

The influence of migration on women's use of different aspects of maternity care in the German health care system: Secondary analysis of a comparative prospective study with the Migrant Friendly Maternity Care Questionnaire (MFMCQ)

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Abstract

Introduction: Approximately 21% of Germany's inhabitants or their parents have been born abroad. There is evidence that immigrant women are starting antenatal care later than nonimmigrants. In Berlin, equality in health care access had improved until 2011–2012, leaving only women with Low German language proficiency and an insecure residence status particularly at risk. With the recent influx of refugees, we analyzed whether access to antenatal and postpartum care differs depending on immigration, residence status, income, and education.

Methods: At our Berlin tertiary care center, a modified version of the Migrant Friendly Maternity Care Questionnaire was administered to women who delivered in the first half of 2017. Multivariate modeling compared nonimmigrant women, immigrants, and women who are direct descendants of immigrants.

Results: The study included 184 nonimmigrant women, 214 immigrant women, and 62 direct descendants of immigrants. Germany is relatively good in prenatal care for immigrant women, as most are getting adequate prenatal care. However, 21% of immigrants compared with 11% of nonimmigrant women started pregnancy care after

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the first trimester ($P = .03$). Low income was a more powerful predictor than immigration status for starting prenatal care after the first trimester. Immigrant women (23%) were less informed on postpartum care availability than nonimmigrants (3%) and used less postpartum midwifery care.

Conclusions: When designing health care interventions for immigrant women, not only migration-specific factors should be considered but also low income as a barrier to access to maternity care.

KEYWORDS

health care system, maternity care, migrant health

1 | INTRODUCTION

Over the past few years, Germany has seen a significant increase in immigration. Between 2015 and 2016, there has been an 8.5% increase in people with an immigration background in the German population.¹ A 2016 publication reported that ~21% of Germany's inhabitants were either born outside Germany (first-generation immigrants) or are the direct descendants of immigrants (second generation).² The German birth rate has increased, related partially to the influx of newly arrived young women in the past years.³

Integrating immigrants into the health care system is challenging and raises ethical questions of equal access. Studies from the United Kingdom, New Zealand, and Austria have shown that ethnic minority women⁴⁻⁶ and immigrants^{7,8} tend to start antenatal care (ANC) at a later gestational age than the overall population. A case-control study of ten European countries from 1995 to 1996 found that being another nationality, lacking health insurance, young age, higher parity, unmarried, less education, no regular income, and unplanned pregnancy were factors leading to inadequate ANC.⁹

For Berlin in the 1990s, there was a detectable later uptake of ANC for immigrant women.¹⁰ A study from 2011 to 2012 showed immigrants having a similar uptake of ANC as nonimmigrants.¹¹ However, a small group of women (who had low German proficiency and insecure residence status) used ANC less frequently. With the influx of refugees, since 2015,¹²⁻¹⁴ it is an essential time to evaluate the uptake of ANC among immigrants in Berlin.

Germany has a unique system of insurance-covered postpartum midwifery care, consisting of midwife home visits if needed daily for the first 10 days after birth and up to an additional 16 times within the first 12 weeks. Consultations can continue throughout the period of breastfeeding. Currently, the German federations of obstetricians and gynecologists, pediatricians, and midwives are criticizing the shortage of midwives providing postpartum care.¹⁵ Although midwifery postpartum care is covered by insurance, hiring a midwife is dependent on the woman's initiative. No study, so far, shows

the uptake of postpartum midwifery care for immigrant and nonimmigrant women.

The study's purpose was to:

1. Investigate the influence of immigration and legal residence status on the uptake and use of ANC.
2. Investigate the influence of immigration and legal residence status on the uptake of postpartum midwifery care.

2 | METHODS

This prospective monocentric study was conducted from January to May 2017 at the Charité—Universitätsmedizin Berlin—Campus Virchow-Clinic (CVC) in Berlin-Wedding, primarily to assess satisfaction with perinatal care among immigrant and nonimmigrant women. It was a single-center questionnaire study. Women giving birth to one or more live newborns and were inpatient on the postpartum ward were asked to participate in the study. The sample size estimation¹⁶ was conducted to resolve if there was a difference in satisfaction between these immigrant and nonimmigrant women. Gürbüz et al¹⁷ provide a detailed description of the study methodology. The research here is a secondary analysis of data collected. Women, meeting the inclusion criteria (see below), were administered a questionnaire during the first 3 days after birth. The participants chose either a written questionnaire or an individual interview. The questionnaire was available in six languages (German, English, Turkish, Arabic, Spanish, and French).

