North Clin Istanb 2021;8(4):340–344
doi: 10.14744/nci.2020.90836

Original Article Dermatology

Assessment of children and adolescent presenting to the dermatology outpatient clinic in Turkey during the coronavirus disease-2019 pandemic

Sevil Savas Erdogan, Tugba Falay Gur, Bilal Dogan

Department of Dermatology, University of Health Sciences, Sultan Abdulhamid Han Training and Research Hospital, Istanbul, Turkey

ABSTRACT

OBJECTIVE: The coronavirus disease 2019 (COVID-19) was declared a pandemic by the World Health Organization on March 11, 2020. During the partial curfews implemented in the pandemic period, the pediatric patients presenting to the dermatology clinic of our hospital were examined taking the necessary precautions. We aimed to identify children and adolescent cases requiring dermatology services and their urgency when the number of COVID-19 cases was rapidly increasing and partial curfews were being imposed in Turkey.

METHODS: The study was conducted with pediatric patients that presented to our hospital dermatology outpatient clinic, a tertiary health care institution between March 11, 2020, and May 29, 2020, and their differences according to age groups and presentation period were evaluated.

RESULTS: The most common reason for a dermatology clinic visit was acneiform diseases (n=103, 33.3%). According to age groups, the most common diagnosis was eczema diseases in both the 0–2 and 3–6 years groups (n=10 [55.6%] and n=11 [47.8%]), respectively), infectious diseases in the 7–12 years group (n=19, 31.10%), and acneiform diseases in the 13–18 years group (n=100, 48.3%). While 144 patients visited the clinic within the first 15 days after the declaration of pandemic, the number of patients presenting in the following month decreased by more than 80% (n=23 for the second 15-day period and n=14 for the third 15-day period). There was a moderate increase in the number of pediatric dermatology patients 45 days after the declaration of pandemic (n=57 for the fourth 15-day period and n=71 for the fifth 15-day period). A correlation was observed between the number of newly diagnosed COVID-19 cases in Turkey and the number of pediatric patients presenting to our outpatient clinic

CONCLUSION: Considering that non-urgent and follow-up pediatric patients continue to present to dermatology outpatient clinics during the pandemic process, it is necessary to encourage the implementation of patient care methods, such as telemedicine in hospitals as part of the health system.

Keywords: Adolescents; children; coronavirus disease-2019; dermatology.

Cite this article as: *Savas Erdogan S, Falay Gur T, Dogan B. Assessment of children and adolescent presenting to the dermatology outpatient clinic in Turkey during the coronavirus disease-2019 pandemic. North Clin Istanb 2021;8(4):340–344.*

In December 2019, a new infectious disease emerged in Wuhan, Hubei Province of China [1]. The disease, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), a new virus from the family of Coronaviridae [2, 3], has rapidly spread across the whole world. The World Health Organization termed this infection as coronavirus disease-2019 (COVID-19) on February 11, 2020, and declared it a pandemic on March 11, 2020. The rapid spread of the pandemic has led to the creation of global social isola-

Received: October 23, 2020 *Accepted:* December 14, 2020 *Online:* August 24, 2021

Correspondence: Sevil SAVAS ERDOGAN, MD. Saglik Bilimleri Universitesi, Sultan Abdulhamid Han Egitim ve Arastirma Hastanesi, Dermatoloji Anabilim Dali, Istanbul, Turkey.
Tel: +90 212 234 04 19 e-mail: doktorsevilsavas@gmail.com

tion measures to try to protect both the general population and patients. Primary prevention strategies, such as quarantine, social distancing, and hand hygiene, remain the main methods to prevent infection since there is not yet a vaccine or specific antiviral therapy. Although children appear to be less at risk than adults, those younger than 5 years and infants tend to experience the severe form of COVID-19 [4]. Dermatology practice is mainly based on outpatient care and the number of presentations to our outpatient clinic during the COVID-19 emergency significantly decreased. In Turkey, the first case of SARS-CoV-2 was confirmed on March 11, 2020, and curfews began to be implemented for people aged under 20 years and over 65 years as of March 21, 2020. At the same time, preventive measures, such as international travel ban, transition to distance education system, social distancing, and restriction on mass gathering and public transportation were introduced. In this study, we aimed to identify pediatric cases that required dermatology services and determine their urgency during the time of the COVID-19 pandemic when high-level restrictions were implemented.

