

Higher Rates of Hospitalizations among Pediatric Refugees than Local Population Attending the Emergency Department and Longer In-patient Stay

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ABSTRACT

Background: The global refugee crises have raised concerns among medical communities worldwide; nonetheless, access to healthcare has rarely been studied even though refugees are a medically high-risk group.

Objectives: To compare pediatric department admission rates from the pediatric emergency department (PED) of refugees and Israelis.

Methods: We compared data from refugee and Israeli children admitted to the pediatric department at Wolfson Medical Center in Israel between 2013–2017.

Results: A total of 104,244 patients (aged 0–18 years) came to the PED. Admission rate to the pediatric department for refugees was 695/2541 (27%) compared to 11,858/101,703 (11.7%) Israeli patients ($P < 0.001$). Hospital stay for patients 0–2-years of age was 3.22 ± 4.80 days for refugees vs. 2.78 ± 3.17 for Israelis ($P < 0.03$). Re-admission rate within 7 days was 1.3% for refugees and 2.6% for Israelis ($P < 0.05$). Dermatological diseases (e.g., impetigo and cellulitis) were more frequent in refugees (23.30% vs. 13.15%, $P < 0.01$); however, acute gastroenteritis and respiratory diagnoses were more common in Israelis (18.52% vs. 11.72%, $P < 0.05$ and 14.84% vs. 6.26%, $P < 0.01$, respectively). Neurological diseases (e.g., febrile convulsions) were also more frequent in Israelis (7.7% vs. 3%, $P < 0.05$). Very significantly, 23% of refugees had no healthcare coverage, while only 0.2% of the Israelis had none ($P < 0.001$).

Conclusions: We found significant morbidity in refugees compared to the local Israeli pediatric population, highlighting the need for different approaches for each population.

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With the largest refugee crisis in Europe since World War II, and the arrival of masses of displaced persons, including many children, healthcare systems have been facing new and diverse challenges. As refugee status changes over time, so does the level of accessibility to health services [1].

It is estimated that 52% of the world's 25.4 million refugees are children. In the United Kingdom alone, the total number of undocumented child migrants in 2017 was estimated to be over 120,000 [2].

Surprisingly, even though medical issues concerning this fragile population are discussed in many countries, the subject of access to healthcare for refugee and asylum seekers, as well as physical and mental outcomes, has rarely been studied. Previous research described higher physical and mental morbidity in refugee children [3–5]. Fazel and Stein [6] reported that the life experience of child refugees makes them more vulnerable to mental health problems than children in the host population.

Israel has experienced an influx of refugees and asylum seekers entering its borders, of which the overwhelming majority arrived from Eritrea and Sudan. By the end of 2016, the Israeli immigration authorities registered 40,274 refugees residing in Israel, including an estimated 5500 children [7]. Although formal recognition has proven difficult, all adults and children (regardless of country of birth) originating from African countries with known ongoing conflicts are eligible to participate in the Israeli social healthcare program similar to Israeli citizens. The health insurance payment in Israel is income dependent. The Israeli healthcare program offers coverage for both community and hospital medical needs, subsidizing hospital admissions and medicines for a significantly reduced fee for asylum seekers, like Israeli citizens with low income. Furthermore, there are specialized free clinics providing medical service for refugees and asylum seekers who do not partake in the Israeli healthcare program.

Our study was conducted at the Wolfson Medical Center, a hospital located in the city of Holon in central Israel. Most of the refugees and asylum seekers are treated in our hospital due to the geographic proximity to the southern part of Tel Aviv, where most of the African refugees in Israel reside.

The objective of our study was to compare different characteristics of the refugee and local populations including admission rate from the pediatric emergency department (PED), duration of hospital stay, re-admission rates, medical diagnosis, and healthcare coverage.

PATIENTS AND METHODS

Data from hospital medical charts concerning pediatric department (PD) admissions from the PED at the Wolfson Medical Center in Holon, Israel, between 1 January 2014 and 31 December 2017 were collected retrospectively. All refugee pediatric patients were assigned a temporary identification number at PED admission.

