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CLINICAL ARTICLE

Obstetrics

Obstetric practice differences between Syrian refugees and non-Syrian nonrefugee gravidae: A retrospective cross-sectional study

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Abstract

Objective: To assess differences in obstetric practices between Syrian war refugees (SRs) and non-Syrian nonrefugees (NSRs) in a tertiary care provider in Germany.

Methods: This was a retrospective study of SRs ($n=356$) and NSRs ($n=5836$) giving birth between January 2015 and December 2018. Data on medical history, birth mode, complications, and neonatal parameters was extracted. Group differences were evaluated using Mann–Whitney and χ^2 test. Logistic regression models were fitted to investigate the association of refugee status with mode of birth in conditions associated with increased risk of cesarean section (CS).

Results: SRs had higher rates of adolescent pregnancies (1.7% versus 0.6%, $P=0.020$) but fewer maternal diseases compared with NSRs (1.7% versus 3.9%, $P=0.035$). The rate of CS was higher in the NSR group (43.9% versus 36%, $P=0.003$), as well as the rates of premature rupture of membranes ($P=0.006$) and steroid administration for lung maturation ($P=0.012$). Cases of umbilical artery pH ≤7.0 were more common in SRs (0.4% versus 1.1%, $P=0.027$). Women with previous CS had similar odds of CS in the current pregnancy irrespective of study group (odds ratio, 0.94 [95% confidence interval, 0.50–1.75]).

Conclusion: SR women had lower rates of CS but higher rates of adolescent pregnancies and neonatal pH ≤7.0 at birth compared with NSR women.

KEYWORDS
birth asphyxia, cesarean section, refugee, Syrian civil war, vaginal delivery

1 | INTRODUCTION

Even though refuge and asylum seeking are not new phenomena, recent political upheavals, mostly warfare, have led to an unprecedented expansion of their dimensions. According to the United Nations High Commissioner for Refugees (UNHCR) report, at the end of 2021, ≈90 million people have forcibly fled their homes, as a result of armed conflict/violence.[1]

Mariz Kasoha and Meletios P. Nigdelis have contributed equally to the study.

According to this report, most people fled from the Syrian Arab Republic as a result of the Syrian civil war, and were received primarily from the United States and Germany.[1] Specifically for Germany, almost half of the refugees constituted women of reproductive age who required gynecologic and obstetric care.[2]

Unfortunately, in spite of legal frameworks granting equal access to health care for pregnant refugee women, current literature suggests that some of them experience disparities in access to antenatal care, as well as different obstetric practices and perinatal outcomes.[3,4] More specifically regarding the latter, a recent meta-analysis of more than 40 studies focusing on immigrants from conflict zones demonstrated increased stillbirth, small-for-gestational age rates, and overall perinatal mortality in immigrants.[5]

To some extent, these studies do not capture more specific aspects of obstetric care where disparities may be found, such as women with previous cesarean deliveries. Detailed pregnancy and neonatal outcomes could provide insight into the effectiveness of the health care system and bolster the health of refugees, as stressed recently by FIGO (the International Federation of Gynecology & Obstetrics).[6]

The aim of this retrospective cross-sectional study was to evaluate differences in obstetric outcomes between Syrian refugees (SRs) and non-Syrian nonrefugees (NSRs) in a tertiary obstetric center at the time of maximal immigrant influx.

2 | MATERIALS AND METHODS

2.1 | Study design and setting

This was a retrospective cross-sectional study conducted at the Department of Gynecology and Obstetrics, Saarland University Hospital, Homburg, Germany. The department serves both as a low-risk unit in the area and as a tertiary obstetric provider for the state of Saarland covering ≈1 million residents.

Patient records of all women giving birth at our department between January 2015 and December 2018 were accessed via the hospital's database systems, namely SAP GUI C21 (SAP) and Viewpoint 5 (GE Healthcare GmbH). Data on deliveries are documented in a standardized fashion according to a prespecified module/list of the institute for quality assurance and transparency in health care (IQATH [Institut für Qualitätssicherung und Transparenz im Gesundheitswesen]).[7]

2.2 | Study population and variable definition

A detailed flowchart of patient selection is provided in Figure 1. All 6798 delivery records were screened by two independent researchers (MK and LB). Records were excluded when patient origin was not identifiable or in cases of insufficient information (e.g., missing data on birth mode). In cases of repeated pregnancies at our facility, data only on the first pregnancy taking place at our department were included. Based on documentation, included women were grouped into two groups: Syrian war refugees entering Germany after the beginning of the Syrian civil war in 2011 (SRs) and NSRs. The latter group included native Germans and nonrefugee women of other nationalities.

