JIDC | THE JOURNAL OF INFECTION IN DEVELOPING COUNTRIES

Coronavirus Pandemic

Scabies cases at a dermatological outpatient clinic in Türkiye: Effects of the COVID-19 pandemic

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Abstract

Introduction: Annually, scabies affects more than 400 million people worldwide and is an important public health problem. This study investigated the socio-demographic and clinical characteristics of patients with scabies at a major dermatologic clinic in Turkiye in the context of the COVID-19 pandemic.

Methodology: A retrospective evaluation was performed on outpatients diagnosed with scabies between 2014 and 2022. Statistical analyses were performed using IBM SPSS Statistics 22.0.

Results: In total, 759 of the 48,381 patients (1.6%) who visited the dermatology outpatient clinic were diagnosed with scabies. The incidence rate of scabies was 0.5–0.9% before the pandemic, which increased to 3.1–4.4% in 2020–2022. Cases were more common in October–December (36.5%), and 57.9% of patients were 18–44 years old. Those aged 1–6 years showed an increased rate of scabies from 3% to 7.8% during the pandemic. There was no significant difference according to gender or nationality. All patients complained of itching, and 35% had a history of contact with individuals who were diagnosed with scabies. The recurrence rate was 27.3%. Lesions of 73.1% of patients showed a generalized distribution, as well as local lesions on the hands (7.9%), genital area (6.4%), trunk (4.0%), arms (3.0%), legs (2.8%), feet (1.6%), and head (1.2%).

Conclusions: The results emphasize that scabies can develop regardless of age, gender, and ethnicity, and periods such as pandemics may delay diagnosis and treatment, leading to a higher occurrence of the disease.

Key words: Scabies; COVID-19; pandemic.

J Infect Dev Ctries 2025; 19(9):1308-1313. doi:10.3855/jidc.20659

(Received 31 July 2024 – Accepted 27 January 2025)

Introduction

Scabies is caused by the mite *Sarcoptes scabiei var. hominis* and is estimated to impact over 400 million individuals annually with worldwide distribution [1]. The disease can be transmitted directly from person to person through intimate contact or sexual activity, as well as indirectly through bed sheets, clothing, other fabric materials, and shared use of personal items [1-3]. Scabies is particularly prevalent in overcrowded environments like nursing homes, student dorms, and barracks, as well as settings of conflict, migration, and natural disasters in relation to inadequate sanitation and housing [1,4]. Clinical signs include eruptions appearing as erythematous papules, vesicles, and pustules, which typically accompany nighttime itching that develops 3 to 6 weeks after transmission. The most frequently affected body sites are the armpits, hips, areolae, genital area, inner wrist surface, and between the fingers. In infants, the distribution of lesions includes the palms, soles of the feet, scalp, face, neck, hips, and legs [5].

Scabies is a public health problem that reduces quality of life, causes sleep disturbances, decreases concentration and academic achievement, causes psychosocial problems, decreases economic productivity, and leads to the development of secondary infections [6]. Diagnosis is based on international criteria that include medical history, contact with an affected individual, typical clinical signs (increased itching at night, scabies burrows, and pearly vesicles in the skin, etc.), and the presence of any stage of scabies' lifecycle or feces, which are needed for confirmation [4,5,7]. Accurate diagnosis and appropriate treatment of scabies are highly important for public health to minimize the incidence of the disease by breaking the chain of transmission [8]. The aim of this study was to contribute epidemiological data by retrospectively examining the demographic and clinical characteristics of patients diagnosed with scabies and evaluating risk factors, annual and diagnostic seasonal distribution of

cases, and the relationship between infestation and the pandemic.

Methodology

This study included patients of any age and gender who visited the dermatology outpatient clinic at Avicenna Ataşehir Hospital in Istanbul, which sees an average of 90,000 outpatients annually. The patients were diagnosed with scabies between January 1, 2014, and December 31, 2022. The diagnosis was based on complaints of severe itching, specific clinical findings, and medical history. Physical examination included observations of the patients' entire skin to determine the distribution of the specific lesions. Recurrence was defined as patients diagnosed with scabies by a clinician at least 1 month after scabies treatment. All patients were questioned about itching complaints, recurrence, and contact history, as well as clinical findings such as the presence of specific lesions and involved body sites.