Approval by the hospital's Helsinki committee was obtained prior to initiation (approval number 0098-17-WOMC). There was no need for signed consent for this retrospective study. All data gathered remained anonymous.

The two groups compared were defined and divided into the following groups: Pediatric patients (< 18 years of age) who are children of refugees and asylum seekers from African countries and a control group of Israeli pediatric patients (< 18 years of age).

As only a few refugees (n=8) in the age range 5–18 years were admitted to the PD, we excluded these children from the statistical analysis. We excluded all Israeli children in the same age group (n=4278). There were 10.5 times more control children than refugee children in the group of 0–2 year olds, while in the 2–5 year age group there was a much higher (22-fold) number of control children than refugee children. Thus, the mean and median ages between the refugees and locals were significantly different. However, the age distribution between the refugees and locals in our separately 0–2 and 2–5 years old groups were comparable ($P = 0.66$, $P = 0.68$, respectively). Comparing both age groups together would have caused incorrect interpretation of the outcome results. We considered all pediatric patients originating from Eritrea and Sudan as refugees.

We collected information regarding age, sex, demographics, and medical information relevant to hospitalization. We also included admissions rates from the PED, primary diagnosis (ICD9), re-admissions, prolonged hospital stay, and healthcare provider.

Exclusion criteria included hospitalization periods exceeding 90 consecutive days, admissions via referrals from specialist clinics, children with known chronic conditions requiring recurrent admissions, and admissions to other pediatric units (pediatric intensive care, pediatric surgery, and pediatric cardiology).

OUTCOME MEASURES

The primary outcome of the study was the difference in PD admission rate of refugees and that of local Israeli children. Secondary outcomes were differences in duration of hospital stay, number of re-admission rates, medical diagnoses, and healthcare coverage.

STATISTICAL ANALYSIS

Statistical analyses were performed using Statistical Package for the Social Sciences software version 11 (SPSS Inc., Chicago, IL, USA). Distributions of continuous variables were assessed for normality using the Kolmogorov–Smirnov test (cut off at $P = 0.01$). Continuous variables with approximately normal distribution were reported as mean \pm standard deviation. Continuous variables were compared by using two-tailed independent sample *t*-tests. When variables were highly skewed, comparisons were made using the Mann–Whitney non-parametric U-test. Categorical variables were compared by using the chi-square test or by Fisher's exact test when appropriate.

RESULTS

During the study period, a total of 104,244 visits (patient age 0–18 years) to the PED were recorded, including 2541 refugees (2.4%) and 101,703 Israelis (97.6%). Of these, a total of 12,512 patients were admitted to the PD: 695/2541 refugees (27%) compared to 11,858/101,703 Israelis (11.7%) ($P < 0.001$). In the 0–5 year age group, 687 refugees and 7580 Israelis were admitted to the PD and were eligible for further evaluation. Admission rates to the PD for ages 0–5 years were 27% in the refugee group as compared to 7.4% in the control group. ($P < 0.001$).

The average length of a single hospital stay in the 0–2 year age group was 3.22 ± 4.80 days in the refugee group vs. $2.78 (\pm 3.17)$ days in the Israeli group ($P < 0.003$). In contrast, in the 2–5 year age group, statistical analysis showed a trend without significance 2.55 ± 2.91 and 2.17 ± 2.07 for the refugee and Israeli groups respectively ($P = 0.08$).

Re-admission rates within 7 days of discharge for the 0–2 year old age group were 1.3% for the refugees compared to 2.6% for the Israelis ($P < 0.05$). No significant difference was found when considering the 2–5 year age group.