The inclusion criteria were as follows: all inpatient women on the maternity ward at the Charité—CVC, who were at least 18 years old, had a live birth, and received standard midwifery care. Standard midwifery care during birth (as opposed to care provided by a caseload midwife) was defined as being attended by a clinic midwife, who the woman did not know in advance. In German birth clinics/centers, caseload midwives can provide greater continuity of care as they offer ANC, birth assistance, and postnatal follow-up home visits. Women with a caseload

midwife were excluded from the study, as evidence shows that continuity of care leads to greater satisfaction.^{18,19} Exclusion criteria included the following: women <18 years of age, stillbirths, postpartum stay <48 hours, transfer to an intensive care unit because of peripartum/postpartum complications, and not speaking one of the available languages of the questionnaire.

2.1 | Questionnaire

The Migrant Friendly Maternal Care Questionnaire (MFMCQ)²⁰ was designed to evaluate immigrant women's satisfaction with the maternity care received and has been used in studies in Canada²¹ and Portugal (personal communication with the principal investigator of the study).

The questionnaire assesses various aspects relating to the uptake of antenatal, intra-, and postpartum care and women's migration history. With respect to ANC, the gestational week of the start of ANC and the number of ANC visits were accessed. ANC in Germany is structured and regulated by the maternity guidelines.²² All ANC visits are documented in the German Maternity Record. Uncomplicated pregnancies can be monitored by obstetricians and/or midwives documenting their standardized findings during each ANC visit in the German Maternity Record. The number of ANC visits was accessed for the study as documented in the German Maternity Record. With respect to postpartum care, women were asked if they know the common system of aftercare midwives and if they plan to make use of this service (up to 26 home visits).

The questionnaire was available in English, French, Spanish, and Arabic,²⁰ so in order to include German-speaking and Turkish-speaking women, the questionnaire was translated into these languages by using the existing translation and validation protocol.²³ This included translation by a native speaker, back-translation, and testing with native speakers. An overview of the questionnaire's adaptation is in Gürbüz et al.¹⁷

Residence status was asked according to the current classifications in Germany. For analysis, it was classified into four groups: (a) "Permanent": settlement permit and citizenship of a country of the EU, EEA, or Switzerland; (b) "Temporary": residency for the purposes of employment, education or family, returning Germans, or tourist visas; (c) "Refugee": asylum seekers, refugees, and toleration; and (d) "German": German citizenship and dual citizenship (one German). The adapted version of the MFMCQ for our study included a total number of 93 questions.

2.2 | Definition of migration background

The migration assignments were made according to the German Federal Statistical Office: All persons born outside

Germany and immigrated to Germany were considered as first-generation immigrants. All persons who were born in Germany and had at least one parent born abroad were classified as of direct descent of immigrants or second-generation with migration background.²⁴

2.3 | Statistics

The statistical evaluation started with a descriptive analysis of the data by determining statistical parameters as mean and variance, median and interquartile difference, or frequency in percent. The uptake of ANC was divided into two groups, early uptake of ANC (within the first 12 gestational weeks) and later. ANC visits were divided into ≤ 9 visits or > 9 visits. Further testing was carried out by the Pearson chi-square test for the three-part division of the migration background. Statistical significance was set at $P < .05$. Cox regression models were used for "gestational week of first ANC visit," and Poisson regression models were used for count data ("number of ANC visits"). A logistic regression model was used for factors that could influence answers to given questions. After analysis adjusting for maternal age and primigravida, we controlled for two socioeconomic factors: education and income. Education was divided into four categories: no formal education/primary education, secondary education, postsecondary education, and graduate education. Net household income in Euros per month was divided into three categories: low: <1500 Euros/mo; medium: 1500-5000 Euros/mo; and high: >5000 Euros/mo. The categories were chosen by condensing categories used by the Federal Statistical Office of Germany.²⁵

When studying immigration, it was necessary to access the immigrants' status within the legal system of the host country.²⁶ Hence, the influence of residence status as opposed to migration background on the uptake of ANC was tested in the two multivariate models. Descriptive analysis of outliers was conducted. According to Brenne et al¹¹ for this purpose, we defined the late start of ANC as starting from the 19th week of gestation and ≤ 5 ANC visits as low usage of ANC.

