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Admissions of Refugee and Turkish Children to Emergency Departments

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ABSTRACT

Due to increasing population of refugees, rapid alterations have been experienced in the racial and ethnic composition of our country. Such alterations have increased health services to those from different races/ethnic origins, especially in emergency departments (ED). In this study, we aimed to compare health services administered to refugees and Turkish citizens and give recommendations regarding health policies.

Data were obtained from the hospital database, and one-year admissions to the pediatric ED were retrospectively analyzed. Such criteria as race, sex, and age of refugees and Turkish citizens were investigated through waiting time before the examination, length of stay in ED, findings of computed tomography (CT), magnetic resonance imaging (MRI) and ultrasonography (USG), and way of quitting ED.

Refugees were observed to take boys more to ED, apply to ED more during the daytime, be admitted more often with green zone and polyclinic diagnoses, and undergo imaging techniques at a lower rate ($p<0.001$). However, refugees were also seen to stay in ED for a shorter time and have lower waiting times ($p<0.001$).

Refugees were detected to benefit ED as visits to outpatient clinics, take younger children and boys more, stay in ED shorter, and undergo imaging techniques less due to such challenges as health insurance and language barriers and inability to access to medical call centers. Although statistically significant differences are considered to be mostly due to the use of ED, more studies are needed to elucidate ethnic/racial differences and implicit biases.

Keywords: Children, pediatric emergency, racial difference, refugee

Introduction

After the Syrian crisis took place in 2011, a large number of refugees migrated to the countries neighboring Syria due to the uprising starting with massive anti-government opposition demonstrations (1). In Turkey, which is the country receiving the most refugees with 3.2 million immigrants, the racial and ethnic structure has changed rapidly, especially among the child population (2). The alteration in racial/ethnic structure is one of the most important causes of inequality in benefiting and accessing medical services and healthcare opportunities all over the world. Under the report released by the American Academy of Pediatrics (AAP) in 2010, it was stated that racial/ethnic inequalities in accessing medical services and healthcare opportunities among US children were "wide, common, and persistent" (3,4). Minority populations such as refugees living in our country may be exposed to poor health outcomes due to multifactorial reasons. One of the reasons refugees receive poor healthcare after the alteration in the racial/ethnic structure of a country is the implicit bias witnessed in society, especially among healthcare providers (5,6). However, the number of studies investigating implicit bias in healthcare providers is limited and insufficient (5).

In addition, in most of the studies investigating refugees' access to medical services and healthcare facilities, children are not analyzed separately from the adult population, and studies evaluating health inequalities in children lag behind those performed only with adults (4,6). In studies carried out in our country, the data obtained from the studies investigating racial and ethnic groups, and inequalities of medical services and healthcare are not sufficient. In the present study, therefore, it was aimed to investigate whether there are racial/ethnic inequalities in the treatment of refugee and Turkish pediatric patients admitted to the pediatric ED of our hospital. We hypothesized that the emergency visits of refugee children were more frequent than Turkish children.

Materials and Methods

Study design: Designed retrospectively, this observational study was conducted in the pediatric ED of a tertiary university hospital (Aksaray

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University Training and Research Hospital) admitting an average of 15000 patients per month.

Study Data: The data of pediatric patients between 0-18 years of age admitted to the pediatric ED between January 1st and December 31st, 2021 were retrospectively scanned and accumulated from patients' files in the hospital database.

The patients presenting with the pediatric ED and meeting the study criteria were divided into two groups: Turkish citizens and refugees. Such features as sex, age, zones in triage, reasons for admission, waiting time before the examination, length of stay in ED, undergoing any medical imaging technique, and type of discharge from ED were detected and recorded in both groups. Patients admitted to ED due to traumas, those applying to ED again within 24 hours, those applying with 112 ambulance and those with incomplete data were excluded from the study.

Ethics: Approval was obtained from the local Clinical Research Ethics Committee of Aksaray University with the 48-SBKAEK number before the study.

Staticysal Analyses: The IBM SPSS Statistics for Windows, Version 20.0. program was used for the statistical analysis (7). Descriptive statistical values (mean, standard deviation, frequency and percentage) were used for the evaluation of the study data. The normality of the distribution of the numerical values was tested with a Shapiro-Wilk test and graphic evaluations. The Student's t-test and Mann-Whitney U test were used for the comparison of quantitative variables, respectively with and without normal distribution, between the two groups; and a Pearson's Chi-square test and Fisher's Exact test were used for the comparison of qualitative variables. The level of statistical significance was accepted as $p<0.05$.

All variables with a p-value <0.10 in the univariate analyses were considered eligible for inclusion in the multiple analysis and were tested for collinearity. Multiple logistic regression analysis with a backward LR approach were performed. Variables that remained significant ($p < 0.05$) in the model were considered as effective independent factors to determine being Refugee or Turkish citizen. Hosmer-Lemeshow goodness of fit statistics was used to assess the model fit. Odds ratios (ORs) and 95% confidence intervals (CIs) were calculated for each predictor.

