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Diagnostic and therapeutic approaches of pediatricians to scabies: a nationwide cross-sectional study from Turkiye

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ABSTRACT

Aims: Scabies is a highly contagious ectoparasitic infestation commonly observed in childhood. Its diagnosis and treatment can be challenging due to atypical clinical presentations that overlap with other dermatological conditions. This study aims to evaluate the diagnostic and therapeutic approaches of pediatricians toward scabies and highlight the variabilities in their clinical practices.

Methods: Online survey forms were distributed to pediatric specialists and residents practicing across Turkiye. The questionnaire included items on demographic characteristics, clinical approaches, treatment preferences, and management of close contacts.

Results: A total of 459 pediatricians participated in the study. The most commonly preferred first-line treatment agent was permethrin lotion (60.3%), while the use of ivermectin was limited (1.3%). In addition, 64.5% of the participants reported prescribing magistral preparations in their daily practice, and 90% stated that they recommended treatment for family members. Clinical findings were most frequently used for diagnosis (96.5%), whereas laboratory confirmation was rarely requested. Approximately one-quarter of the participants believed that scabies could also be transmitted from animals. These results demonstrate considerable variability in knowledge and clinical practice.

Conclusion: This study has revealed notable variabilities among pediatricians in the diagnostic and therapeutic approaches used to treat scabies. Practical challenges in the clinical setting underscore the need for improved integration of current guidelines and implementation of targeted educational programs.

Keywords: Scabies, pediatrics, treatment

INTRODUCTION

Scabies (*Sarcoptes scabiei* var. hominis) is a contagious ectoparasitic infestation of humans characterized by itching and inflammatory skin lesions that worsen especially at night. In recent years, there has been an increase in cases of scabies worldwide even in developed countries. In 2017, the World Health Organization (WHO) included scabies in the Neglected Tropical Diseases (NTDs) group, demonstrating the seriousness of the situation.[1] Scabies is very common not only in adults but also in pediatric patients. Communal areas such as kindergartens and schools where children are populated make the risk of transmission easier. Unlike adults, we can see its atypical presentations more frequently in children. Among these, the involvement of areas such as palms, soles and scalp, eczematous appearance of the lesions and accompanying secondary infections cause difficulties in diagnosis. Delays in diagnosis adversely affect both the patient's quality of life and also public health by leading to chain infestations due to the increased risk of transmission.[2,3]

Pediatricians play a multifaceted role in the management of scabies, yet they often face challenges including diagnostic difficulties, treatment resistance, non-compliance of families, and contact management.[4] Despite the diagnosis and treatment protocols specified in scabies management guidelines, there are significant differences in daily practices of pediatricians. This is due not only to a lack of direct knowledge but also to difficulties encountered in field conditions.[4,5] There are many epidemiological studies on pediatric scabies cases in the literature. However, field-based studies directly examining the clinical approach of pediatricians are quite limited.[6-8]

To the best of our knowledge, this is one of the first nationwide questionnaire-based studies specifically designed to evaluate the diagnostic and therapeutic approaches of pediatricians toward scabies in Turkiye, which emphasizes its originality and contribution to the literature.

With this study, we have aimed to evaluate the level of knowledge, attitudes and practices of pediatricians and residents actively working in the management of scabies in Turkiye. We believe that the data we obtained from this study will shed light on the treatment guidelines and training programs to be developed in the future

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METHODS

This is a descriptive and cross-sectional study designed to evaluate the attitudes and practices of 459 pediatricians actively working to establish the diagnosis and treatment of scabies in Turkiye. The ethics committee approval of the study was obtained from the Memorial Ataşehir Hospital Ethics Committee (Date: 13.05.2025, Decision No: 2025/16) and the study was conducted based on the ethical principles of the WMA Declaration of Helsinki.

The questionnaire was developed by the research team to collect clinical and demographic information on pediatricians' approaches to scabies, and therefore no validity or reliability analysis was performed. The data used in the study were collected through a questionnaire form developed by the researchers on the Google Forms platform. The questionnaire collected information from pediatric physicians currently working in Turkiye. Participating physicians were reached through various professional communication channels (telegrams, e-mail groups, social media, WhatsApp, etc.) and online access was provided. Informed consent was obtained from the participants. Since this study was designed as a descriptive, nationwide survey, all accessible pediatricians were invited to participate. Therefore, no formal sample size calculation was performed, and the final sample size reflects voluntary participation.