The statistical software "STATA" (StataCorp.2015. Stata Statistical Software: Release 14.: StataCorpLP) was used. The conduct of this study was approved by the Ethics Commission of the Charité, Berlin (ethics vote number: EA1/322/16). The requirements of the Berlin Data Protection Act were fulfilled.

3 | RESULTS

Among the 1198 women giving birth to live newborns between January and May 2017 at the Charité—CVC, 701 (58.5%) women met the inclusion criteria. The overall

response rate was 58.4%. The total study population comprised of 460 women, of whom 184 (40%) were without a migration background, 214 (47%) were immigrants, and 62 (13%) were direct descendants of immigrants. Gürbüz et al¹⁷ provide detailed descriptions of the sociodemographic characteristics of the study population.

Among the 214 immigrant women, the countries of origin were very heterogeneous, comprising 52 different countries. The top countries were Syria with 19% (N = 40), Turkey with 17% (N = 37), and Lebanon with 9% (N = 17). From Syria, the majority were refugees. In terms of residence status, 61 (28.5%) immigrant women had a permanent status. Sixty-seven (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. Only one respondent answered that her status was undocumented, she was from Syria and started ANC in 12 + 3 gestational weeks and had 10 ANC visits. In the direct descendants of the immigrant group, eight women (12.9%) had an unlimited right of residence and 54 women (87.1%) had German citizenship.

3.1 | Influence of immigration and residence status on the uptake of ANC

In general, women started ANC in the 10th or 11th gestational week. Immigrant women generally started later with ANC. Only 79% of immigrants started ANC in the first trimester, whereas 89% of nonimmigrants started ANC in the first trimester ($P = .03$). Nonimmigrant women started ANC on average in the 10th week of gestation, and immigrant women in the 11th week. Refugees began care in the 12th week of gestation, women with temporary residence status in the 11th week, and German nationals and permanent residents in the 10th week.

Furthermore, immigrants went less often to ANC than nonimmigrants. Only 55% of immigrants had more than nine ANC visits during pregnancy, compared with 69% of nonimmigrants ($P = .015$).

When looking at the influence of residence status on the uptake of ANC, non-German legal status was associated with a later start of ANC and fewer ANC visits. Only 63% of refugees began ANC in the first trimester, as opposed to 88% of German citizens ($P = .001$). With respect to ANC visits, 68% of German citizens had more than nine ANC visits, whereas only 53% of women with temporary

Sociodemographic characteristics	Pregnancy care started in the first trimester (1-12 completed weeks' gestation) ^{a,b,c} n (%)	≤9 ANC visits ^{a,b,d} n (%)
Immigration ^e		
Nonimmigrants, N = 180	158 (89)*	56 (31)*
Immigrant, N = 209	164 (79)	95 (45)
Direct descendant of immigrants, N = 61	50 (82)	23 (38)
Residence status ^f		
Permanent, N = 68	57 (84)	29 (43)
Temporary, N = 70	54 (78)	33 (47)
Refugee, N = 38	24 (63)*	15 (39)
German, N = 268	233 (88)	87 (32)*

TABLE 1 Uptake of antenatal care by immigration and residence status at the Charité—CVC, Germany, January-May 2017

Note: Groupings of residence status: *Permanent*: settlement permit and citizenship of a country of the EU, EEA, or Switzerland; *Temporary*: residence for the purpose of employment, education (eg, student), for family reasons, former Germans who wish to return to Germany, tourist visa, and undocumented immigrant; *Refugees*: asylum seekers (proof of arrival for asylum seekers/asylum applications made, ongoing asylum procedure), refugees, and toleration (temporary suspension of deportation); *German*: German citizenship and dual citizenship (when one is German).

Abbreviation: ANC, antenatal care.

^aChi-square test.

^bStatistically significant ($P \leq .05$) shown in bold and asterisk.

^cComparing sociodemographic characteristics of women beginning pregnancy care in the first trimester (1-12 wk' gestation) compared with later than the first trimester (beyond 12 completed weeks' gestation)

^dComparing sociodemographic characteristics of women with ≤9 ANC visits to women with >9 ANC visits during pregnancy.

