Original Article

Prevalence and Risk Factors of Scabies in Tando Muhammad Khan, Sindh: A Retrospective Study

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ABSTRACT

OBJECTIVE: To assess the prevalence and risk factors associated with scabies in Tando Muhammad Khan, Sindh, Pakistan.

METHODOLOGY: A retrospective observational study was conducted at the dermatology outpatient clinic of Indus Medical College and Hospital, reviewing medical records from January to August 2024. A total of 300 patients' records were examined for documented cases of scabies based on physical assessments. Sociodemographic and dietary data were extracted from existing medical records and hospital databases. The collected data were then analyzed using SPSS, with the results presented in tables and graphs.

RESULTS: Among the 300 scabies cases, 49.1% were adult males, 32.3% were adult females, and 9.3% were teenagers and children. Adult males showed the highest Prevalence, with many cases linked to lower socioeconomic backgrounds. The mean Age for male patients was 42.71 years, and 53.3% were Sindhi. Most patients (86%) relied on surface water, and 81% were non-vegetarians. Crusted lesions were the most common, with 97% of patients exhibiting multiple lesions across various body areas.

CONCLUSION: The study reveals that overcrowding, poor hygiene, and limited access to clean water are major risk factors. Public health interventions focusing on hygiene education and better water access are crucial to reducing scabies in the region.

KEYWORDS: Scabies, Risk factors, Lesion, Prevalence crusted, Tando Muhammad Khan.

INTRODUCTION

Scabies is a skin condition caused by an infestation of the tiny mite (Sarcoptes scabiei var hominis), leading to intense itching, disrupted sleep, and social stigma[1]. Each year, it impacts around 300 million people worldwide, particularly in tropical and humid areas[2]. 2013, the World Health Organization (WHO) designated scabies as a neglected tropical disease (NTD)[3]. The disease is primarily transmitted through close personal contact, making it familiar within households and institutional settings. Prevalence rates of scabies vary widely, ranging from 0.3% to 46%, with an estimated 147 million cases worldwide at any given time. The burden is exceptionally high in low and lower-middle-income countries. Pakistan's most prevalent dermatological infection is scabies, followed by fungal infestations. This disease is responsible for 50% of dermatological infections in children in Sindh, Pakistan[4].

The hallmark of scabies is intense itching, especially at night, which can lead to absenteeism from school and work, disrupted sleep, reduced quality of life, and social stigma[5]. Several risk factors have been associated with scabies, including overcrowding, poor personal hygiene, bed or clothing sharing, younger Age, caregiver education levels, residence location, inadequate access to water, larger family size, lack of knowledge about scabies, parental illiteracy, and low household income[6].

Moreover, individuals with scabies are at an increased risk of developing impetigo, a common bacterial skin infection. Scratching the affected areas can introduce bacteria, leading to complications from group A streptococcal infections, such as septicaemia, glomerulonephritis, and rheumatic heart disease, especially in tropical regions[7]. This study explored the prevalence and risk factors of scabies in Tando Muhammad Khan, Sindh, Pakistan, aiming to deliver detailed information.

METHODOLOGY

A hospital-based retrospective observational study was conducted with patients who attended the dermatological outpatient clinic at Indus Medical College and Hospital (IMCH), Tando Muhammad Khan, between January and August 2024. Medical records of 300 patients were reviewed for a diagnosis of scabies during this period. Patients with a documented diagnosis of scabies confirmed by physical examination and Medical records with complete demographic, dietary, and medical history were included in the study. Incomplete medical records or those missing critical sociodemographic or

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clinical information and patients with scabietic lesions only in private areas were excluded from the documentation. Data were extracted using a structured data collection form designed for this study. Scabies diagnosis was confirmed through physical exams documented in the patient records by experienced health officers.

The study focused on documented areas commonly impacted by scabietic lesions, such as the arms, legs, and abdomen. Private areas were excluded from the examination notes. Lesions identified on various body parts, including the interdigital spaces, hands, arms, legs, and abdomen, were noted as scabies in the records. Additionally, patients' records were reviewed for any documented history of contact with individuals presenting scabies manifestations. Data collection included sociodemographic characteristics, dietary habits, presenting complaints, past medical history, and family history of scabies as documented in the patient's records. As this was a retrospective study, patient consent was not directly obtained; instead, the study was conducted following ethical guidelines for using patient records. Data analysis was performed using the Statistical Package for Social Sciences (SPSS) version 20, with descriptive statistics such as frequency and percentage presented in tables and graphs.