Highlight key points

- Despite the curfew and serious warnings, non-emergency and follow-up pediatric patients continued to present to dermatology clinics under the risk of COVID-19 transmission.
- Compared to the pre-pandemic period, there was no change in the reasons of pediatric patients for presenting to the dermatology outpatient clinic during the pandemic process.
- Performing both virtual care and conventional patient care and adopting this approach as part of routine dermatology practice in future will reduce the spread of infectious diseases and minimize their life-threatening effects.

MATERIALS AND METHODS

In line with the recommendations of the Scientific Advisory Board affiliated to the Turkish Ministry of Health, patients were accepted to the outpatient clinic after taking their temperature readings using thermometer guns and examined in accordance with their dermatological complaints after questioning the presence of COVID-19 symptoms with appropriate personal protective equipment. After obtaining approval from the University of Health Sciences Hamidiye Scientific Researches Ethics Committee (date: July 03, 2020, no: 20/278) and the Turkish Ministry of Health (date: July 09, 2020, no: T22_28_21), the study was conducted with pediatric patients aged 18 and under that presented to the dermatology outpatient clinic of Sultan 2.Abdulhamid Han Training and Research Hospital, a tertiary health care institution that provides both pandemic hospital and outpatient care services, from March 11, 2020, when the first case was confirmed in Turkey, to May 29, 2020, when the normalization process started. The patients' age, gender, presentation time, whether they had presented to the clinic before March 11, 2020, urgency, primary diagnosis, presence of acute or chronic disease, presence of COVID-19 positivity, and accompanying additional chronic disease were recorded. A patient revisiting the dermatology outpatient within 10 days was considered as a follow-up examination and evaluated as one presentation. The patients were divided into four groups as infants (0–2-years-old), preschool children (3–6 years), schoolchildren (7–12 years), and adolescents (13–18 years) to compare the diagnoses diseases according to different age groups.

Statistical Analysis

For the statistical analysis of the data obtained from the research, descriptive statistics (frequency and percentages) and the Chi-square and Fisher's exact tests were used. The relationships were investigated by the Spearman rho correlation coefficient. The results were evaluated at the 95% confidence interval and $p<0.05$ significance level.

RESULTS

Among 309 patients aged 18 and under, the total number of presentations was 334. There were 163 (53%) female patients and 146 (47%) male patients, with the overall mean age being 13.23±5.01 (range, <1–18) years. The number of presentations was 19 (18 patients) in the 0–2 years group, 23 (23 patients) in the 3–6 years group, 65 (61 patients) in the 7–12 years group, and 227 (207 patients) in the 13–18 years group. The most common reason for presentation was determined as acneiform diseases (n=103, 33.3%), followed by eczemas (n=68, 22%), infectious diseases (n=63, 20.4%) (viral in 27 [8.7%] and parasitic in 24 [7.8%]), hair disorders (n=19, 6.1%), and nevus and benign neoplasms (n=12, 3.9%) (Table 1). According to age, the most common diagnoses were eczemas in both the 0–2 and 3–6 years groups, infectious diseases in the 7–12 years group, and acneiform diseases in the 13–18 years group (Table 1).