^eTrimester of pregnancy prenatal care start of two nonimmigrant women and one immigrant woman missing.

^fTrimester of pregnancy prenatal care start of one temporary resident and two German residents missing.

residence status, 61% of refugee women, and 57% of permanent residents had at least ten ANC visits ($P = .002$) (Table 1).

When looking at the women with late uptake of ANC, a total of 25 (5%) started in 19 + 0 weeks' gestation or later. The mean number of ANC visits was 6.1, lower than the overall average of at least 10 visits. Women with low income and a temporary residence status were more likely

to be in this group. When analyzing low use of ANC, we found 3% of women went five or less times to ANC. Income, immigration, or residence status did not have an influence (Table 2).

In the Cox regression analysis, income was the only remaining significant factor for early uptake of ANC. The higher the income, the earlier the ANC began irrespective of immigration or residence status (Table 3). However, the number of ANC

TABLE 2 Characteristics of women giving birth at the Charité—CVC, Germany, with the late start of ANC and low usage of ANC, January–May 2017

Sociodemographic characteristics	Begin of ANC \geq 19+0 wk' gestation ^{a,b,c} n (%) or mean [range]	\leq 5 ANC visits ^{a,b,d} n (%) or mean [range]
Number among study population	25 (6)	15 (3)
Beginning of ANC (weeks' gestation)	25 [19-37]	21 [7-37]
Number of ANC visits	6.1 [3-9]	4.5 [3-5]
Parity	2 [1-6]	2 [1-7]
Age	30 [19-38]	30 [20-39]
Net household income ^e		
<1500 Euros/mo, N = 165	15 (9)*	9 (5)
1500-5000 Euros/mo, N = 205	5 (2)	4 (2)
>5000 Euros/mo, N = 37	1 (3)	0 (0)
Immigration group		
Nonimmigrants, N = 178	7 (4)	5 (3)
Immigrants, N = 208	15 (7)	8 (4)
Direct descendants of immigrants, N = 61	3 (5)	2 (3)
Residence status ^f		
Permanent, N = 68	2 (3)	1 (1)
Temporary, N = 70	9 (13)*	4 (6)
Refugee, N = 38	2 (5)	0 (0)
German, N = 268	11 (4)	9 (3)
Education ^g		
No formal education/primary education, N = 34	1 (3)	0 (0)
Secondary education, N = 129	11 (9)	6 (5)
Postsecondary education, N = 182	12 (7)	8 (4)
Graduate education, N = 99	1 (1)	1 (1)

Abbreviation: ANC, antenatal care.

^aChi-square test.

^bStatistically significant ($P \leq .05$) shown in bold and asterisked.

^cComparing sociodemographic characteristics of late beginners of ANC with women beginning ANC before 19 + 0 wk' gestation.

^dComparing sociodemographic characteristics of women with low use of ANC and women going at least six times to ANC in the pregnancy.

^eIncome for four late beginners of ANC missing. Income for two women with low frequency of ANC was missing.

^fResidence status for one late beginner of ANC was missing. Residence status for one woman with low frequency of ANC was missing.

^gEducation background of three late beginners of ANC was missing.

Residence status		Immigration	
Factor	HR (95% CI)	Factor	HR (95% CI)
Residence status		Immigration	
Permanent	0.93 (0.70-1.22)	Immigrant women	0.93 (0.75-1.17)
Temporary	0.87 (0.64-1.18)	Direct descendants of immigrants	1.06 (0.78-1.45)
Refugee	0.75 (0.51-1.10)		
German nationality	Reference	Nonimmigrants	Reference
Nonprimipara	1.06 (0.85-1.34)		1.05 (0.83-1.32)
Primipara	Reference		Reference
Income ^a			
Medium	1.23 (0.96-1.64)		1.33 (1.02-1.73)
High	1.45 (1.12-1.88)		1.57 (1.22-2.03)
Low	Reference		Reference
Maternal age	0.99 (0.97-1.01)		0.99 (0.97-1.01)

Note: Groupings of residence status: *Permanent*: settlement permit and citizenship of a country of the EU, EEA, or Switzerland; *Temporary*: residence for the purpose of employment, education (eg, student), for family reasons, former Germans who wish to return to Germany, tourist visa, and undocumented immigrant; *Refugees*: asylum seekers (proof of arrival for asylum seekers/asylum applications made, ongoing asylum procedure), refugees, and toleration (temporary suspension of deportation); *German*: German citizenship and dual citizenship (when one is German).

