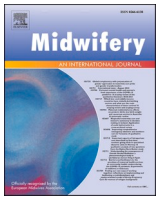
Midwifery 138 (2024) 104139

Contents lists available at ScienceDirect

Midwifery

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



Maternal birthplace and experiences of perinatal healthcare in Belgium: Evidence from a cross-sectional survey

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ARTICLE INFO

Keywords:
Antenatal care
Intrapartum care
Patient experience
Social inequalities
Inequities
Migration

ABSTRACT

Background: Patient experience is an important part of perinatal care quality. Migrant women in high-income countries often report more negative experiences than non-migrants, but evidence in Europe is patchy. In this study, we compared the experiences of two migrant populations with non-migrants, taking into account socio-economic characteristics.

Methods: We surveyed mothers born in Belgium, North-Africa, and Sub-Saharan Africa (n = 877) using an adapted version of the Migrant-Friendly Maternity Care Questionnaire. Two patient experience scores were created using multiple correspondence analyses: a) information and communication with healthcare professionals and overall satisfaction with pregnancy care, and b) patient-centred aspects and satisfaction with delivery care. Through descriptive analyses and multivariable logistic regressions we estimated the associations of maternal characteristics with each score.

Results: Overall, positive experiences were reported in terms of communication (83 %) and patient-centred care (86 %). North African immigrants with low language proficiency had higher odds of negative communication experience (especially problems understanding information) (ORa: 2.30, 95 %CI 1.17–4.50), regardless of socioeconomic position. Among women with language barriers, 88 % were never offered a professional interpreter, relying on family members for translation. Patient-centred care was not associated with maternal birth region but was rated more negatively by older mothers, those with longer residence in Belgium, and higher majority-language proficiency.

Conclusion: In Belgium, perinatal care experiences were generally positive, although communication with immigrants was suboptimal. Language barriers, single motherhood, and unstable housing increased communication issues. Our findings underline the necessity to improve information-exchange with immigrants and socioeconomically vulnerable women.

Background

Along with clinical effectiveness and patient safety, patient experience is an important part of perinatal care quality (Doyle et al., 2013; World Health Organization, 2018). Poor interactions with healthcare professionals (HCPs) may have effects that go well beyond a subjective feeling of suboptimal care: it can cause women to feel isolated, fearful of being mistreated, or unprepared for childbirth (Fair et al., 2020; Higginbottom et al., 2020). A lack of understanding can also hinder shared decision-making and informed consent, which, besides its significant ethical implications, can limit adherence to treatment or preclude seeking the necessary medical help (Jonkers et al., 2011; Binder et al., 2012; Small et al., 2014). In addition, the literature has shown that a lack of trust in healthcare professionals can lead to non-disclosure of important information, or avoidance of healthcare altogether (Jonkers et al., 2011; Tobin et al., 2014; Fair et al., 2020). All these consequences may take a toll on the health of pregnant women and their babies (Staneva et al., 2015; Linard et al., 2018).

Numerous studies from high-income countries have shown that migrant or minority ethnic groups had poorer patient experience (Almeida et al., 2014; Sword et al., 2006; Henderson et al., 2013; Hennegan et al., 2014; Small et al., 2014; Henderson et al., 2018;

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https://doi.org/10.1016/j.midw.2024.104139
Received 29 September 2022; Received in revised form 18 July 2024; Accepted 7 August 2024
Available online 8 August 2024

Heslehurst et al., 2018; Firdous et al., 2020). A systematic review including studies from Canada, the U.S., UK, Sweden, and Australia found that although immigrant and non-immigrant women had very similar ideas of what they expected from maternity care, overall, immigrant women rated their care more poorly and faced additional challenges which negatively impacted their experiences (Small et al., 2014). Language barriers were the most salient difficulty, which, together with a lack of adequate translators, resulted in poorer understanding of information and ability to communicate with healthcare professionals. Various studies also reported of discriminatory attitudes towards immigrants or, more generally, of suboptimal interactions with healthcare professionals (Santiago Mda and Figueiredo,2015, Small et al., 2014, Higginbottom et al., 2020). For example, a survey including >24,000 women in the UK, reported that those from minority ethnic groups were less likely to always feel spoken to in a way they could understand, to be sufficiently involved in decisions, to be treated with kindness, or to have confidence in healthcare professionals (Henderson et al., 2013).

When studying these issues, grouping together migrants from geographically and culturally very diverse regions might mask important variations. Migrants' experiences have been found to depend on factors such as women's country of origin or ethnicity, their recency of arrival in the host country, or their legal status (Kingston et al., 2011). For instance, in the UK, recent migrants had better experiences of pregnancy and intrapartum care than earlier migrants (Henderson et al., 2018). Another study from the UK highlighted significant differences between Asian ethnicity groups in terms of their perceptions of care (Henderson et al., 2013).

The perinatal care experiences of migrant women have been studied extensively in certain anglophone countries such as the UK, Canada, and Australia and in some Scandinavian countries such as Norway and Sweden (Almeida et al., 2014; Leppälä et al., 2020; Henderson et al., 2013; Hennegan et al., 2014; Small et al., 2014; Henderson et al., 2018; Heslehurst et al., 2018; Firdous et al., 2020; Bains et al., 2021b). Given the differences in healthcare systems (access, costs, type of follow-up) and immigration histories (countries of origin, type of migration, integration in host country), the results are not necessarily generalisable to other European countries. To date, to the best of our knowledge, no study has provided a quantitative comparison of native and immigrant women's experiences of perinatal care in Belgium (Galle et al., 2015; Degrie et al., 2017).

We aimed to fill this knowledge gap by exploring whether inadequate care, as perceived by service users, affected immigrant populations more. Our objectives were to compare the experiences of antenatal and intrapartum care between three groups: non-immigrants and immigrant women from the two most prevalent non-European maternal birth regions, and to identify whether any migration-related or socioeconomic characteristics were associated with these experiences. The measurement of numerous items of patient experience, summarised by two scores, enabled us to gain an insight into different dimensions of women's perceptions of care.

