



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)

B. Gürbüz⁵ · C. Großkreutz¹ · M. Vortel¹ · T. Borde² · R. C. Rancourt⁷ · H. Stepan⁵ · O. Sauzet⁶ · W. Henrich¹ · M. David³ · V. Seidel^{1,4} 

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Abstract

Introduction Approximately 21% of Germany's inhabitants have been born abroad or are of direct descent of immigrants. A positive birth experience has an effect on a woman's mental health and her future family planning choices. While international studies showed that immigrant women are less satisfied with their birth experience, no such study has been conducted in Germany until now.

Methods At our center of tertiary care in Berlin, with approximately 50% immigrants among patients, pregnant women of at least 18 years of age were offered participation in this study. A modified version of the Migrant Friendly Maternity Care Questionnaire (MFMCQ) designed by Gagnon et al. in German, English, French, Spanish, Arabic and Turkish was used. We compared non-immigrant women to immigrant women and women with direct descent of immigrants. For certain analysis, the latter two groups were included together under the category "migration background".

Results During the study period, 184 non-immigrant, 214 immigrant women and 62 direct descendants of immigrants were included. The most frequent countries of origin were Syria (19%), Turkey (17%), and Lebanon (9%). We found a slight difference between groups regarding age (non-immigrants: mean 33 years versus women with any migration background: mean 31) as well as parity with more non-immigrants delivering their first child.

No difference in the satisfaction with care was observed between immigrant and any migration background groups ($p \geq 0.093$ in the two-sided Fisher's exact test). At least 75.8% of all participating women reported complete satisfaction with care during labor, birth and after birth. Interestingly, the level of German language proficiency did not influence the immigrant patient's satisfaction with care.

Conclusion The study results show no difference regarding overall satisfaction with care during labor and birth despite a relevant language barrier. We are for the first time providing the MFMCQ in German and Turkish. Further future analyses on the impact of patient expectations on satisfaction with care will be conducted.

Keywords Birth experience · Immigrant health · Obstetric care · Maternal health · Migrant questionnaire

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✉ V. Seidel
vera.seidel@charite.de

Extended author information available on the last page of the article

Introduction

Over the past few years, Germany has seen a significant increase in immigration, with an 8.5% surge of people with a migration background in the German population between the years 2015 and 2016 [1]. A recent publication from 2016 by the Federal Statistical Office of Germany has shown that approximately 21% of Germany's inhabitants were either born outside of Germany (immigrants) or are of direct descent of immigrants [2]. An increase has also been observed among the general birth rate in Germany which is partially related to the amount of newly arrived

young women in the past years [3]. This development poses new challenges to maternity care in Germany.

In 1993, a large survey in Australia investigated the views and experiences of in labor and birth care by women, including immigrant women [n (all women) = 1336; n (women born in Australia) = 1667; n (immigrant women) = 526] [4, 5]. Women born overseas of non-English speaking background were underrepresented, most likely because the questionnaire was only available in English. Nevertheless, an interesting finding was that being of non-English speaking background was identified as one factor associated with dissatisfaction with intrapartum care [4]. In this study, only 58.5% of immigrant women from non-English-speaking countries evaluated the care during birth as “very good” in comparison to 73.3% of the women born in Australia. In a follow-up study, a subgroup of immigrants from Vietnam, Turkey, and the Philippines was asked about their birth experiences revealing that these women were less satisfied with the received care, in particular because of not feeling welcomed and feeling restricted in their decision-making [6].

A more recent systematic review of studies in five countries (Canada, Sweden, UK, USA and Australia) highlighted that communication problems and also unfamiliarity with maternity care systems are important factors potentially leading to lower satisfaction in immigrant compared to non-immigrant women [7].

Perinatal health of immigrant women in Germany has been studied since the 1960s [8, 9]. Since then, only a few studies have been published on this topic and their main focus was obstetrical outcomes rather than satisfaction with care [10–12]. Immigration is a diverse phenomenon. Turkish immigrants, for example, already have a longer history of immigration to Germany than the recent influx of refugees, so that acculturation and integration may have already led to better perinatal outcomes [13]. However, immigrants of Turkish origin in Germany are regarded as underprivileged socio-economically and disadvantaged with regard to health and healthcare [14]. Length of stay for immigrants has an important impact on health-related behavior [15, 16]. We know from other studies regarding Turkish women and their direct descendants in Germany that the latter make up a unique group [17]. Therefore, it is important to distinguish between immigrants born abroad and direct descendants of immigrants in our study. Where applicable both were grouped under “migration background”.