Abbreviation: ANC, antenatal care.

^aLow: <1500 Euros/mo; medium: 1500-5000 Euros/mo; and high: >5000 Euros/mo.

Statistically significant ($P \leq .05$) shown in bold.

visits was not influenced by income in the Poisson model, and education did not have an influence on the uptake of ANC in the Cox regression model, nor on number of ANC visits in the Poisson model (see Tables S1-S3 published online only).

3.2 | Influence of immigration and legal residence status on the uptake of postpartum midwifery care

With respect to knowledge about the possibility of postpartum care by a midwife, immigrant women (23%) more often than nonimmigrant women (3%) did not know about this service (covered by health insurance). Among women who knew about this service, the interest using it differed depending on immigration status. About one-third of immigrant women (32%) and 38% of direct descendants of immigrants knew about the midwife system but were not interested, whereas only 15% of nonimmigrant women did not wish to make use of this service. Overall, 22% of women did not find a midwife because of shortages of such services. A language barrier also limited access to a midwife but only to a lesser extent. Only 4% of immigrant women did not find a midwife because none of them spoke her language (Table 4).

When looking at knowledge about postpartum midwifery care in a logistic regression model, we found that immigration

TABLE 3 Start of ANC depending on immigration or residence status in the Cox regression income-based model at the Charité—CVC, Germany, January-May 2017

remained a significant factor, along with education and income in the models. According to this model, the higher the education, the more interest the women expressed in institutionalized midwifery care. Furthermore, the higher the income, the greater the likelihood of interest in postpartum midwifery care (Table 5).

When analyzing interest in postpartum midwifery care in the logistic regression model, being an immigrant remained significant in the income-based model for less interest in this system ($P = .031$). There remained a trend toward less interest among immigrant women, in the education-based model ($P = .059$) (Table 6). Direct descendants of immigrants, however, were less often interested in postpartum midwifery care after adjustment for education and income, although knowledge of the system was similar to nonimmigrants (Table 6).

4 | DISCUSSION

According to the German guidelines on care during pregnancy, the first consultation with a gynecologist should happen as early as possible. Follow-up consultations should be every 4 weeks up to 32 gestational weeks and then every 2 weeks, adding up to an average of ~11 ANC visits for women who started care in the first trimester.²² In our cohort, we found that more immigrant women (21%, compared with

TABLE 4 Responses to questions about knowledge of and plans to use postpartum care midwife home visits, Charité—CVC, Germany, January–May 2017

Do you know the system of midwives coming to your home (<i>aftercare midwives</i>)? Do you plan to make use of this system?			
Answer	Nonimmigrant women (N = 182 ^a)	Immigrant women (N = 210 ^a)	Direct descendants of immigrants (N = 62)
	N (%)	N (%)	N (%)
“Yes, I already have a midwife”	133 (73)	73 (35)	30 (48)
“Yes, but I don't want a midwife”	25 (14)	47 (22)	20 (32)
“Yes, but I don't have a midwife, because they are all booked”	13 (7)	20 (10)	3 (5)
“Yes, but I did not find a midwife, because none speaks my language”	0	9 (4) ^b	0
“No, I don't know about this system”	6 (3)	48 (23)	6 (10)
Other	5 (3)	13 (6)	3 (5)
Postnatal midwifery service known	171 (94)	149 (71)	53 (85)
Postnatal midwifery service not known	6 (3)	48 (23)	6 (10)
Postnatal midwifery service known, but not wanted	25 (15)	47 (32)	20 (38)

^aTwo nonimmigrant women and four immigrant women did not answer this question.

^bOf the women who did not find a midwife for postpartum care (*Nachsorgehebamme*) because of the reason that none spoke their language, five spoke Arabic, and four spoke Turkish.

Statistically significant ($P \leq .05$) shown in bold.

11% of nonimmigrant women) started ANC later than the first trimester. We also found that when taking income into the equation in multivariate analysis, residence status or immigration do not matter anymore, but only income remained a significant predictor for the start of ANC, with higher income leading to earlier start of ANC.