RESULTS

During this retrospective study conducted from January to August 2024, 300 scabies infections were reported. Out of the total cases reported, 147(49.1%) were adult males, 97(32.3%) were adult females, 28 (9.30%) were teenagers, and 28(9.30%) were children patients (**Figure I**). The results showed a higher prevalence rate in adult males followed by females and a low rate in teenagers and children.

FIGURE I: PREVALENCE OF SCABIES IN DIFFERENT AGE GROUPS

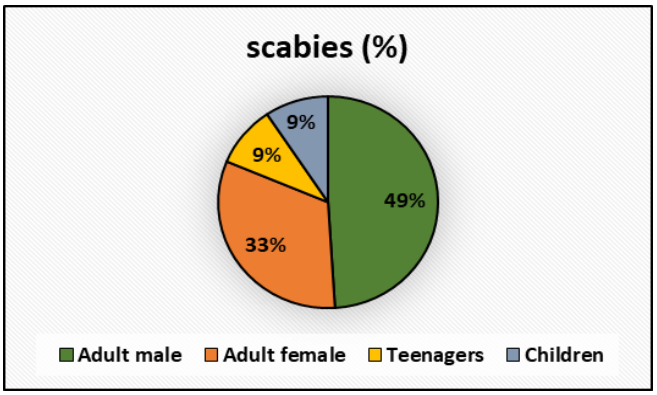


Table I presents the general sociodemographic characteristics of scabies patients. The mean Age of male patients was 42.71±14.09 years, while the mean Age of female patients was 31.00±11.25 years. Teenagers have a mean age of 16.00±1.336 years, and children have a mean age of 7.482±2.995 years.

In terms of ethnicity, the majority of the patients were Sindhi (53.3%), followed by other ethnic groups, were illiterate (17.3%) by educational status, married (69.3%) and belonging to district Tando Muhammad Khan (92.3%) and have a positive family for scabies. Regarding past diseases, 14.3% had a history of allergies, and 10% had previously experienced scabies. The primary water source of participants was surface water compared to underground water. Dietary habits varied, with 28% consuming mixed vegetables and meat, while 26.3% primarily consumed vegetables. Clothing hygiene showed that 48.9% washed clothes every week, while 47.5% did so twice a week. Most patients bathed daily (56.1%), and 53.4% changed clothes daily. A positive family history of scabies was found in 53.3% of cases, and 76.7% had contact with itchy people.

