthcare personnel, as voiced by one midwife:

> *If I know a woman comes in with a mother-in-law, I will not ask, for example, 'how many induced abortions have you had? ´ But if there had been an interpreter and it was just her, I would have asked more easily about such things…and there may be sensitive things, so you do not necessarily want a woman to open up when there is an interpreter there.*
> *(Midwife 6 - hospital).*

Among the English-speaking women a recurrent complaint was lack of English knowledge among the older healthcare personnel both at the MCHC and the hospital, as one migrant woman put it:

I think that the old midwives, they don't like to speak in English...If you ask something, they always reply back in Norwegian. They understand…maybe they don't like that the new generation is speaking in English.
(Woman 1 - three years in Norway, family reunification).

Although the Scandinavian languages Swedish and Danish are understood by most Norwegians, some migrant women emphasised that this is a challenge for migrants even though they have a fairly good command of the Norwegian language. One woman explained how she did not need an interpreter during her pregnancy, but when a Danish midwife attended her at the hospital for birth she did not understand much and was ashamed to ask for an interpreter, as it is expected to understand Scandinavian languages in Norway. In addition, while Norway has two official written languages, no spoken standard exists, making it hard for some migrants to understand the varying dialects in the country:

People come from different regions and have different dialect in Norway. So even if you learn Norwegian in Oslo…if you speak to other people who come from other parts of Norway, it is difficult to understand that person.
(Woman 9 - three years in Norway, education/work migrant)

Psychosocial and structural factors

Structural factors were the third most frequent barrier to receiving optimal healthcare, experienced by 50 women (12.5%) in the questionnaire study. Structural factors included not having access to transportation, financial reasons, not getting time off work or not getting childcare for other children to attend services. Most women were married, while 21 women were single or divorced. Over 90% of the women lived with their partner, 22 women lived with their in-laws and 14 women lived alone. A bit more than half (57.3%) had paid work since moving to Norway, while 85.0% had work permit in Norway. Almost 20% answered that they experienced occasionally (15.0%) or often (4.7%) financial difficulties for the family the past year, for instance with making ends meet and paying monthly expenses such as food, often transportation and housing. In varying degrees, women reported symptoms of being afraid or anxious (24%), of hopelessness for the future (15%) and of loneliness (30%) (Table 2). Most of the women (96.8%) had someone they could trust, with whom they could speak in confidence and the partner was that person for the majority of the women (75.0%).

From the in-depth interviews, loneliness in the host country, distress about relatives in their country of birth and structural barriers emerged as sub-themes. Most of the women interviewed had a limited social network and many had close contact only with their in-laws:

My husband has family here but as you know they've been living here for...So they are almost like Norwegians. Busy, busy, busy, busy, busy. You have to make an appointment first, then you have to ask them…So that's why I feel sometimes very lonely here because everyone is always busy.
(Woman 1 – three years in Norway, family reunification)

Migrant women in general, and refugees especially, expressed distress about their relatives still in their country of birth and being under surveillance by the government:

My brother is in jail now, because I'm abroad. They say that if I return to my homeland, they can give freedom to my brother. But that is not true. So I will not return, but I'm very sad about it. Every day I think about my brother and whether he is alive or not. Because I cannot have contact with him. My family too, we cannot talk on the phone.
(Woman 3 – four years in Norway, family reunification)

Migrant women and midwives mentioned challenges beyond pregnancy and childbirth that to a great extent affected the migrant women's lives. That included basic

Table 2 The distribution of women from the questionnaire study ($n=401$) who reported being troubled for three psychosocial symptoms, N (%)

Psychosocial symptoms	Afraid or anxious, N (%)	Sense of hopelessness for the future, N (%)	Sense of loneliness, N (%)
Not troubled	310 (77.3)	342 (85.3)	281 (70.1)
A little troubled	72 (18.0)	47 (11.7)	95 (23.7)
Very troubled	14 (4.7)	7 (1.7)	20 (5.0)
Extremely troubled	5 (1.2)	5 (1.2)	5 (1.2)

practicalities of everyday life, such as following up after consultations or reaching hospitals on time, as explained by a midwife:

> *It gets too much [for the women]; if you speak the language poorly, not responsible for your own finances, do not have a driver's license… we say that ´you have to come now right away´, still it might take 3-4 hours, because they are waiting for the partner to come home from work and drive them. Or because they do not dare to come alone because they think they speak poor Norwegian. And many do not have the opportunity to leave their children at home, because they don't know anyone who can be a babysitter.*
> *(Midwife 7 - hospital)*

Even though maternity care is free of charge in Norway, certain deductibles may need to be paid which came as a surprise for some women. For instance, birth preparation courses are free of charge at some MCHCs while in other places it may cost a fee:

> *It costs quite a lot to take those courses. At the hospital you pay 1300 NOK for two or three hours. There are not many districts that have it [for free], even though it is stated in the guidelines for maternity care that you must be able to offer birth preparation courses.*
> *(Midwife 1 - MCHC).*

Another example of a financial challenge that midwives often observed among migrant women was related to transportation:

> *We see many who want an ambulance to get in [to hospital], perhaps because they do not have a driver's license and they think it is too expensive with taxi. It also becomes a problem to explain, that we think it is acute enough that they should come to check-up, but not so acute that they need ambulance transport. Then they may choose not to come for the check-up, because they have to pay NOK 500 in a taxi to enter.*
> *(Midwife 7 - hospital)*

Both migrant women and midwives addressed how legal restrictions and lack of a residence permit made the migrant women's life more complicated. After moving to Norway, one woman had to leave her two children in Norway because of a forced return to her country of birth:

> *I lived in my home country for one year and seven months without my husband, daughter [2 years old] and son [4 years old], it was really hard.*
> *(Woman 15 - two years in Norway, family reunification)*

One midwife explained how an undocumented pregnant migrant woman faced several problems beyond the pregnancy:

> *She had experienced a lot of violence, did not have a place to live and in addition great challenges in relation to health.*
> *(Midwife 1 - MCHC)*

Expectations of care

Seventeen women experienced that healthcare personnel refused a practice or ritual during or after birth that she requested, in the questionnaire study. Some of these wishes were related to food preferences. One woman asked to pierce her infant's ears as per cultural custom, but was refused by health personnel for fear of causing pain to the child. Other women requested bathing the infant right after birth, which was rejected by health personnel because it was not standard Norwegian custom. Another woman wanted to perform an 'adhan,' a traditional Islamic birth custom, but was rejected for concerns of impairing the infants' hearing. Six women reported that they wanted to bring more relatives or support persons into the birthing room than was allowed.

From the in-depth interviews, conflicting recommendations, varying support from family and gender preference on healthcare personnel emerged as subthemes. Differences in recommendations for physical activity in pregnancy and after birth was a repeating topic of discussion by both migrant women and midwives. Migrant women reported conflicting advice on how much physical activity was beneficial during pregnancy. One woman explained how her relatives residing in her country of birth reacted to the recommendations for physical activity during pregnancy and after birth in Norway:

> *When I told them [relatives from home country], they reacted by saying that I was completely crazy and had lost my mind, and that it was crazy to go out after only a week!*
> *(Woman 10 - three years in Norway, undocumented migrant).*

Midwives explained how the difference in their recommendations about level of physical activity after birth and some women's own expectations and experience from their birth country could lead the midwives to view the migrant women as lazy and less co-operative. Eventually, this could make patient-provider relationships more challenging as well as have the potential to contribute to

cementing attitudes and cultural stereotypes about the women. As one midwife noted:

> *Sometimes it's hard to get them up. Especially after a caesarean section…they may think we're mean or want to punish them...What is a pity are attitudes among staff in the department, it often becomes like 'she is so hard to get up, 'she wants nothing', but that's often not what it's about. It's more about the fact that they haven't understood why they should do it.*
> *(Midwife 4 - hospital).*

Both migrant women and midwives observed a cultural difference in how much help the pregnant women got from relatives. Perceived increased responsibility for the newborn and individualistic lifestyle in the host country was a transition for some migrants:

> *When you give birth in Norway, you have a responsibility to the child, the home and everything else… In my home country it is very different, there your mother comes and is with you for a whole month and other relatives help. It is almost as if you do not notice that you have a child.*
> *(Woman 10 - three years in Norway, undocumented migrant).*

Bringing many relatives to the hospital when giving birth and post-partum was a recurring difference in expectations between migrants and the majority population. One midwife explained how this practice was perceived as unfamiliar to the midwives, yet not allowing visits could contribute to feelings of isolation in migrant women:

> *When they bring with them maybe five, six, seven, eight, ten, people, from the start till birth, which can take three days, then we feel that it is different than what we are used to at the ward. I think I forget to think that this is perhaps what the woman is used to from before and needs to feel safe, if we send home all the people, it will suddenly be a very insecure situation.*
> *(Midwife 7 - hospital).*

The midwives had experienced some incidents where the migrant woman did not want a male healthcare personnel. A few women emphasised the importance of having female healthcare personnel, mostly for clinical work and check-ups, but also for having a female interpreter:

> *I have told the family doctor that I need a female interpreter, but they say that they don't have female interpreters, and I don't want a male interpreter… at the family doctor there is someone who speaks Arabic. There is a man, so despite the fact that I have said several times that I do not want a male interpreter, he still comes and interprets.*
> *(Woman 15 - two years in Norway, family reunification).*

Discussion

This article investigated potential barriers and challenges to optimal maternity care for recently arrived migrants as perceived by the migrant women and midwives. The challenges they reported as most difficult were related to navigating the healthcare system, language, psychosocial and structural factors, and expectations of care. Even though our findings are consistent with previous international literature on perceived barriers among migrant women, until now few studies have explored barriers in particular for *recently* migrated women. Lack of knowledge about the healthcare structure and limited social network during the first period after having migrated to the country emerged as significant challenges for the recently migrated women.

The healthcare services in Norway are comparably of a high standard [25]. The fact that the accessibility and quality have been so high over many years, may also contribute to higher expectations of its service delivery, and potentially a lower threshold for criticising the health system and its services. Yet, our findings do suggest that some migrant women had variable layers of vulnerability factors that influenced their capacity and means to use the health services available and to understand and navigate the health system.

In agreement with previous studies, we found that migrant women lacked information about the healthcare system in host countries, including administrative procedures, which led to women not using the variety of available maternity care services [9, 17, 26]. National guidelines in Norway recommends the first antenatal care consultation to be booked by the end of gestational week 12 [20], which was done by 83.6% in our study. As we did not compare migrants to non-migrants, we cannot establish if there was a difference in how early the women started antenatal care. Nevertheless, studies from European countries have shown later initiation of antenatal care among migrants compared to non-migrants [27, 28], first generation- compared to second generation migrants [29], minority ethnic groups compared to White women [28, 30] and especially profound among recently migrated women [31]. Although our finding of a high percentage of timely initiation of antenatal care, midwives from the in-depth interviews indicate that subgroups of migrants may be at risk. Our findings should therefore be further explored by research on subgroups

with low language proficiency, acculturation and among undocumented migrants [13].

Slightly lower attendance was found for the standard routine ultrasound conducted at around week 18, which was 93.5% in our study, compared to 97% in national surveys [32] . The high attendance for standard routine ultrasound in our study may be explained by the relatively high number of women from Central and Eastern Europe that were included, seeing that there is a practice and expectation of using ultrasound earlier and more frequently during pregnancies in those countries [33]. We also found that 13.2% of the women had gotten an early ultrasound, a service often paid for privately as it is not a part of routine antenatal care in Norway, except for groups with elevated risk of fetal chromosomal abnormality. This is low compared to local surveys in Norway suggesting that half of the women had an early ultrasound in the first trimester [32]. Women reported often using the emergency outpatient clinic in case of medical concerns, in line with a previous study that found more frequent use of emergency outpatient clinic by migrants compared to the host population [34]. Educating the migrant women about the structure of healthcare system may be a solution in reducing the barriers of navigating the healthcare system.

Our findings on language barriers, complements previous work where language is highlighted as one of the main barriers for migrants [1, 15–17]. Use of interpreter services have been shown to increase the understanding of maternal health information among migrants [35]. However, we found that even when a professional interpreter was used, sometimes communication problems persisted as a result of dialect or gender of interpreter. Healthcare personnel, as well as the institutions they are part of, need to be aware of this and the need for appropriate interpretation services. Furthermore, previous research has linked low language proficiency to low attendance in pregnancy preparation courses among migrants [36, 37]. Therefore, offering pregnancy preparation courses in English and other major languages could be beneficial in increasing the attendance among non-Norwegian speaking women.