The questionnaire forms contain basic data such as demographic information of physicians (age, gender, duration of professional experience, institution, academic title, geographical region), total number of referrals per day and number of patients presenting with itching complaints. In addition, clinical findings of the patients suggesting the diagnosis of scabies, use of diagnostic laboratory tests, treatment preferences (initial treatment approach, prescribing of magistral medications, recommended treatment by family members, repeat treatment), calling patients for follow-up visits, and seasonal awareness about scabies were evaluated. In addition, patients' knowledge level about scabies and the content of information given to the patients were also questioned.

Pediatricians, residents or subspecialists actively practicing in Turkiye were included in the study. Patients with missing data, and non-pediatric physicians were excluded from the study.

Statistical Analysis

The research data were analyzed using SPSS (Statistical Package for the Social Sciences for Windows, version 26.0; SPSS Inc., Chicago, IL). Descriptive statistics were presented as frequency distributions and percentages. Categorical variables were evaluated using the Chi-square test. A p-value of <0.05 was considered statistically significant.

RESULTS

A total of 459 pediatricians from different regions of Turkiye participated in the study. Participants showed a wide distribution in terms of age, gender, years of professional experience, institutional setting, and academic title. The largest proportion were in the 30-39 age group, and female physicians were slightly predominant. About one-third of the physicians reported more than 20 years of professional experience. Nearly half were working in public hospitals, while the remainder were employed in private or university hospitals. The majority held specialist titles. Geographically, participation was highest from the Marmara region, followed by Central Anatolia and the Aegean region (Table 1).

Table 1. Demographic characteristics of participating pediatricians (n=459)

n: 459		**n (%)**
Age (years)	20-29	24 (5.2)
	30-39	207 (45.1)
	40-49	133 (29.0)
	50-59	95 (20.7)
Gender	Female	254 (55.3)
	Male	205 (44.7)
Professional experience (years)	1-4	31 (6.8)
	5-9	111 (24.2)
	10-14	103 (22.4)
	15-19	70 (15.3)
	20<	144 (31.4)
Employed institution	University	65 (14.2)
	Private hospital	168 (36.6)
	State hospital	226 (49.2)
Academic title of the participants	Assistant doctor	38 (8.3)
	Academician	42 (9.2)
	Specialist	379 (82.6)
Geographical regions of the study participants	Marmara region	198 (43.1)
	Aegean region	53 (11.5)
	Mediterranean region	37 (8.1)
	Black Sea region	38 (8.3)
	Central Anatolia region	53 (11.5)
	Southeastern Anatolia region	55 (12.0)
	Eastern Anatolia region	25 (5.4)

Most physicians reported examining 15-59 patients per day, and two-thirds indicated that 1-4 patients presented daily with itching complaints (Table 2).

In terms of treatment approaches, permethrin lotion was the most commonly prescribed agent, followed by magistral preparations and sulfur cream. Family treatment was recommended by 90% of participants, 59.9% scheduled follow-up visits, and 64.1% advised repeat treatment within 7-15 days. A total of 29.2% of physicians reported a seasonal increase in cases during winter. However, the largest proportion of respondents reported no seasonal difference (38.8%). When the literature is examined, it is seen that incidence rates of scabies increase in winter.[11,12] Table 3 summarizes the data on treatment approaches.

Table 2. Daily patient density of pediatricians and number of patients presenting with itching complaints		
n: 459		**n (%)**
Average number of patients cared for per day	0-14	68 (14.8)
	15-24	90 (19.6)
	25-34	58 (12.6)
	35-44	63 (13.7)
	45-59	84 (18.3)
	60-74	58 (12.6)
	75-89	23 (5.0)
	90<	15 (3.3)
Number of patients presenting daily with itching complaints	1-4	313 (68.2)
	5-9	122 (26.6)
	10-14	19 (4.1)
	15-19	3 (0.7)
	20<	2 (0.4)

Table 3. Treatment approaches used by pediatricians to manage scabies		
n: 459		**n (%)**
Initial recommendation for drug therapy	Permethrin lotion	277 (60.3)
	Sulfur cream	55 (12.0)
	Magistral drugs	39 (8.5)
	Ivermectin tablets	6 (1.3)
	No treatment recommended	65 (14.2)
	Ready-made magistral drugs	17 (3.7)
Prescribing magistral medications	Yes	296 (64.5)
	No	163 (35.5)
Magistral drugs used	Sulfur	96 (20.9)
	Balsam of Peru	75 (16.3)
	Benzyl benzoate	9 (2.0)
	Other	116 (25.3)
Recommending family treatment	Yes	413 (90.0)
	No	46 (10.0)
Status of calling patients for follow-up	Yes	275 (59.9)
	No	184 (40.1)
Repeat treatment within 7-15 days	Yes	294 (64.1)
	No	165 (35.9)
Seasonal differences	Spring	35 (7.6)
	Summer	48 (10.5)
	Autumn	64 (13.9)
	Winter	134 (29.2)
	No	178 (38.8)

With respect to diagnosis, 96.5% of physicians relied on clinical findings without laboratory confirmation. In addition, 23.7% believed that scabies could be transmitted from animals (Table 4).