Two independent researchers (MK and LB) extracted patient data from the database systems in a predefined Microsoft Excel file.

Obstetric history

Information on maternal age, gravidity, parity, multiple pregnancies, anemia, history of hyperemesis gravidarum, hypertensive disorders

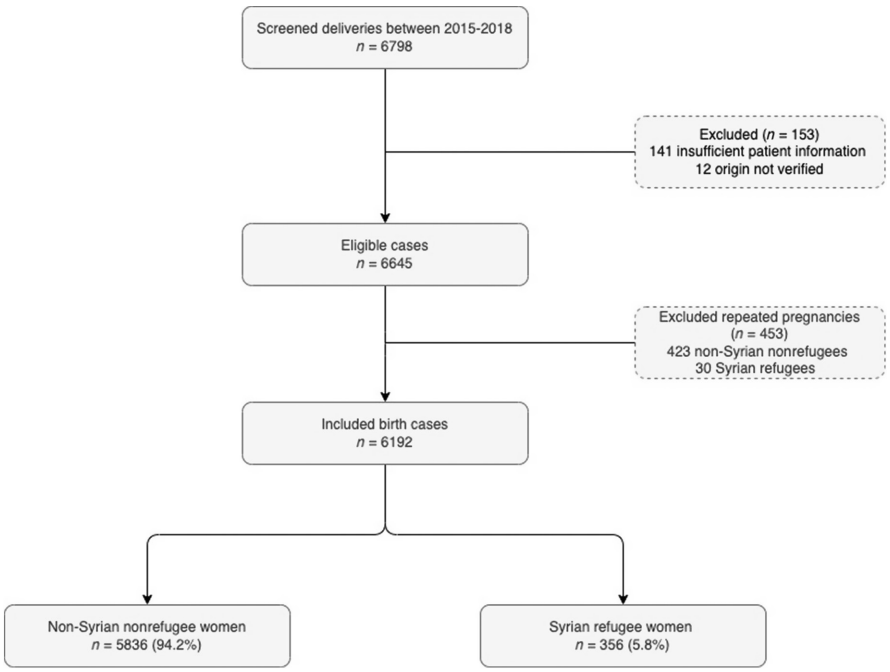

FIGURE 1 Study flowchart demonstrating the patient selection process.

of pregnancy, previous assisted reproductive technologies treatment, history of cesarean section (CS), and hospitalization during the current pregnancy were recorded.

Given the association with adverse events, we defined adolescent and advanced maternal age pregnancies as those occurring before the woman reached the age of 18 and those affecting women older than 35 years, respectively.[8,9] Anemia was defined as hemoglobin levels <11 g/dL.[10]

Undergoing any oral glucose tolerance test as well as the diagnosis of gestational diabetes were extracted. Cases were further classified as those receiving dietary modification or insulin.[11]

Socioeconomic factors

Marital status of the pregnant women with the aim of identifying single-mother families, the employment status of the mother and father, and smoking status (presence or absence) were documented. Given that cohabitation outside marriage was not largely available in the documentation system, but also culturally sensible for SRs, this parameter was not examined.

Intrapartum parameters

Parameters regarding birth and complications were collected. Gestational age at birth, determined conventionally based on the last menstrual period or embryo transfer and corrected according to the crown rump length in early pregnancy, was also recorded.

Planned CS included cases in which the labor process had not begun (referred to as primary), contrary to unplanned CS where contractions or rupture of the membranes had already taken place (referred to as secondary). Emergency CS referred to cases for which the decision-to-delivery interval remained under 20 min.[12]

The term lack of cooperation of the mother (in German: mangelnde Kooperation der Mutter) was used by the midwife or doctor delivering the baby and constitutes one of the birth risks identified by the IQATH. A clear definition does not exist.[7]