Methods

Context

Belgium is considered one of the more egalitarian countries in Europe thanks to its extensive taxation and social welfare measures (Healthy Belgium,2021). The most prevalent immigrant groups reflect Belgium's immigration history over the last sixty years, with significant representation from North African and Turkish immigrants recruited post-World War II for mining and construction work (Martiniello and Réa,2012). Since the 1990s, asylum applications and irregular labour immigration have increased from poverty and war-torn areas in Central and West Africa and the Middle East (Martiniello and Réa,2012). <10 % of asylum seekers are granted refugee status annually, leaving many as "undocumented" or irregular workers.

The healthcare system is publicly funded, with quality generally in line with or above the EU-14 average (Gerkens et al., 2020). Ninety-eight percent of legal residents have health insurance, covering a significant portion of healthcare costs. The system allows free choice of physician and care facility, with fee-for-service payments. However, the system has been reported as complex and difficult to navigate, especially for irregular migrants. (Gerkens et al., 2020).

Brussels, the capital city, hosts the largest share of international migrants in Belgium and has a younger, more precarious population (STATBEL,2022). Child poverty is significant, with 40 % of children born into households with incomes below the poverty threshold (Sow et al., 2018). In 2019, almost three-quarters (73 %) of births in Brussels were to mothers who were not Belgian nationals at their own birth (Van Leeuw and Leroy,2020). The largest groups were from EU28 countries (23 % of total births) and North Africa (23 %), followed by Sub-Saharan Africa (11 %).

Population and data collection

The detailed methodology has been published previously (Schoenborn et al., 2020). In summary, we carried out a cross-sectional study comprising 932 mothers with a nationality from three regions: Belgium, North Africa, and Sub-Saharan Africa (based on UN country classification, **S1 Table**). Between January 2019 and February 2020, we recruited participants in four hospitals in Brussels. On the days that the interviewers were present, all eligible mothers were invited to participate in the survey. Inclusion criteria were: a current nationality from the above three groups; being at least 16 years old; having given birth within the last two weeks; and speaking French, Dutch, Arabic, Riff, Peul, English, or Spanish. We included all women, regardless of health insurance, legal status, or literacy. Those considered by their midwife to be too unwell to be approached were not asked to participate.

Women who agreed to take part were interviewed face-to-face by trained female interviewers using an adapted version of the Migrant-Friendly Maternity Care Questionnaire (MFMCQ) (Schönborn et al., 2022). The MFMCQ was developed by the 'Reproductive Outcomes And Migration' (ROAM) network in 2014 in order to measure migrant women's use and experiences of maternity care in a comparable way across different settings and different countries (Gagnon et al., 2014). 'Migrant Friendly Maternity Care' was conceptualised as encompassing physical and psychosocial care by professionals with a supportive approach and taking into consideration the specificities of care provided during pregnancy, birth, or post-birth, with a particular focus on communication aspects. The development of the original questionnaire included the integration of questions from existing questionnaires and finalisation through a Delphi consensus to yield a 116-item questionnaire.

We adapted the MFMCQ in its French version and then translated it into English and orally into Moroccan Arabic. Translation into other languages was done *ad hoc*. Nearly all questionnaires were administered in French (86 %) and Arabic (13 %), while a few questionnaires were administered in English ($n = 4$) or translated *ad hoc* into Riff ($n = 3$), Peul ($n = 2$), or Dutch ($n = 2$).

If participants provided explicit consent, clinical data was also collected from their hospital notes in order to complement the self-reported medical information. This included the timing of the first antenatal consultation and number of consultations, pregnancy complications, delivery mode, gestation at delivery, and birthweight.

We obtained ethical approval from the heads of Obstetrics and Paediatrics, from the Ethics Committees of all four hospitals and from the Université libre de Bruxelles (Erasme Reference No P2017/055/B406201730877), which included approval of interviewing women from the age of 16 without parent or guardian consent. Oral and written information were given to all participants and written consent was collected. It was agreed with the included hospitals not to name them in

the results.

Variables

Migration and socioeconomic characteristics

All migration and socioeconomic variables were based on women's answers to questionnaire items. In Table 1 we describe only the variables that are not self-explanatory in the results tables.

We also extracted questionnaire answers for age, parity, duration of residence in Belgium, delivery type, type of antenatal follow-up. The response categories for these items are shown in the results tables.

Clinical and antenatal care characteristics

Continuity of antenatal care was categorised into three: 1) always/almost always seen by the same healthcare professional 2) not seen by the same HCP but continuity in information and HCPs working well together 3) no continuity.

We classified as having had medical complications during their pregnancy those women whose clinical records mentioned at least one of the following conditions: anaemia, hypertension, pre-eclampsia, premature labour, deep vein thrombosis, gestational diabetes, placenta praevia, placental abruption, urinary tract infection, severe back pain, premature rupture of membranes, depression, hyperemesis, congenital foetal anomaly, or other condition. In addition, we included women who declared having had one of these complications, unless it was a single minor complication (anaemia, back pain, UTI) which was not mentioned in the clinical notes ($n = 55$). Missing data from clinical records ($n = 82$) were replaced by women's responses.

Table 1
Migration and socioeconomic variable description.

