CESAREAN DELIVERIES AMONG SYRIAN REFUGEE AND TURKISH PREGNANT WOMEN: A RETROSPECTIVE COHORT STUDY

Arzu Yavuz, Gokce N. Kucukbas, Erdem Gurkan, Ünal Turkay
University of Health Sciences, Derince Training and Research Hospital,
Department of Obstetrics and Gynecology, Kocaeli, Turkey

Background

The Syrian civil war began and led to a mass migration of Syrians. Almost for a decade, Syrian refugees have been welcomed by Turkey, one of the neighbouring countries of Syria, with support of the European Union. According to reports, in February 2022, officially 3,746,544 Syrian refugees were accomodated in Turkey [1]. The high number of Syrian refugees tend to move to Kocaeli, an industrial city close to Istanbul offering better job possibilities for immigrants. Unfortunately, migration leads not only to loss of housing and occupation, but also difficulty in obtaining health care. Previous studies showed that Syrian women who migrated to Kocaeli, Turkey, tend to bear children at earlier gestational and maternal ages, including adolescent mothers and their infants with lower birth weights [2,3]. All of these might be a result of difficulty in obtaining health care, malnutrition and language barriers.

Objectives

In this study, we aimed to investigate in detail and compare both patient characteristics, indications, and maternal and neonatal outcomes of Turkish and Syrian women having Cesarean section in Kocaeli, at a women's health care center having approximately 6000 deliveries per year. It is important to interrogate differences among refugees in order to prevent adverse results and take timely action for Syrian women. In addition, these studies will become helpful in light of future mass migrations such as with the new onset Russian-Ukranian war.

Materials and Methods

This study was a retrospective review of a total of 975 Syrian refugee women and Turkish women giving birth at the Department of Obstetrics and Gynecology at the Health Sciences University Kocaeli Derince Training and Research Hospital, Kocaeli, Turkey, between January 1, 2016, and July 31, 2017. After ethical committee approval from the Educational Planning Committee, hospital records regarding this population were reviewed. No informed consent was required for this retrospective study since at hospital admission patients were asked if their data could be used in clinical trials provided that personal data remained confidential.

Women giving birth by Cesarean section were evaluated for characteristic data related to their obstetric, maternal and neonatal outcomes for comparison. Gravida, parity, gestational age at birth, maternal age, any comorbidities, Cesarean section indication, need for urgent surgery, and maternal and newborn postoperative outcomes were compared between the groups, and prenatal and postnatal hemoglobin values and hospitalization period after surgery were also investigated. Gestational week at birth was reaffirmed with crown–rump length data or first and second trimester screening tests.

Statistical analysis was carried out using NCSS (Number Cruncher Statistical System) 2007 software (Kaysville, Utah, USA). Data was evaluated by descriptive statistical methods with mean, standard deviation, median, frequency, percentage, minimum and maximum values. The study data were analyzed for distribution by Shapiro Wilk test and then by descriptive statistical methods. Quantitative data of the two groups were analyzed with Student t test if normally distributed, otherwise with Mann-Whitney U test without normal distribution. Paired sample t-test was used in group comparisons of quantitative data. Qualitative data was compared with Pearson χ^2 test and Fisher-Freeman-Halton exact test. $P<0.05$ was considered statistically significant.

Results

This study consisted of a total of 975 women, and Syrian women represented one third of the participants. The charactersitics of all participants are given

in Table 1. Nine percent of women had comorbidities. The major comorbidities were hypothroidism (31.1%), viral hepatitis (11.1%), pregestational diabetes (10.0%), chronic hypertension (10.0%) and asthma or chronic obstructive lung disease (10.0%).

