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ORIGINAL ARTICLE

# The pregnancy and newborn outcomes of Syrian refugees and Turkish women in a tertiary center, in İstanbul, Türkiye

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## ABSTRACT

**Objective:** The objective of the study was to compare the pregnancy characteristics and neonatal outcomes of Syrian refugees and those of Turkish citizens who had been given birth in a tertiary referral center in İstanbul, Türkiye.

**Material and Methods:** This retrospective study included 100 Syrian refugees and 100 Turkish pregnant women who gave birth in University of Health Sciences, Zeynep Kamil Maternity and Children's Training and Research Hospital, conducted between January 2015 and August 2018. The primary goal was to figure out whether the pregnant women get enough healthcare and the effects on maternal and early neonatal outcomes.

**Results:** Syrian pregnant's hemoglobin, hematocrit, and mean corpuscular volume values were found to be lower than the Turkish women but not lower than the lower limit accepted for anemia during pregnancy. The rate of having antenatal screening tests and the mean number of hospitalizations was significantly lower among Syrian pregnant women than that of Turkish pregnant women.

**Conclusion:** Although providing regular and free healthcare in Türkiye, Syrian refugees cannot receive adequate healthcare due to reasons such as language limitations, cultural differences and low socioeconomic level. The initiatives related to Turkish language educations and keeping qualified translators could improve the negative conditions.

**Keywords:** Antenatal care, healthcare, newborn outcome, pregnancy outcome, Syrian refugees.

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## INTRODUCTION

Over the past two decades, the global population of forcibly displaced people has grown substantially from 33.9 million in 1997 to 65.6 million in 2016 and it remains at a record high.[1] Refugees are outside their country of origin for reasons of feared persecution, conflict, generalized violence, or other circumstances that have seriously disturbed public order and requires international protection. After 10 years, Syria remains the world's largest refugee crisis. More than 6.6 million Syrians have been forced to flee their country since 2011 and another 6.7 million people remain internally displaced. The vast majority – 5.593.304 persons – have found refuge in neighboring countries, primarily in Türkiye, Lebanon, Jordan, Iraq and Egypt. From the onset of the civil war in the Syria in 2011, until the date of March 31, 2021, the number of refugees in Türkiye is 3.665.946 in the camp and at the outside. According to this data, Türkiye is the country with the largest number of refugees in the world.[2]

Refugees experience various difficulties in the countries where they take refuge. The challenges caused by refugee problem mostly affect vulnerable groups such as women and children. These women are at risk for health problems such as adolescent and unwanted pregnancies, inadequate antenatal follow-up, postpartum complications, and sexually transmitted diseases. Approximately 25% of Syrian refugees are women of reproductive age and 4% are pregnant or women who has just given birth. About 15% of births are high risk cases that require urgent intervention. Breastfeeding rates are low in women. Large numbers of infants or young children with poor nutritional quality are at risk for malnutrition. The factors that reduce the availability of health services provided to Syrian refugees are language barriers, an overly mobile population structure, and lack of information on the quality and quantity of services. Regarding the obstacles to the provision of health services, the international organizations defined three main headings. These are listed as "submission of asylum registration," "language barriers," and "insufficient information about health services."[1]

Routine antenatal care (ANC) is defined as care provided by health practitioners (or others) to all pregnant women to ensure the best health conditions for the women and their fetuses during pregnancy. The World Health Organization (WHO) recommends a minimum of eight contacts: One contact in the first trimester, two contacts in the second trimester, and five contacts in the third trimester.[3] However, many migrant woman do not effectively receive antenatal care due to low socioeconomic status, lack of language skills, difficulties in accessing health-care services, problems with health-care providers, cultural differences, and legal restrictions. In the analysis of the data obtained from the "Pregnancy Mortality Surveillance System" between 1998 and 2005, a five-fold increased maternal mortality risk was found in women who did not receive antenatal care.[4]