Variable	Description and categorisation
Maternal region of birth	1. Belgium, 2. North Africa, 3. Sub-Saharan Africa. Women born elsewhere were excluded ($n = 55$).
Level of education	1. Completed maximum 3 years of secondary school, 2. Completed secondary school, 3. University or higher education degree.
Single motherhood	1. Women who were married or in a couple 2. Single, separated, or widowed
Housing type	1. Private (as owners or tenants), 2. Social housing, 3. Not living in own home (i.e. living at family's or friends' house, in an immigration centre, or being homeless).
Professional activity during the last trimester of pregnancy	1. Working, having a job but being on pregnancy leave, or studying; 2. On unemployment benefits, social welfare of last resort, or work incapacity; 3. No professional activity or housewife.
Equivalised household income	Based on the OECD modified scale (STATBEL 2021): • Net monthly household income divided by household size (weighted number of cohabitants, depending on age) • Distribution of equivalised household income divided into quartiles
Health insurance	1. Public or private health insurance 2. Access to care through Public Social Welfare Centre (support to access healthcare), Urgent Medical Care (access for undocumented migrants), Fedasil (access for asylum seekers), or paying out of pocket.
Legal status	1. "Stable": Belgian nationality, EU citizenship, indeterminate residence permit, family reunion, refugee status. 2. "Unstable": short stay visas, asylum seekers, undocumented.
Language proficiency	Participants were asked to self-rate their oral French and Dutch competencies, the two official languages in Belgium. 1. Fluent 2. Good 3. With difficulty or not at all We retained only the category for the language that was spoken best.

Patient experience items

Fourteen questionnaire items were selected, which are listed in Table 2.

Statistical analyses

Multiple correspondence analyses

To elucidate possible relationships between multiple variables and to guide the creation of a patient experience score, we carried out multiple correspondence analyses (MCA) of the patient experience items.

Missing values were imputed with 2-dimensional MCA models. We first ran MCAs with experience items categorised into three; however, given the presence of rare categories and their potential impact on results, we regrouped them, so in the final model all active items, except for "discrimination", were dichotomised. MCA were run with R (R Core Team, 2024) and the Factoshiny package.

Based on the scree plot criterion (Cattell, 1966), we retained the first two dimensions accounting for 35.5 % of the variance (**S1 File**). In dimension 1 the most influencing variables were "healthcare professionals being encouraging and reassuring" and "women's worries being taken seriously" (**S1 Graph**). Dimension 2 was mostly characterised by the items of "information received concerning pregnancy", and "information received concerning birth".

The factor map (**S2 Graph**) showed that dimension 1 differentiated positive experiences with care from negative ones. Dimension 2 differentiated negative experiences in terms of information, communication, and satisfaction with pregnancy care on one hand, and negative experiences in terms of patient-centred aspects and satisfaction with intrapartum care on the other. We created two patient experience scores based on the dichotomisation depicted in dimension 2.

We additionally tested the model by removing active variables one by one to see whether variability would increase among the positive experiences, but this made no difference. We also carried out sensitivity analyses by removing outlier individuals (i.e. those having answered

Table 2
Patient experience items.

	Questionnaire item
1	During this pregnancy, did you feel that you had sufficient information regarding pregnancy, like the changes affecting your body, your health, and what is advised or better avoided during pregnancy?
2	During this pregnancy, did you feel that you had enough information about giving birth?
3	Did you understand the information provided by healthcare professionals?
4	The obstetricians and midwives spent enough time providing explanations.
5	You felt comfortable asking about things you did not understand
6	Overall, were the midwives and obstetricians respectful?
7	During your pregnancy, labour, or birth, did the healthcare professionals ask you to do something that you were not ok with?
8	During labour, were you satisfied with how midwives or obstetricians helped you manage your pain?
9	The obstetricians or midwives made decisions without your wishes being taken into account.
10	The obstetricians and midwives were encouraging and reassuring.
11	You felt that obstetricians and midwives took your worries seriously.
12	Overall, do you feel that you were treated differently to other people by obstetricians or midwives?
13	Overall, are you satisfied with the care you received during your pregnancy?
14	Overall, were you satisfied with the care you received during labour and birth?

questions in a distinct manner, and contributing substantially to the MCA dimensions). These did not significantly change results.

Patient experience scores

Score 1 (hereafter referred to as "communication score") included six items (**Table S2A**). Given the skewed distribution of answers towards very positive experiences, we considered the most positive answer option (e.g. "always") a positive experience (coded +1). Less positive options (e.g. "often/sometimes/never") were considered a negative experience (coded −1).

Score 2 (hereafter referred to as "patient-centred care score" or shortened to "PCC score") included eight items (**Table S2B**). As with the previous score, the most positive answer option was considered a positive experience. Less positive options were considered as negative. Five items included answer options that we considered to be "middle categories", and as such coded as 0.

Descriptive and inferential statistics

We carried out descriptive analyses of demographic, socioeconomic, and migration-related indicators, for the whole sample and stratified by birth region. We calculated Chi^2 or Fisher exact p-values, as appropriate, to determine whether distributions differed by birth regions. The same method was used for patient experience variables. Bonferroni corrections were applied to the comparisons between birth regions.

We ran univariate logistic regressions to estimate the associations of migration and socioeconomic characteristics with each score. With multivariable logistic regression models we tested whether the (lack of) associations between birth region and the scores were affected by confounding from other variables (given their differential distribution by birth region). We included all determinants that were statistically significant in univariate analyses as well as socioeconomic characteristics which we considered important adjustment variables. In the model for communication score, we did not include income because of its strong association with other included predictors (Cramer $V > 0.3$ with education and professional activity).

In the PCC model, we found an interaction between birth region and language knowledge. Given the presence of empty cells and high collinearity between some indicators, an interaction term could not be used. In the final model, we therefore combined the two variables and excluded the empty category of women born in Belgium with language difficulties. To increase statistical power, we regrouped the three language categories for Sub-Saharan African women because results were similar.

We used the Hosmer and Lemeshow test (Hosmer and Lemeshow, 1980) to check the suitability of the models, and a link test for model specification. Analyses were processed through Stata, version 14 (StataCorp 2021).

Results

Participation rates & sample description

The overall participation rate was 86.4 %, and 932 women fully answered the questionnaire. Out of the 877 women born in one of the three birth regions of interest, 799 agreed to have their clinical data collected from hospital records.

