

Dermatological Diseases of Syrian Child Asylum Seekers: A Five-year Retrospective Study

Suriyeli Çocuk Sığınmacıların Dermatolojik Hastalıkları: Beş Yıllık Retrospektif Bir Çalışma

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ABSTRACT Objective: It is intended to determine the dermatological diseases and demographic features of Syrian child asylum seekers who applied to our outpatient clinic. **Material and Methods:** In this study, the data of the Syrian pediatric patients between the ages of 0-17 years who were examined in the dermatology outpatient clinic between 2014 and 2019 were analyzed retrospectively, and the data obtained were detailed according to age groups and years. **Results:** Total of 450 patients were included in the study. There were 270 (60%) female and 180 (40%) male patients. The most common disease groups among all cases were infections and infestations (41.4%), dermatitis and eczema (26.1%) and disorders of skin appendages (22.3%), respectively. The most common diseases were scabies (13.1%), acne vulgaris (11%) and contact dermatitis (8.5%). When the diagnoses were examined by age groups, it was found that acne vulgaris was seen most frequently in the 12-17 age group, and scabies in other age groups. Evaluation based on years showed that the prevalence of infectious dermatological disease significantly decreased ($p=0.002$). **Conclusion:** The findings indicate that Syrian children are under risk in terms of numerous skin diseases, primarily the infectious dermatological diseases. However, it was determined that the infectious dermatological disease risk significantly decreased within the five-year period when they lived in our country.

Keywords: Child; asylum seekers; dermatology; demography; scabies

ÖZET Amaç: Polikliniğimize başvuran Suriyeli çocuk sığınmacıların dermatolojik hastalıkları ve demografik özelliklerinin belirlenmesi amaçlanmıştır. **Gereç ve Yöntemler:** Bu çalışmada 2014-2019 yılları arasında, dermatoloji polikliniğinde muayenesi yapılmış, 0-17 yaş aralığındaki, Suriye uyruklu çocuk hastaların verileri retrospektif olarak incelenmiş, elde edilen veriler yaş grupları ve yıllara göre detaylandırılmıştır. **Bulgular:** Çalışmaya toplam 450 hasta dahil edildi. Olguların 270 (%60)'i kız, 180 (%40)'i erkek idi. Tüm olgular arasında en sık görülen hastalık grupları sırasıyla enfeksiyon ve enfestasyonlar (%41,4), dermatit ve egzema (%26,1) ve deri eklerinin bozuklukları (%22,3) idi. En sık görülen hastalıklar ise skabiyes (%13,1), akne vulgaris (%11) ve kontak dermatit (%8,5) idi. Tanılar yaş gruplarına göre incelendiğinde, 12-17 yaş grubunda en sık akne vulgaris, diğer yaş gruplarında ise skabiyes görüldü. Yıllara göre yapılan değerlendirmede bulaşıcı dermatolojik hastalık prevalansının anlamlı olarak azaldığı görüldü ($p=0,002$). **Sonuç:** Elde ettiğimiz sonuçlar Suriyeli çocukların, başta bulaşıcı dermatolojik hastalıklar olmak üzere pek çok deri hastalığı açısından tehdit altında olduğunu göstermektedir. Fakat ülkemizde yaşadıkları beş yıllık süre içerisinde bulaşıcı dermatolojik hastalık riskinin anlamlı olarak azaldığı görülmüştür.

Anahtar Kelimeler: Çocuk; sığınmacılar; dermatoloji; demografi; skabiyes

Following the outbreak of civil war in Syria in 2011, 3 million 523 thousand and 831 Syrians migrated to Turkey. The number of Syrians between the ages of 0-18 years who are under temporary protection is 1.680.614. The age group 0-18 years constitutes 46.61% of the population who immigrated to our country from Syria which has a very young pop-

ulation [Republic of Turkey Ministry of Interior Directorate General of Migration Management, Statistics: Up-to-date statistics; Temporary protection. (updated 2020 Apr 9). Available from: <https://www.goc.gov.tr/gecici-koruma5638>]. The number of Syrian babies who were born in Turkey as of 15 October 2018 is 302.470 [Afet ve Acil Durum Yönetimi

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Peer review under responsibility of Türkiye Klinikleri Journal of Dermatology.

Received: 22 Jul 2020

Received in revised form: 27 Nov 2020

Accepted: 15 Dec 2020

Available online: 24 Dec 2020

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Başkanlığı (AFAD), Afet raporu-Suriye: Barınma merkezlerinde son durum. (updated 2018 Oct 15). Available from: https://www.afad.gov.tr/kurumlar/afad.gov.tr/2374/files/15_10_2018_Suriye_GBM_Bilgi_Notu_1.pdf. Every child asylum seeker in Turkey has the same right to access to healthcare services as Turkish citizens.