The reproductive age health problems and antenatal period complications are more common in the refugee population. It was observed that cesarean delivery, fetal distress, failure in labor induction, post-term pregnancy, oligohydramnios, gestational diabetes, and perineal lacerations were increased in refugee women.[5] It has been shown that being a refugee is one of the significant risk factors for preterm birth.[6] The differences were observed in the prenatal outcomes of minorities from different countries living in this region, such as higher rates of low birth weight (LBW), preterm birth, perinatal mortality, and congenital anomalies. In a study, it has been reported that compared with receiving country-born women, refugee women were less likely to give birth preterm or to have infants of LBW but there was an excess of cesarean sections, particularly in first births and an excess of stillbirths.[7] In another study, patterns of inequalities in perinatal mortality and causes of deaths vary according to nationality; perinatal mortality is increased in particular ethnic groups independently of socioeconomic status and maternal characteristics.[8] In a study, it has shown that despite good general coverage of maternal care among migrant origin women, there were clear variations in the type of treatment given to them or needed by them.[9] In terms of neonatal results, it was observed that the newborns had a long hospital stay, low appearance, pulse, grimace, activity, respiration (APGAR) scores, and increased respiratory support needs.[5,10] In addition to gestational age, specific factors related to geodemographics (maternal age, consanguinity, and nationality), maternal health (anemia), and pregnancy history (abortion and miscarriage) were significantly associated with the incidence of LBW.[11]

The Government of the Republic of Türkiye offers free healthcare to Syrian refugees as provided for Turkish citizens. To overcome the language barrier, some hospitals provide interpreter service or interpreter line service. The purpose of this study was to compare the access to healthcare during pregnancy and the postpartum period as well as the effects on maternal and early neonatal outcomes of Syrian refugees and Turkish citizens who gave birth in a tertiary hospital in Türkiye.

## MATERIAL AND METHODS

The study protocol was approved by University of Health Sciences, Zeynep Kamil Maternity and Children's Training and Research Hospital Ethics Committee with the Approval No: 2018/118. The records of pregnant women with positive fetal cardiac activity who gave singleton births in the same hospital between January 2015 and August 2018 were analyzed retrospectively from archive records and electronic registration system. Two hundred pregnant women, 100 Syrian refugees and 100 Turkish citizens, were enrolled in the study. The selection of patients included in the study was carried out by randomization method from birth registers of the hospital. Inclusion criteria were having at least one admission during pregnancy, having a live, single pregnancy, and giving birth in same hospital. Patients with more than six vaginal births and more than five cesarean births, stillbirths, and multiple pregnancies were not included in the study. The patients' data about pregnancy and birth were evaluated with 21 different variables.

Gestational diabetes mellitus is defined as hyperglycemia first detected during pregnancy.[12] Preeclampsia is defined as new-onset blood pressure elevations accompanied by proteinuria in pregnancy. The diagnosis includes at least two measurements of systolic pressures greater than or equal to 140 mmHg or diastolic pressures greater than or equal to 90 mmHg and the presence of 300 mg protein or more in a 24-h urine specimen or 30 mg/dL (1+dipstick) in random urine specimen.[13] Anemia in pregnancy is defined as an Hgb concentration lower than 11 g/dL in the first and third trimesters or lower than 10.5 g/dL in the second trimester, because of the normal

**Table 1: Characteristics of women**

| Characteristic | Syrian refugees (n=100) (Mean±SD) | Turkish citizens (n=100) (Mean±SD) | p |
|---|---|---|---|
| Age | 25.18±5.21 | 26.67±4.70 | 0.035 |
| Gravidity | 2.13±1.19 | 2.04±1.19 | 0.595 |
| Parity | 1.04±1.18 | 0.82±0.98 | 0.156 |
| Hemoglobin (g/dl) | 11.20±1.33 | 11.81±1.08 | **0.001** |
| Hematocrit (%) | 34.31±3.84 | 35.66±3.23 | **0.01** |
| Mean corpuscular volume | 83.35±9.18 | 86.95±5.69 | **0.002** |
| Birth weight (g) | 3116.60±543.32 | 3141.21±563.37 | 0.755 |
| 1-min APGAR score | 7.65±1.07 | 7.77±0.88 | 0.390 |
| 5-min APGAR score | 8.95±0.78 | 8.99±0.54 | 0.675 |