Ninety percent of women born in North Africa were from Morocco, 7 % Algeria, 2 % Tunisia and 1 % from Lybia or Egypt. There were 20 Sub-Saharan African countries of birth, with the most represented being the Democratic Republic of Congo (31.4 %), Guinea (19.6 %), and Cameroon (16.0 %), followed by Rwanda (5.2 %), Senegal (4.7 %), and Côte d'Ivoire (4.2 %).

Women born in Belgium were younger, had lower parity, and experienced fewer medical complications during pregnancy than immigrant women (Table 3). Compared to the other two groups, mothers born in North Africa were older, had lower education, a higher proportion of them was without professional activity, and fewest were in the wealthiest quartile. This group also had the highest proportion of women with low language proficiency. Mothers born in Sub-Saharan Africa had the highest proportions of grand multipara and single mothers. They were most at risk of not having their own accommodation, and poverty was prominent, with almost half having a household income in the lowest quartile. Women from Sub-Saharan Africa were the most prone to lacking health insurance, and to having an unstable legal status.

Patient experience and birth region

Overall, patient experience and satisfaction of care were very positive. Table 4 shows that depending on the item, between 81 % and 95 % of women responded the most positive answer category.

Table 4 shows that birth region was not significantly associated with overall patient experience. We observed a higher percentage of negative experience regarding the communication score among migrant women from Sub-Saharan Africa (22 % versus 16 % in the other two groups), but this association was not statistically significant.

Birth region was, however, associated with single experience items. For instance, both immigrant groups were more than twice as likely to report not having understood the provided information, compared to non-immigrants. Also, women born in Sub-Saharan Africa were likelier to declare not having received sufficient information about birth, and to report that healthcare professionals spent insufficient time providing explanations. In terms of patient-centred care, mothers born in Belgium were less likely to report that healthcare professionals were encouraging and reassuring. On the other hand, a higher proportion of them felt that they had been treated better than other women. Migrants hardly ever reported having felt treated worse than others. Overall satisfaction with care, be it during pregnancy or during childbirth, did not vary with birth region.

Determinants of communication score

Socioeconomic vulnerability predicted a negative communication score in univariate analyses, especially among non-migrants (**S3 Table**). In some categories, a negative experience was highly prevalent, such as in women without their own accommodation (45 %), women that were single (36 %), under 25 (31 %), with language difficulties (29 %), and with unstable legal status (27 %). In multivariable analysis, three determinants remained significant, namely single motherhood, housing type, and the composite variable of birth region and language knowledge (Table 5). Imigrant women from North Africa who had difficulties speaking the national languages were likelier to have a negative

Table 3
Demographic, socioeconomic, and clinical characteristics of women (%), overall and by birth region.

	Total (n = 877)	Belgium (n = 422)	North Africa (n = 262)	Sub-Saharan Africa (n = 193)	p-value
Age					<0.001*,‡
<25 years	9.7	12.6	6.5	7.8	
25–35 years	64	65.9	56.1	70.5	
36+ years	26.3	21.6	37.4	21.8	
Education					<0.001*,†
Lower secondary or less	27.1	15.6	37.8	37.8	
Upper secondary	36.2	35.3	39.7	33.2	
Higher education	36.7	49.1	22.5	29.0	
Single motherhood					<0.001*,†,‡
Yes	12.8	10.9	3.1	30.1	
Housing type					<0.001*,†,‡
Private housing	83.7	88.9	82.7	73.6	
Social housing	10.9	6.6	14.2	15.5	
Not own home	5.5	4.5	3.1	10.9	
Professional activity					<0.001*,†,‡
Employed/student	55	72.3	29.4	51.8	
Unemployed/social welfare/invalidity	15.6	16.1	11.1	20.7	
None/housewife	29.4	11.6	59.5	27.5	
Equivalised household income					<0.001*,†
Q1 (lowest)	29.7	14.7	41.2	49.2	
Q2	25.2	21.3	30.9	26.8	
Q3	26.5	32.1	23.2	17.9	
Q4 (highest)	18.6	31.9	4.7	6.2	
Health insurance					<0.001*,†,‡
No	5.5	0.5	5.3	16.6	
Time of residence					<0.001*,†
<=5 years	19.2	0.2	35.9	37.8	
6–15 years	24.7	0.7	47.3	46.6	
16+ years	56.1	99.1	16.8	15.5	
Legal status					<0.001*,†,‡
unstable	6.6	0.0	5.7	22.3	
Language					<0.001*,†,‡
Fluent	74	99.1	39.3	66.3	
Good	14.1	1.0	27.1	25.4	
Difficult/not at all	11.9	0.0	33.6	8.3	
Parity					<0.001*,†
1	36.4	44.1	28.2	30.6	
2–3	50.1	46.9	56.1	48.7	
4+	13.6	9.0	15.7	20.7	
Pregnancy complications					0.09
Yes	56.2	52.4	59.5	60.1	
Type of follow-up					0.6
Obstetrician	52.1	53.8	50.8	50.3	
Midwife	13.2	13.8	13.7	11.1	
Both	34.7	32.4	35.5	38.6	
Delivery mode					0.009‡
Vaginal birth	79.4	82	80.2	72.5	
Planned C-section	10.3	8.3	12.6	11.4	
Unplanned C-section	10.4	9.7	7.3	16.1	
Delivery hospital					<0.001*,†,‡
1	21.2	28.7	15.7	12.4	
2	29.3	24.6	28.6	40.4	
3	34.9	31.5	45.8	27.5	
4	14.6	15.2	9.92	19.7	

After Bonferroni correction:.
* Belgium vs. North Africa $p < 0.05$.
† Belgium vs. Sub-Saharan Africa $p < 0.05$.
‡ North Africa vs. Sub-Saharan Africa $p < 0.05$.

