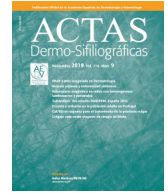




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Brief Communication

Scabies Cases in Children are Still on the Rise After the COVID-19 Pandemic

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ABSTRACT

As a significant increase in the incidence of scabies in adults has been described since 2020, a cross-sectional, single-center, retrospective study was conducted in patients younger than 18 years presenting to the Pediatric Emergency Department (PED) of a tertiary referral center during a 6-year period (from January 1st, 2018 to December 31st, 2023) with a diagnosis of scabies. Results showed that incidence followed a similar trend in the pediatric population, with 5 times more episodes attended during 2022–2023 compared with the prepandemic period. Incorrect prescriptions of scabidical drugs were frequent, as was inadequate management of cohabitants and fomites, especially in facilities other than the PED. In conclusion, the increase in pediatric cases of scabies, possibly exacerbated by the COVID-19 pandemic, requires clinicians to remain alert to this condition, and combined efforts by dermatologists, primary care physicians, and pediatricians are needed for early recognition and appropriate management of scabies.

Introduction

Scabies is a highly contagious skin infestation caused by the *Sarcoptes scabiei* var *hominis* mite. Approximately 200 million cases of scabies are diagnosed worldwide every year.¹ In developed countries, scabies has traditionally occurred as sporadic cases or institutional outbreaks in hospitals, residential facilities, military installations, prisons, or among displaced populations such as refugees.^{2,3} However, a significant increase in the incidence of scabies has been demonstrated since 2020, probably related to isolation measures implemented to prevent the spread of COVID-19.^{4–6} In addition, the increasing incidence of scabies may also be associated with treatment failures.

Although some studies suggest reduced efficacy of first-line treatment with topical permethrin,⁷ other authors argue that true drug resistance has not been demonstrated and that treatment failure is often related to inadequate adherence to treatment recommendations or incorrect application of permethrin.^{8,9} While the increase in adult scabies cases has been reported worldwide, whether this trend also affects the pediatric population remains unclear.

Therefore, we designed a study to describe the epidemiology and treatments administered to children presenting to our Pediatric Emergency Department (PED) with a diagnosis of scabies.

Materials and methods

We conducted a cross-sectional, single-center, retrospective study in patients younger than 18 years presenting to the PED of *Hospital Infantil Universitario Niño Jesús* during a 6-year period (from January 1st, 2018 to December 31st, 2023) with a diagnosis of scabies. Our institution is a public tertiary referral center located in the Madrid region. The PED staff includes pediatricians and pediatric residents. Approximately 70 000 episodes are attended annually in our PED, without significant variation in emergency department utilization during the study period.

We reviewed PED health records from patients with a diagnosis coded as “scabies” (International Classification of Diseases, 9th Revision [ICD-9], 133.0; and International Classification of Diseases, 10th Revision [ICD-10], B86). We recorded age, sex, personal history of previous dermatologic diseases, contact with potentially infected relatives, previous treatments, type of diagnosis (clinical vs microbiologic), and therapies administered.

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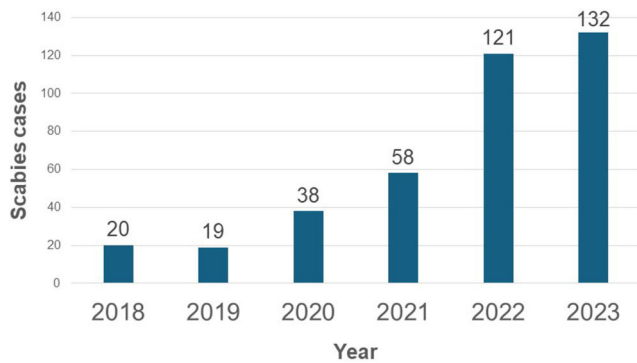


Fig. 1. Number of scabies cases attended in the pediatric emergency department by year.

Treatment of cohabitants, recommendations regarding fomites, referral to the Department of Dermatology, and readmissions to the PED were also recorded.