Table 1.
Characteristics of all of the participants

Maternal age (year)	*Mean ± SD*	28,22±6,04
	Median (Min-Max)	28 (15-48)
Gestational age (weeks)	*Mean ± SD*	38,47±1,66
	Median (Min-Max)	38,7 (22,3-42,6)
Gravida (n)	*Mean ± SD*	3,00±1,50
	Median (Min-Max)	3 (0-10)
Parity (n)	*Mean ± SD*	2,00±1,00
	Median (Min-Max)	1 (0-8)
Abortus (n)	*Mean ± SD*	0,50±1,00
	Median (Min-Max)	0 (0-7)
Live births (n)	*Mean ± SD*	2,00±1,00
	Median (Min-Max)	2 (0-8)
Previous cesarean section (n)	*Mean ± SD*	1,50±1,00
	Median (Min-Max)	1 (0-5)
Number of pregnant women in the groups (n (%))	**Turkish**	
		682 (69,9)
	Syrian	293 (30,1)
SD: Standard deviation	*Min: Minimum*	*Max: Maximum*

Thirteen percent of women were hospitalized because of comorbidities leading to a delivery decision. The most frequent indications were diagnosis of preeclampsia (45.7%) and gestational diabetes (26.4%). Obstetric complications were observed in 7.9% of women. Obstetric complications were blood transfusion (76.6%), postoperative infection (7.8%), atonia and embolism (each 3.9%), and bladder injury, hematoma, postoperative hysterectomy and acute kidney disease (each 1.3%). One Turkish patient was lost due to severe preeclampsia.

When we analyzed the pregnant women in groups according to ethnicity, Turkish women were significantly older than Syrian women ($p<0.01$; Figure 1). The numbers of gravida and parity were significantly higher in Syrian women, whereas Turkish women had a higher number of abortus and live births. Syrians had a higher number of previous Cesarean section procedures ($p<0.05$). There was no significant difference in gestational age of the participants (Table 2).
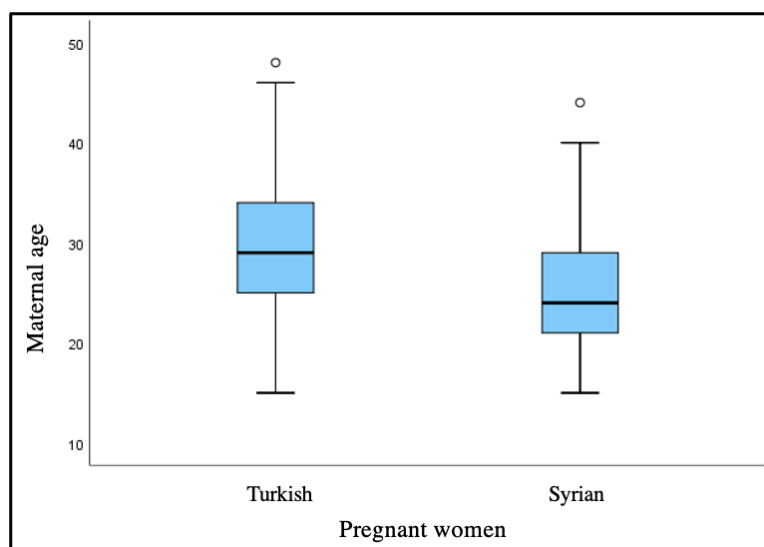
Fig. 1. Maternal age of the pregnant women in the study

Table 2.

Characteristics of the participants according to groups

		Turkish (n=682)	Syrian (n=293)	*p*
Maternal age (years)	*Mean ± SD*	29,5±5,75	25,3±5,72	[a]*0,001**
	Median (Min-Max)	29 (15-48)	24 (15-44)	
Gestational age (weeks)	*Mean ± SD*	38,4±1,72	38,5±1,54	[b]*0,953*
	Median (Min-Max)	38,7 (22,3-42,6)	38,7 (31-42,1)	
Gravida (n)	*Mean ± SD*	2,9±1,42	3,1±1,59	[b]*0,020**
	Median (Min-Max)	3 (0-10)	3 (1-10)	
Parity (n)	*Mean ± SD*	1,5±1,03	1,9±1,41	[b]*0,001**
	Median (Min-Max)	1 (0-8)	2 (0-8)	
Abortus (n)	*Mean ± SD*	0,4±0,84	0,3±0,69	[b]*0,004**
	Median (Min-Max)	0 (0-7)	0 (0-5)	
Live birth (n)	*Mean ± SD*	2,1±1,12	1,9±1,42	[b]*0,010**
	Median (Min-Max)	2 (0-8)	2 (0-8)	
Previous Ceserean section (n)	*Mean ± SD*	1,2±0,88	1,5±1,02	[b]*0,001***
	Median (Min-Max)	1 (0-4)	1 (0-5)	