Results

A total of 58668 pediatric patients (7778 refugees and 50890 Turkish citizens) were admitted to ED in our hospital in 2021. The mean age was found to be 63.3±63.8 months, and 50.45% were detected to be males among Turkish citizens. Even so, the mean age of refugees was 40.0±38.9 months, and 55.54% were composed of males. The parents of refugees were observed to take younger children and the male gender at a higher rate to ED (p=<0.001). The findings are presented in Table 1.

It was determined that refugees were admitted to ED at higher rates, compared to Turkish citizens (2±2.33, 3±2.73 and $p<0.001$, respectively), and the admissions by refugees were higher during office hours ($p<0.001$). Although the admissions by refugees were higher in the green zone of triage compared to Turkish citizens, the average waiting times of refugees in ED were determined to be shorter ($p<0.001$). Of all Turkish citizens admitted to ED, 8.09% were detected to undergo at least one of the screening methods, computed tomography (CT), magnetic resonance imaging (MRI), or ultrasonography (USG), and the rate was statistically higher than that of refugees ($p<0.001$). Most of the patients were discharged after the treatment with good health, and the rate of hospitalizations in the inpatient and intensive care units (ICU) was higher among Turkish citizens than that of refugees. The findings are also presented in Table 2.

The statistically significant parameters were included in the regression model. The admissions to ED were found to be 1.227 times more common among male refugee children. Additionally, the admissions to ED by refugees were found 1.781 times higher during office hours. However, the rate of undergoing one of the screening methods by Turkish citizens was 1.574 times higher than that of refugees, and the findings are revealed in Table 3.

Discussion

In the present study, in which admissions of pediatric Turkish and refugee populations to ED in our region were examined, we detected that there were significant differences between access to medical services and healthcare provided for both groups in ED. Refugees were found to be admitted to pediatric ED at a younger age and at a higher rate, compared to pediatric Turkish citizens. Even though admissions of refugees were higher in the green zone in ED, their waiting times in ED were determined to be shorter, compared to Turkish citizens. Even so, we detected that Turkish citizens underwent imaging techniques and were hospitalized in the inpatient wards and pediatric ICU at a higher rate than refugees. In the study where Escobio et al. carried out and evaluated refugees living in the Balkans, among the refugees seeking medical assistance, 25% were reported to be

Table1: Epidemiological Characteristics of The Patients Admitted To The Emergency Department

		Turkish Citizens n (%)	Refugees n (%)	p
Sex	Males	25674 (50.45)	4320 (55.54)	<0.001
	Females	25216 (49.55)	3458 (44.46)	
Age (months)		63.3±63.8	40.0±38.9	<0.001

Table 2: Characteristics of the Patients Admitted To The Pediatric Emergency Department

		Turkish Citizens n (%)	Refugees n (%)	p
Number of Hospital Admissions*		2±2.33	3±2.73	<0.001
Average Waiting Time		17±3.57	16±3.57	<0.001
	08:00-16:00	19887 (39.08)	4147 (53.32)	
Arrival Time to	16:00-24:00	25151 (49.42)	2939 (37.79)	<0.001
ED	24:00-08:00	5852 (11.5)	692 (8.9)	
	Yellow Zone	32670 (64.2)	3811 (49)	
Triage	Green Zone	17863 (35.1)	3938 (50.63)	<0.001
	Red Zone	357 (0.7)	29 (0.37)	
Screening	Yes	4118 (8.09)	412 (5.3)	
(MRI-CT-USG)	No	46772 (91.91)	7366(94.7)	<0.001
Average Length of Stay in ED		31±5.27	30±5.24	<0.001
	Discharge from Pediatric ED	48883 (96.06)	7574 (97.37)	
Quitting ED	Inpatient Hospitalization	1491 (2.93)	146 (1.88)	<0.001
	Referral to Other Facilities	31 (0.06)	8 (0.1)	
	Admission to ICU	483 (0.95)	49 (0.63)	
	Exitus	2 (0)	1 (0.01)	

CT: Computed tomography, ED: Emergency department, ICU: Intensive care unit, MRI: Magnetic resonance imaging, USG: Ultrasonography,* individual person

pediatric population under five years of age (8). Baris et al. conducted with 7299 refugees admitted to ED, the average age was stated to be 33 months, and 55% were composed of male patients. Yurtseven et al. also found that of refugees admitted to pediatric ED, 71% were male, and the average age level was 40 months (9,10). As compatible with the findings of previous studies, we also detected in our study that the mean age level of refugees admitted to pediatric ED was 40.0±38.9 months, and 55.54 percent were composed of males. In addition, admissions to pediatric ED were 1.227 times more frequent among refugee boys than those in girls.