In summary, considering the recent trends of immigration and resettlement in Germany, a better understanding of the healthcare needs of an increasingly diverse population is necessary for adequate healthcare responses. To approach this important topic in pregnancy and obstetric care, our aim in this study was to detect possible differences of subjectively experienced quality of maternity care between

immigrants and non-immigrants. Three questions were addressed by this study:

1. Is there a difference in satisfaction with perinatal care amongst immigrant and non-immigrant women?
2. As a secondary analysis, whether there is a difference in satisfaction between immigrants, direct descendants of immigrants and non-immigrants was investigated.
3. Within the group of immigrant women, does having host country language skill (e.g. German in this study) influence the satisfaction with perinatal care?

Methods

This prospective monocentric study was conducted from January to May 2017 at the Charité Universitätsmedizin Berlin—Campus Virchow-Clinic in Berlin-Wedding. Women, meeting the inclusion criteria, were approached during the first 3 days after birth and offered participation in the study. The participants could choose either a written or a personal interview with a trained study assistant. The questionnaire was available in German, English, Turkish, Arabic, Spanish and French. Personal interviews were conducted in German, Turkish, English and Spanish. By offering an interview, this enabled the inclusion of illiterate women.

The inclusion and exclusion criteria were as follows: all in-patient women on the maternity ward at Charité Universitätsmedizin Berlin—Campus Virchow-Clinic, who were at least 18 years old, had a live birth were invited to participate in the study. The birth practices of women is here clarified for adequate allocation of the criteria: Usually women giving birth do not know the hospital-provided midwife attending their birth in advance, however, in some cases; German birth clinics/centers have a staff of private midwives present for perinatal care. Women who had such a private midwife whom they knew before were excluded from the study.

One point to clarify in the birth practices found in this study is that German birth clinics/centers have a staff of private midwives present for perinatal care. Usually, women giving birth do not know the midwife attending their birth in advance. A complete survey of all births during the study period could be supervised by the daily presence (7 days a week including holidays) of at least one trained study assistant.

Exclusion criteria included underage patients < 18 years, stillbirths, postpartum stay < 48 h, transfer to an intensive care unit due to peri-/postpartum complications and no ability to speak one of the available languages of the questionnaire (German, English, Spanish, Turkish, Arabic, and French). Patients who were in the care of a private midwife were excluded from the study, as there is evidence that continuity of care leads to greater satisfaction [18–20].

After an interim analysis had shown that the estimated number of immigrant women had already been reached, the complete survey was ended. Subsequently, non-immigrant women were selectively included using a modified name-based identification method according to Spallek et al. [21].

Questionnaire

The recently developed Migrant Friendly Maternal Care Questionnaire (MFMCQ) [22] was designed to evaluate immigrant women's satisfaction with the maternity care they receive and has been used in studies in Canada and Portugal (personal communication with the principle investigators of the respective studies, publications in preparation).

The questionnaire assesses various aspects relating to perception of antenatal, intra- and postpartum care as well as aspects regarding women's migration experiences. To specify women's migration status, several questions including country of birth, length of stay in the respective country, current and past residency status, and country of parents' origin were identified by the questionnaire. Questions determining language proficiency, information received in native language, and provided translation services during perinatal care are also included (18 items). Further questions on healthcare services (34 items), current (six items) and past obstetric information (8 items), perceptions of care (34 items) and on socio-demographic factors (11 items) are also investigated by the questionnaire.

The questionnaire was already available in English, French, Spanish [23] and Arabic. To include as many German- and Turkish-speaking patients as possible in the survey, the questionnaire was translated into German and Turkish using the existing translation and validation protocol [24].

To adapt to the German context, changes were made to eight questions (Appendix 1: List of changes). For questions Q14 and Q23 of the original MFMCQ questionnaire (Appendix 2: MFMCQ) the answer "do not know" was added as an option, if the participants could not remember the information provided during pregnancy and the treatments during labor and birth.

Regarding the question of net household income, the classification of the income groups was based on a grouping of the German Federal Statistical Office [25, 26].

The residence status was asked according to the current possible variations in the Federal Republic of Germany. For analysis, the residence status was classified into five groups:

(1) "Permanent", (2) "Temporary" (reason of immigration not seeking asylum or status changed after refugee status), (3) "Refugee", (4) "German", (5) "Unknown" (Appendix 3: Classification of immigrant groups according to residence status).

Before the official start of the project, a pilot phase of 1 month was carried out for structural changes and improvements. During the pilot phase, the questionnaire was tested on 21 women.

Afterwards, the following changes were made: since the MFMCQ was not originally designed to compare the views of immigrant and non-immigrant women, the category "not applicable" due to "no migration background" was added to questions Q3, Q56–Q60.

The questionnaire was shortened to increase the survey's response rate. The following questions, which deal thematically with the experience of medical staff, were removed: Q4, Q16, Q20, Q21, Q22, Q32, Q34, Q35, Q37, Q41, Q42, Q43, Q44, Q45, Q46, Q98, Q99, Q100, and Q106.