Table 4
Patient experience items overall and by birth region.

	Total		Belgium		North Africa		Sub-Saharan Africa		Chi² p-value
	n	%	n	%	n	%	n	%	
Communication Score	**871**		**421**		**261**		**189**		0.21
positive experience		82.6		83.9		83.5		78.3	
negative experience		17.5		16.2		16.5		21.7	
Patient-centred care Score	**874**		**422**		**261**		**181**		0.24
positive experience		85.5		83.4		87.7		86.9	
negative experience		14.5		16.6		12.3		13.1	
INFORMATION									
Understood information	**877**		**422**		**262**		**193**		<0.001*,†
always		84.6		91.9		76.3		79.8	
often/sometimes		15.4		8.1		23.7		20.2	
Enough information pregnancy	**877**		**422**		**262**		**193**		0.49
yes		90.9		90.8		92.4		89.1	
more or less/no		9.1		9.2		7.6		10.9	
Enough information birth	**876**		**422**		**262**		**192**		0.04‡
yes		87.8		86.5		92.0		84.9	
more or less/no		12.2		13.5		8.0		15.1	
COMMUNICATION									
Enough time to explain	**877**		**422**		**262**		**193**		0.003*,‡
always		81.0		78.2		87.8		77.7	
often/sometimes/never		19.0		21.8		12.2		22.3	
Feel ok to ask questions	**872**		**422**		**261**		**189**		0.09
always		90.3		91.2		87.0		92.6	
often/sometimes		9.8		8.8		13.0		7.4	
SATISFACTION									
Satisfaction care pregnancy	**876**		**421**		**262**		**193**		0.48
yes		91.0		89.8		92.4		91.7	
more or less/no		9.0		10.2		7.6		8.3	
PATIENT-CENTRED CARE									
Worries taken seriously	**840**		**410**		**246**		**184**		0.04
always		85.6		82.4		89.0		88.0	
often/sometimes/never		14.4		17.6		11.0		12.0	
Encouraging	**869**		**420**		**259**		**190**		0.03*
always		89.4		87.1		93.4		88.9	
often/sometimes		10.6		12.9		6.6		11.1	
Respectful	**877**		**422**		**262**		**193**		0.11
always		90.4		88.4		93.1		91.2	
often/sometimes		9.6		11.6		6.9		8.8	
Wishes not taken into account	**874**		**422**		**261**		**191**		0.58
never		95.3		94.6		96.2		95.8	
sometimes/often/always		4.7		5.5		3.8		4.2	
Did something not ok with	**877**		**422**		**262**		**193**		0.41
no		94.6		93.6		95.8		95.3	
yes		5.4		6.4		4.2		4.7	
Felt treated differently	**703**		**338**		**206**		**159**		0.001*,†
better		5.7		9.2		2.4		2.5	
same		91.6		87.6		94.2		96.9	
worse		2.7		3.3		3.4		0.6	
Satisfaction support pain	**781**		**381**		**232**		**168**		0.34
yes		91.6		89.5		94.0		92.9	
sometimes		6.8		8.4		5.2		5.4	
no		1.7		2.1		0.9		1.8	
SATISFACTION									
Satisfaction care birth	**877**		**422**		**262**		**193**		0.65
yes		95.1		94.8		94.7		96.4	
more or less/no		4.9		5.2		5.3		3.6	

After Bonferroni correction:.
* Belgium vs. North Africa $p < 0.05$.
† Belgium vs. Sub-Saharan Africa $p < 0.05$.
‡ North Africa vs. Sub-Saharan Africa $p < 0.05$.

experience in terms of communication, compared to non-immigrants (ORa: 2.30, 95 %CI 1.17–4.50). All other combinations of birth region and language knowledge categories were not associated with this score.

Determinants of patient-centre care score

A social gradient of PCC experience, that is worse experience with more precarious socioeconomic characteristics, was measurable in the univariate analyses in the non-immigrant group only (**S4 Table**). The multivariable model shows that there were four independent risk factors for a negative patient-centred care score, namely older age, a longer residence in Belgium (16+ years), fluent knowledge of one of the national languages, and the delivery hospital (Table 6).

Table 5
Negative communication score according to maternal characteristics (crude and adjusted logistic regressions).

	Total n	% negative experience				Multivariable model ($n = 869$)		
			ORc	95 % CI	p-value	ORa	95 % CI	p-value
Birth region and language knowledge					**0.004**			**0.01**
Belgium -fluent/good	421	16.2	1			1		
North Africa -fluent	103	8.7	0.50	0.24–1.03		0.55	0.26–1.18	
North Africa -good	71	11.3	0.66	0.30–1.44		0.64	0.26–1.57	
North Africa -with difficulty/not at all	88	29.9	**2.21**	**1.31–3.75**		**2.30**	**1.17–4.50**	
Sub-Saharan Africa -all language levels	193	21.1	1.44	0.93–2.22		1.12	0.68–1.83	
Age (years)					**0.003**			0.53
<25	85	31.0	**2.30**	**1.37–3.84**		1.33	0.73–2.45	
25–35	557	16.3	1			1		
36+	230	15.2	0.92	0.60–1.41		0.89	0.55–1.42	
Parity					**0.02**			0.32
1	318	22.3	**1.65**	**1.14–2.40**		1.37	0.89–2.10	
2–3	437	14.8	1			1		
4+	117	13.9	0.93	0.51–1.67		0.92	0.49–1.73	
Education					**0.005**			0.97
Lower secondary or less	233	24.1	**2.01**	**1.30–3.11**		1.04	0.59–1.85	
Upper secondary	317	16.4	1.24	0.80–1.92		0.98	0.60–1.59	
Higher education	322	13.7	1			1		
Single motherhood					**<0.001**			**0.02**
No	762	14.9	1			1		
Yes	110	35.5	**3.15**	**2.03–4.89**		**1.94**	**1.10–3.43**	
Housing type					**<0.001**			0.068
Private housing	730	15.0	1			1		
Social housing	93	22.6	1.66	0.98–2.81		1.42	0.80–2.50	
Not own home	47	44.7	**4.59**	**2.50–8.46**		**2.25**	**1.08–4.68**	
Professional activity					**0.02**			0.35
Employed/student	481	14.6	1			1		
Unemployed/social welfare/invalidity	135	25.0	**1.95**	**1.23–3.10**		1.46	0.87–2.44	
None/homemaker	256	18.8	1.35	0.90–2.02		1.11	0.66–1.88	
Complications during pregnancy					**0.04**			0.20
no	382	14.5	1			1		
yes	490	19.8	**1.46**	**1.01–2.09**		1.29	0.87–1.89	
Hospital					0.54			0.69
1	186	15.1	1			1		
2	253	20.2	1.42	0.86–2.36		1.30	0.75–2.27	
3	304	17.1	1.16	0.71–1.92		1.37	0.79–2.36	
4	128	16.4	1.11	0.60–2.05		1.13	0.59–2.18	