When treatment was prescribed either in the PED or previously in other facilities, we analyzed whether it was correct according to the European guidelines for the management of scabies.¹⁰ Regarding scabidical drugs available in Spain, the following regimens were considered appropriate:

- Permethrin 5% cream, repeated once after 7–14 days.
- Oral ivermectin, 0.2 mg/kg, repeated once after 7–14 days.
- Sulfur cream 6–10% applied on 3 consecutive days.

For statistical analysis, 3 periods were established: 2018–2019 (pre-pandemic), 2020–2021 (pandemic), and 2022–2023 (postpandemic). Categorical variables were described as absolute and relative frequencies, and quantitative variables as mean and SD. Median and IQR were used for data that did not follow a normal distribution. The Shapiro–Wilk test was used to assess normality of data distribution. Qualitative variables were compared using the chi-square test. Data analysis was performed using STATA software, version 17.0, and a value of $P < .05$ was considered statistically significant.

The study complied with the guidelines of the Oviedo Convention and the Declaration of Helsinki and was approved by the institutional review board of *Hospital Infantil Universitario Niño Jesús* (Madrid, Spain) (approval No. R-0001/24). The institutional review board waived the requirement for informed consent because of the retrospective design of the study.

Results

A total of 388 episodes of scabies were included (2018, 20; 2019, 19; 2020, 38; 2021, 58; 2022, 121; and 2023, 132) (Fig. 1), with a median age of 5.2 years (IQR, 1.9–9.6 years); 225 patients (57.9%) were MEN.

The median duration of symptoms before diagnosis was 4 weeks (IQR, 1–6 weeks), and 246 patients (63.4%) had symptomatic cohabitants. A total of 161 of 388 patients (41.5%) had previously received scabidical treatment, and 53 of 161 prescriptions (32.9%) were considered inappropriate.

Diagnosis was clinical in 326 cases (84.0%); in the remaining 62 cases (16.0%), diagnosis was microbiologically confirmed by a dermatologist through identification of mites, ova, or feces by optical microscopy. Scabidical treatment was prescribed in 344 cases (88.6%) attended in the PED. Regarding PED discharge reports, recommendations for treatment of cohabitants were not included in 56 of 344 cases (16.2%), and recommendations regarding fomites were omitted in 26 of 344 cases (7.5%). Referral to the Department of Dermatology was considered in 99 patients (25.5%), and 59 patients (15.2%) required readmission to the PED.

When comparing the 3 study periods, we observed that during 2022–2023 there was an increase in the number of cases with affected cohabitants and in the number of patients who had previously received scabidical treatment. In the PED, prescriptions for ivermectin and sulfur preparations were more frequent during 2022–2023, whereas the number of inappropriate prescriptions decreased during the same period. Discharge reports more frequently included treatment recommendations for all cohabitants and advice regarding fomite management during 2022–2023 than during previous periods (Table 1).

Discussion

Our study showed that the incidence rate of scabies has progressively increased in the pediatric population, with 5 times more episodes attended in the PED vs the pre-pandemic period.

A significant worldwide increase in the incidence rate of scabies occurred during the COVID-19 pandemic vs previous years.⁶ In contrast to the decrease in pediatric scabies cases and prescriptions reported by Bonnano et al.¹¹ in North Carolina, our findings confirmed a similar upward trend in the pediatric population. However, some authors had already described an increase in scabies incidence before the pandemic,¹² particularly among adolescents.¹³ Accordingly, prolonged home confinement during COVID-19 restrictions may simply have facilitated greater spread of scabies.

A higher risk of parasite transmission through direct contact or fomites has also been observed during winter months, likely related to the tendency of individuals to spend more time indoors in close proximity to one another during this period.¹⁴ Consequently, the frequency of affected cohabitants significantly increased in recent years in our series.

Clinical signs of scabies vary according to age, and diagnosis in young children may be challenging.^{15,16} The number of patients seeking care at our institution after evaluation in other facilities, such as primary care centers or private clinics, has also increased in recent years. Treatment failures are common not only in adults but also in children.¹⁷ When assessing the appropriateness of scabidical prescriptions issued in these facilities, one-third were considered inappropriate. Primary care physicians play a critical role in scabies control, and improved treatment recommendations are needed.¹⁸

Permethrin treatment failures have frequently been observed during major institutional outbreaks because of difficulties in implementing decontamination measures and completing topical treatment adequately, resulting in recurrent infestations among cohabitants. In such cases, oral ivermectin is considered the treatment of choice for controlling infestation.¹⁹ It is possible that, during and after the COVID-19 pandemic, small outbreaks occurred within family environments and that treatment difficulties resembled those described in institutional outbreaks. Therefore, a similar therapeutic approach may be appropriate, which may explain the increasing use of oral ivermectin in recent years in our PED. Furthermore, cases of scabies in newborns have also increased in our series, together with greater use of sulfur-based creams.