There are very few studies in the literature regarding the dermatological diseases seen in Syrian child asylum seekers who had to migrate to other countries and their epidemiological effects. There are no notifications made on this matter in our country. As migration is one of the most important issues today, we believe that this study is very important. In order to be a guide in this area, the data of the Syrian child patients were analyzed retrospectively, and it is intended to determine the demographics of the patients and their dermatological diseases.

MATERIAL AND METHODS

The study was approved by the University of Health Sciences Hamidiye Non-invasive Research Ethics Committee (Meeting no: 2018/7, project decision no: 18/81, 30.11.2018). All these procedures were performed in accordance with the principles of the Declaration of Helsinki. The files of the Syrian pediatric patients who were examined at the Dermatology Outpatient Clinic of Darıca Farabi Research and Training Hospital between 1 January 2014 and 1 January 2019 were scanned retrospectively. Epidemiologic data (age, gender, nationality) and dermatological findings of the patients were determined from the automation system of the hospital. All the patients in the study were examined by the same dermatologist. Patients with missing information were excluded from the study. The examinations with the same diagnosis as the control examinations were considered as one, while the applications with different diagnosis in the same examination or in another examination were considered as additional diagnosis. The diagnoses were encoded based on International Disease Classification (ICD-10) and grouped under nine categories.

Patients were grouped according to sex and age group as follows: infants (0-2 years), preschoolers (3-

5 years), schoolers (6-11 years), and teenagers (12-17 years). The results were analyzed by gender, age groups and years.

STATISTICAL ANALYSIS

Statistical analyses were performed with SPSS 22 (SPSS Inc., Chicago, Illinois, USA) program. Descriptive statistics were presented by frequencies, percentages and mean \pm standard deviation values. The normal distribution of the variables was tested by Kolmogorov Smirnov. Comparisons between groups of independent samples were assessed with a Student t test. Categorical data were compared by Pearson's chi-square test. $P < 0.05$ was considered statistically significant.

RESULTS

Between 1 January 2014 and 1 January 2019, 450 Syrian children were examined in our department. The mean age of the cases were 8.46 ± 5.47 years. 270 (60%) of the patients were girls and 180 (40%) were boys. The mean ages were 9.04 ± 5.54 years and 7.57 ± 5.25 years, respectively. The difference between the age distribution by gender between these two groups was statistically significant ($p = 0.005$). The demographical features of the patients were determined based on their age groups and year of application (Table 1). Highest number of admissions to the hospital was from the 12-17 age group (33.1%) and in 2018 (35.1%).

There were a total of 520 diagnoses; 65 of them were second diagnosis and 5 were third diagnosis. The most common disease groups among all cases were infections and infestations (41.4%), dermatitis and eczema (26.1%) and disorders of skin appendages (22.3%), respectively (Table 2). The most common disease groups by gender in girls and boys were infections and infestations (40%, 43.5%, re-

TABLE 1: Gender distribution based on age groups.

Age	Patient		Female		Male	
	n	%	n	%	n	%
0-2	83	18.4	50	11.1	33	7.3
3-5	78	17.3	33	7.3	45	10
6-11	140	31.1	85	18.9	55	12.2
12-17	149	33.1	102	22.7	47	10.4

TABLE 2: Prevalence of dermatological diseases and disease groups based on gender.