Table 1. Baseline characteristics between refugee children and local population (0–5 years)

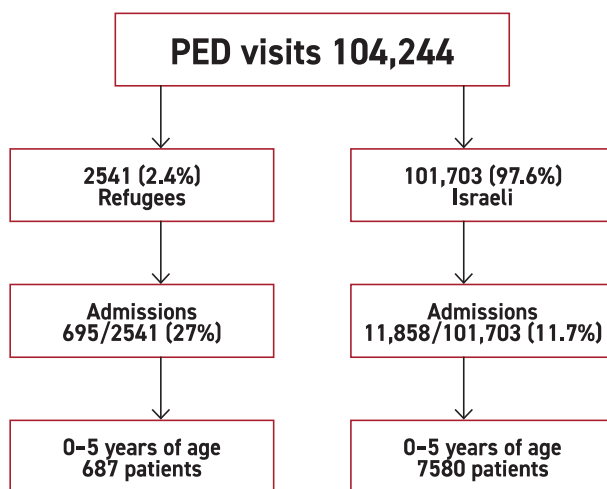
Category	Refugees (n=687)	Israeli citizens (n=7580)	P-value
Age			
0–2 years old	582 (84.7%)	5557 (73.3%)	< 0.001
2–5 years old	105 (15.2%)	2023 (26.7%)	< 0.001
Sex			
0–2 years old			
Male	334 (57.3%)	3039 (54.7%)	0.4
Female	248 (42.6%)	2518 (45.3%)	
2–5 years old			
Male	51 (48.6%)	1088 (53.7%)	0.8
Female	54 (51.4%)	935 (46.2%)	

Table 2. Comparison of data between refugee children and local population (0–5 years).

Category	Refugees (n=687)	Israeli citizens (n=7580)	P-value
Length of hospital stay (in days)			
0–2 years old	3.22 ± 4.8	2.78 ± 3.17	< 0.03
2–5 years old	2.55 ± 2.91	2.17 ± 2.07	0.08
Re-admissions within 7 days			
0–2 years old	7.5 (1.3%)	144 (2.6%)	< 0.05
2–5 years old	2 (1.9%)	111 (2%)	NS
Common diagnosis			
Dermatology (cellulitis)	160 (23.3%)	238 (3.1%)	< 0.01
Gastroenterology (acute gastroenteritis)	77 (11.7%)	1403 (18.5%)	< 0.05
Respiratory (pneumonia and wheezing)	43 (6.2%)	1124 (14.8%)	< 0.01
Neurology (febrile seizures)	21 (3%)	584 (7.7%)	< 0.05
Healthcare coverage	528 (77%)	7564 (99.8%)	< 0.001

Figure 1. PED visits of refugees and Israeli children

PED = pediatric emergency department



Dermatological diseases (mainly impetigo and cellulitis) were more frequently diagnosed in refugees compared to Israeli children (23.30% vs. 13.15%, $P < 0.01$); however, acute gastroenteritis and respiratory diagnoses (mainly pneumonia and wheezing) were more common in Israeli children than the refugees (18.52% vs. 11.72%, $P < 0.05$ and 14.84% vs. 6.26%, $P < 0.01$, respectively). Neurological diseases (mainly febrile convulsions) were also more frequently diagnosed in Israeli patients than in refugees (7.7% vs. 3%, $P < 0.05$).

Very significantly, 23% of refugees in the study group had no healthcare coverage, while only 0.2% of the Israeli patients had no medical coverage ($P < 0.001$)

DISCUSSION

Our retrospective study identified many significant differences between the pediatric refugee and the local Israeli population with regard to admission rates, length of stay, readmissions, and healthcare coverage. These differences highlight the need to tailor a specific approach to the unique and fragile refugee population.

Israel is a committed member of the international treaty for the status of refugees based on the convention relating to the status of refugees of 1951, which states that people who are subject to persecution based on race, religion, citizenship, or political views in their home countries are able to seek refuge in other countries [7,8].

The United Nations High Commissioner for Refugees guarantees that in addition to providing shelter, hosting countries must also guarantee basic human rights, including the ability to access basic health services. This guarantee is not dependent on an official recognition of refugee status by the state, to promise basic rights while refugee status is processed.

Refugees are generally considered to be a medically high-risk group. In many cases, they were deprived of basic health conditions before their arrival at the host countries, possibly due to torture, substandard sanitarian conditions, limited access to regular health services, or low socioeconomic status [8].