Our findings show that recently migrated women often lacked social support, had limited social network and struggled to acclimate to the difference in community and familial support between their birth country and Norway. Previous studies on social support among migrants are not conclusive, as some are in concordance with our findings [30], while others found no evidence of limited social support [8], or even higher social support in migrant groups [8, 38]. Longer length of stay in the host country often leads to wider social networks. This could explain why the recently arrived women in our study experienced limited social networks as challenging – psychosocially as well as in relation to practical and emotional support. Lack of social support has been shown to be linked with a number of adverse pregnancy outcomes, such as postpartum depression [39, 40], low birth weight [41] and preterm birth [42]. Identifying women that lack or have little social support and providing them with additional social services may thus increase psychosocial wellbeing as well as potentially identify additional vulnerability factors.

Varying expectations of care and the healthcare system's limited ability to provide differentiated care to women with special needs, may make it difficult for migrant women to adjust to the healthcare system in host countries [14]. While coping with conflicting recommendations in the two countries, migrant women can even be viewed as "*difficult to manage*" by healthcare personnel. Although some training in cultural competence is offered during professional education, efforts to include more targeted training for health personnel, both during professional education but also as continued learning could provide increased awareness and self-reflexivity. As explained by Phillimore et al. [26], it is almost impossible to gain cultural knowledge about every ethnic group in an increasingly multi-ethnic world. Rather, focus should be on intercultural competence and treating patients individually while still being culturally sensitive. A newly published scoping review on different models of antenatal care targeted at migrant women, including group antenatal care and specialised clinics, found the models to be acceptable for women and increased access to care [43]. Use of multicultural doulas for vulnerable migrant women have shown promising results in Norway [44].

This article has not explored conceptions of 'health related deservingness' [45] – who 'deserves' or have the right to access health services or who should or should not be financially supported when accessing services. The question of who deserves it most and the extent to which diverse migrant groups can claim state welfare goods is often debated in Norwegian media and on internet sites. The competing and black-and-white stances are often grounded in moral judgement, notions of exclusive citizen rights, and moral ideas about having to 'earn' access to goods. The extent to which these contentions and judgments find their way into healthcare provision in Norway needs further exploration.

Strengths and limitations

Strengths of this study include an emphasis on multidisciplinary research, from the design phase to interpretation of findings, as the authors hold background in medicine, gynaecology, anthropology and public health. Two authors, one physician and one medical anthropologist,

performed the content analysis independently and discussed the findings before reaching consensus, thereby increasing the validity. Both the questionnaire study and the in-depth interviews were done face-to-face in the migrant women's language of choice, enabling women with low language proficiency and literacy to participate. A high response-rate for the questionnaire study with few missing values limited response bias. The in-depth interviews were conducted by anthropologists, limiting the possible social desirability bias that using healthcare personnel can introduce.

Nonetheless, limitations exist. Administering the questionnaire-study within some days of birth could potentially introduce bias as the new mothers might be exhausted and not remember details about the pregnancy well. This timing, however, ensured responses from hard-to-reach groups, a factor we considered more important. As healthcare personnel conducted the quantitative interviews, social desirability bias could affect the answers of the migrant women. Limitations of the in-depth interviews include convenience sampling and selection bias. With midwives at the MCHCs holding responsibility for recruiting eligible migrant women, the women interviewed might represent a group of migrants who are more integrated, omitting those who were most isolated and did not attend MCHCs. The findings reported from the in-depth interviews with midwives are based on purposive sampling of healthcare personnel who volunteered to participate in the study. Therefore, the extent to which the midwife's views are representative of all healthcare personnel serving migrant women is unknown. In addition, taking the sample only from a diverse urban area may limit the generalisability of the findings in rural areas.

We did not explicitly focus on gender relations and to what extent cultural understanding of gender influence access to maternal healthcare services. Issues related to not reaching hospital in time when experiencing symptoms, for example due to lack of childcare or transportation, may reflect gendered divisions of responsibilities or culturally shaped notions of birth belonging to the 'women's sphere'. Furthermore, the fact that all participants included in our study were women, men's voices and perceptions have not been included, and thus gendered norms and the ways they may influence uptake of services have not been explored.