The shortened and adapted version of the MFMCQ for our study included a total number of 93 questions. For comparability with other studies, the questions were not renumbered, but left to the original version of the questionnaire.

Definition of migration background

The definition of the German Federal Statistical Office was used to assign the surveyed women to the group with a migration background: all persons who were born outside Germany and immigrated to Germany were considered as immigrants of the first generation. All persons who were born in Germany and had at least one parent who was born abroad were classified as of direct descent of immigrants, or second-generation migration background [1]. The length of stay in Germany was not taken into account.

Statistics

Based on the mentioned Australian study by Brown and Lumely (1993) on satisfaction with care during childbirth of immigrant and non-immigrant women, an estimation of a case number was made. In that study, the proportion of women of non-English speaking background rating their care as very good was 58.5% (83/142), compared with 73.3% (771/1052) being fully satisfied with their care of women born in Australia (OR 0.51 [95% CI 0.4–0.8]) [27]. Accordingly, 173 women had to be included in each group to achieve a significance level of $p=0.05$ with a power of 80%.

The statistical evaluation started with a descriptive analysis of the data by determining statistical parameters as mean and variance (metrical scale or normally distributed data), median and interquartile difference (ordinal scale or not normally distributed data) or frequency in percent (qualitative data). It was complemented by the examination of parameter distribution using graphical representation.

The testing of the primary hypothesis was carried out by means of a two-sided Fisher's exact test for the dichotomous evaluation and by the Pearson Chi-square test for the

three-part division of the migration background (no migration background, with migration background of first or second generation).

The patients defined as “fully satisfied” were those who answered question 51 in the MFMCQ (“Overall, were you satisfied with the care you received?”) with “always”. For the evaluation, the given answers “sometimes”, “rarely” and “never” were grouped together and compared with the answer “always”. A p value of <0.05 was determined as the significance level. Initially, all three times (1) before birth, (2) during birth and (3) after birth were considered separately. Differences in the repeated measures at three times between groups were compared using a multilevel model.

In addition, a “satisfaction score” was compiled of 14 questions, which measure different facets of satisfaction. The following questions were included in the “satisfaction score”: Q28, Q29, Q48, Q49, Q50, Q51, Q54, Q69, Q70, Q71, Q72, Q73, Q74, and Q75 (see Appendix 2, MFMCQ for wording of questions). The satisfaction score was constructed as follows: each variable included was coded from 1 to 5 with the lower value corresponding to the highest satisfaction. Then the mean of all the values obtained for all the variables with non-missing values was taken. Differences between women with migration background and non-immigrant women were obtained using a linear regression model.

For the evaluation of the secondary question, a subgroup analysis was carried out among first-generation immigrant women. A repeated measure analysis was performed to model the association of satisfaction relative to three different times around birth and the three language competencies “reading”, “speaking”, and “comprehension” using a multilevel model.

The software “STATA” (StataCorp. 2015. Stata Statistical Software: Release 14. College Station, TX: StataCorp LP) was used for the statistical evaluation.

Ethical approval

The conduct of this study was approved by the Ethics Commission of the Charité Berlin (Number of Ethics vote: EA1/322/16). The requirements of the Berlin Data Protection Act were in compliance.

Results

Among the 1198 women giving birth to alive newborns between January and May 2017 in the postpartum ward in Charité Campus Virchow-Clinic, 701 (58.5%) women met the inclusion criteria and were offered to participate in this study. Of the 701 approached women, 186 (26.5%) rejected to participate in the study. Of these, 70.4% had a migration background. The reasons for dropout are listed in detail in

Fig. 1. One hundred and five (14.9%) questionnaires had to be excluded because they were incomplete. The overall response rate of evaluable questionnaires was 58.4% (410 out of 701 women).

To achieve the estimated number for the detection of statistical significance, a selective post-recruitment of 50 women without migration background was carried out. The following explanation refers to the number of questionnaires of $N=460$ women, of which $N=184$ (40%) were without migration background and $N=214$ (47%) were immigrants and $N=62$ (13%) were of direct descent of immigrants (see Fig. 1).

The median age for women with no migration background was 33 years (range 19–43), 31.5 years (19–46) for immigrant women and 29 years (19–43) for direct descendants of immigrants (see Table 1).