A prolonged first stage described progression of dilatation <1 cm/h for at least 4 h or prolonged descent of the head <1 cm/h for nulliparous and <2 cm/h for multiparous women, according to the *International Classification of Diseases, 11th Revision* (*ICD-11*).[13] Prolongation of the second stage referred to the fetus not being delivered 2 h after reaching full dilatation for nulliparas or 1 h for multiparas. In cases of regional analgesia these thresholds were increased by 1 h.[13]

The criteria established by the Eunice Kennedy Shriver National Institute of Child Health and Human Development were used for diagnosis of suspected intraamniotic infection, intrapartum fever, and one of the following: maternal leukocytosis, fetal tachycardia, and purulent cervical discharge.[14] Postpartum hemorrhage was defined as blood loss >500 mL for vaginal deliveries or > 1000 mL for CS.[15,16]

Preterm delivery was defined as that taking place before completion of 37 weeks of gestation, while very preterm and extremely preterm was defined as those taking place before 32 and 28 weeks of gestation, respectively.[17] In Germany, administration of steroids for lung maturation is recommended in cases of threatened preterm birth until 34^{+0} pregnancy week.[18]

Neonatal parameters

We extracted data on perinatal death; 1-, 5-, 10-min Apgar scores; admission to the neonatal intensive care unit; and umbilical artery pH values. The definition of severe metabolic acidemia (pH ≤7.0) was based on the FIGO consensus on intrapartum fetal monitoring.[19] Low birth weight was defined as birth weight <2500 g, while macrocosmic fetuses had a birth weight of >4000 g according to *ICD-11*.[13] Finally, the presence of any fetal anomaly at birth was extracted, without further details on prenatal examinations being available.

2.3 | Bioethics approval and reporting guidelines

The ethics committee of Saarland approved the study (identification number: 99/20; approval date: May 11, 2020). Written consent forms were provided by the patients. The report of the study complies with the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) statement for observational studies (Table S1).

2.4 | Statistical analysis

We assessed normality of continuous variables using visual inspection of the histograms and Shapiro–Wilk test. Given that all continuous variables were not normally distributed, we used median (interquartile range) to summarize them. In cases of qualitative variables absolute counts (frequencies) were used. Differences in continuous variables between the two groups were controlled for using Mann–Whitney *U*-test; for qualitative parameters χ^2 test of association was used.

We conducted univariable binomial logistic regression models to assess discrepancies in mode of birth for conditions associated with increased CS rates between SRs and NSRs. These included nulliparous women with previous cesarean delivery, those delivering preterm, those with breech presentation, those with occiput posterior position, or those with prolonged second stage of labor. For each variable, *P* values along with odds ratios (ORs) and 95% confidence intervals (CIs) were reported.

We performed a complete case analysis, given that proportions of missing data were below 5% for all variables. Statistical significance was set at $P < 0.05$. We used Jamovi (version 2.3.21.0) for statistical analyses.

3 | RESULTS

A total of 6192 women fulfilled the inclusion criteria of the study. The SR group consisted of 356 women, while the NSR group consisted of 5836.

Differences were demonstrated for age, gravidity, parity, multiple pregnancy rates, history of maternal disease, and socioeconomic factors (Table 1). The rates of adolescent pregnancies were higher among SRs (1.7% SRs versus 0.6% NSRs, χ^2 test [$P=0.020$]), whereas pregnancies of advanced maternal age (older than 35 years) were more common in NSRs (15.4% SRs versus 24.3% NSRs, χ^2 test [$P<0.001$]). Furthermore, NSRs had higher rates of preexisting diseases ($P=0.035$), while previous CS rates were similar between the two groups ($P=0.594$).

For most obstetric parameters (maternal and fetal), complications and prematurity, no significant differences were demonstrated (Table 2). Nevertheless, birth mode differed significantly between the two groups ($P=0.002$). The NSR group had increased rates of CS (total CS rates: 43.9% versus 36%; CS versus vaginal delivery [$P=0.003$]).

Premature rupture of membranes was 5% more common in NSRs than SRs ($P=0.006$). Nonetheless, suspected intraamniotic infection rates were similar (2.3% in NSRs versus 1.7% in SRs, $P=0.419$). Occiput posterior position and meconium-stained amniotic fluid were more common among SR women ($P=0.008$ and $P=0.033$, respectively). Finally, even though prematurity rates were comparable between the two groups ($P=0.323$), more NSRs received steroids for lung maturation ($P=0.012$). This observation was also significant when deliveries $<34^{+0}$ weeks were studied; 10 (43.5%) SR patients received steroids versus 332 (71.2%) NSR patients, ($P=0.005$).