With respect to the uptake of ANC, immigrants' first visit was later than nonimmigrants and direct descendants of immigrants. Looking at residence status, refugees and temporary refugees had slightly a lower number of ANC visits, although in the Poisson model, only temporary residence status remained significant. The psychological impact of insecure residence status has been previously investigated in Australia. Before a legal amendment, the legal status of a group of refugees was much less secure than after the amendment. Forty-six percent of refugees with this low security status compared with 25% of higher security refugees reported symptoms consistent with a diagnosis of clinical depression ($P \leq .001$) after controlling for age, gender, and marital status.²⁷ Brenne et al¹¹ reported that insecure residence status led to lower use of ANC. Further qualitative studies should also be conducted in Germany to investigate the influence of legal security on health care access.

When examining late beginning of ANC (after 18 weeks), we found that temporary residence status, being a refugee, and low income were relevant factors. There was no clear pattern with respect to immigration and socioeconomic factors among the women with five or less ANC

visits. Brenne et al¹¹ found that for Berlin in 2011–2012, the first attendance of ANC occurred in weeks 3–19 of pregnancy in 92.1% of immigrants vs 97.8% of nonimmigrants. Among nonimmigrants, 7.1% were low users with ≤ 5 visits, and among immigrants, 11.8%. Five years later, although there had been a recent influx of Syrian refugees, the numbers remained similar. In our study, 93% of immigrants and 96% of nonimmigrants started ANC before the 19th week of pregnancy. With respect to residence status, only those with temporary residence status were beginning ANC beyond 19 weeks' gestation. Among a total of 165 women with low household income, 9% (15) started ANC at 19 weeks' gestation or later. Women with five or fewer ANC visits were less common in our study than in Brenne et al,¹¹ with only 3% (15/450) and no difference by immigration or residence status.

It is important to highlight that not only immigration-related factors have to be considered but especially socioeconomic factors such as income when evaluating the uptake of ANC and postpartum care. In our study, we found that income influences the uptake of ANC; thus, this factor should be evaluated when measuring health care access equity.²⁸ In New Zealand, Corbett et al⁴ found that limited resources such as no tertiary education and not living with a partner were factors leading to late start of ANC (defined in that study as >18 weeks' gestation). They further detected a much higher rate of late start of ANC among Maori and Pacific immigrants compared with European and other ethnicities.⁴ Unfortunately, because of the heterogeneous sample of

TABLE 5 Adjusted odds ratios for knowledge of postpartum care midwife system of home visits among women who birthed at Charité—CVC, Germany, January-May 2017

Factor	OR (95% CI)
Education-based model	
Immigration	0.16 (0.06-0.39)
Immigrant women	0.40 (0.12-1.31)
Direct descendants of immigrants	Reference
Nonimmigrant	
Nonprimipara	0.92 (0.41-2.04)
Primipara	Reference
Education	
Secondary	2.72 (1.08-6.86)
Postsecondary	4.86 (1.87-12.61)
Graduate	10.96 (2.80-42.79)
No formal education/primary education	Reference
Maternal age	1.02 (0.96-1.08)
Income-based model	
Immigration	
Immigrant women	0.12 (0.04-0.35)
Direct descendants of immigrants	0.28 (0.07-1.12)
Nonimmigrant	Reference
Nonprimipara	0.61 (0.26-1.40)
Primipara	Reference
Income^a	
Medium	2.33 (1.02-5.32)
High	6.39 (2.09-19.53)
Low	Reference
Maternal age	1.00 (0.94-1.06)

^aLow: <1500 Euros/mo; medium: 1500-5000 Euros/mo; and high: >5000 Euros/mo.