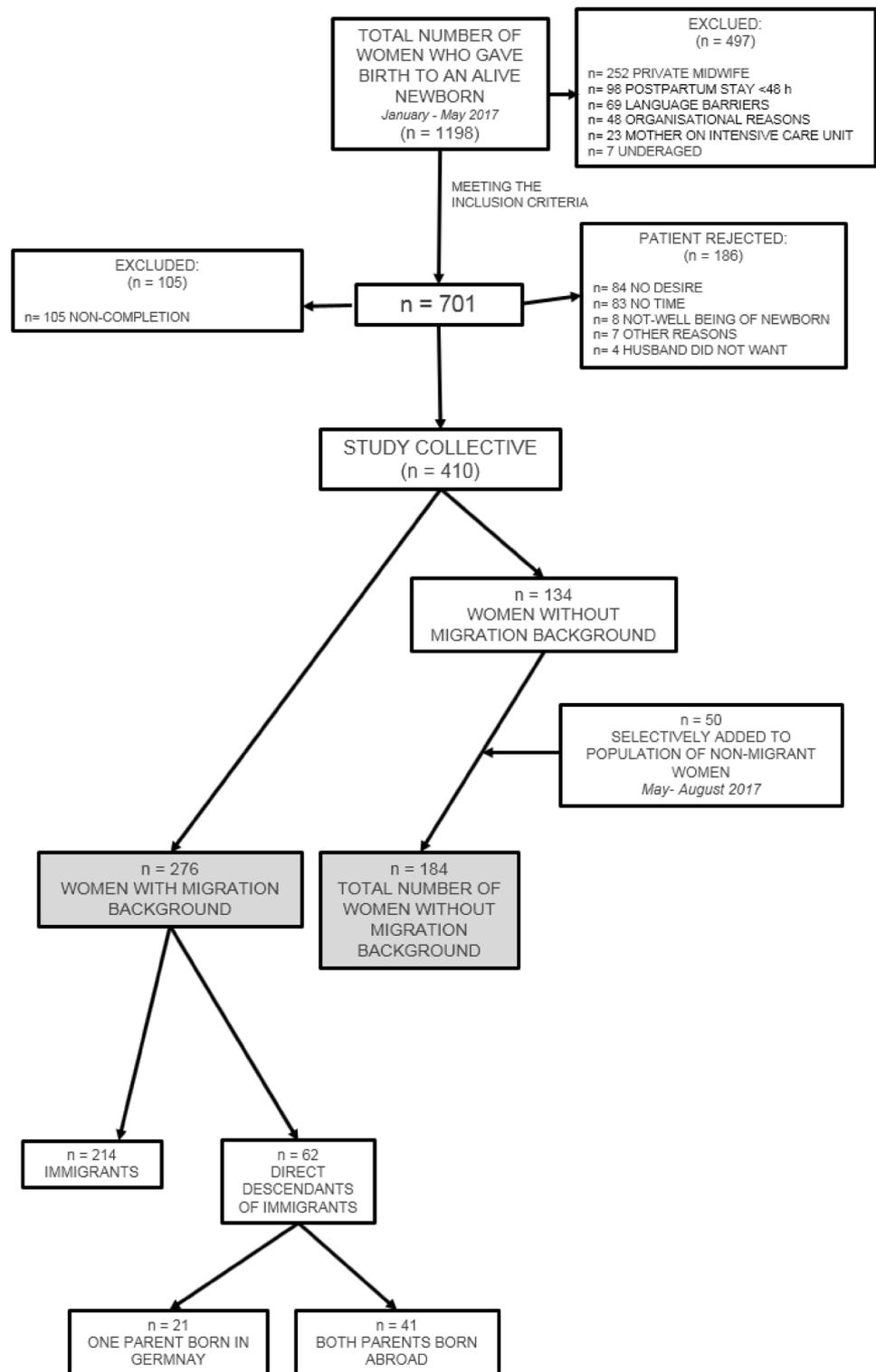
Among the immigrant women, comprising of 52 different countries, the countries of origin were very heterogeneous. The largest groups from a country of birth were Syria with 19% ($N=40$), Turkey with 17% ($N=37$) and Lebanon with 9% ($N=17$). For a list of all countries of origin and the respective number of women from that country or region, see Table S1.

In terms of residence status, 61 (28.5%) immigrant women had a permanent status. 67 (31.3%) had a temporary status (reason of immigration not seeking asylum or status changed after refugee status), 44 (20.6%) were refugees and 36 (16.8%) had German citizenship. Two women (0.9%) did not know their residence status and four (1.9%) did not answer this question. Whereas in the group of direct descendants of immigrants, eight women (12.9%) had an unlimited right of residence and 54 women (87.1%) had German citizenship. We found a slight difference between groups regarding age (non-immigrants: mean 33 years versus women with any migration background: mean 31) as well as parity with more non-immigrants delivering their first child (see Table 1). More information on parity, education as well as employment and other socio-demographic data is provided in Table 1. We had 17 twin births in the cohort. An overview of perinatal data of the singleton births is displayed in Table S2. There was no difference between groups regarding perinatal outcome.

Primary question

Influence of migration background on global satisfaction with perinatal care.