Conclusion

Low familiarity with the healthcare system in the host country can hinder recently arrived migrant women in navigating and utilising the maternity services. Combined with, limited language proficiency, psychosocial/structural factors and different expectation of care, they are the main challenges and barriers to optimal maternity care for migrant women. Improvements and interventions that may meet the needs of the recently arrived migrants include improved provision of health system structure, appropriate use of professional interpreter, broader range of social services offered to women with limited social network and increased cultural competency among healthcare personnel.

Abbreviation

MCHC: Maternal and Child Health Centre.

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12884-021-04131-7.

Additional file 1.

Acknowledgements

We thank all the participating migrant women and health staff at Oslo University Hospital, Akershus University Hospital and at the MCHCs that enabled us to perform this study.

Authors' contributions

SB modified the questionnaire, collected questionnaire data, conducted the analysis, interpreted results and wrote the first draft of the manuscript. SS collected and transcribed the in-depth interview data. JS developed the idea for the study, secured the funding, helped interpret results and contributed to manuscript revisions. SV developed the idea for the study, secured the funding, helped interpret results and contributed to manuscript revisions. IKS developed the idea for the study, secured the funding, helped interpret results and contributed to manuscript revisions. BVL developed the idea for the study, secured the funding, collected in-depth interview data, conducted the analysis, interpreted results and revised manuscript. All authors approved the final version of the manuscript

Funding

This work was supported by Research Council of Norway, grant number 273328. The funding body has no role in the design of the study, collection, analysis, interpretation of data or in writing the manuscript.

Availability of data and materials

The datasets generated and analysed during the current study are not publicly available due to protection of individual participants' privacy and confidentiality, but are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

The qualitative part (approvals 18/15786) and the quantitative part (approvals 18/15786 + 18/05310) were approved by Oslo University Hospital and Akershus University Hospital's ethical review committee. The overall MiPreg-study was approved by Regional Committees for Medical and Health Research Ethics (approval 2018/1086). Written consent, or oral consent based upon the participant's preference, was obtained from those who volunteered to participate in the study.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

Author details
[1]Department of Obstetrics and Gynecology, Norwegian Research Centre for Women's Health, Oslo University Hospital, Rikshospitalet; PO box 4950 Nydalen, 0424 Oslo, Norway. [2]Department of Community Medicine and Global Health, Institute of Health and Society, University of Oslo, Oslo, Norway. [3]Department of labour, Welfare and Local Communites, Stovner District, City of Oslo, Oslo, Norway. [4]Institute of Clinical Medicine, Faculty of Medicine, University of Oslo, Oslo, Norway. [5]Department of Social Work, Child Welfare and Social Policy, Oslo Metropolitan University, Oslo, Norway.

Received: 5 May 2021 Accepted: 17 September 2021
Published online: 07 October 2021