We retrospectively evaluated data from patient charts, including the date of admission, demographic characteristics (age, gender, and nationality), contact history, complaints, the presence of specific lesions, the location of lesions on the body, and the status of the disease's recurrence using the same hospital automation system. Patients who returned to the dermatology outpatient clinic within 1 month after the first admission were excluded. The 8-year study period was divided into two sub-periods: before 2020 (before the COVID-19 pandemic) and after 2020. To evaluate the seasonal variation of diagnosis, each year was divided into four periods: January–March, April–June, July–September, and October–December. The data obtained from the hospital registration system were anonymized to protect the personal rights of the patients. The study received ethical approval from Istanbul Okan University's ethical review board (dated June 14, 2023, number 167). As the study was retrospective, based on analysis of patient charts, informed consent was not obtained.

Table 1. Distribution of cases by socio-demographic characteristics.

Socio-demographic variables	n	%
Gender		
Female	349	46.00
Male	410	54.00
Nationality distribution		
Turkish national	699	92.10
Foreign national	60	7.90
Age groups		
0-1 years	31	4.08
1-6 years	46	6.06
7-17 years	105	13.83
18-44 years	440	57.97
45-65 years	102	13.44
65 years and above	35	4.61
Total patient with scabies	759	100

Statistical analysis

All statistical analyses were performed using the software IBM SPSS Statistics 22.0 and MS Excel 2010. The results are presented as the median with the interquartile range or the relative number of patients as a percentage. Pearson's chi-squared and Fisher's exact tests were used as appropriate for categorical variables. In the chi-squared tests, paired comparisons (post hoc) were made using the z-test. A p-value of <0.05 was considered statistically significant.

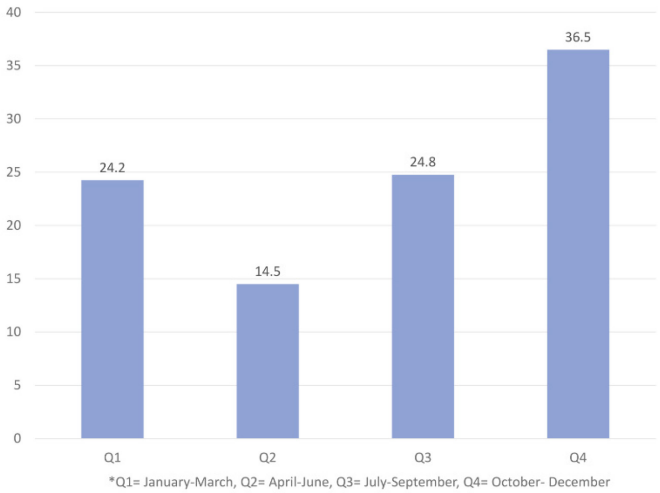
Results

Out of 48,381 patients who visited the dermatology outpatient clinic during the observation period, 759 (1.6%) patients were diagnosed with scabies. Their socio-demographic characteristics are presented in Table 1. A total of 54% were males, and no statistically significant difference was observed in the gender distribution of patients according to year (p = 0.446). Most patients were in the age group of 18–44 years (Table 1). The vast majority were Turkish citizens. The non-Turkish patients were 45% Afghans, 20% Uzbeks, 10% Syrians, and 25% citizens of other nations.

36.5% of the cases were diagnosed from October to December (p < 0.001) (Figure 1). The occurrence of scabies cases ranged between 0.5 and 1.1% before the pandemic and increased to the range of 3.1–4.4% between 2020 and 2022 in the pandemic period. Of all the years, the highest number of cases was observed in 2021 (Figure 2).

No statistically significant difference was observed between males and females in the distribution of the cases during and before the pandemic period (p = 0.528). However, a significant difference was found between age groups (p = 0.038). The number of cases

Figure 1. Percentage distribution of cases throughout the year.



in children aged 1–6 years was 3% before 2020 and significantly increased to 7.8% in 2021 and beyond. No difference was found in the distribution of Turkish and non-Turkish patients ($p = 0.001$).