Discussion

In summary, most women reported positive experiences of care. However, North African immigrants with low language proficiency were particularly at risk of experiencing negative communication with healthcare professionals (mainly difficulties understanding information), independently of their socioeconomic situation. Immigrants from Sub-Saharan Africa had significantly more negative experiences in three out of six communication items. The patient-centred care score was not associated with birth region after adjustment on socioeconomic characteristics.

Overall positive experience

It is commonly found that a high proportion of women rate their experiences of maternity services positively, especially when expressing overall satisfaction, whereas more specific dimensions of patient experience tend to fare less well (Teijlingen et al., 2003; Galle et al., 2015). Considering this, our results describe a population that is particularly positive about their contact with maternity services. This is echoed by a previous Belgian study on satisfaction with intrapartum care (Christiaens and Bracke, 2009): women giving birth in Belgium were more satisfied than their northern neighbours in the Netherlands in every subdimension and regardless of delivery setting. Studies from other high-income countries also showed that satisfaction was either similar or less positive elsewhere. For example, compared to the 90–92 %% of women in this study who were very satisfied with overall antenatal care regardless of birth region, a study from the UK reported that although 93 % of White women rated their pregnancy care as good, only 87 % of Pakistani and Bangladeshi women did (Henderson et al., 2013). A Swedish national cohort study found that 82 % were satisfied with the medical aspects, and only 77 % with the emotional dimensions of antenatal care (Hildingsson and Rådestad, 2005). The use of different satisfaction measurement tools might account for some of these differences. Then again, two studies also using adapted versions of the MFMCQ found lower satisfaction rates. In a recent study carried out in Norway only 72 % of their sample was completely satisfied with antenatal and intrapartum care (versus 91 % for antenatal, and 95 % for intrapartum care in our sample) (Henderson et al., 2018). Nonetheless, satisfaction for their specific immigrant groups was higher (Sub-Saharan Africa 86 %, North Africa and Middle East 79 %). This sample was restricted to recent migrants (<5 years) from middle and low-income countries, and recent migrants tend to report higher satisfaction. Another study using the MFMCQ and carried out in Germany, also reported lower satisfaction rates: 85 % of women without migration background and 80 % with migration background were fully satisfied with antenatal care; for intrapartum care, these figures were 91 %, and 87 % respectively. While we do not have detailed information about perinatal healthcare provision in these other countries for comparison, we can suggest some hypotheses for the positive findings in Brussels. These might reflect the fact that three of the included hospitals had culturally and socioeconomically diverse catchment populations, meaning that staff were familiar and experienced with interacting with immigrants. Furthermore, various initiatives in Brussels aim to adapt maternal healthcare services to the needs of socioeconomically vulnerable populations, including immigrants. The largest of these initiatives are the national Offices for Birth and Childhood (ONE and Kind & Gezin) which in Brussels follow-up >50 % of pregnant women and provide free

Table 6
Negative PCC score according to maternal characteristics (crude and adjusted logistic regressions).

	n	% negative PCC score	ORc	p-value	OR_a (n = 872)	p-value
Region of birth				0.24		0.33
Belgium	422	16.6	1		1	
North Africa	261	12.3	0.70 (0.45–1.10)		1.69 (0.85–3.35)	
Sub-Saharan Africa	191	13.1	0.76 (0.46–1.24)		1.39 (0.67–2.87)	
Age				**0.046**		0.11
<25 years	85	20.0	1.76 (0.99–3.20)		1.18 (0.59–2.38)	
25–35 years	559	12.3	1		1	
36+ years	230	17.8	**1.54 (1.01–2.35)**		**1.62 (1.03–2.56)**	
Education				0.71		0.21
=< lower secondary	235	16.2	1.19 (0.74–1.90)		1.61 (0.89–2.92)	
Upper secondary	317	13.9	0.99 (0.63–1.55)		1.03 (0.63–1.67)	
Higher education	322	14.0	1		1	
Single motherhood				**0.03**		0.42
No	763	13.5	1		1	
Yes	111	21.6	**1.77 (1.08–2.91)**		1.31 (0.68–2.53)	
Housing type				0.09		0.21
Private housing	731	13.8	1		1	
Social housing	94	13.8	1.00 (0.54–1.87)		1.20 (0.60–2.37)	
Not own home	47	25.5	**2.14 (1.07–4.26)**		2.30 (0.91–5.86)	
Professional activity				**0.005**		0.10
Employed /student	482	15.8	1		1	
Unemployed/invalidity	136	20.6	1.39 (0.86–2.24)		1.53 (0.90–2.62)	
None/homemaker	256	9.0	**0.53 (0.32–0.86)**		0.74 (0.41–1.36)	
Health insurance				0.24		0.69
Yes	827	14.9	1		1	
No	47	8.5	0.53 (0.19–1.51)		0.78 (0.22–2.73)	
Duration of residence				**<0.001**		**0.02**
<5 years	166	4.8	**0.24 (0.11–0.50)**		**0.26 (0.10–0.71)**	
5–15 years	216	14.8	0.81 (0.52–1.26)		0.79 (0.39–1.59)	
16+ years	492	17.7	1		1	
Language				**0.004**		**0.01**
Fluent	649	17.0	1		1	
Good	123	8.1	**0.43 (0.22–0.85)**		**0.34 (0.15–0.78)**	
With difficulty/not at all	102	6.9	**0.36 (0.16–0.80)**		**0.33 (0.12–0.92)**	
Hospital				**0.043**		**0.02**
1	186	12.9	1.31 (0.72–2.35)		1.00 (0.53–1.86)	
2	255	10.2	1		1	
3	305	18.0	**1.94 (1.18–3.19)**		**1.99 (1.18–3.37)**	
4	128	17.2	1.83 (0.99–3.37)		1.65 (0.87–3.13)	