Disease groups and diseases	All cases			
	ND	%	Female %	Male %
Infections and infestations	215	41.4	40	43.5
Parasitic diseases	100	19.2	20.3	17.5
Scabies	68	13.1	12.2	14.5
Insect bite	13	2.5	2.8	2
Pediculosis capitis	10	1.9	2.8	0.5
Leishmaniasis	9	1.7	2.5	0.5
Viral diseases	56	10.8	10.3	11.5
Viral warts	36	7	6.3	8
Varicella	6	1.2	0.9	1.5
Molluscum contagiosum	5	0.1	1.25	0.5
Varicella zoster	4	0.8	0.9	0.5
Herpes virus infections	3	0.6	0.3	1
Hand, foot and mouth disease	2	0.4	0.6	-
Bacterial diseases	31	6	5.6	6.5
Folliculitis and furunculosis	17	3.3	3.1	3.5
Impetigo	14	2.7	2.5	3
Mycoses	28	5.4	3.8	8
Tinea capitis	10	1.9	0.6	4
Pityriasis versicolor	7	1.3	1.6	1
Tinea corporis	5	0.1	0.9	1
Tinea pedis	3	0.6	-	1.5
Tinea cruris	2	0.4	0.3	0.5
Candidiasis	1	0.2	0.3	-
Dermatitis and eczema	136	26.1	26.9	25
Contact dermatitis	44	8.5	9.1	7.5
Generalized pruritus	40	7.7	7.5	8
Seborrhoeic dermatitis	37	7.1	8.4	5
Diaper dermatitis	7	1.3	1.25	1.5
Pityriasis alba	4	0.8	-	2
Intertrigo	3	0.6	0.6	0.5
Atopic dermatitis	1	0.2	-	0.5
Disorders of skin appendages	116	22.3	24.4	19
Acne vulgaris	57	11	12.2	9
Telogen effluvium	29	5.6	8.4	1
Alopecia areata	15	2.9	2.2	4
Keratosis pilaris	5	0.1	1.25	0.5
Miliaria rubra	4	0.8	-	2
Epidermal cyst	2	0.4	-	1
Androgenetic alopecia	1	0.2	-	0.5
Premature hair graying	1	0.2	-	0.5
Hirsutism	1	0.2	0.3	-
Hyperhidrosis	1	0.2	-	0.5
Other disorders of the skin and subcutaneous tissue	27	5.2	4.1	7
Xerosis cutis	10	1.9	1.6	2.5
Vitiligo	8	1.5	1.25	2
Pernio	3	0.6	-	1.5
Callus/Keloid	2	0.4	0.6	-
Sweet syndrome	1	0.2	0.3	-
Scar/ Striae	2	0.4	0.3	0.5
Aphthous stomatitis	1	0.2	-	0.5
Papulosquamous disorders	13	2.5	3.4	1
Psoriasis	10	1.9	2.8	0.5
Pityriasis rosea	3	0.6	0.6	0.5
Urticaria and erythema	5	1	0.3	2
Urticaria	5	0.1	0.3	2
Benign neoplasms of skin	5	1	0.6	1.5
Nevus	3	0.6	0.6	0.5
Other benign neoplasms	2	0.4	-	1
Radiation-related disorders of the skin and subcutaneous tissue	2	0.4	0.3	0.5
Erythema ab igne	1	0.2	-	0.5
Photocontact dermatitis	1	0.2	0.3	-
Genodermatoses	1	0.2	-	0.5
Ichthyosis vulgaris	1	0.2	-	0.5
Bullous disorders	-	-	-	-

ND: Number of diagnoses.

spectively), dermatitis and eczema (26.9%, 25%, respectively) and disorders of skin appendages (24.4%, 19%, respectively). There was no statistically significant difference in the frequency of the three most common disease groups in female and male patients ($p=0.377$). The most common diseases among all cases were scabies (13.1%), acne vulgaris (11%) and contact dermatitis (8.5%) (Table 2). The most common diseases in girls were scabies (12.2%), acne vulgaris (12.2%) and contact dermatitis (9.1%); and in boys, scabies (14.5%), acne vulgaris (9%) and viral warts (8%). The diagnoses were analyzed based on age groups (Table 3). It was determined that scabies was the most frequent in age groups of zero-2 years, 3-5 years and 6-11 years, and acne vulgaris was the most frequent in the age group 12-17 years.

When the data were analyzed by years, the most frequent disease in 2014, 2015 and 2016 was scabies, and it was acne vulgaris in 2017 and 2018 (Table 4). It was detected that the prevalence of infectious dermatological disease gradually decreased (61.5%, 62.7%, 41%, 38%, 36% by years, respectively) and that the non-infectious dermatological diseases gradually increased (38.5%, 37.3%, 59%, 62%, 64% by years, respectively) (Figure 1). The numeric change in both groups were statistically significant ($p=0.002$).

DISCUSSION

The sheltering conditions, diet opportunities, socio-economical status and physical environment are the most important determinants of health. Social breakups, substandard life and scarcity of resources affect the children at most.¹ The incidence, distribution and characteristics of dermatological diseases in children are different than the adults, and they vary among themselves depending on the age.² The incidence and distribution of the dermatological diseases present severe differences between countries with the effect of ethnic, socio-economic, genetic and environmental factors.³ In our study, dermatological diseases observed in Syrian children and the demographical features of the patients were analyzed retrospectively. Total of 450 patients were included in the study. Of the cases, 60% were girls and 40% of them were boys, and number of girls was significantly higher.

TABLE 3: Common diseases based on age groups.