Refugees and asylum seekers differ from other immigrant populations in their vulnerability and special needs. This distinction is particularly relevant for refugees who may present with human immunodeficiency virus, tuberculosis, hepatitis, and mental health issues (such as post-traumatic stress disorder and depression) [8,9]. While most refugees flee from areas with limited health services, reaching a host country does not necessarily immediately improve their access to health services. Factors contributing to this problem include language barriers, cultural gaps, lack of information, and fear of arrest or deportation [9,10]. According to Crepeau and colleagues [11] healthcare personnel reported that refugees often sought medical attention for their children later than would be expected, occasionally arriving in dire conditions that could have been avoidable with early intervention.

The higher rates of hospitalization found in our refugee group support this claim, although an alternative explanation could be a lower threshold to admit refugees due to lack of known medical history as well as language and communication difficulties.

In addition, poor living conditions and low economic status can have a direct impact on personal health. These factors result in higher rates of malnutrition and an inability to purchase medicine [12]. Families may live in sub-sanitary living conditions in overly crowded homes, and parents are often forced to work many hours, leaving their children in different facilities for extended periods of

time. Overcrowding and poor sanitation living conditions might also explain the high percentage of children of refugees admitted with integumentary pathologies, as seen in our situation [8].

The higher morbidity of the refugees for our study may be attributed to a range of variables including language barriers, which cause a delay in discharge due to the reluctance of medical staff to discharge children to parents who do not fully understand further instructions [9,13]. Another reason for delay may be that medical personal underestimate the capabilities of the parents to manage the care of their children in a community that lacks the finances for good ambulatory medical services.

Regarding readmissions, it is tempting to postulate that the observed difference is a result of the more common use and easier access to medical services by the local population than are enjoyed by the refugee group.

In a study conducted in the United States, immigrants from the Far East were found to be less likely to use healthcare services. The study reported that one of the reasons for this phenomenon resulted from cultural differences with respect to the perception of pain and suffering [14]. It is possible that this factor also played a role in our refugee population. Nevertheless, we believe that the low rate of healthcare coverage (77%) in the refugee group, especially compared to the excellent coverage among the local population (almost 100% coverage), was significant. This lack of healthcare coverage is disadvantageous to the refugee group, adding to the general financial difficulties of a refugee state. The lack of coverage and the economic burden of hospitalization further impacts the decision not to seek medical help.

The Israeli National Health Insurance Law of 1994 mandates that every Israeli citizen must join one of the four national health insurance organizations and register to receive health coverage.

Although the Israeli government has an agreement with one of the four health insurance organizations to provide healthcare insurance to refugees and their children for a reduced monthly payment, only 77% of the children in the study group had medical coverage; therefore, there was no need to compare different healthcare providers. This finding may be due to legal issues preventing participation in the program, to fear of arrest or deportation, or to lack of financial capabilities. Choosing not to partake in a health insurance program may also be attributed to the existence of alternative solutions that do not necessitate medical coverage. Such options include free clinics for refugees, which are supported by the Israeli Medical Association, Ministry of Health, and other various volunteer medical organizations [10]. Absence of insurance coverage can potentially delay the seeking of medical attention, thus resulting in a more severe medical presentation that entails a longer hospital stay [10].

LIMITATIONS

The retrospective, single-center study limited follow-up regarding re-admission in other facilities. However, being the closest referral hospital for most of refugees living in central Israel, we think that our data are still valid compared to the local population.

CONCLUSIONS

We found significantly higher admission rates and longer overall hospital stays in children of refugees compared to the local Israeli pediatric population. There were also significant differences in the type of diagnoses between the two populations. Furthermore, we noted a disturbing low rate of insurance coverage among refugees. With the ever-growing global refugee crisis, generating more and more displaced children, these findings should prompt serious and urgent concern. After analyzing different refugee population and host countries, tailored or specific interventions and public health policies can be implemented healthcare systems, both in the community and in the hospital setting, to assist this vulnerable population.

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