The analysis of the three surveyed times “before birth”, “during childbirth” and “after childbirth” showed no difference in satisfaction between women with and without migration background. The satisfaction was measured at the respective times with the question 51—“Overall, were you satisfied with the care you received?” (see Table 2).

Fig. 1 Flowchart of the process of inclusion in the study

There are no statistically significant differences in satisfaction between non-immigrant women, immigrant women and direct descendants of immigrants. The results have shown a high proportion of fully satisfied women (at least 75.8%) (Table 3).

There was no statistically significant difference between non-immigrant women, immigrant women or women of direct descent of immigrants neither in terms of care pre- ($p=0.287$), directly peri- ($p=0.298$) nor postnatally ($p=0.088$) (see Table 3).

Table 1 Overview of sociodemographic data of study collective

	No migration background	Any migration background	
	Non-immigrant women <i>N</i> = 184 (%)	Immigrant women <i>N</i> = 214 (%)	Direct descendants of immigrants <i>N</i> = 62 (%)
Age, median (range) [Years]	33 (19–43)	31.5 (19–46)	29 (19–43)
No answer	2	1	–
Parity number (%)			
Primipara	100 (54.3)	70 (32.7)	25 (40.3)
Multipara	84 (45.7)	144 (67.3)	37 (59.7)
Graduation number (%)			
None	4 (2.2)	2 (0.9)	2 (3.2)
Primary school	–	27 (12.6)	–
Secondary diploma	44 (23.9)	67 (31.3)	21 (34)
Postsecondary diploma (e.g. college)	69 (37.5)	83 (38.8)	32 (52)
Graduate diploma (e.g. Master's)	61 (33.2)	34 (15.9)	7 (11.3)
No answer	6 (3.3)	1 (0.5)	–
Marital status number (%)			
Firm relationship (including 1 “Married”, 2 “unmarried partners”)	164 (89)	194 (90.7)	57 (92)
No firm relationship (including 3 “Widowed”, 4 “Separated”, 5 “Divorced”, 6 “Single”)	18 (9.8)	17 (7.9)	5 (8.1)
No answer	2 (1.1)	3 (1.4)	–
Occupation number (%)			
Employed	153 (83.2)	99 (46.3)	51 (82.3)
Not employed	28 (15.2)	108 (50.5)	11 (17.7)
No answer	3 (1.6)	7 (3.3)	–
Net household income in Euros per month			
< 1500 (1 + 2) ^a	47 (26)	103 (48)	18 (29)
1500–5000 (3 + 4) ^a	101 (55)	72 (33.7)	37 (60)
> 5000	24 (13)	13 (6.1)	2 (3.2)
No answer	12 (6.5)	26 (12)	5 (8.1)

^a1, 900 < Euro; 2, 900–1500 Euro; 3, 1500–2500 Euro; 4, 2500–5000 Euro; 5, 5000 Euro

A comparison of the satisfaction score, compiled by 14 questions of the MFMCQ, has also shown no difference in satisfaction among non-immigrant women, immigrant women and women of direct descent of immigrants (see Table 4 for details). There is a trend towards less satisfaction among women of direct descent of immigrants. The size of this group was below the random number estimate, as the primary interest of this study was the comparison between immigrant and non-immigrant women.

Secondary question

All direct descendants of immigrants rated their knowledge of German as very good, so that only immigrant women were considered for this analysis. We analyzed German language skills in “speaking”, “reading” and “comprehension”. 206 immigrant women provided information on their knowledge of German. The answers were dichotomized into

good knowledge of German (“fluent/good”) and poor knowledge of German (“with difficulties/not at all”). The statistical analysis did not show a significant difference in satisfaction depending on the women’s knowledge of German for any of the language competencies regarding speaking, reading and comprehension. However, the odds ratio for all aspects examined is above one [reading (OR 1.471), speaking (OR 1.004), and comprehension (OR 1.774)], i.e. the tendency is consistent for all language competencies in the direction of more satisfaction with poorer knowledge of German (see Table 5 for details).

Discussion

Studies on women’s satisfaction during pregnancy and birth have not been conducted in Germany until now and have scarcely been performed in other European

Table 2 Satisfaction with obstetric care at three different times (a) prepartum, (b) during delivery, (c) postpartum depending on migration background (Yes/No)

	Women without migration background <i>N</i> (%)	Women with migration background <i>N</i> (%)	<i>p</i>
Prepartum ^a			0.171
Fully satisfied	157 (85.3%)	220 (80.0%)	
Not fully satisfied	27 (14.7%)	55 (20.0%)	
During delivery			0.186
Fully satisfied	167 (90.8%)	239 (86.6%)	
Not fully satisfied	17 (9.2%)	37 (13.4%)	
Postpartum			0.093
Fully satisfied	161 (87.5%)	225 (81.5%)	
Not fully satisfied	23 (12.5%)	51 (18.5%)	

p values in two-sided Fisher's exact test

^aOne immigrant woman missing due to arrival in Germany closely to birth and, respectively, no pregnancy care in Germany

countries. Immigrants were seldom investigated as a separate group. The results of our research have shown that a large proportion of the women who were surveyed during the study period rated their overall birth experience positively. There was no significant difference regarding

satisfaction—comparing immigrant to non-immigrant women nor between direct descendants of immigrants. However, for years, it has been reported from Canada, Sweden, the UK, the USA and Australia that immigrant women are less satisfied with perinatal care [7].