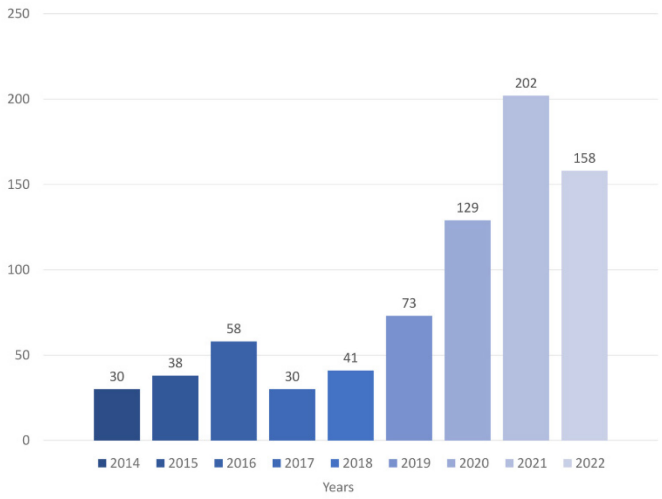
The frequency of scabies diagnosis was examined in the quarters for each year before and after the pandemic, and a statistically significant decrease was observed in the period of January–March after 2020, while a significant increase was found in the period of July–September ($p = 0.001$). Table 2 shows the distribution of cases before and after the pandemic according to socio-demographic characteristics and quarterly periods.

All patients diagnosed with scabies complained of itching. Crusty or non-crusty, erythematous, papule, vesicle, or pustule-like lesions were detected in 555 (73.1%) of the patients. The rate of localized lesions was 7.9% on the hands, 6.4% in the genital area, 4.0% on the body, 3.0% on the arms, 2.8% on the legs, 1.6% on the feet, and 1.2% on the head. It was found that 35% ($n = 266$) of the patients had at least one contact with other patients who were clinically diagnosed with scabies before the complaints had started. 27.3% ($n = 207$) of the patients stated that they had previously been clinically diagnosed with scabies.

Discussion

This study investigated the socio-demographic and clinical characteristics of patients diagnosed with scabies within the context of the COVID-19 pandemic. 1.6% of patients who presented to the dermatology clinic between 2014 and 2022 were diagnosed with scabies, and the number of cases in 2020–2022 was higher than in other years. Although scabies has a worldwide distribution, its incidence is higher in developing countries and tropical climates. The prevalence varies between 0.2 and 71.2% worldwide, and cases are most common in the Pacific and Latin America [9]. In Turkiye, studies have reported that the incidence of scabies has gradually increased over the years, with rates before the pandemic of 0.55–4.77%, while those observed during and after the pandemic period were 1.77–12.8% [10-13].

Figure 2. Distribution of patients diagnosed with scabies by year.



Studies have compared the case rates before and during the pandemic. Turkmen *et al.* [14] reported an increase in the incidence from 0.6% to 3.5%, Akaslan *et al.* [10] reported an increase from 0.71% to 1.77%, Gurok *et al.* [15] reported 0.95% to 1.99%, and Kartal *et al.* [16] reported 1.18% to 2.05%. In recent years, studies have also reported increases in the incidence of scabies in Italy, Spain, and the Netherlands during the pandemic [17-21]. Isoletta *et al.* [18] reported that in Italy, the rate of 3% in 2019 increased to 12.1% in 2020, which coincides with the pandemic period. Retrospective studies spanning 5 to 10 years showed

Table 2. Distribution of cases by sociodemographic characteristics during and before the pandemic.

Variables	Before 2020 (n = 197)	2020 and beyond (n = 562)	*p*
Gender			
Male	150	260	0.528
Female	120	229	
Age group			
0-1 years	13 (4.8%)	18 (3.7%)	
1-6 years	8 (3.0%)	38 (7.8%)	
7-17 years	30 (11.1%)	75 (15.3%)	0.038
18-44 years	169 (62.6%)	271 (55.4%)	
45-65 years	39 (14.4%)	62 (12.7%)	
65 years and above	11 (4.1%)	25 (5.1%)	
Distribution within the year			
January–March	84 (31.1%)	100 (20.4%)	
April–June	38 (14.1%)	72 (14.7%)	< 0.003
July–September	47 (17.4%)	141 (28.8%)	
October-December	101 (37.4%)	176 (36.0%)	
Nationality			
Turkish nationals	236 (87.4%)	463 (94.7%)	0.001
Foreign nationals	34 (12.6%)	26 (%5.3)	

parallel results with a significant increase during the pandemic period. Pallas *et al*. [19] in Spain and De Lucia *et al.* [17] in Italy reported that the number of cases during the pandemic was higher than in the five years before the pandemic. van Deursen *et al.* [20] reported a peak between 2011 and 2021 in the Netherlands.