In terms of neonatal parameters, outcomes were similar apart from cases of severe acidemia (Table 3). Four (1.1%) neonates in the SR group and 21 (0.4%) in the NSR group had umbilical artery pH values ≤7.0 ($P=0.027$). Despite this observation, median pH values were similar among the two groups, as were the admissions in the

TABLE 1 Baseline characteristics of the study population ($N=6192$).

Variable	NSRs $n=5836$	SRs $n=356$	P-value
Age (years)	31 (27–34)	28 (23–32)	<0.001[a]
Obstetric history			
Gravidity	1 (0–2)	2 (0–3)	<0.001[a]
Parity	0 (0–1)	1 (0–3)	<0.001[a]
Anemia	1698 (29.1%)	116 (32.6%)	0.160[b]
Performance of any OGTT (50 g or 75 g)	5160 (88.4%)	307 (86.2%)	0.214[b]
Gestational diabetes			0.215[b]
None	5081 (87.1%)	315 (88.5%)	
dGD	413 (7.1%)	17 (4.8%)	
iGD	342 (5.9%)	24 (6.7%)	
Hypertensive disorders of pregnancy	203 (3.5%)	6 (1.7%)	0.069[b]
Previous cesarean section	846 (31%)	79 (32.6%)	0.594[b,c]
History of hyperemesis gravidarum	83 (1.4%)	4 (1.1%)	0.642[b]
ART pregnancies	65 (1.1%)	3 (0.8%)	0.634[b]
Multiple pregnancies	285 (4.9%)	9 (2.5%)	0.042[b]
Twins	273 (95.8%)	9 (100%)	
Triplets	11 (3.9%)	–	
Quadruplets	1 (0.4%)	–	
Preexisting maternal diseases	226 (3.9%)	6 (1.7%)	0.035[b]
Hospitalization during pregnancy	940 (16.2%)	57 (16.1%)	0.969[b]
Socioeconomic history			
Single mother families	240 (4.1%)	28 (7.9%)	<0.001[b]
Employed mothers	4507 (77.2%)	59 (16.6%)	<0.001[b]
Employed fathers	5202 (92.9%)	174 (53%)	<0.001[b]
Smokers	644 (11%)	16 (4.5%)	<0.001[b]

Abbreviations: ART, assisted reproductive technologies; dGD, dietary treatment of gestational diabetes; iGDM, insulin-requiring gestational diabetes; NSR, non-Syrian nonrefugee; OGTT, oral glucose tolerance test; SR, Syrian refugee.

[a]Mann–Whitney *U*-test.

[b]χ^2 test.

[c]Percentages refer to women who had already given birth.

TABLE 2 Obstetric outcomes among SRs and NSRs.

Variable	NSRs $n=5836$	SRs $n=356$	P-value
Pregnancy week	39 (38–40)	39 (38–40)	0.051[a]
Mode of birth			0.002[b]
Vaginal delivery	2696 (46.2%)	201 (56.5%)	
Instrumental vaginal delivery	578 (9.9%)	27 (7.6%)	
Planned cesarean delivery	1106 (19.0%)	53 (14.9%)	
Unplanned cesarean delivery	1456 (24.9%)	75 (21.1%)	
Emergency cesarean delivery	211 (8.2%)	12 (9.5%)	0.648[b]
Perineal tears	834 (14.3%)	57 (16.0%)	0.369[b]
Episiotomy	1535 (26.3%)	80 (22.5%)	0.110[b]
Labor induction	1300 (22.3%)	71 (19.9%)	0.304[b]
Lack of cooperation of the mother	206 (3.5%)	16 (4.5%)	0.342[b]
Specific conditions/pathologies			
Prolonged first stage of labor	139 (2.4%)	3 (0.8%)	0.060[b]
Prolonged second stage of labor	280 (4.8%)	12 (3.4%)	0.218[b]
PROM	866 (14.8%)	34 (9.6%)	0.006[b]
Breech presentation	394 (6.8%)	18 (5.1%)	0.213[b]
Occiput posterior position	32 (0.5%)	6 (1.7%)	0.008[b]
Placenta previa	52 (0.9%)	1 (0.3%)	0.225[b]
Shoulder dystocia	65 (1.1%)	4 (1.1%)	0.986[b]
Suspected intraamniotic infection	137 (2.3%)	6 (1.7%)	0.419[b]
Meconium-stained amniotic fluid	116 (2.0%)	13 (3.7%)	0.033[b]
Postpartum hemorrhage	30 (0.5%)	4 (1.1%)	0.131[b]
Placental abruption	69 (1.2%)	3 (0.8%)	0.562[b]
Preterm delivery			
Preterm birth (≤37 weeks)	831 (14.2%)	44 (12.4%)	0.323[b]
Preterm birth (≤34 weeks)	483 (8.3%)	27 (7.6%)	0.645[b]
Very preterm birth (≤32 weeks)	292 (5.0%)	19 (5.3%)	0.780[b]
Extremely preterm birth (≤28 weeks)	118 (2.0%)	9 (2.5%)	0.513[b]
Steroid administration (Lung maturation)	607 (10.4%)	22 (6.3%)	0.012[b]
PPROM	260 (4.5%)	13 (3.7%)	0.473[b]