References

1. Almeida LM, Caldas J, Ayres-de-Campos D, Salcedo-Barrientos D, Dias S. Maternal healthcare in migrants: a systematic review. Matern Child Health J. 2013;17(8):1346–54.
2. Small R, Gagnon A, Gissler M, Zeitlin J, Bennis M, Glazier R, et al. Somali women and their pregnancy outcomes postmigration: data from six receiving countries. BJOG. 2008;115(13):1630–40.
3. Sorbye IK, Daltveit AK, Sundby J, Vangen S. Preterm subtypes by immigrants' length of residence in Norway: a population-based study. BMC Pregnancy Childbirth. 2014;14:239.
4. Organization WH. A Conceptual Framework for Action on the Social Determinants of Health 2010. Available from: https://www.who.int/sdhconference/resources/ConceptualframeworkforactiononSDH_eng.pdf. Accessed 4 Mar 2021.
5. Mak J, Roberts B, Zimmerman C. Coping with migration-related stressors: a systematic review of the literature. J Immigr Minor Health. 2020.
6. Heaman M, Bayrampour H, Kingston D, Blondel B, Gissler M, Roth C, et al. Migrant women's utilization of prenatal care: a systematic review. Matern Child Health J. 2013;17(5):816–36.
7. Scheppers E, van Dongen E, Dekker J, Geertzen J, Dekker J. Potential barriers to the use of health services among ethnic minorities: a review. Fam Pract. 2006;23(3):325–48.
8. Schmidt NC, Fargnoli V, Epiney M, Irion O. Barriers to reproductive health care for migrant women in Geneva: a qualitative study. Reprod Health. 2018;15(1):43.
9. Sami J, Quack Lotscher KC, Eperon I, Gonik L, Martinez de Tejada B, Epiney M, et al. Giving birth in Switzerland: a qualitative study exploring migrant women's experiences during pregnancy and childbirth in Geneva and Zurich using focus groups. Reprod Health. 2019;16(1):112.
10. Centers for Disease Control and Prevention. What Is Health Literacy? 2021. Available from: https://www.cdc.gov/healthliteracy/learn/index.html. Accessed 10 Mar 2021.
11. Saastad E, Vangen S, Froen JF. Suboptimal care in stillbirths - a retrospective audit study. Acta Obstet Gynecol Scand. 2007;86(4):444–50.
12. Bains S, Mæland KS, Vik ES. Prenatal health of immigrant women in Norway - an exploratory literature review. Tidsskr Nor Laegeforen. 2021;141(2):151-55. https://doi.org/10.4045/tidsskr.20.0428.
13. Kvamme EYS. Barriers to health care access among undocumented migrant women in Norway. Society Health Vulnerability. 2015;6:1.
14. Lyberg A, Viken B, Haruna M, Severinsson E. Diversity and challenges in the management of maternity care for migrant women. J Nurs Manag. 2012;20(2):287–95.
15. Leppala S, Lamminpaa R, Gissler M, Vehvilainen-Julkunen K. Humanitarian migrant women's experiences of maternity care in Nordic countries: a systematic integrative review of qualitative research. Midwifery. 2020;80:102572.
16. Balaam MC, Akerjordet K, Lyberg A, Kaiser B, Schoening E, Fredriksen AM, et al. A qualitative review of migrant women's perceptions of their needs and experiences related to pregnancy and childbirth. J Adv Nurs. 2013;69(9):1919–30.
17. Fair F, Raben L, Watson H, Vivilaki V, van den Muijsenbergh M, Soltani H, et al. Migrant women's experiences of pregnancy, childbirth and maternity care in European countries: a systematic review. PLoS One. 2020;15(2):e0228378.
18. Statistics Norway. Immigrants and Norwegian-born to immigrant parents, by immigration category, country background and percentages of the population, 2010–2021. Available from: https://www.ssb.no/en/statbank/table/09817/. Accessed 4 Mar 2021.
19. The Norwegian Directorate of Health. Healthcare for persons without legal residence in Norway: The Norwegian Directorate of Health; 2020. Available from: https://www.helsenorge.no/en/foreigners-in-norway/healthcare-for-persons-without-legal-residence/. Accessed 4 Mar 2021.
20. The Norwegian Directorate of Health. Check-ups during pregnancy 2020. Available from: https://www.helsenorge.no/en/pregnancy-and-maternity-care-in-norway/check-ups-during-pregnancy/. Accessed 4 Mar 2021.
21. The Institute for Health Metrics and Evaluation. What is GBD and why is it important? What countries are in each region? 2020. Available from: http://www.healthdata.org/gbd/faq#What%20is%20GBD%202010%20and%20why%20is%20it%20important?. Accessed 4 Mar 2021.
22. Mathison S. Why triangulate? Educ Res. 1988;17(2):13–7.
23. Gagnon AJ, DeBruyn R, Essen B, Gissler M, Heaman M, Jeambey Z, et al. Development of the Migrant Friendly Maternity Care Questionnaire (MFMCQ) for migrants to Western societies: an international Delphi consensus process. BMC Pregnancy Childbirth. 2014;14:200.
24. Bains S, Sundby J, Lindskog BV, Vangen S, Diep LM, Owe KM, et al. Satisfaction with maternity care among recent migrants: an interview questionnaire-based study. BMJ Open. 2021;11(7):e048077.
25. Saunes IS HT, Tomic O, Lindahl AK. Health in Norway – 2017: Commentary report for OECD comparison of health in different countries 2017.
26. Phillimore J. Migrant maternity in an era of superdiversity: new migrants' access to, and experience of, antenatal care in the west midlands. UK Soc Sci Med. 2016;148:152–9.
27. Seidel V, Gurbuz B, Grosskreutz C, Vortel M, Borde T, Rancourt RC, et al. The influence of migration on women's use of different aspects of maternity care in the German health care system: secondary analysis of a comparative prospective study with the migrant friendly maternity care questionnaire (MFMCQ). Birth. 2020;47(1):39–48.
28. Cresswell JA, Yu G, Hatherall B, Morris J, Jamal F, Harden A, et al. Predictors of the timing of initiation of antenatal care in an ethnically diverse urban cohort in the UK. BMC Pregnancy Childbirth. 2013;13:103.
29. Chote AA, Koopmans GT, de Groot CJ, Hoefman RJ, Jaddoe VW, Hofman A, et al. Differences in timely antenatal care between first and second-generation migrants in the Netherlands. J Immigr Minor Health. 2014;16(4):631–7.
30. Henderson J, Gao H, Redshaw M. Experiencing maternity care: the care received and perceptions of women from different ethnic groups. BMC Pregnancy Childbirth. 2013;13:196.
31. Brenne S, David M, Borde T, Breckenkamp J, Razum O. Are women with and without migration background reached equally well by health services? The example of antenatal care in Berlin. Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz. 2015;58(6):569–76.
32. Lauvrak V NI, Hagen G et al. Early ultrasound in maternity care (Tidlig ultralyd i svangerskapsomsorgen). Norwegian Knowledge Centre for the Health Services.; 2012.
33. Dempsey M, Peeren S. Keeping things under control: exploring migrant eastern European womens' experiences of pregnancy in Ireland. J Reprod Infant Psychol. 2016;34(4):370–82.
34. Ruud SE, Aga R, Natvig B, Hjortdahl P. Use of emergency care services by immigrants-a survey of walk-in patients who attended the Oslo accident and emergency outpatient clinic. BMC Emerg Med. 2015;15:25.
35. Bains S, Sundby J, Lindskog BV, Vangen S, Sørbye IK. Newly Arrived Migrant Women's Experience of Maternity Health Information: A Face-to-Face Questionnaire Study in Norway. Int J Environ Res Public Health. 2021;18(14):7523. https://doi.org/10.3390/ijerph18147523.
36. Higginbottom GM, Morgan M, Alexandre M, Chiu Y, Forgeron J, Kocay D, et al. Immigrant women's experiences of maternity-care services in Canada: a systematic review using a narrative synthesis. Syst Rev. 2015;4:13.
37. Glavin K, Sæteren B. Cultural diversity in perinatal care: Somali new mothers´ experiences with health Care in Norway; 2016.
38. Campos B, Schetter CD, Abdou CM, Hobel CJ, Glynn LM, Sandman CA. Familialism, social support, and stress: positive implications for pregnant Latinas. Cultur Divers Ethnic Minor Psychol. 2008;14(2):155–62.
39. Falah-Hassani K, Shiri R, Vigod S, Dennis CL. Prevalence of postpartum depression among immigrant women: a systematic review and meta-analysis. J Psychiatr Res. 2015;70:67–82.