The discrepancy between our findings and other studies could be explained by the fact that the countries of origin of the interviewed immigrant women in the respective studies differ greatly. Many studies in Australia refer to immigrant women from Asian countries such as Thailand [28], China [29], Laos, Cambodia and Vietnam [30]. However, a study group also surveyed Turkish women in addition to women from Vietnam and the Philippines [6, 31, 32]. In the studies from Canada, mainly women from Somalia [33] and South Asia [34] were interviewed. In Sweden, mainly women from Somalia, Eritrea and Sudan were interviewed [35–37], whereas in the USA, the largest proportion of immigrant women emigrated from South America [38]. In the United Kingdom, many immigrant women come from India, Pakistan and Bangladesh [39–41].

Another aspect, which should be considered, is that 20.6% of our immigrant collective consisted of refugees. It is possible that especially for newly arrived refugees, the feeling of security in a safe country of immigration dominates over other concerns. The reason for the immigration

Table 3 Satisfaction with obstetric care at three different times (a) prepartum, (b) during delivery, (c) postpartum depending on migration background

	Women without migration background	Any migration background		<i>p</i>
	Non-immigrant women <i>N</i> (%)	Immigrant women <i>N</i> (%)	Direct descendants of immigrants <i>N</i> (%)	
Prepartum ^a				0.287
Fully satisfied	157 (85.3%)	172 (80.8%)	48 (77.4%)	
Not fully satisfied	27 (14.7%)	41 (19.2%)	14 (22.6%)	
During delivery				0.298
Fully satisfied	167 (90.8%)	187 (87.4%)	52 (83.9%)	
Not fully satisfied	17 (9.2%)	27 (12.6%)	10 (16.1%)	
Postpartum				0.088
Fully satisfied	161 (87.5%)	178 (83.2%)	47 (75.8%)	
Not fully satisfied	23 (12.5%)	36 (16.8%)	15 (24.2%)	

p values in two-sided Chi-quadrat test according to Pearson

^aOne immigrant woman missing due to arrival in Germany closely to birth and, respectively, no pregnancy care in Germany

Table 4 Overview of the distribution of the satisfaction score between non-immigrant women, immigrant women and direct descendants of immigrants

	<i>N</i>	Mean	Std. deviation	Min	Max	<i>p</i>
Non-immigrant women	184	1.47	0.23	1	2.5	
Immigrant women	214	1.43	0.27	1	2.5	0.05
Direct descendants of immigrants	62	1.54	0.37	1.1	3	0.08

p values for comparison of women without migration background (linear regression model)

Table 5 Odds ratio of full satisfaction with care before labor, during labor and birth and after birth in immigrant women with respect to German language abilities. *p* values in the two-sided Chi-square test according to Pearson

	Odds ratios	95% CI	<i>p</i> value
German: reading			
Good	Reference		
Poor	1.471	0.533–4.056	0.456
German: speaking			
Good	Reference		
Poor	1.004	0.335–3.007	0.995
German: comprehension			
Good	Reference		
Poor	1.774	0.598–5.263	0.302

CI confidence interval

may also influence women's satisfaction with the pregnancy and maternal care found in the host country.

Furthermore, the district where the Charité Campus Virchow-Clinic is located has a very diverse population with a high percentage of immigrants [42]. For this reason, the medical staff in the maternity ward has gathered a lot of experience with immigrant patients, which may have led to a higher level of intercultural sensitivity. Besides that, structural adaptations by the clinic such as the availability of video interpreters or multilingual information material can also be a factor that contributed to a better understanding of the needs of patients' with a different socio-cultural background.

Another explanation for the overall high rate of satisfaction in our study of at least 75.8% could be the timing of data collection after birth in the postpartum ward. There are various instruments to measure the satisfaction with birth experience [43, 44]. Some questionnaires are applied directly 24 h after birth while others 15 weeks later. A study in orthopedics has shown that satisfaction with the therapy is rated higher when it is already asked in the clinic instead of after patient's discharge [45]. The timing of the survey also seems to have a major influence on the measurement of birth satisfaction. Waldenstrom et al. [46] explain this by the fact that the feeling of relief over coping with the birth prevails. In the course of time, however, negative experiences come to mind that permanently affect the overall experience of the birth. During the development of the MFMCQ, the questionnaire was used 8 months postpartum by telephone interview [44]. For a better understanding of timing and its impact on survey results, further studies with different time settings should be considered, such as the recently conducted and to date not published follow-up study with the MFMCQ by Prof. A. Gagnon.