Age	The most common diseases	%
0-2	Scabies	15.8
	Seborrhoeic dermatitis	13.7
	Contact dermatitis	13.7
3-5	Scabies	20.2
	Generalized pruritus	13.1
	Viral warts	10.7
6-11	Scabies	15.9
	Viral warts	10.8
	Contact dermatitis	7.6
12-17	Acne vulgaris	29.9
	Telogen effluvium	13.6
	Seborrhoeic dermatitis	7.6

TABLE 4: Common diseases based on years.

Years	IDD%	NDD%	The most common diseases	%
2014	61.5	38.5	Scabies	26.9
			Contact dermatitis	15.4
			Viral warts	11.5
2015	62.7	37.3	Scabies	33.3
			Seborrhoeic dermatitis	11.8
			Viral warts	5.9
2016	41	59	Acne vulgaris	11.4
			Generalized pruritus	11.4
			Scabies	8
2017	38	62	Acne vulgaris	13.6
			Generalized pruritus	8
			Telogen effluvium	6.8
2018	36	64	Acne vulgaris	10.9
			Seborrhoeic dermatitis	9.8
			Viral warts	8.8

IDD: Infectious dermatological diseases; NDD: Non-infectious dermatological diseases.

There is a severe infectious disease risk in children who live in houses with poor living conditions and without infrastructure.⁴ It was reported that, between 2009 and 2013, 19.1% of the children living in camps where more than 92% of its residents were Syrian and Iraqi asylum seekers had soft tissue infections such as streptococcal infection, scabies and lice.⁵ In our study, the most frequent disease group was infections and infestations (41.5%). In Switzerland, 20.2% of the infectious diseases detected in a tertiary health institution in pediatric refugees and asylum seekers were skin infections.⁶ The incidence rate of infectious diseases among children in the epidemiological studies conducted in our country within

the last ten years varies between 13.4% and 27.9%.^{2,7-11} The infectious dermatological disease rate that we detected is very high when compared to data in our country. This indicates that one of the health issues in immigrating societies is the infectious dermatological diseases. When the diagnoses were analyzed based on years, the incidence of infectious dermatological diseases was detected as 61.5% in 2014, and that it decreased to 36% in 2018. This is an indicator that the health conditions of the asylum seekers were affected positively as they came to a more developed region in terms of socio-economic aspects.

It was determined that the most frequent disease among infections and infestations was parasitic diseases, and that the most frequent disease in this group was scabies (13.1%). Besides, it was the most frequent disease in the age groups other than the adolescent group and in years 2014, 2015 and 2016. The incidence of scabies is seen to be below 1% in the studies conducted in our country after 2000.^{12,13} The studies conducted on displaced population indicate that scabies is one of the most frequent diseases.¹⁴ In a group of refugees in Sierra Leone, 86% of the children between the ages of five and nine suffered from scabies.¹⁵ Population affected by the war in Syria and people living in camps established in neighboring countries are under risk for scabies.¹⁶ It was reported that 7 thousand and 600 scabies cases were recorded in Syria between 2012-2015, and that 50% of the population in Aleppo were affected by the scabies epidemic.¹⁷ Rapid spread of scabies has been described in Lebanon with regards to migrant populations and asylum seekers, some of which include the time frame of the current Syrian crisis.¹⁸ In a study conducted in Germany, scabies were detected in 16 of 52 patients, 40% of whom were Syrian asylum seekers.¹⁹ The data that we obtained present that there is a high scabies prevalence in Syrian child asylum seekers. The necessity to immediately and effectively intervene the cases to prevent possible epidemic attacks has formed.

Cutaneous leishmaniasis (CL) was determined to be the second frequent parasitic disease. CL is very common in Syria. By 2013, the number of the cases was reported to be 44 000.²⁰ In Turkey, 8640 Syrian asylum seekers were diagnosed with and treated for