40. Dennis CL, Merry L, Gagnon AJ. Postpartum depression risk factors among recent refugee, asylum-seeking, non-refugee immigrant, and Canadian-born women: results from a prospective cohort study. Soc Psychiatry Psychiatr Epidemiol. 2017;52(4):411–22.
41. Sorbye IK, Vangen S, Juarez SP, Bolumar F, Morisaki N, Gissler M, et al. Birthweight of babies born to migrant mothers - what role do integration policies play? SSM Popul Health. 2019;9:100503.
42. Orr ST. Social support and pregnancy outcome: a review of the literature. Clin Obstet Gynecol. 2004;47(4):842–55 discussion 81-2.
43. Rogers HJ, Hogan L, Coates D, Homer CSE, Henry A. Responding to the health needs of women from migrant and refugee backgrounds-models of maternity and postpartum care in high-income countries: a systematic scoping review. Health Soc Care Community. 2020;28(5):1343–65.
44. Haugaard A, Tvedte SL, Severinsen MS, Henriksen L. Norwegian multicultural doulas' experiences of supporting newly-arrived migrant women during pregnancy and childbirth: a qualitative study. Sex Reprod Healthc. 2020;26:100540.
45. Willen S, Cook J. Health-Related Deservingness. In book: Handbook of Migration and Health (pp95–118): Edward Elgar; 2016. 95–118.

Publisher's Note