In contrast to patients attended in other facilities, more effective patient management has been achieved in our hospital. Inappropriate treatments are avoided, and indications for treatment of cohabitants and recommendations regarding fomites are currently included in up to 90% of discharge records. Recently implemented measures in our institution for the management of scabies include publication of an evidence-based protocol for scabies management, structured recommendations in PED discharge reports, and close collaboration with and prompt referral to the Department of Dermatology. Future measures under consideration include on-site meetings with primary care physicians and dermoscopy training for PED staff.

Our study has 3 main limitations. First, although our findings are consistent with previous literature, this was a single-center study with a limited number of patients. Second, because of the retrospective design, which relied on review of PED discharge reports not originally inten-

Table 1
Characteristics of patients with scabies presenting to the pediatric emergency department.

	2018–2019 (N = 39)	2020–2021 (N = 96)	2022–2023 (N = 253)	p-Value
Age in years, median (IQR)	3.5 (1.3–8.2)	5.7 (2.1–10.4)	5.1 (2–9.6)	n.s.
Cases in infants < 3 months old, n (%)	1 (2.6)	3 (3.1)	19 (7.5)	n.s.
Male gender, n (%)	20 (51.2)	63 (65.6)	142 (56.1)	n.s.
Weeks of symptom progression, median (IQR)	2.5 (1–4.8)	4 (1.5–8)	4 (1–6)	n.s.
Affected cohabitants, n (%)	21 (53.8)	41 (42.7)	184 (72.7)	< 0.001
Previous scabicide treatments, n (%)	6 (31.5)	36 (37.5)	119 (47.0)	< 0.001
Incorrect previous scabicide treatment, n/N (%)	3/6 (50.0)	9/36 (36.0)	41/119 (34.4)	n.s.
Scabicide treatment prescribed in the PED, n (%)	39 (100)	76 (79.1)	229 (90.5)	n.s.
Permethrin, n/N (%)	36/39 (92.3)	70/76 (92.1)	179/229 (78.2)	0.003
Ivermectin, n/N (%)	0 (0)	5/76 (6.6)	25/229 (10.9)	0.02
Sulfur, n/N (%)	0 (0)	0 (0)	13/229 (5.7)	0.02
Permethrin + ivermectin, n/N (%)	3/39 (7.7)	1/76 (1.3)	12/229 (5.2)	n.s.
Incorrect scabicide treatment in the PED, n/N (%)	13/39 (33.3)	16/76 (21.1)	32/229 (13.9)	0.003
Indication for treatment of cohabitants, n/N (%)	23/39 (58.9)	59/76 (77.6)	206/229 (89.9)	< 0.001
Recommendations about fomites, n/N (%)	27/39 (69.2)	65/76 (85.5)	226/229 (98.6)	< 0.001
Referral to Dermatology Department, n (%)	6 (15.4)	37 (38.5)	56 (10.7)	n.s.
Readmission to the PED, n (%)	2 (5.1)	18 (18.8)	39 (15.2)	n.s.

PED: Pediatric Emergency Department.

IQR: interquartile range.

ded for research purposes, some information was inevitably missing. Third, most cases were diagnosed clinically; however, the proportion of clinically diagnosed cases did not change between study periods.

Conclusions

The increase in pediatric scabies cases, possibly exacerbated by the COVID-19 pandemic, requires clinicians to remain alert to this condition. Combined efforts by dermatologists, primary care physicians, and pediatric emergency physicians are needed for early recognition and appropriate management and control of scabies.

Consent statement

All authors participated in the preparation of the manuscript and approved its publication.

Institutional review board approval

This study was approved by the Institutional Review Board and Ethics Committee of Hospital Infantil Universitario Niño Jesús, Madrid, Spain.

Funding

None declared.

Conflicts of interest

None declared.

Data availability

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

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