[a] Statistical analysis were performed with Student-t Test

[b] Statistical analysis were performed with Mann Whitney-U Test

SD: Standard deviation　　　　*Min: Minimum*　　　　*Max: Maximum*

*: Statistically significant

Indication of hospitalization and delivery regarding comorbidities were significantly different between the groups. Syrian pregnant women were hospitalized mostly for preeclampsia (12/12) whereas Turkish pregnant women were hospitalized because of preeclampsia (47/117) and gestational diabetes (34/117). Obstetric complications were statistically higher in Syrian women (15.0% versus 4.8%, p<0.05). The frequency of comorbidities was not statistically different between the two groups.

APGAR 1 scores were significantly higher for Turkish infants and APGAR 5 scores were significantly higher for Syrian infants (p<0.01)(Table 3).

Turkish newborns were heavier and were admitted to the newborn intensive care unit less than Syrian newborns (p<0.01). Syrian women had higher urgent Cesarean section and a longer stay in the hospital compared to Turkish women (p<0.01). Further treatment was composed of bilateral salphingoopherectomy, myomectomy, balloon tamponade, bladder wall repair, compression sutures, hysterectomy and simultaneous ovarian cyst resection and was not different between the groups.

Table 3.

Maternal and neonatal outcomes in the groups

		Turkish (n=682)	Syrian (n=293)	*p*
APGAR 1	*Mean ± SD*	7,8±0,78	8,1±0,94	[b]*0,001**
	Median (Min-Max)	8 (0-9)	8 (0-9)	
APGAR 5	*Mean ± SD*	9,8±0,85	9,6±1,05	[b]*0,002**
	Median (Min-Max)	10 (0-11)	10 (0-10)	
Birth weight	*Mean ± SD*	3247,6±580,40	3155,3±518,62	[b]*0,006**
	Median (Min-Max)	3260 (750-5280)	3130 (1450-4800)	
Days of hospitalisation	*Mean ± SD*	1,7±1,00	2,2±0,71	[b]*0,001**
	Median (Min-Max)	2 (1-14)	2 (1-8)	
Neonatal intensive care unit necessity	+	618 (90,7)	214 (73,3)	[c]*0,001**
	-	63 (9,3)	78 (26,7)	
Further treatment	+	612 (89,7)	269 (91,8)	[c]*0,315*
	-	70 (10,3)	24 (8,2)	
Urgent cesarean section	+	416 (61,0)	144 (49,1)	[c]*0,001**
	-	266 (39,0)	149 (50,9)	

[a] Statistical analysis were performed with Student-t Test

[b] Statistical analysis were performed with Mann Whitney-U Test

SD: Standard deviation　　　　*Min: Minimum*　　　　*Max: Maximum*

*: Statistically significant

When preoperative and postoperative hemoglobin and hematocrit values were compared, both groups had significantly lower postoperative values compared to preoperative values and the decline in hemoglobin or hematocrit after surgery was not significantly different between the groups. However, both preoperative and postoperative values of hemoglobin and hematocrit were higher in Turkish women (p<0.01, Table 4).

Table 4.