An additional chronic disease was present in 55 (17.8%) of the pediatric patients. This group of pa-

Table 1. Diagnoses of the patients presenting to the dermatology outpatient clinic according to age groups

	Age groups, years				Total, years	
	0–2	3–6	7–12	13–18	0–18	
	%	%	%	%	n	%
Eczema diseases	55.6	47.8	21.3	16.4	68	22
Papulosquamous diseases	5.6	4.3	6.6	1.9	10	3.2
Pigmentary diseases	5.6	0	3.3	0	3	1
Acneiform diseases	0	0	4.9	48.3	103	33.3
Urticaria	0	0	1.6	3.4	8	2.6
Hair disorders	0	8.7	11.5	4.8	19	6.1
Nevus and benign neoplasia	0	8.7	6.6	2.9	12	3.9
Xerosis cutis	0	0	3.3	1	4	1.3
Nail disorders	0	0	0	2.4	5	1.6
Pruritus	0	4.3	3.3	1.4	6	1.9
Other	0	4.3	6.6	1.4	8	2.6
Infectious diseases	33.5	21.7	31.1	16	63	20.4
Bacterial	5.6	0	1.6	0.5	3	1
Fungal	5.6	0	1.6	3.4	9	2.9
Viral	5.6	17.4	16.4	5.8	27	8.7
Parasitic	16.7	4.3	11.5	6.3	24	7.8
Total	100	100	100	100	309	100

tients visited the dermatology outpatient clinic less compared to those with no additional chronic disease (p=0.0001). Of all patients evaluated, 205 (66.3%) applied to the clinic for the 1st time while 104 (33.7%) had visited the clinic before the COVID-19 pandemic began and came for a follow-up (p=0.0001). Only 16 (5.2%) of the patients were considered to have an urgent state. The most common reason for urgent presentations was urticaria (n=8, 50%). Of the patients, 201 (65%) presented due to chronic diseases and 108 (35%) due to acute diseases (p=0.00001). Thirty-nine of the 102 acne patients visited the clinic for the oral isotretinoin dose adjustment or renewal of prescription. Six of eight urticaria cases applied for a monthly omalizumab injection. No COVID-19 positivity was detected in any of the 309 patients before or after their dermatology clinic visit.

When we grouped the patients' presentation times into 15-day periods, we determined that 144 patients applied within the first 15 days after the pandemic was declared, and the number of presentations within the next month decreased by more than 80%. There was a moderate increase in the number of patients visiting the clinic 45 days after the declaration of the pandemic (Fig. 1). Figure 2 presents the number of COVID-19 cases newly diagnosed in Turkey between March 11 and May 29 according to 15-day periods [5]. There was a correlation between the number of newly diagnosed COVID-19 cases and the number of pediatric patients that presented to our outpatient clinic (r: 0.0015, p<0.0001) (Fig. 2).

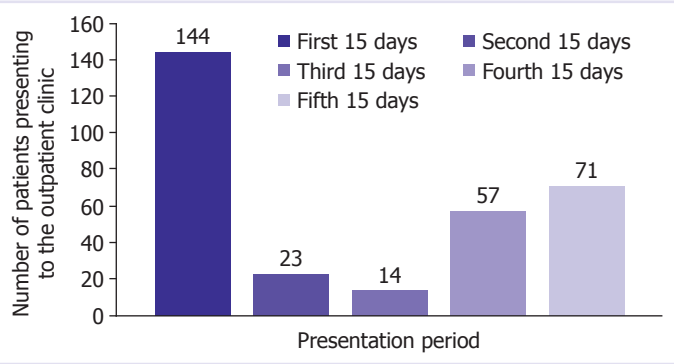

Figure 1. Number of patients presenting to the dermatology outpatient clinic according to 15-day periods from the declaration of pandemic.

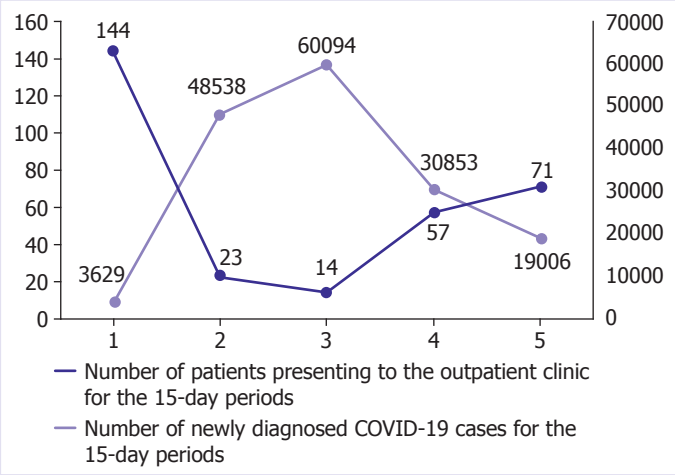

FIGURE 2. Distribution of the number of patients presenting to the dermatology outpatient clinic according to the number of newly diagnosed COVID-19 cases in Turkey.