In several studies, refugees were found to prefer EDs more to outpatient clinics upon having health problems due to many challenges, such as language barrier, financial problems, and lack of health insurance (11,12). In an epidemiological study performed in a provincial ED (Baltimore, Maryland), black children were found to be more likely to be taken to the emergency for non-urgent needs of healthcare, compared to the Caucasian pediatric population (13). In various previous studies carried out in Canada, Australia, and Europe, refugee children were reported to have higher rates of emergency visits, compared to the general population (14-18). Similarly, it was also found in our study that refugee children were more likely to be admitted to ED. We consider that refugees apply mostly to ED due to experiencing such challenges as language barriers, communication problems, and failure in getting outpatient appointments from medical call centers.

Additionally, we determined that 97% of refugee patients were discharged from ED following the admissions to the emergency, and the rate was

Table 3: Results of Univariate Logistic Regression Analysis

	B±SE	p	Exp (B)	95% CI for Exp (B)	
				Lower	Upper
Sex (males)	0.205±0.024	<0.001	1.227	1.170	1.287
Age (months)	-0.009±0.001	<0.001	0.992	0.991	0.992
Number of Hospital Admissions	0.065±0.004	<0.001	1.067	1.058	1.076
Admissions within Office Hours	0.577±0.024	<0.001	1.781	1.697	1.868
Average Waiting Time	-0.023±0.003	<0.001	0.978	0.971	0.984
Triage (Red Zone)	0.635±0.193	0.001	1.888	1.292	2.758
Screening (No)	0.454±0.053	0.001	1.574	1.418	1.747

B: Regression coefficient CI: Confidence interval, Exp (B): Exponentiation of B coefficient (Odds), SE: Standard error

consistent with that reported in previous studies (19). In many studies in the literature, refugee patients are seen to have higher rates of hospitalization inwards and ICUs due to delayed admissions (10,14-20). In our study, however, the rate of hospitalizations inwards and ICU was found to be lower in refugee children. We consider that the lower rate was due to the implicit bias against refugees among healthcare providers, and further studies are needed to elucidate the entity.

In the study by Hoot et al., however, unnecessary visits to EdDs were shown to lead to the deaths of patients, delays in treatments, and fiscal burdens on health budgets (21). Liu et al. claimed that the rate of inappropriate and unnecessary admissions to EDs was 54% (22). Even so, in the study by Gulacti et al., it was noted that the inappropriate use of EDs by Syrian refugee patients was very high, approximately 68% (23). Similar to the findings reported in the aforementioned studies, we also found that admissions of refugees in the green zone of triage were 50.63% and much higher than those of Turkish citizens; in addition, the number of admissions by refugees to ED during office hours was detected to be 1.781 times higher. Although we did not differentiate according to diagnostic criteria in our study, intensive care unit hospitalization rates were higher in the refugee group. We think that this result is due to the fact that the family was late in bringing the child to the hospital, they were less aware of the disease follow-up socioculturally, and they had more socioeconomic conditions and transportation problems.

In the study by Marin et al., undergoing any imaging method in pediatric ED was stated to increase each year (24). As well as the increased use of medical resources in ED, great differences have been seen between racial and minority groups in terms of the medical services administered in ED in recent years (9,25). In the study in which Zhang et al. examined 12-year pediatric visits to EDs in the USA, it was reported that blacks were significantly less likely to undergo any imaging technique than Caucasians (25). In our study, we found that the rate of undergoing any imaging method was significantly different (<0.001) between pediatric refugee and Turkish populations, and benefiting any imaging method was 1.574 times higher among Turkish citizens than that of refugees.

There were some limitations in our study. Firstly, the fact that our study was conducted in a single center was a deficiency in terms of sample homogeneity. Secondly, we could not differentiate the presentations of the patients according to their diagnoses. The reason for this situation is the entry of the preliminary diagnosis and the deficiencies in the entry of the main diagnoses in emergency room visits.

Since our study was retrospectively performed by scanning patients' files in the hospital database, merely existing records were evaluated. Because of the differences in practice, and because the hospital records in the database may have been processed differently by the staff, the heterogeneous data we obtained may allow biases to be ignored.

Our study is one of the rare analyses investigating the ED visits and modalities of pediatric refugees and Turkish citizens in our country in terms of multiple aspects. Providing medical services and healthcare to racially/ethnically differentiated societies is now of crucial importance due to the increasing number of refugees and migrations. Thus, such challenges as language barrier, education, health insurance, nutrition, and economic difficulties should be annihilated. Medical services and health modalities given to refugees should be shifted to provide better health outcomes from ED of tertiary health centers to primary preventative healthcare institutions. In addition, the evaluation of the role of healthcare

providers' racial/ethnic biases is invaluable in the management of healthcare. We consider that further studies are needed to define a public policy, particularly to identify long-term health outcomes, as well as other underlying causes of racial inequalities observed in pediatric EDs.

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