In the present study, the rate of scabies was found to be 0.5–1.1% between 2014 and 2020, which coincides with the pre-pandemic period. The rate increased to 3.1–4.4% during the pandemic between 2020 and 2022. In 2021, with the serious progression of the pandemic, "stay at home" policies were implemented, and scabies cases were found to be the most prevalent in that year. Considering these policies, we believe that people staying together in closed environments and delays in seeking treatment in hospitals may have been related to the increased rates.

There were more cases in the age group of 18–44 years in this study (57.90%). In parallel with our findings, Turan *et al.* [21] and Gurok *et al.* [15] reported that the most common age group of scabies cases was young adults (15–44 years old). We also observed a statistically significant rise in the number of cases in the age group of 1–6 years during the pandemic. Similar to our results, De Lucia *et al.* [17] reported a significant increase in the rate of cases in the group under the age of 18 years and those over 65 years during the period of the "stay at home" policy. Transmission is known to be possible in all age and gender groups, and close contact and inadequate sanitation seemed to play an important role in transmission, especially in the pandemic period.

No statistical difference in cases was observed between males and females ($p = 0.528$). Similar studies in Turkiye and other countries have shown striking contradictory results, with some studies reporting higher scabies rates in females and others reporting higher rates in males [22-24]. These contradictory results may be related to geographical, socioeconomic, and cultural differences.

According to reports, there has been a rise in the number of migrants entering Europe over the past 10 years. Scabies outbreaks are frequently observed in crowded settings with inadequate sanitation, such as refugee camps [25-29]. In the present study, however, only 7.9% ($n = 60$) of the 759 patients diagnosed with scabies were found to be from non-Turkish nations. In the pre-pandemic and pandemic periods, no significant difference was detected between Turkish and non-Turkish patients (Table 2). Our results contrast with those of other studies, which may be related to the good socioeconomic status and sanitation conditions of the non-Turkish patients included in the study group, as the study was conducted in a private hospital, so the sample does not reflect all refugees.

More cases in the autumn and winter seasons have been reported in studies conducted in South Korea and Israel [30,31]. Studies conducted in Turkiye support these findings and report that the case rates are higher in the last quarter of the year [15,21,32,33]. Similarly, in the present study, the highest case rates were found in the last quarter of the year, which suggests that spending time indoors due to cold weather and close contact are factors that influence the high number of cases in autumn and winter.

The wrists, ankles, between the fingers, armpits, waist region, areolas in women, and genital area in men are known to be the most common areas of scabies involvement [34,35]. Ozcelik *et al.* [33] reported that 33.6% of cases involved the palmoplantar region, 6.7% involved the head, and 2.8% involved the face. Yucel *et al.* [36] reported rates of lesions on the hands of 9.91% and in the genital region of 0.13%. In the present study, the majority of patients had dispersed lesions around the body, although localized lesions were most common in the hand (7.9%) and genital areas (6.4%).

27.3% of the diagnosed scabies cases had a history of recurrence, and 35% had a history of contact with an individual who was previously diagnosed with scabies. In other studies, conducted in Turkiye, the rates of recurrent hospital presentation among patients diagnosed with scabies were determined as 57.6% by Ozcelik *et al.* [33] and 6.5% by Turan *et al.* [21]. Improper use of drugs, reinfection from untreated households, or drug resistance may be factors that influence relapse.

Conclusions

Although the present study has limitations, such as involvement of a single center and retrospective design, the data obtained are in line with other post-pandemic studies conducted in many European countries and Turkiye. The data showed that scabies can affect every individual regardless of age, gender, race, and nationality. The disease was especially common in autumn and winter. During unusual circumstances and events like pandemics, the rates of the disease and relapse seem to be higher based on the contagious nature of the disease and factors such as close contact, as well as delays in diagnosis and treatment as a result of delaying visits to hospitals. Our results could help guide the development of strategies to prevent and manage the spread of the disease.

Authors' contributions

KA and MÇ designed the study and collected the data. KA searched the literature and wrote the article. ADK reviewed and finalized the article. ÜTB conducted the statistical analysis. All authors approved the final version for publication.

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Conflict of interests

No conflict of interests is declared.

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