antenatal care along with psychosocial and administrative support. Non-profit organisations also play an expanding role in supporting new parents, possibly further contributing to positive patient experiences. For instance, one of our participant hospitals hosts an NGO offering adapted perinatal care and extensive support for women in extremely precarious or marginalised situations, particularly immigrant women without social coverage. This specialised service is undoubtedly of great additional support to the most precarious immigrants and is likely to have improved their experiences of care.

We cannot exclude that overall satisfaction in our study was overestimated due to the timing and location of interviews. We chose to survey mothers in hospital within a few days after having given birth to minimise selection bias and to allow including hard-to-reach groups; however, acquiescence response bias and social desirability tend to be higher just after birth and in the hospital setting (Teijlingen et al., 2003). All in all, there does not appear to be an ideal timing for surveying women concerning their perinatal care experiences (Teijlingen et al., 2003), and interviewing mothers on the postnatal ward is therefore a common approach (Gürbüz et al., 2019; Bains et al., 2021a).

The interpretation of women's satisfaction rates cannot bypass considering their expectations. High satisfaction may in fact reflect low expectations (Sofaer and Firminger, 2005), which are in turn associated with lesser education (Galle et al., 2015). Given that we did not explicitly measure this, we do not know to what extent differences in expectations may contribute to our observations. Our finding of more positive experiences with increasing socioeconomic position, however, goes against the hypothesis of lower expectations. Because measuring overall satisfaction is prone to these limitations, we used a more comprehensive approach which captured a wider range of the multifaceted maternity experiences. We found that women's reported experiences were very positive across the different dimensions, except for the items of "understanding information" and of "HCPs spending enough time providing explanations".

Information and communication

In our survey, both immigrant groups were predisposed to information and communication issues, each in their own way. For women born in North Africa, the prevailing difficulty was the understanding of information, whereas mothers coming from Sub-Sahara Africa were not only likelier to report comprehension difficulties, but also to lack information about birth, and to find that healthcare professionals did not take sufficient time to provide explanations. Similarly, a UK study found that ethnic minority women felt insufficiently informed, particularly about labour, and that they were worried about intrapartum pain and embarrassment (Redshaw and Heikkilä, 2011). More generally, communication barriers between immigrants and HCPs have been described as the key issue in numerous studies (Santiago and Figueiredo, 2015; Higginbottom et al., 2020); according to Somali antenatal care users in the UK, 'language is really the key to everything' (Moxey and Jones, 2016). The Norwegian MFMCQ-based study also reported that 33 % of immigrants did not always understand the provided information (Bains et al., 2021b).

In our study, the excess of negative communication experiences in

North African immigrants was restricted to the women with language barriers. In contrast, mothers from Sub-Saharan Africa suffered communication problems regardless of their language knowledge, and they appeared to have been, at least partly, attributable to their more precarious socioeconomic context.

We were probably faced with insufficient statistical power concerning the group of Sub-Saharan African mothers. Although three out of six single communication items were significantly more negative in this group, the overall higher prevalence of a negative communication score did not reach statistical significance. Also, among Sub-Saharan African women with language barriers the prevalence of a negative communication score was of 27 %, close to the 30 % for North Africans with language difficulties (**S3 Table**). However, the fact that there were only 16 women in this group did not allow to draw any conclusions on this aspect. Given that French is spoken in many of the Sub-Saharan countries of origin, it is not surprising that in our study migrants from this region had a lower percentage of language difficulties. It can be expected that migrants from these areas would be faced with greater language barriers when migrating to non-francophone European countries, which might partly explain some of the diverging findings.

In summary, our results highlight communication problems within both immigrant groups, which were, at least partly, related to language barriers. As evidenced by previous studies (Fair et al., 2020; Higginbottom et al., 2020), our findings revealed insufficient use of professional translation. Indeed, out of the 104 women in our sample who spoke French and Dutch with difficulty or not at all, 88 % of them were never offered a professional translator (data not shown). Only one-quarter of women with low language proficiency always had someone with them during consultations who could translate, whereas one fifth never did. Sub-Saharan African women were particularly likely to be in the latter situation. For almost all of these women, the informal translator was a family member. These are concerning findings in terms of care quality. Indeed, translation by family members is not a recommended practice due to ethical implications, incorrect translation, and reluctance to share sensitive information (Phillimore, 2014).