DISCUSSION

In Turkey, in some tertiary health-care centers, such as our hospital, dermatologists were both involved in the care of COVID-19 cases and examined patients on an outpatient basis according to their needs. Considering that a significant part of dermatology cases is not life threatening or does not cause significant disability, we continued to provide care in an intermittent and flexible work system. At the time, this manuscript was written, the total number of confirmed COVID-19 cases in Turkey was 232,856, of which 5728 had resulted in mortality.

The number of pediatric patients presenting to our dermatology outpatient clinic was inversely correlated with the number of new cases reported in 15-day time frames from March 11, 2020, to May 29, 2020, in Turkey. From March 27 to April 27, while the number of newly diagnosed cases increased compared to the previous 15-day period, the number of pediatric patients presenting to the dermatology clinic decreased. For the period between April 28 and May 29, the number of newly diagnosed cases decreased compared to the previous 15-day period whereas the number of dermatology clinic presentations increased. The decrease or increase in the number of dermatology cases according to the changes in the number of new COVID-19 cases in the country suggests that patients and their parents made a decision whether to receive dermatology care partially according to the course of the pandemic.

In studies conducted before the COVID-19 pandemic in Turkey, the most common skin diseases diagnosed among pediatric patients presenting to the dermatology outpatient clinics were reported to be infectious diseases [6–8], acne vulgaris [9], and allergic skin diseases [10]. In a study evaluating the COVID-19 pandemic period, acne was the most frequently diagnosed disease among 61 pediatric cases [11]. In our study, the most common diagnosis in pediatric patients that visited our outpatient clinic during the COVID-19 pandemic was acneiform diseases, which is consistent with research undertaken before the pandemic period.

In publications before the COVID-19 pandemic, the distribution of the most common dermatological diseases by pediatric age groups was as follows: Eczema diseases [6, 7, 9] and allergic skin diseases [8, 10] in both the 0–2 years and 3–6 years groups, infectious diseases [6–8], allergic skin diseases [10], and eczema diseases [9] in the 7–12 years group, and acneiform diseases [6–9] and allergic skin diseases [10] in the 13–18 years group. Similar to the pre-pandemic data, in our study, the most common diagnoses were eczema diseases for both the 0–2 and 3–6 years groups, infectious diseases for the 7–12 years group, and acneiform diseases for the 13–18 age group. This indicates that there was no change in the reasons of pediatric patients for presenting to the dermatology outpatient clinic during the pandemic process.

Experience acquired during the COVID-19 pandemic process can guide physicians in making necessary changes to ensure that they provide high-quality care by protecting both patient and personnel safety at the highest level in the later processes of the pandemic. In this context, telemedicine, which is an important alternative method, has gained special importance [12]. Since public health guidance supports social distancing, this technology can help physicians and patients to overcome barriers in access to health care during emergencies, and it has been discussed in many areas of expertise in the world whether telemedicine can be used as an alternative to conventional face-to-face examination [13]. Many studies have investigated the use, acceptance, diagnostic reliability, and care quality of pediatric teledermatology [14, 15]. It has been emphasized that physician-to-physician teledermatology is ideal for pediatric inpatient and outpatient consultations, but direct-to-patient teledermatology may be more suitable for non-emergency pediatric outpatient visits [16]. In our study, the observation of dermatology pediatric presentations for similar diseases both before and during the pandemic and lower urgency status indicates that pediatric teledermatology can play a role in the management of cases throughout this period. The American

Teledermatology Association defined the different modes of teledermatology as store and forward, real-time interactive (live), and hybrid. Recommendations should be made for countries to conduct work for the incorporation of telemedicine applications into their health systems and to establish the necessary infrastructure in hospitals.