Subgroup analyses according to years of professional experience revealed significant differences. Physicians with <10 years of experience prescribed permethrin lotion more frequently compared to those with ≥10 years (68.3% vs. 56.8%; p=0.029). Conversely, the rate of not recommending any treatment was higher among physicians with ≥10 years of experience (17.7% vs. 6.3%). Belief in animal-to-human transmission was also more common among less experienced physicians (45.3% vs. 32.8%; p=0.012). No significant difference was observed between the two groups in terms of recommending family treatment (p=0.228). These findings are presented in Table 5.

Table 4. Findings on diagnosis and level of knowledge		
n:459		**n (%)**
Laboratory test required	Yes	16 (3.5)
	No	443 (96.5)
Diagnostic examination findings	No benefit from treatment and diagnosis is doubtful	439 (95.6)
	Erythematous papule, vesicle	20 (4.4)
Transmission of scabies from animals	Yes	109 (23.7)
	No	350 (76.3)

Table 5. Treatment preferences of pediatricians by years of professional experience			
n: 459	**Experience <10 years n (%)**	**Experience ≥10 years n (%)**	**p***
Treatment			
Permethrin lotion	97 (68.3)	180 (56.8)	0.029
Sulfur cream	14 (9.9)	41 (12.9)	
Magistral drugs	14 (9.9)	25 (7.9)	
Ivermectin tablets	2 (1.4)	4 (1.3)	
No treatment recommended	9 (6.3)	56 (17.7)	
Ready-made magistral drugs	6 (4.2)	11 (3.5%)	
Belief in animal-to-human transmission			
Yes	64 (45.3)	104 (32.8)	0.012
No	78 (54.9)	213 (67.2)	
Family treatment			
Yes	138 (97.2)	300 (94.4)	0.228
No	4 (2.8)	17 (5.4)	
*: Chi-square test			

DISCUSSION

Scabies has an increasing prevalence not only in Turkiye but also all over the world.[9,10] Although the reason for the recent increase in the number of cases is not clearly known, deficiencies in diagnosis and treatment contribute to higher rates of scabies. Whereas non-responsiveness to medications on a case-by-case basis may have contributed to increased prevalence of scabies.[11-13]

To the best of our knowledge, this is one of the few nationwide field-based studies evaluating the approaches of pediatricians working throughout Turkiye towards the diagnosis and treatment of scabies.[14,15] Although the data obtained show that a significant portion of physicians exhibit an approach to these patients in parallel with the current guidelines, it is

noteworthy that differences in knowledge and practice among physicians persist in some areas.

The fact that permethrin lotion (60.3%), which is the most preferred agent in the treatment of scabies, stands out in the first line, shows a trend that is generally in line with national and international guidelines.[16,17] However, the limited use of systemic agents such as ivermectin (1.3%) may reflect factors such as availability, physician experience, or confidence in this treatment option, although these aspects were not directly evaluated in our study. In addition, the high rates of prescribing of medicinal products (64.5%) and the diversity of ingredients (e.g. balsam of Peru, benzyl benzoate) indicate the heterogeneity of practice in the field, which suggests that standardization of scabies treatment remains a challenge.

The high rate (90.0%) of recommendation of family treatment indicates that physicians are aware of the importance of contact management in breaking the chain of transmission. However, the variabilities in the rates of calling patients for follow-up (59.9%) and recommending repeat treatment (64.1%) suggest that the guideline recommendations are not uniformly adopted by all physicians. This finding is particularly noteworthy for the management of resistant or recurrent cases. The importance of repeat treatment in scabies is emphasized in many international guidelines. Reapplication of topical treatments and systemic ivermectin therapy is recommended after 7-14 days. This approach aims to eliminate both mites that survived the initial treatment or newly hatched eggs.[16,17] This variability in follow-up and re-treatment strategies may also reflect institutional or regional differences. Previous studies have reported that suboptimal application of topical therapy, poor adherence, and lack of systematic follow-up are common barriers to effective management, particularly in high-burden or resource-limited settings.[7,18] These findings underline the need for standardized approaches to follow-up and re-treatment across different healthcare institutions in Turkiye.