Abbreviations: NSR, non-Syrian nonrefugee; PPROM, preterm premature rupture of membranes; PROM, premature rupture of membranes; SR, Syrian refugee.

[a]Mann–Whitney U-test,

[b]χ^2 test.

neonatal intensive care unit. Birth weight was similarly distributed in the two groups ($P=0.540$). Finally, the rate of perinatal deaths was 1% in the NSR group and 2% in the SR group ($P=0.105$).

Univariable logistic regression models in cases of conditions associated with cesarean delivery are demonstrated in Table 4. SR nulliparous patients had 34% lower odds of having cesarean delivery compared with NSR nulliparous ones (OR, 0.66 [95% CI, 0.45–0.97]). The distribution of deliveries among nulliparous and women having given birth is further demonstrated in Figure 2. Other significant associations were not observed.

4 | DISCUSSION

In this study, we demonstrated a lower CS rate in SRs compared with NSRs. This observation also applied specifically to nulliparous pregnant women, while obstetric practices in other CS-prone cases were similar. The SR group demonstrated increased rates of adolescent pregnancies and a lower prevalence of maternal disease but worse social history parameters, namely higher percentage of single-mother families and unemployment of both parents.

Regarding prematurity, the NSR group had higher fetal lung maturation compared with SRs. The latter observation supports the argument of overtreatment in the NSR group, especially given the significant difference of lung maturation in women delivering <34 weeks. Of note, preterm birth rates were similar between the groups. Finally, the newborns of SRs had almost three times the odds of presenting severe acidemia at birth.

Data regarding birth mode in refugees is inconclusive. For example, a meta-analysis by Behboudi-Gandevani et al. did not demonstrate statistical significance for CS (≈5 million individuals; pooled OR, 0.90 [95% CI, 0.80–1.0]) even though the direction of the effect was similar to our study.[5] Other obstetric aspects, namely labor induction, instrumental deliveries, and emergency CS, were not different between the groups, as seen in our work.[5]

Another study investigating specifically SR women with high-risk pregnancies was in line with our results showing an ≈50% decreased rate of CS compared with native Turkish patients ($P<0.001$).[20] Additional data from Turkey, which received a large part of SRs in the beginning of the war, confirmed the lower odds of CS.[21]

Our study provides additional data regarding specific conditions, where delivery mode is controversial and, thus, dependent on the health care provider-patient relationship.[22] For example, vaginal birth after CS rates were relatively low but similar between the refugee (16.5%) and nonrefugee (15.6%) groups. Given the significant complexity of vaginal birth after CS and the prerequisite of optimal communication of risks with patients, this example could provide evidence of nondiscriminatory obstetric care.[22] To our knowledge, other studies investigating obstetric outcomes among refugees have not captured this topic in detail.[5]

Differences in maternal age may also exert effects on perinatal outcomes. On one side, higher rates of adolescent pregnancies

TABLE 3 Immediate neonatal variables.