The limitations of this study include the retrospective and single-center design.

Conclusion

Despite the curfew and serious warnings, non-emergency and follow-up pediatric patients continued to present to dermatology outpatient clinics under the risk of COVID-19 transmission. Performing both virtual care such as teledermatology and conventional patient care on face-to-face basis and adopting this approach as part of routine dermatology practice in future will reduce the spread of infectious diseases and minimize their life-threatening effects.

Ethics Committee Approval: The University of Health Sciences Hamidiye Scientific Researches Ethics Committee granted approval for this study (date: July 03, 2020, no: 20/278).

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study has received no financial support.

Authorship Contributions: Concept – SSE, TFG, BD; Design – SSE, TFG, BD; Supervision – SSE, TFG, BD; Fundings – SSE, TFG, BD; Materials – SSE, TFG; Data collection and/or processing – SSE, TFG; Analysis and/or interpretation – SSE; Literature review – SSE, TFG; Writing – SSE; Critical review – SSE, TFG, BD.

REFERENCES

1. Zhu N, Zhang D, Wang W, Li X, Yang B, Song J, et al; China Novel Coronavirus Investigating and Research Team. A novel coronavirus from patients with pneumonia in China, 2019. N Engl J Med 2020;382:727–33.
2. Chan JF, Yuan S, Kok KH, To KK, Chu H, Yang J, et al. A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster. Lancet 2020;395:514–23.
3. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Yet al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet 2020;395:497–506.
4. Dong Y, Mo X, Hu Y, Qi X, Jiang F, Jiang Z, et al. Epidemiology of COVID-19 Among Children in China. Pediatrics 2020;145:e20200702.
5. TC Sağlık Bakanlığı Korona Tablosu. Available at: https://covid19.saglik.gov.tr/. Accessed Aug 17, 2020.
6. Özçelik S, Kulaç İ, Yazıcı M, Öcal E. Distribution of childhood skin diseases according to age and gender, a single institution experience. Turk Pediatri Ars 2018;53:105–12.
7. Gül U, Cakmak SK, Gönül M, Kiliç A, Bilgili S. Pediatric skin disorders encountered in a dermatology outpatient clinic in Turkey. Pediatr Dermatol 2008;25:277–8.
8. Kacar SD, Ozuguz P, Polat S, Manav V, Bukulmez A, Karaca S. Epidemiology of pediatric skin diseases in the mid-western Anatolian region of Turkey. Arch Argent Pediatr 2014;112:421–7.
9. Tamer E, Ilhan MN, Polat M, Lenk N, Alli N. Prevalence of skin diseases among pediatric patients in Turkey. J Dermatol 2008;35:413–8.
10. Afsar FS. Pediatric dermatology in practice: spectrum of skin diseases and approach to patients at a Turkish pediatric dermatology center. Cutan Ocul Toxicol 2011;30:138–46.
11. Altun E. The most common pediatric and adult dermatology patient complaints in a month of the COVID-19 pandemic in Turkey. Dermatol Ther 2020;33:e13972.
12. Trettel A, Eissing L, Augustin M. Telemedicine in dermatology: findings and experiences worldwide - a systematic literature review. J Eur Acad Dermatol Venereol 2018;32:215–24.
13. Gupta R, Ibraheim MK, Doan HQ. Teledermatology in the wake of COVID-19: Advantages and challenges to continued care in a time of disarray. J Am Acad Dermatol 2020;83:168–9.
14. Fiks AG, Fleisher L, Berrigan L, Sykes E, Mayne SL, Gruver R, et al. Usability, acceptability, and impact of a pediatric teledermatology mobile health application. Telemed J E Health 2018;24:236–45.
15. Philp JC, Frieden IJ, Cordoro KM. Pediatric teledermatology consultations: relationship between provided data and diagnosis. Pediatr Dermatol 2013;30:561–7.
16. Gehris RP, Herman EI. Pediatric teledermatology: a review. Current Dermatology Reports 2020;9:114–22.