Ultimately, the overall high level of satisfaction with the care provided during pregnancy and childbirth might be related to the early time of our survey.

A trend towards less satisfaction with maternity care among direct descendants of immigrants in comparison to immigrant women and non-immigrant women when analyzing the scores for the satisfaction score was observed. In recent years, there is an increased understanding that women of direct descent of immigrants are a unique group. They are sometimes not fully accepted by the non-immigrant group of the host country as natives. A study on Turkish immigrants in Germany and their direct descendants showed that both generations had higher risks of feelings of emptiness than Germans without any migration background, thus illustrating that possible stressors such as prejudice and discrimination remain present for the descendants of immigrants [47]. Nonetheless, predominantly having citizenship of the host country, being fully fluent in the language, having received schooling exclusively in the host country, i.e. their country of birth, they lack the same support of the ethnic community of their immigrant parents. A study comparing German mothers to mothers who had immigrated from Turkey or mothers that were born in Germany, but had Turkish immigrant mothers, stressed that direct descendants of immigrants make up a unique group in terms of their socialization goals for their children [17]. Our study was not primarily designed to study direct descendants of immigrants. Further studies on this group should be conducted as they could lead to new insights into this topic.

The rate of about 24% of women not being fully satisfied with their birth experience is—although relatively low—nonetheless concerning. Several studies have shown long-lasting effects of a negatively perceived birth. Women rate their health after birth lower after a negative birth experience [48]. There is evidence of post-traumatic stress disorder due to negative birth experience [49–56]. A birth that is perceived as traumatic affects the everyday life as well as the bond between mother and child [57]. An unfavorable birth experience seems to poorly affect the way women give care to their babies in the first 8 months of their lives [58, 59]. It further influences the choice for mode of delivery in the subsequent pregnancy with more women choosing a C-section [60, 61]. After a negative birth experience, women have later and fewer subsequent pregnancies [62].

There are numerous factors influencing the birth experience and thus potentially leading to a negative one. Such factors include a discrepancy between expected and actual experiences [62–67], an unplanned cesarean delivery and other medical complications [68–70], a discrepancy between anticipated pain and postnatal pain recall [30, 30], a negative practitioner–patient relationship, low social support [65, 70, 71], little or no sense of control and perceived safety [72], and no participation in decision-making [65, 66, 69, 71, 73]. Further

psychosocial factors during the pregnancy influence the birth experience. Fear of childbirth during pregnancy predicts negative birth experience [68, 74]. Overall, psychological health in early pregnancy predicts types of dissatisfaction and emotional reactions during labor [73]. Generalized worry during pregnancy predicts negative birth experience [75]. A higher level of antenatal anxiety leads to birth being more frequently recalled as a traumatic experience [54]. Poverty correlates with a negative birth experience [76–78]. Prenatal stress in the third trimester predicts worse birth experience [72]. Further investigation, with the collected data material, is planned to filter out the factors involved in why women are not fully satisfied with the maternity care they receive. Regarding this question of “why”, future qualitative study can be helpful in the understanding which should be conducted.

Our secondary analysis shows another surprising result. Supposedly, the proficiency in the German language among immigrant women has no impact on their satisfaction with care. Proficiency in the language of the country of residence is influencing utilization of care and satisfaction with care. In Germany, it has been shown before that immigrant women with a low acculturation, which usually correlates with low German proficiency, also have a significantly greater chance of having the first antenatal care appointment later than non-immigrants and fewer ultrasound examinations during pregnancy [10]. Immigrants from Turkey have lower rehabilitation success [79] and are less often satisfied with the information they receive regarding information on gynecological surgery [80, 81] or symptoms of menopause [82]. A study in the USA among foreign-born Latino patients had shown that the perceived quality of care was lower when patient and doctor spoke different languages [83]. In our secondary analysis, we investigated if proficiency in the German language had an effect on satisfaction with perinatal care. In comparison to a systematic review [84] and a research carried out by Binder et al. [85], which shows that poor language skills and communication problems have a negative impact on women’s satisfaction, we found no significant influence in our study. Also regarding this discrepancy between our data and other studies corresponding to the discussion above, an explanatory factor could be the high number of refugees in our study, which is not the case in the other cited studies. More studies on refugee health should be conducted, as they are a particularly vulnerable group of patients and the need for this is increasing.