Variable	NSRs	SRs	*P*-value
Perinatal death	61 (1%)	7 (2%)	0.105[a]
Apgar score			
1 min <7	516 (8.8%)	31 (8.7%)	0.931[a]
5 min <7	99 (1.7%)	8 (2.2%)	0.439[a]
10 min <7	29 (0.5%)	2 (0.6%)	0.866[a]
Umbilical artery pH	7.30 (7.25–7.34)	7.30 (7.26–7.34)	0.378[b]
Severe acidemia (pH ≤7.0)	21 (0.4%)	4 (1.1%)	0.027[a]
Admission in the NICU	1124 (19.3%)	65 (18.3%)	0.641[a]
Birth weight (g)	3230 (2840–3580)	3220 (2820–3510)	0.540[b]
LBW (<2500 g)	831(14.2%)	40 (11.2%)	0.175[a]
Normal birth weight (2500–4000 g)	4665 (79.9%)	299 (84%)	
Macrosomia (>4000 g)	340 (5.8%)	17 (4.8%)	
Fetal anomalies present at birth (any)	145 (2.5%)	9 (2.5%)	0.959[a]

Abbreviations: LBW, low birth weight; NICU, neonatal intensive care unit; NSR, non-Syrian nonrefugee; SR, Syrian refugee.

[a]χ^2 test.

[b]Mann-Whitney *U*-test.

TABLE 4 Univariable binomial logistic regressions examining the association of CS rates (versus VD) with the study group (SR versus NSR) in obstetric conditions predisposing to cesarean delivery.

Condition	SR VD	SR CS	NSR VD	NSR CS	*P*-value	OR_{CS} (95% CI)
Nulliparous	74 (64.9%)	40 (35.1%)	1705 (54.9%)	1401 (45.1%)	0.036	0.66 (0.45–0.97)
Previous CS	13 (16.5%)	66 (83.5%)	132 (15.6%)	714 (84.4%)	0.842	0.94 (0.50–1.75)
Preterm birth	17 (38.6%)	27 (61.4%)	259 (31.2%)	572 (68.8%)	0.301	0.72 (0.39–1.34)
Prolonged second stage	6 (50%)	6 (50%)	174 (62.1%)	106 (37.9%)	0.401	1.64 (0.52–5.22)
Occiput posterior	6 (100%)	0 (0%)	23 (71.9%)	9 (28.1%)	>0.99	–
Breech presentation	3 (16.7%)	15 (83.3%)	31 (7.9%)	363 (92.1%)	0.197	0.43 (0.12–1.56)

Abbreviations: CS, cesarean section, NSR, non-Syrian nonrefugee; OR_{CS}, odds ratio for cesarean delivery versus vaginal delivery; SR, Syrian refugee, VD, vaginal delivery.