Antenatal classes are an empowerment tool that has been shown to increase women's preparedness and self-efficacy (Hong et al., 2020) and forms a core part of maternity care (National Institute for Health and Care Excellence, 2021). Given that ethnic minority and immigrant women are more subject to worries and unpreparedness for childbirth (Redshaw and Heikkilä, 2011) and likelier to have received insufficient (comprehensible) information (Bains et al., 2021b), antenatal education appears to be a potentially valuable tool to decrease inequalities. In this regard it is concerning that we found low attendance of classes and differential distribution according to birth region. Non-migrant women had the highest rate of attendance of maternity ward information sessions (37 %) and of birthing preparation classes (43 %), and immigrants from North Africa had the lowest (20 % and 16 % respectively). Among non-attenders, there was a higher percentage of immigrant women who wished they could have attended (14–16 % for hospital information sessions, and 21 % for birthing preparation) compared to women born in Belgium (10 % and 15 %, respectively). Findings of low attendance of antenatal education, particularly among immigrant women, are frequently reported (Phillimore, 2016, Higginbottom et al., 2020, Ricchi et al., 2020). The stated reasons are multiple: lacking information about classes and eligibility, lack of (affordable) transport, and HCPs assuming that women from certain backgrounds wouldn't be interested (Phillimore, 2016, Higginbottom et al., 2020). Language (Phillimore, 2016) and cultural barriers (Higginbottom et al., 2020) have also been described.

Our results highlight that it is crucial for healthcare professionals to improve communication, particularly with immigrants and socioeconomically precarious women, in order to reduce inequalities. Healthcare professionals should check with their patients whether they have received adequate information, especially concerning topics that worry them, and encourage women to ask questions. The use of medical jargon should be avoided, and language adapted to the patients' understanding. The evidence from existing literature, backed up by our results, clearly shows that the use of professional translators must be urgently increased, and information provided as much as possible in immigrants' own languages, be it through written printed or online material, by making use of HCPs knowledge of other languages, or utilising software that translates online information, in order to avoid women relying on their family members for translation (Higginbottom et al., 2020; Johnsen et al., 2021). Training of healthcare professionals in intercultural communication should also be enhanced to provide migrant-friendly healthcare (Higginbottom et al., 2020; Johnsen et al., 2021).

Patient-centred care

In our study, the more emotional aspects of care (respect, feeling of being treated differently, finding HCPs to have been encouraging and reassuring, etc.) were not associated with birth region or with socioeconomic deprivation. Instead, we found that women with a longer residence and higher language proficiency reported poorer perceptions of care. A study from the UK found a similar pattern concerning migrants from around the world (Henderson et al., 2018), and in a Norwegian study satisfaction of overall care decreased with language fluency (Bains et al., 2021a). These findings might reflect the changes in expectations that come with acculturation and the increased ability to understand information and one's own rights. Upon arrival in a new country, particularly if having fled disaster, war, or extreme poverty, immigrants might feel particularly grateful for having access to perinatal healthcare, regardless of patient-centred care aspects, whereas they may become more critical over time. The association of negative patient-centred care ratings with fluent majority language might suggest that women with language barriers were not able to fully appreciate the limitations of the care.

Independently of women's socioeconomic characteristics, positive patient-centred care experience was more frequent in certain hospitals. This finding likely reflects the institutions' different 'care cultures' and implies that these aspects can be improved with sufficient training, awareness, and cultural sensitivity.

Other strengths and limitations

Studies comparing immigrant and non-immigrant women's experiences of perinatal care in European countries are scattered, and evidence from Belgium is lacking on this issue. As such, this study provides valuable findings. The inclusion of three specific groups of birthplaces was deliberate and has allowed us to explore their specificities. We were able to obtain a high participation rate and to include illiterate women and those in particularly precarious situations thanks to hospital-recruitment and to administering the questionnaire face-to-face. This also enabled us to obtain a sample that was socio-demographically comparable to that of the general population of women from these birth regions delivering in Brussels (Sow et al., 2018). We were able to identify specific determinants of maternity experiences, such as language proficiency, residence length, and housing situation. The use of the MFMCQ had the advantage of enabling cross-country comparability, but no formal reliability and validity testing has been performed. We must also acknowledge that we could be missing crucial variations within each birth region group. For instance, Sub-Saharan African countries include a vast spectrum of realities in terms of socioeconomic contexts, culture, language, and migration types.

Conclusions

With the rising proportion of births to foreign-born women in many European countries (Sobotka, 2008, Tromans et al., 2009), it is paramount that maternity care pathways are adapted in order to be culturally congruent. In order to reduce inequalities, it is necessary to improve

the training and availability of healthcare professionals to communicate effectively with all women, across all origins and social backgrounds, and to develop perinatal education in multiple languages.

Future studies purposefully including larger numbers of women with the most precarious profiles could overcome some of the limitations we encountered. Furthermore, in order to complement the assessment of care from a subjective perspective of service users, we recommend that future research measures perinatal care quality from a clinical perspective. Studies proposing and evaluating interventions to improve communication and immigrant women's experience of maternity care are also urgently needed, including studies focusing on the high-risk period of labour and birth (Higginbottom et al., 2020).

CRediT authorship contribution statement

Claudia Schönborn: Conceptualization, Data curation, Formal analysis, Methodology, Project administration, Writing – original draft, Writing – review & editing. **Katia Castetbon:** Methodology, Supervision, Writing – review & editing. **Myriam De Spiegelaere:** Conceptualization, Supervision, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Ethical Approval

We obtained ethical approval from the heads of Obstetrics and Paediatrics, from the Ethics Committees of all four hospitals and from the joint Erasme Hospital-Université libre de Bruxelles Ethics Committee (CHU Erasme, Reference No P2017/055/B406201730877), which included approval of interviewing women from the age of 16 without parent or guardian consent. Oral and written information were given to all participants and written consent was collected. It was agreed with the included hospitals not to name them in the results.

Funding sources

The funder (FNRS) provided support in the form of salary for authors [CS], but did not have any additional role in the study design, data collection and analysis, decision to publish, or preparation of the manuscript. Furthermore, the funder (ULB) provided support in the form of funding for data collection and materials, e.g. remuneration for interviewers, tablets, printing costs [MDS, CS], but did not have any additional role in the study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Acknowledgements

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

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.midw.2024.104139.

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