Hemoglobin and haematocrit values of both groups before and after surgery

		Turkish (n=682)	Syrian (n=293)	*p*
Hemoglobin				
Preoperative	*Mean ± SD*	11,4±1,25	11,1±1,54	*ᵃ0,004***
	Median (Min-Max)	11,5 (4,7-14,4)	11,2 (5,7-14,6)	
Postoperative	*Mean ± SD*	10,3±1,24	10,0±1,44	*ᵃ0,002***
	Median (Min-Max)	10,5 (6,4-14,5)	10,1 (6-13,6)	
	p	*ᵖ0,001***	*ᵖ0,001***	
Difference	*Mean ± SD*	-1,0±0,87	-1,0±1,01	*ᵃ0,818*
Hematocrit				
Preoperative	*Mean ± SD*	35,0±3,75	34,3±4,15	*ᵃ0,011**
	Median (Min-Max)	35,4 (14-75)	34,2 (19,6-43,7)	
Postoperative	*Mean ± SD*	32,1±4,08	31,3±4,00	*ᵃ0,003***
	Median (Min-Max)	32 (22,1-90)	31,3 (19-40,3)	
	p	*ᵖ0,001***	*ᵖ0,001***	
Difference	*Mean ± SD*	-2,9±4,16	-3,0±2,96	*ᵇ0,306*

ᵃ*Student-t Test* ᵇ*Mann Whitney-U Test* ᵖ*Paired Samples-t Test*
**p<0,01 **p<0,05* *Min: Minimum* *Max: Maximum*

Discussion

This study included refugee and native pregnant women delivered by Cesarean section. The majority of the participants were multiparous, younger than 35 years old, delivered at term and had a prior Cesarean section. The comorbidities of the participants were compatible with common comorbidities seen during pregnancy [4]. The major comorbidities leading to hospitalization and delivery decision were diagnosis of preeclampsia and gestational diabetes, which increase Cesarean section risk [5]. Obstetric complications were observed in 7.9% of women. Obstetric complications were related to the complications of Cesaraen section, the major complication being blood transfusion [6]. The study population not being anemic before delivery indicates that the transfusion was related to surgery.

As the aim of the study was comparing Turkish women with Syrian refugees, statistical analysis showed some differences in characteristics. The maternal age was significantly higher in Turkish women and the difference was 5 years. This age difference was also shown in previous studies [7-9]. The numbers of gravida and parity were significantly higher in Syrian women. The first reason behind this difference might be the higher level of fertility of Syrians,

with a mean of 3.4, whereas women resident in Kocaeli have a mean of 1.65 [10]. Secondly, Syrian people tend to marry and deliver at younger ages traditionally [7,11-13].

In this study, Turkish women had a higher number of abortus and number of live births. However, Kurtulmuş et al. included nearly 150,000 pregnancies in their study (11,036 were Syrian) but did not show any differences except a higher number of gravida of Syrians [9]. Syrians had a higher number of previous Cesarean section procedures (p<0.05). This might be because of a younger age at first pregnancy. There was no significant difference in gestational age of the participants.

Indication of hospitalization and delivery were significantly different between the groups. If hospitalizations were due to comorbidities, all Syrian pregnant women were hospitalized for preeclampsia, whereas Turkish pregnant women were mainly hospitalized because of both preeclampsia and gestational diabetes. Diabetes prevalence in Turkey is 14.5% whereas it is 9.9% in Syria [14]. This demographic difference might also be valid in pregnant women having a Cesarean section. Obstetric complications were statistically higher in Syrian women. The frequency of comorbidities was not

statistically different between the two groups. The higher frequency of prior Cesarean sections and lower preoperative hemoglobin values might have led to this difference.

Although APGAR 1 scores were significantly higher in Turkish infants and APGAR 5 scores were significantly higher in Syrian infants, Turkish newborns admitted to the newborn intensive care unit were less than Syrian newborns. In addition, Turkish newborns were heavier than Syrians. Syrian women had higher urgent Cesarean section and longer stay in the hospital compared to Turkish women. Elective Cesarean section is performed if antenatal care can be adequately given. According to Değer et al, even before the Syrian civil war, the percentage of Syrian pregnant women with antenatal care was only 63.7%. In Turkey this ratio is 97% and all pregnant women have health insurance during pregnancy as a governmental policy. In addition, all initial care centers are obliged to follow up pregnancies [15]. Another issue might be the language barrier and challenges due to being a refugee.

All of the above might have had an effect on hemoglobin and hematocrit values as well. When compared, the declines in hemoglobin or hematocrit after surgery were not significantly different between the groups. Nevertheless, both preoperative and postoperative values of hemoglobin and hematocrit were higher in Turkish women.