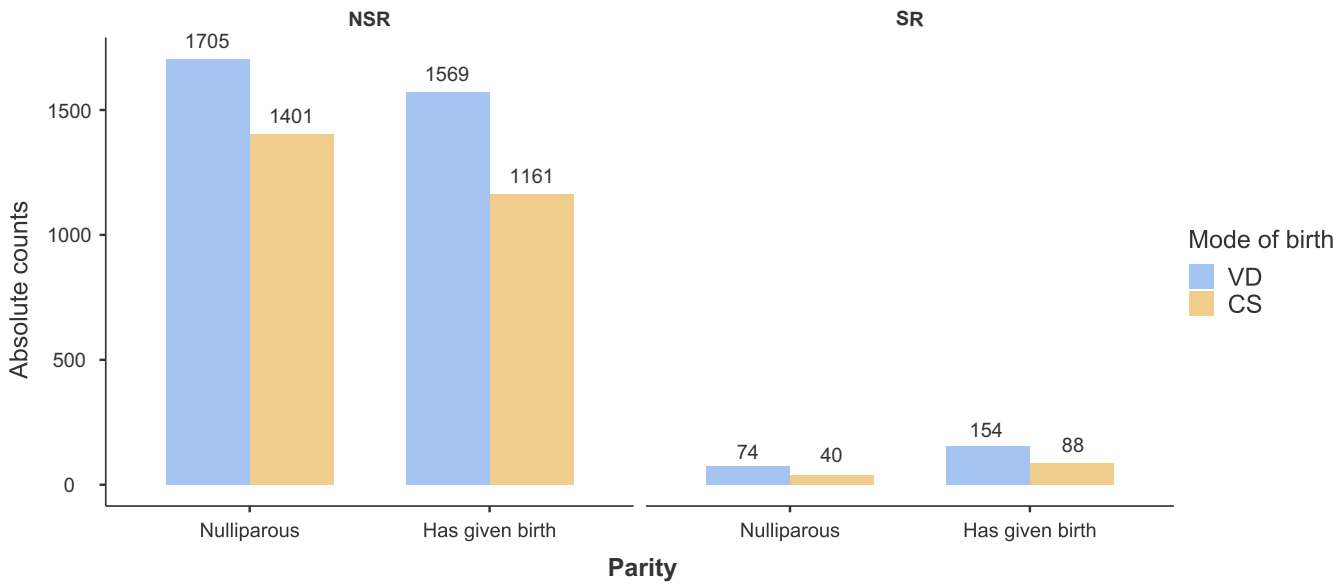

FIGURE 2 Frequencies of cesarean delivery and vaginal delivery (VD) among nulliparous and women who gave birth at least once. The numbers on the bar charts demonstrate absolute frequencies. CS, cesarean section; NSR, non-Syrian nonrefugee; SR, Syrian refugee; VD, vaginal delivery.

among refugees have been described and could be attributed to cultural aspects, e.g., the misapprehension of security in times of harshness.[6,8] In part, younger age might explain the lower prevalence of maternal disease in the SR group in our study. Along with the lower rates of CS, these observations support the "classical" theory of the "healthy migrant effect" in the field of obstetrics.[23] On the other side, greater maternal age (seen in the NSR group) has been associated with increased risk of premature rupture of membranes and multiple pregnancies, as demonstrated in our study.[24]

In terms of neonatal aspects, the findings of our study partially contradict those of others. Differences in birth weight, especially low birth weight, demonstrated in previous studies assessing SRs could not be replicated in our investigation.[21,25] Furthermore, Apgar scores between the two study groups were similar, contrary to both previous studies.[21,25] Finally, a possible negative effect of refugee status on the neonate should be investigated further given the higher rate of meconium-stained amniotic fluid and the higher rates of pH ≤7.0 in SRs, even though median values were not different ($P=0.378$). Previous studies have not reported umbilical artery pH values after birth.[21,25]

4.1 | Strengths and limitations

To the best of our knowledge, this is one of the few studies on Syrian war refugees in Germany investigating obstetric practices and perinatal outcomes in depth. Specific conditions associated with cesarean deliveries have not been thoroughly assessed up until now.[5] Furthermore, the large sample of women included in the current study as well as the time interval examined provide a thorough understanding of the situation of Syrian war refugees in Saarland, Germany. Further, the low number of missing data improves the external validity of the study.

The retrospective nature constitutes a significant limitation of the study, which impedes drawing of causative associations. Furthermore, addressing of confounders requires a bigger sample given the limited number of refugees compared with nonrefugees. It should also be noted that the data were extracted from patients' records (subject to bias), thus not capturing personal and qualitative aspects of the obstetric experience of the women. Moreover, the study pertained only to Syrian war refugees, which might render generalization to other refugee groups difficult.

In summary, our study demonstrated that SRs had lower rates of CS (36% versus 43.9%) and maternal disease compared with NSRs, supporting the theory of the healthy migrant effect.[23] Especially in complex obstetric conditions often requiring CS, no discrepancies could be observed between the two groups. Nevertheless, increased rates of adolescent pregnancies and severe acidemia at birth warrant close monitoring during pregnancy and further investigation.[6]

Future studies on the perinatal outcomes of refugees should incorporate advances in obstetrics, long-term outcomes, and personal experiences. Monitoring of exercise, nutrition, and compliance with proposed measures should be examined for targeted interventions in this subgroup. In terms of neonatal parameters, inclusion of more patients and longer follow-up of their offspring should be considered.

AUTHOR CONTRIBUTIONS

Conceptualization and design: M.K., B.H.H., and E.F.S. Data acquisition and curation: M.K. and L.B. Data analysis and interpretation: M.P.N., M.K., and G.W. Drafting and writing of the manuscript: M.P.N., M.K., and L.B. Reviewing and editing: M.K., M.P.N., and L.B. Supervision: M.K., G.W., B.H.H., and E.F.S. Each author has approved the submitted version and agrees to be personally accountable for the author's own contributions and for ensuring that questions related to the accuracy or integrity of any part of the work, even ones in which the author was not personally involved, are appropriately investigated, resolved, and documented in the literature.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest related to this project.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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