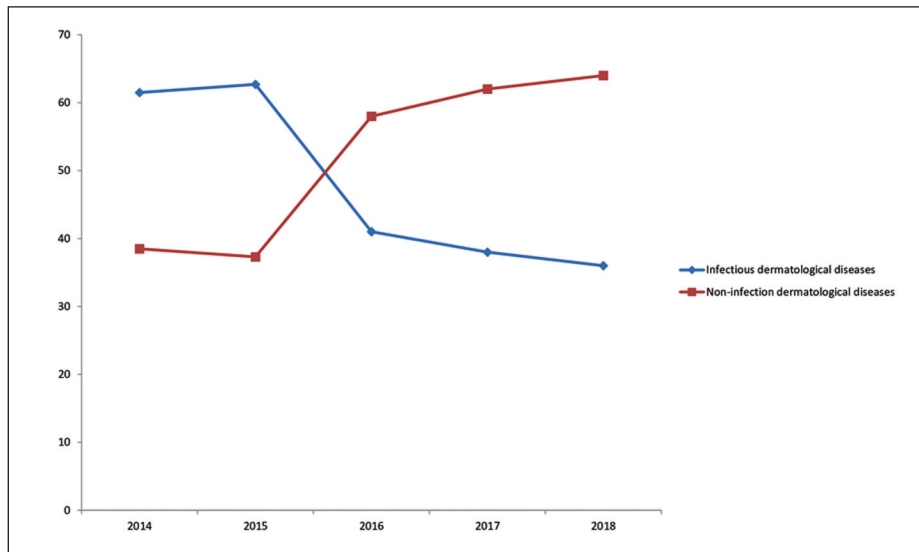


FIGURE 1: Course of infectious and non-infectious dermatological diseases throughout the years.

CL between 2012-2017.²¹ In our study, there were 9 (1.7%) cases diagnosed with CL and 8 of the cases were girls. In the literature, we can only determine a single article from Turkey regarding the dermatological problems in Syrian refugees. In this retrospective study of İnci et al. involving 326 cases, the most frequently detected disease was reported to be CL (19%) and the majority of the cases were under the age of 20 years.³ Contrary to this, the reason for us to detect CL less might be because the asylum seekers were treated in the camps or because they came from non-endemic regions.

Among viral diseases (10.8%), warts were the most common (7%). The incidence of bacterial diseases was 6%. Compared to other infectious diseases, superficial fungal diseases (5.4%) were less and tinea capitis was the most common (1.9%) in this group. In a recent study conducted in Turkey in a relatively rural area, it was detected that wart (10.0%) was the most frequent disease among viral diseases (14.8%); impetigo (1.5%) among bacterial diseases (4.3%); and pityriasis versicolor among fungal diseases (4.3%).¹¹ The incidence rate of tinea capitis, which is one of the common infections of scalp in children, in Turkey is between 0.1%-0.8%.²² It is found that the incidence rate of non-parasitic disease infectious diseases is similar to the studies conducted in our country.

In epidemiological studies conducted on children in our country, the most frequent dermatological diseases group is mainly eczema.^{2,7-9,23} Seçkin et al. determined this ratio as 27.0%, and Tekin et al. determined as 25.9%.^{9,23} They reported that atopic dermatitis was the most frequent disease in the sub-group (10.5%, 13.0%, respectively).^{9,23} The incidence rate of dermatitis and eczema (23.9%) was close to the studies reported from our country. However, the incidence rate of atopic dermatitis (0.3%) was very low similar to the data of İnci et al.³ The most frequently detected disease in this group was contact dermatitis (8.5%). Recently, an important increase was observed in the atopic dermatitis prevalence in developed countries. On the contrary, it continues to be rare in the pediatric population in the developing countries.²⁴

In our study, acne vulgaris was the most frequent disease in the age group of 12-17 years (29.9%), primarily in girls. Besides, it was the most detected disease in 2017 and 2018. In two different studies conducted in our country, acne vulgaris was reported as the most frequently observed disease in the adolescent group (25.2% and 30.6%, respectively).^{9,23} The incidence rate of acne vulgaris in adolescent group matches the data in our country.

The most important restrictions of our study are its retrospective and single-centered design, and its

relatively few number of cases. Besides, the data is limited to those recorded in the automation system. The unknown dermatological problems regarded unimportant by the cases and insufficient disease severity data and background information prevent us from reaching more detailed epidemiological data.

CONCLUSIONS

The data that we obtained indicate that the child asylum refugees who had to come to Turkey were exposed to many skin diseases, particularly the parasitic dermatological diseases. Although the incidence of infectious dermatological diseases gradually decreased within the term they lived in our country, they are still under risk. Our study is the first study conducted on Syrian child asylum seekers in our country in terms of dermatological diseases, and it supports the better understanding of the health status and disease burden, and consequently the health needs. In addition, the following suggestions should be taken into account:

- It is very important to conduct an effective surveillance regarding the parasitic dermatological diseases observed in Syrian child asylum seekers in order to protect this defenseless population and the hosting communities.

- Increased usability of hygiene products and emollients may lessen the burden of skin diseases.

- The awareness should be increased through social support programs run in cooperation with Non-governmental Organizations.

- Strengthening the protective healthcare services and resolving communication problems would have positive contributions in the lives of child asylum seekers.

- The international society should be encouraged to fulfill its commitments in order to improve the living conditions and to develop the healthcare services of displaced Syrians.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

This study is entirely author's own work and no other author contribution.

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