The limitation of the study was constituting only the residents of Kocaeli. Further research including larger areas with larger populations are needed to support the findings of the study if any actions are to be taken.

This study is special in including only pregnancies delivered by Cesarean section to reflect any possible differences among nearly a thousand Turkish and Syrian women. The findings showed that Syrian women delivered with Cesarean section became pregnant at earlier ages and both maternal and neonatal outcomes were worse compared to Turkish women. It seems that health care policies should at least for now focus on earlier ages of pregnancies and predelivery hemoglobin values. In addition, these kind of studies should be performed until Syrian refugees have similar statistics of maternal and neonatal outcomes as much as possible. Finally, Syrian women should be better encouraged to have antenatal follow-up.

Abstract
Background: Refugees have inadequate access to health services including antenatal care although they frequently face health problems. **Aim**: This study aimed to investigate and compare the patient characteristics, procedure indications, and maternal and neonatal outcomes of Turkish and Syrian refugee women who had Cesarean section. **Methods**: This retrospective study included a total of 975 Syrian refugee and Turkish pregnant women giving birth via Cesarean section at a tertiary center in Turkey. The characteristics, and maternal and neonatal outcomes were compared between the groups including prenatal and postnatal hemoglobin values and hospitalization period after surgery. Statistical analysis was carried out using the NCSS (Number Cruncher Statistical System) 2007 software (Kaysville, Utah, USA). The data were analyzed for distribution by Shapiro Wilk test. Quantitative data were analyzed with student's t test if normally distributed, otherwise with Mann- Whitney-U test. Paired sample t-test was used in group comparisons of quantitative data. Qualitative data was compared with Pearson χ^2 test and Fisher exact test. $P<0.05$ was considered statistically significant. **Results**: Syrian women delivered by Cesarean section became pregnant at younger ages and have worse maternal and neonatal outcomes. **Conclusion:** Health care policies regarding pregnant Syrian refugees should focus on preventing younger maternal ages, increasing predelivery hemoglobin values and aim to encourage refugees to have frequent antenatal follow-ups.

XÜLASƏ

Türkiyədəki suriyalı qaçqınlar və hamilə qadınlar arasında qeysəriyyə əməliyyatı: retrospektiv kohort tədqiqatı

Arzu Yavuz, Gökçe N. Küçükbaş,
Erdem Gürkan, Ünal Türkay
Tibb Elmləri Universiteti, Derince Tədris və
Araşdırma Xəstəxanası, Doğum və Ginekologiya
Klinikası, Kocaeli, Türkiyə

Açar sözlər: qaçqınlar, keysəriyyə kəsiyi,
hamiləlik nəticələri, türklər, suriyalılar

Türkiyədə suriyalı qaçqınlar tez-tez sağlamlıq problemləri ilə üzləşsələr də, antenatal baxım da daxil olmaqla səhiyyə xidmətlərinə kifayət qədər çıxışı yoxdur. Məqsəd: Bu tədqiqatın məqsədi Qeysəriyyə əməliyyatı keçirmiş türk və suriyalı qaçqın qadınların xəstə xüsusiyyətlərini, prosedur göstəricilərini, ana və neonatal nəticələrini araşdırmaq və müqayisə etməkdir. Metodlar: Bu retrospektiv tədqiqata Türkiyədə üçüncü bir mərkəzdə keysəriyyə əməliyyatı ilə doğuş edən ümumilikdə 975 suriyalı qaçqın və türk hamilə qadın daxil edilmişdir. Xüsusiyyətlər, ana və neonatal nəticələr prenatal və postnatal hemoglobin dəyərləri və əməliyyatdan sonra xəstəxanaya yerləşdirmə müddəti daxil olmaqla qruplar arasında müqayisə edildi. Statistik təhlil NCSS (Number Cruncher Statistical System) 2007 proqram təminatından istifadə etməklə aparılmışdır (Kaysville, Yuta, ABŞ). Məlumatlar Şapiro Wilk testi ilə paylanma üçün təhlil edilib. Kəmiyyət məlumatları normal paylanmışsa tələbənin t testi ilə, əks halda Mann-Whitney-U testi ilə təhlil edilmişdir. Kəmiyyət məlumatlarının qrup müqayisələrində qoşalaşmış nümunə t-testindən istifadə edilmişdir. Keyfiyyətli məlumatlar Pearson χ2-testi və Fisher dəqiq testi ilə müqayisə edilmişdir. P<0.05 statistik əhəmiyyətli hesab edilmişdir. Nəticələr: Qeysəriyyə əməliyyatı ilə doğulan Suriyalı qadınlar daha gənc yaşda hamilə qaldılar və ana və neonatal nəticələri daha pis oldular. Nəticə: Suriyalı hamilə qaçqınlarla bağlı səhiyyə siyasəti gənc ana yaşlarının qarşısının alınmasına, yüksək hemoglobin dəyərlərinin artırılmasına diqqət yetirməli və qaçqınların tez-tez antenatal müşahidələrə cəlb olunmasını təşviq etməlidir.