Diagnostic findings revealed that the vast majority of pediatricians made the diagnosis by clinical observation (96.5%) and laboratory tests were rarely used. Although this failure to resort to diagnostic laboratory tests may be related to the need for rapid diagnosis in practice, it may also bring the risk of misdiagnosis or delayed diagnosis in atypical cases. Considering the atypical presentations that may be seen especially in pediatric patients, it can be said that supportive diagnostic methods need to be used more effectively in appropriate cases.

Another noteworthy point in the study is that approximately one fourth of the physicians (23.7%) thought that scabies could be transmitted from animals. This lack of knowledge indicates a widespread misconception and suggests that professional trainings should focus not only on treatment but also on transmission routes and infection control. Based on literature findings, humans can rarely contract scabies from domestic dogs (*S. scabiei var canis*) and cats (*Notoedres cati*). However, zoonotic scabies differs from classical scabies in that it has a short incubation period, the distribution of lesions is limited to areas of contact with the animal and tunnels are not seen. Animal mites cannot reproduce in human hosts and can only survive for a few days.[19] As a result, human-to-human transmission does not occur and only treatment of the animals is sufficient for cure.[20,21]

Previous studies conducted in Turkiye and other countries also provide valuable insights into the management of scabies and support the findings of the present study. Özçelik[14] retrospectively analyzed pediatric scabies cases and emphasized the diagnostic difficulties and distinct clinical presentations in children, including palmoplantar and scalp involvement. Similarly, Etgu and Önder[15] evaluated the knowledge levels of primary care physicians and demonstrated significant gaps in awareness regarding transmission and treatment compliance, underlining the need for targeted educational programs. In addition, Oba et al.[22] investigated factors influencing treatment success in pediatric scabies and highlighted the importance of family treatment and correct application of topical agents. On an international level, Romani et al.[7] and Bernigaud et al.[18] reported that inadequate adherence to guidelines, lack of systematic follow-up, and treatment resistance are common barriers in scabies control. These findings indicate that the challenges identified in our study are also reported both nationally and globally, reinforcing the need for standardized management strategies.

The findings of our study also highlight the need for structured physician training in the management of scabies. Previous reports have indicated that inconsistencies in adherence to treatment and follow-up recommendations, as well as suboptimal practices, may adversely affect patient outcomes.[18] International guidelines emphasize the importance of re-treatment intervals, contact management, and the use of supportive diagnostic methods in atypical cases.[16,23] Incorporating these aspects into continuing medical education programs and developing updated national guidelines harmonized with international standards would be beneficial. Such efforts could help address knowledge gaps, correct misconceptions, and promote standardization in clinical practice.

Limitations

This study has several limitations. First, participation was based on voluntary recruitment, which may have led to an over-representation of certain physician profiles or geographical regions and therefore limits the generalizability of the findings. Second, data were obtained through self-report questionnaires, which carry an inherent risk of recall bias and socially desirable responding. Third, the recruitment of participants through online channels such as social media and WhatsApp groups may have introduced sampling bias, as physicians less engaged in such platforms could be underrepresented. Despite these limitations, the study provides valuable insights into the current diagnostic and therapeutic practices of pediatricians in Turkiye and highlights important areas for improvement.

CONCLUSION

As a result, this nationwide survey highlights significant variability in the diagnostic and therapeutic approaches of pediatricians toward scabies in Turkiye. While permethrin lotion remains the most preferred treatment in line with

national and international guidelines, gaps persist in the use of systemic therapies, re-treatment practices, follow-up strategies, and knowledge about transmission. The study underscores the importance of standardized approaches, improved integration of current guidelines into clinical practice, and targeted educational initiatives such as continuing medical education and updated national guidelines. Addressing these gaps will be critical for optimizing scabies management in pediatric practice and reducing the overall disease burden.

ETHICAL DECLARATIONS

Ethics Committee Approval

The study was conducted with the approval of the Memorial Ataşehir Hospital Ethics Committee (Date: 13.05.2025, Decision No: 2025/16).

Informed Consent

All participating physicians were informed about the study and provided voluntary informed consent before participation.

Referee Evaluation Process

Externally peer-reviewed.

Conflict of Interest Statement

The authors declare that they have no conflicts of interest.

Financial Disclosure

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

Author Contributions

All authors declare that they participated in the conception and design of the study, data collection, analysis, and interpretation, drafting and revising of the manuscript, and approved the final version of the article.

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