Statistically significant ($P \leq .05$) shown in bold.

immigrant women coming from 52 countries of origin-specific regional analysis could not be performed. In the United Kingdom, studies showed that ANC attendance was lower among immigrant women, but that lower socioeconomic status also correlated with later start of ANC.⁶

Although access to ANC seemed equal during our study period in Berlin for immigrants and nonimmigrants, knowledge about and access to postpartum midwife care differed. The fact that about a quarter of all women in our study sample did not find a midwife because of a shortage is a problem. There also seems to be a problem in information conveyance with a quarter of immigrant women not knowing about this service. Even among women who knew about this service, immigrant women and direct descendants of immigrants decided against any postnatal midwife support more often than nonimmigrant women. When controlling for income and

TABLE 6 Adjusted odds ratios predicting interest in having a midwife do home visits among women who know the German midwife system and who birthed at the Charité—CVC, Germany, January-May 2017

Factor	OR (95% CI)
Education-based model	
Immigration	0.56 (0.30-1.02)
Immigrant women	0.36 (0.17-0.77)
Direct descendants of immigrants	Reference
Nonimmigrant	
Nonprimipara	0.46 (0.23-0.91)
Primipara	Reference
Education	
Secondary	1.13 (0.35-3.60)
Postsecondary	2.18 (0.69-6.86)
Graduate	11.16 (2.67-46.63)
No formal education/primary education	Reference
Maternal age	1 (0.95-1.05)
Income-based model	
Immigration	
Immigrant women	0.51 (0.28-0.94)
Direct descendants of immigrants	0.33 (0.15-0.72)
Nonimmigrant	Reference
Nonprimipara	0.38 (0.19-0.73)
Primipara	Reference
Income^a	
Medium	1.60 (0.81-3.17)
High	2.26 (1.15-4.45)
Low	Reference
Maternal age	1.00 (0.96-1.06)

^aLow: <1500 Euros/mo; medium: 1500-5000 Euros/mo; and high: >5000 Euros/mo.

Statistically significant ($P \leq .05$) shown in bold.

education, high education and high income correlated with more interest in postpartum midwifery care. More studies need to investigate why immigrant women do not get the same information and why, even if they do, they do not use the services. Though direct descendants of immigrants did not differ from nonimmigrant women in terms of their ANC usage, they were significantly less interested in institutionalized postpartum care. A study comparing German mothers to first-generation and second-generation Turkish immigrants found that direct descendants of Turkish immigrants were unique in terms of their socialization goals for their children.²⁹ With respect to postpartum care, this unique group might still have a stronger family network providing support after birth. These lay alternatives to institutionalized postpartum care should be critically evaluated. For example, institutionalized care has shown to improve mental health. An intervention study in the

United Kingdom showed that postnatal care by a midwife resulted in better mental health measures of the women in the intervention group.³⁰ However, a Canadian study showed that peer support was as effective in preventing postnatal depression.³¹ This can be explained to some extent because of culturally different expressions of depressive symptoms among immigrant women, which leads to a lower uptake of institutionalized care or lower rates of detection and diagnosis by health care professionals.^{32,33} Thus, lay structures from the same ethnic background might be better in detecting culturally diverse expressed symptoms. There are some traditional cultural practices, for example, one extreme being female circumcision, that are harmful to women and potentially harmful to children.^{34,35} A professional midwife could detect such practices and prevent harm. Evidence shows that surrounding support might sometimes be even more successful than institutionalized care. Studies on positive peer support and breastfeeding^{36,37} showed that mother-to-mother support on breastfeeding prolonged breastfeeding compared with support programs by health care professionals.³⁶

4.1 | Strengths and limitations

This study provides new information about key aspects of antenatal and postpartum care considering the recent immigration in Germany's largest city. This was a heterogeneous cohort from 52 different countries. The use of the MFMCQ in six languages enabled the inclusion of immigrants with low German proficiency, a group particularly difficult to reach in studies. Limitations include that the study was from only one medical center, and it was unclear whether the predominantly positive results with respect to access to care for all women are generalizable to other regions (ie, more rural locations). Undocumented migrants might be especially deprived in terms of access to pregnancy care. In our study, only women reported as undocumented; thus, no conclusions can be drawn. The study also had a relatively high nonresponse rate (41.6%).

4.2 | Conclusions

In Berlin, migration and residence status were found to have an influence on the uptake and usage of ANC, but the differences were small. Income was an important factor influencing early initiation of ANC, and this may be more important than migration and residence status. When designing health care interventions, practitioners and governments should consider these factors. There was a big difference in both knowledge of and interest in postpartum institutionalized care by a midwife between nonimmigrants, immigrants, and direct descendants of immigrants. In order to ensure equal access to postpartum

midwifery care, providing information to immigrant women needs improvement. Moreover, aftercare midwives with foreign language skills (eg, Turkish and Arabic) are needed to respond to current immigration patterns.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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