РЕЗЮМЕ

Кесарево сечение среди сирийских беженцев и беременных женщин в Турции: ретроспективное когортное исследование

Арзу Явуз, Гёкче Н. Кучукбас,
Эрдем Гуркан, Юнал Тюркай
Университет медицинских наук, Учебно-
исследовательская больница Дериндже, отделение
акушерства и гинекологии, Коджаэли, Турция

Ключевые слова: беженцы, кесарево сечение,
исходы беременности, турки, сирийцы

В Турции существует проблема с беженцами, которые не имеют надлежащего доступа к медицинским услугам, включая дородовой уход, хотя они часто сталкиваются с проблемами со здоровьем. Цель: это исследование было направлено на изучение и сравнение характеристик пациентов, показаний к процедурам, а также исходов для матери и новорожденного у турецких и сирийских женщин-беженцев, перенесших кесарево сечение. Методы: это ретроспективное исследование включало в общей сложности 975 сирийских беженцев и беременных женщин из Турции, родивших с помощью кесарева сечения в специализированном центре в Турции. Характеристики, материнские и неонатальные исходы сравнивались между группами, включая пренатальные и постнатальные значения гемоглобина и период госпитализации после операции. Статистический анализ проводили с использованием программного обеспечения NCSS (Number Cruncher Statistical System) 2007 (Кейсвилл, Юта, США). Данные были проанализированы на распределение с помощью теста Шапиро-Уилка. Количественные данные были проанализированы с помощью критерия Стьюдента, если распределение нормальное, в противном случае - с помощью критерия Манна-Уитни-U. Парный выборочный t-критерий использовали для группового сравнения количественных данных. Качественные данные сравнивались с критерием χ2 Пирсона и точным критерием Фишера. P<0,05 считалось статистически значимым. Результаты. Сирийские женщины, родившиеся с помощью кесарева сечения, забеременели в более раннем возрасте и имеют худшие материнские и неонатальные исходы. Вывод: Политика здравоохранения в отношении беременных сирийских беженцев должна быть направлена на предотвращение более раннего возраста матери, повышение показателей гемоглобина до родов и на поощрение беженцев к частому дородовому наблюдению.

REFERENCES

1. Türkiye'deki Suriyeli Sayısı Temmuz 2022 (Number of Syrian Refugees In Turkey July 2022) [Foundation of Refugees website]. 2022. https://multeciler.org.tr/turkiyedeki-suriyeli-sayisi/ Accessed: June 2022.

2. Turkay Ü, Aydın Ü, Salıcı M, et al. Comparison of pregnant Turkish women and Syrian refugees: Does living as a refugee have an unfavorable effect on pregnancy outcomes? *Int J Gynaecol Obstet*. 2020; 149:160-165. doi: 10.1002/ijgo.13117.

3. Turkay Ü, Aydın Ü, Çalışkan E, Salıcı M, Terzi H, Astepe B. Comparison of the pregnancy results between adolescent Syrian refugees and local adolescent Turkish citizens who gave birth in our clinic. *J Matern Fetal Neonatal Med*. 2020; 33:1353-1358. doi: 10.1080/14767058.2018.1519016.