SD: Standard deviation; APGAR: Appearance, pulse, grimace, activity, respiration.

hemodilution of pregnancy.[14] The score of APGAR (a reverse acronym: APGAR) proposed by Virginia Apgar (1953) to assess color, hearth rate, reflex response, muscle tone, and respiratory effort, classifying into one of three categories: 0 for distress, 1 for compromise and 2 for optimum. It is recorded at 1 min and 5 min in all infants with expanded recording at 5-min intervals for infants who score seven or less at 5 min, and in those requiring resuscitation.[15] Statistical analysis was carried out using SPSS for Windows 11 package program. Descriptive statistics (percentage distribution, mean, median) were carried out with Student-t test and Mann–Whitney U test. The correlation analysis was carried out with Pearson correlation and Spearman correlation. The suitability of the variables to normal distribution was examined using the Kolmogorov–Smirnov test and p<0.05 was considered statistically significant.

## RESULTS

The mean age of the Syrian refugees was significantly lower than that of Turkish women (p=0.035). The gravidity and parity were similar for Syrian and Turkish women (p=0.595 and p=0.156). Hemoglobin (Hgb), hematocrit (Hct), and mean corpuscular volume (MCV) values were statistically lower for Syrian women than among Turkish citizens (p value is 0.001, 0.01, and 0.002, respectively). There was no statistically significant difference on birth weights of babies, 1st and 5th min APGARs (p=0.755, p=0.390, and p=0.675) (Table 1).

Screening tests such as first and second trimester Down syndrome screening tests, second trimester ultrasound examination, and oral glucose tolerance test (OGTT) rates were significantly lower in the Syrian pregnant than in Turkish pregnant (p<0.001 for all) (Table 2).

Obstetric characteristics and outcomes such as presence of secondary diseases in pregnancy (gestational diabetes mellitus and preeclampsia), systemic disease (hypothyroidism, hypertension, diabetes mellitus, familial mediterranean fever, idiopatic trombositopenic purpura), hospitalization in tertiary referral center in perinatal period, gestational week determined by ultrasound, mode of delivery, blood transfusion (birth and postpartum period), Rh isoimmunization status, postpartum maternal complications (bleeding, wound infection, and genital tract injuries), fetal anomalies (major and minor), and need for neonatal intensive care unit (NICU) admission were similar for both groups (p=0.06, p=0.109, p=0.05, p=0.9, 0.886, p=0.651, p=0.651, p=0.421, p=0.470, and p=0.054, respectively). The only exception of this situation was "the number of admissions to tertiary referral center" and significantly lower among Syrian refugees than among Turkish women (p<0.001) (Table 3).

**Table 2: Antenatal care and screening tests**

| Screening test | Syrian refugees (n=100) | | Turkish citizens (n=100) | | p |
|---|---|---|---|---|---|
| | n | % | n | % | |
| 1st trimester genetic screening | | | | | **<0.001** |
| Unknown | 45 | 45 | 0 | 0 | |
| Available | 2 | 2 | 41 | 41 | |
| Not available | 53 | 53 | 59 | 59 | |
| 2nd trimester genetic screening | | | | | **<0.001** |
| Unknown | 45 | 45 | 0 | 0 | |
| Available | 2 | 2 | 32 | 32 | |
| Not available | 53 | 53 | 68 | 68 | |
| 2nd trimester ultrasound | | | | | **<0.001** |
| Unknown | 45 | 45 | 0 | 0 | |
| Available | 2 | 2 | 41 | 41 | |
| Not available | 53 | 53 | 59 | 59 | |
| Oral glucose tolerance test | | | | | **<0.001** |
| Unknown | 45 | 45 | 0 | 0 | |
| Available | 2 | 2 | 34 | 34 | |
| Not available | 53 | 53 | 66 | 66 | |
| Total | 100 | 100 | 100 | 100 | |