Strengths and limitations of the study

Strengths

This is the first application of the internationally known MFMCQ in Germany. This study is also the first to

investigate subjective satisfaction with care during pregnancy, childbirth and postpartum in Germany in a rather large collective of immigrant women and low German language skills. Furthermore, it is one of only few European studies on immigrant satisfaction with care, which has been conducted after the recent influx of refugees. The further application of the MFMCQ as a questionnaire tool would allow a comparison of the data with studies in other hospitals and countries on the satisfaction of immigrant women.

Further strength of this study is the option of face-to-face interview as a method of data collection, which enables a personal and oral questioning of the survey as well as inclusion of those with illiteracy.

Limitations

This is a monocentric study in the city capital of Germany and it is unclear whether the high satisfaction rate of all women is transferable to other regions especially in comparison to more rural locations. The group of immigrant women surveyed is a very heterogeneous collective from 52 different countries of origin. Unfortunately, this study had a relatively high dropout rate (41.6%).

Conclusion

Regarding our primary question, in contrast to the data from other industrial nations, this study expresses a high level of satisfaction with perinatal care, regardless of the migration background. Several factors that may contribute to this result can be considered such as the timing of the survey and the location of the clinic. Since our study is limited to one hospital in a district of Berlin, a generalization is not applicable, and the results should be compared to different hospitals in other districts.

Concerning our secondary questions, first, we found no difference regarding immigrants and direct descendants of immigrants regarding satisfaction with care. Furthermore, we cannot find any significant influence of German language skills on women’s satisfaction within the studied group of immigrants.

To understand the discrepancy between study results internationally, we recommend national and international studies on satisfaction with maternity care of immigrant women and women of direct descent of immigrants in comparison to non-immigrant women in the respective countries using the MFMCQ. With our translation of the questionnaire into German and Turkish, this provides a great resource to broaden the scope and reach for more studies worldwide.

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Compliance with ethical standards

Conflict of interest statement All authors declare that they have no conflict of interest.

Ethical approval The study had local ethics committee approval (EA1/322/16). All procedures performed were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent All women gave oral informed consent for study participation after reading the information leaflet and were given ample time to answer all questions to the study assistant. The study information leaflet was available in all languages in which the questionnaire was available (German, English, Turkish, Arabic, Spanish and French). If a potential participant was illiterate the leaflet was read out to her.

Appendix 1: List of changes

- Q33 (supply rooms for newborns).
- Q40 (aftercare midwives).
- Q90 (age instead of date of birth).
- Q93/96 (adaptation to German legislation).
- Q101 (German insurance system).
- Q105 (resumption of occupation).
- Q107 (net household income).

Appendix 2: Migrant Friendly Maternity Care Questionnaire (MFMQC)

Available under <https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/1471-2393-14-200>.

Appendix 3: Classification of immigrant groups according to residence status

1. “Permanent”: Settlement permit, citizenship of a country of the EU, EEA or Switzerland.

2. “Temporary”: Residence for the purpose of employment, education (e.g. student), for family reasons, former Germans who wish to return to Germany, tourist visa.

3. “Refugees”: Asylum seekers (proof of arrival for asylum seekers/asylum applications made, ongoing asylum procedure), refugees, toleration (temporary suspension of deportation).

4. “German”: German citizenship and dual citizenship (when one is German).

5. “Unknown”: not documented.

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Affiliations

B. Gürbüz⁵ · C. Großkreutz¹ · M. Vortel¹ · T. Borde² · R. C. Rancourt⁷ · H. Stepan⁵ · O. Sauzet⁶ · W. Henrich¹ · M. David³ · V. Seidel^{1,4} 

¹ Clinic of Obstetrics, Charité-Universitätsmedizin Berlin, Corporate Member of Freie Universität Berlin, Humboldt-Universität Zu Berlin, and Berlin Institute of Health, Campus Virchow-Klinikum, Augustenburger Platz 1, 13353 Berlin, Germany

² Alice Salomon Hochschule, Berlin, Germany

³ Clinic of Gynecology, Charité-Universitätsmedizin Berlin, Corporate Member of Freie Universität Berlin, Humboldt-Universität Zu Berlin, and Berlin Institute

of Health, Charité-Universitätsmedizin Berlin, Campus Virchow-Klinikum, Berlin, Germany

⁴ Berlin Institute of Health (BIH), Berlin, Germany

⁵ Clinic of Obstetrics, Universitätsklinikum Leipzig, Leipzig, Germany

⁶ Bielefeld School of Public Health and Centre for Statistics, Bielefeld University, Bielefeld, Germany

⁷ Division of 'Experimental Obstetrics', Clinic of Obstetrics,
Charité-Universitätsmedizin Berlin, Corporate Member
of Freie Universität Berlin, Humboldt-Universität Zu Berlin,

and Berlin Institute of Health, Campus Virchow-Klinikum,
Berlin, Germany