4. Whelan LJ. Comorbid Disorders in Pregnancy. In: Tintinalli JE, Stapczynski J, Ma O, Yealy DM, Meckler GD, Cline DM. eds. *Tintinalli's Emergency Medicine: A Comprehensive Study Guide*, 8e. McGraw Hill; 2016. Accessed July 17, 2022.
https://accessmedicine.mhmedical.com/content.aspx?bookid=1658&sectionid=109434262

5. Mylonas I, Friese K. Indications for and Risks of Elective Cesarean Section. *Dtsch Arztebl Int*. 2015; 112:489-95. doi: 10.3238/arztebl.2015.0489.

6. Aujang, ER. Complications of Cesarean Operation. In: Androutsopoulos, G., editor. Caesarean Section. [IntechOpen]. 2018. https://www.intechopen.com/chapters/60912 Accessed: July 17, 2022.

7. Erenel H, Aydogan Mathyk B, Sal V, Ayhan I, Karatas S, Koc Bebek A. Clinical characteristics and pregnancy outcomes of Syrian refugees: a case-control study in a tertiary care hospital in Istanbul, Turkey. *Arch Gynecol Obstet*. 2017; 295:45-50. doi: 10.1007/s00404-016-4188-5.

8. Cokmez H, Aydin C. Comparison between pregnant Syrian refugees and Turkish residents in terms of a history of multiple cesarean sections. *Turkish Journal of Clinics and Laboratory*. 2020;11:243-249. doi:10.18663/tjcl.669555

9. Karaca Kurtulmuş S, Şahin Gülec E, Gür EB. Comparison of the pregnancy characteristics and outcomes between Syrian immigrants and local Turkish women: large cohort multicenter study. Journal of *Tepecik Research and Training Hospital* 2021;31:181-6. doi:10.5222/terh.2021.48658

10. TUİK, Doğum istatistikleri [TUIK Website]. 2021. https://data.tuik.gov.tr/Bulten/Index?p=Birth-Statistics-2021-45547#:~:text=T%C3%9C%C4%B0K%20Kurumsal&text=Canl%C4%B1%20do%C4%9Fan%20bebek%20say%C4%B1s%C4%B1%202021,%2C'si%20k%C4%B1z%20oldu.&text=Toplam%20do%C4%9Furganl%C4%B1k%20h%C4%B1z%C4%B1%2C%20bir%20kad%C4%B1n%C4%B1n,ortalama%20%C3%A7ocuk%20say%C4%B1s%C4%B1n%C4%B1%20ifade%20etmektedir. Accessed July 7, 2022.

11. Gümüş G, Kaya A, Yılmaz SS, Özdemir S, Başıbüyük M, Margirit Coşkun A. Suriyeli Mülteci Kadınların Üreme Sağlığı Sorunları. *Kadın Sağlığı Hemşireliği Elektronik Dergisi*, 2017;3:1-17. https://hdl.handle.net/20.500.12645/7716

12. Baş D, Arkant C, Muqat A et al. Edirnedeki Suriyeli sığınmacıların durumu. *18. Ulusal Halk Sağlığı Kongresi Kongre Kitabı*. 2015; 1:214-5.

13. Çift, T, Temur M, Korkmazer E, Saygı İA, Ballı Ö, Üstünyurt E. Comparison of Pregnancy Outcome and Serology Results in Turkish and Syrian Refugees Women. *Turk J Obstet Gynecol* 2019;16(2):95-99. doi: 10.1002/ijgo.13117.

14. Satman I, Omer B, Tutuncu Y, et al. TURDEP-II Study Group. Twelve-year trends in the prevalence and risk factors of diabetes and prediabetes in Turkish adults. *Eur J Epidemiol*. 2013; 28:169-80. doi: 10.1007/s10654-013-9771-5.

15. Başar, F. ve Çiçek, S. (2018). Annelerin yeterli prenatal bakım alma durumları ve etkileyen faktörler. *OPUS–Uluslararası Toplum Araştırmaları Dergisi*. 2018;9:2574-2596. doi: 10.26466/opus.499987