**Table 3: Obstetric characteristics and outcomes**

| Characteristic and outcome | Syrian refugees (n=100) | | Turkish citizens (n=100) | | p |
|---|---|---|---|---|---|
| | n | % | n | % | |
| Secondary diseases in pregnancy | | | | | 0.06 |
| Gestational diabetes mellitus | 0 | 0 | 5 | 5 | |
| Preeclampsia | 6 | 6 | 4 | 4 | |
| None | 94 | 94 | 91 | 91 | |
| Systemic disease | | | | | 0.109 |
| Yes | 3 | 3 | 14 | 14 | |
| No | 97 | 97 | 86 | 86 | |
| Prenatal hospitalization in tertiary referral center | | | | | 0.05 |
| Yes | 2 | 2 | 8 | 8 | |
| No | 98 | 98 | 92 | 92 | |
| Mode of delivery | | | | | 0.886 |
| Vaginal | 59 | 59 | 58 | 58 | |
| Cesarean section | 41 | 41 | 42 | 42 | |
| Postpartum maternal complications | | | | | 0.651 |
| Yes | 3 | 3 | 2 | 2 | |
| No | 97 | 97 | 98 | 98 | |
| Blood transfusion | | | | | 0.651 |
| Yes | 3 | 3 | 2 | 2 | |
| No | 97 | 97 | 98 | 98 | |
| Rh isoimmunization | | | | | 0.421 |
| Yes | 6 | 6 | 9 | 9 | |
| No | 94 | 94 | 91 | 91 | |
| Fetal anomaly | | | | | 0.470 |
| Yes | 5 | 5 | 3 | 3 | |
| No | 95 | 95 | 97 | 97 | |
| Gestational week determined by ultrasound | 36.7±1.7 | | 36.7±2.1 | | 0.9 |
| Number of admissions to tertiary referral center | 0.74±1.4 | | 3.2±3.9 | | **0.001** |

## DISCUSSION

The civil war in Syria caused immigration of many Syrians to neighboring countries and Türkiye is the country with the largest number of refugees in the world. The refugee women may experience more pregnancy and reproductive health problems. This study had found some differences about the pregnancy follow-up, pregnancy outcomes, and neonatal outcomes between Syrian refugees and Turkish women who gave birth in a tertiary referral center in Türkiye.

In the present study, Hgb, Hct, and MCV values were statistically lower for Syrian women when compared to Turkish citizens. However, these values in Syrian pregnant women are not lower than the lower limit accepted for anemia during pregnancy. In Türkiye, standard antenatal care is carried out by family physicians in family health centers and refugees can get adequate treatment for prophylaxis of anemia. In the study of Alnuaimi et al.,[16] Syrian pregnant women were found to be more anemic than pregnant women from the country they migrated to. Likewise, in a study conducted in Türkiye, Syrian patients were more anemic.[17] Unlike, in other studies conducted in Türkiye, Syrian and the Turkish pregnant women were found similar for Hgb and Hct values.[18] Refugees may be considered to receive insufficient antenatal care and consequently use of inadequate iron preparations and be malnourished.

In the present study, no significant difference was found between the two groups in terms of gravida and parity number. In a study in which the pregnancy outcomes of Syrian and Jordanian pregnant women were compared, no statistically difference was found in terms of gravida and parity number.[16] In the present study, the mean age of the Syrian refugees was significantly lower than that of Turkish women (p=0.035). Similarly, some studies have shown that the gestational age of Syrian migrant pregnant women is lower than the

control group.[16,17] Another study in Türkiye, there was no significant difference between Turkish women with Syrian refugees for the age of pregnant women.[18] The child marriage is a growing problem for Syrian girls in refugee communities in Jordan, Lebanon, Iraq, and Türkiye. It is reported that, in Lebanon, 41% of young displaced Syrian women were married before 18. Given that marriages are unregistered, these figures may, in fact, be much higher.[19]

In the present study, there was no statistically significant difference on birth weights of newborns, 1st and 5th min APGAR scores, newborn's intensive care needs, and presence of fetal anomaly in Turkish women and Syrian refugees. The results of APGAR scores and NICU may be related to the similarity of newborn weights and fetal anomaly rates. However, although the rate of anemia possibly due to iron deficiency was found to be significantly higher in Syrian pregnant women, it did not affect the neonatal results as negative as in other studies. Iron deficiency anemia has been shown to be associated with poor neonatal outcomes – low APGAR score and NICU admission.[20] Other studies reported that Syrian refugees have more LBW newborns and lower Hct.[21–23] In another study, no significant difference was found between birth weights and APGAR scores of newborns.[18]

In the present study, first and second trimester Down syndrome screening tests, second trimester genetic ultrasound, and OGTT rates were significantly lower in the Syrian refugees and their records have shown that information about whether they had screening tests or not, it was highly expressed as "unknown." Patients are informed about these tests through interpreter, if the patient or interpreter could not understand the information and there was no record at hospital electronic registration system then it was enrolled as "unknown." In addition, "the number of admissions to tertiary referral center" was significantly lower among Syrian refugees than Turkish women. In terms of the having screening test rates after coming to Türkiye and the difficulties in getting and giving information from the patient, the language problem poses a major obstacle. An assessment based on structured and in-depth interviews with 1291 Syrian women and girls across seven cities in Türkiye reveals that many are satisfied with their access to services, especially medical, but they also lack information on the full range of assistance that is available to them. The language barrier is a major obstacle that stands in the way of Syrians to access rights and services. Syrians in Türkiye may enroll in free state supported Turkish language courses, but the study found that 70% of Syrian women do not speak any Turkish.[24] In a qualitative study investigating the Syrian refugee women's reproductive characteristics in Türkiye, the refugee women reported that they could not reach health services because of language problems, economic reasons, and they mentioned their concerns about discrimination.[25] Refugees' lack of awareness of these services, language barriers, and social isolation were found to be associated with reduced healthcare utilization among refugee populations.[21] Similarly, in another studies, it has been shown that Syrian refugee pregnant women have low antenatal care.[16,17] A multicenter study assessing the effectiveness of antenatal care in reducing pregnancy complications showed that of women had inadequate antenatal care utilization is associated with the severe maternal morbidity and severe perinatal morbidity to degrees that vary with the component of care and the outcome considered.[26] There was no statistically significant difference between the groups in the presence of systemic disease such as hypertension, diabetes mellitus, hypothyroidism, idiopathic thrombocytopenic purpura, and familial Mediterranean fever.

In the present study, no difference was found between the two groups in postpartum maternal complications (bleeding, wound infections, and genital tract injuries) and diseases secondary to pregnancy (gestational diabetes mellitus and preeclampsia). In another studies, the rates of diabetes, perineal trauma, postpartum hemorrhage, and cesarean delivery were high in refugees.[27,28] In the present study, there was no significant difference between the two groups in terms of cesarean delivery and normal spontaneous vaginal delivery rates. In studies from Jordan and Türkiye, a higher cesarean delivery rates have been declared.[16,18]

The study has some limitations. The data were limited to files and electronic records which collect retrospectively, so we could not determine preterm or post-term births due to uncertainity of gestational age of pregnancies. The study was carried out in a tertiary referral center in İstanbul, so conditions and results may be different for refugees living in camps or in place where health-care facilities are difficult to reach.

In conclusion, providing regular and free healthcare in Türkiye, Syrian refugees cannot receive adequate healthcare due to reasons such as language limitations, cultural differences, and low socioeconomic level. The initiatives related to Turkish language educations and keeping qualified translators could improve the negative conditions.

## Statement

**Ethics Committee Approval:** The Zeynep Kamil Maternity and Children's Training and Research Hospital Clinical Research Ethics Committee granted approval for this study (date: 25.07.2018, number: 118).

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**Author Contributions:** Concept – AÖB, NUT, EÖ; Design – AÖB, NUT, EÖ; Supervision – AÖB, NUT, EÖ; Resource – AÖB; Materials – AÖB; Data Collection and/or Processing – AÖB, EÖ; Analysis and/or Interpretation – NUT, EÖ; Literature Search – AÖB, NUT; Writing – AÖB, NUT; Critical Reviews – NUT, EÖ.

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