TABLE I: GENERAL SOCIODEMOGRAPHIC CHARACTERISTICS OF THE PARTICIPANTS

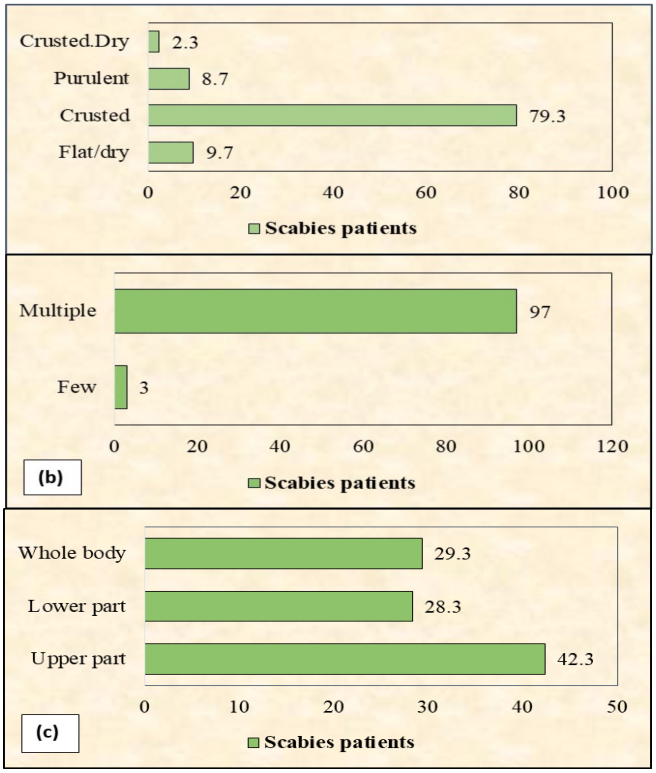
Scabies Patients	Frequency n=300	Percentage (%)	Scabies Patients	Frequency n=300	Percentage (%)
Mean Age (year)			**Other Diseases in Past**		
Male	42.71 ± 14.09		GIT	13	4.30
Female	31.00 ± 11.25		Allergy	43	14.30
Teenager	16.00 ± 1.336		Cardiac	16	5.30
children	7.482 ± 2.995		Scabies	30	10.0
Ethnicity			Nervous	23	7.70
Muhajir	62	20.70	Diabetic	8	2.70
Sindhi	160	53.30	No any	167	55.70
Punjabi	18	6.0	**Source of Water**		
Balochi	6	2.0	Surface	258	86.0
Hindi	4	1.30	Underground	29	9.70
Pashto	50	16.70	Both	13	4.30
Education			**Diet consumed**		
Illiterate	52	17.30	Vegetables	79	26.30
Primary	57	19.0	White meat	73	24.30
Secondary	6	2.10	Red meat	59	19.60
Matric	63	21.0	Fish	5	1.70
Intermediate	67	22.30	Vegetables and Meat	84	28.0
Graduation	55	18.30	**Freq of washing clothes**		
Marital Status			Every week	149	48.90
Married	208	69.30	Twice a week	144	47.50
Unmarried	92	30.70	Per Month	7	3.60
Occupation			**Taking Bath**		
Govt employee	17	5.70	Every day	171	56.10
Private job	41	13.70	Alternate day	118	39.20

Businessman	57	19.0	Once in a week	11	4.70
Labour/Farmer	31	10.30	**Changing clothes**		
Housewife	72	24.0	Every day	163	53.40
Student	82	27.30	Alternate days	128	43.30
District			Every week	9	3.30
Hyderabad	14	4.70	**Family history**		
Jamshoro	3	1.0	Positive	160	53.30
Tando Muhammad khan	277	92.30	Negative	140	46.70
Abbottabad	4	1.30	**Contact with itchy people**		
Matli	2	7.0	Yes	232	76.70
			No	68	23.30

We found the majority of the patients exhibited crusted lesions (79.3%), followed by flat/dry lesions (9.7%), purulent lesions (8.7%), and a combination of crusted and dry lesions. Most patients (97.0%) had multiple lesions, while only 3.0% had a few.

The distribution of affected body regions was relatively even, with 42.3% of patients having lesions in the upper part of the body, 28.3% in the lower part, and 29.3% across the whole body. This data highlights the Prevalence of crusted lesions and multiple lesion counts among scabies patients, with a slight predominance of upper body involvement.

FIGURE II: DISTRIBUTION OF PATIENTS ACCORDING TO (A) TYPE OF LESIONS (B) NO. OF LESIONS (C) AFFECTED PARTS OF THE BODY



DISCUSSION

The previous study included 740 individuals and revealed that 25.5% of males were significantly more affected than females, who had an infection rate of 41.5%, and children, who had a rate of 33%. These findings align with the current results, which indicate that men are more susceptible to scabies[8]. In another study in the past, a total of 429 participants were surveyed. Among them, 58.0% of the participants were female, while 41.75% were male[9]. Males might engage in behaviors or habits that elevate their risk, such as increased physical contact in environments or occupations where scabies is more common.

Additionally, specific jobs or activities predominantly performed by males could expose them more frequently to settings where scabies are prevalent[9-11]. A study featured in the Journal of Global Infectious Disease reported that co-infection rates of scabies and impetigo ranged from 10% to 83% in certain groups, with children showing notably high rates[12]. The average Age of participants was 33, with the majority aged between 18 and 30 years[13]. Scabies and impetigo are widespread across all geographical regions, affecting both genders and the major ethnic groups. Scabies is linked to poverty and correlates with household size and lower socioeconomic status. Poor access to healthcare is also well-documented as a contributing factor to the Prevalence of scabies[14].

Married individuals, especially those in close living quarters, may have a higher risk of scabies transmission due to frequent skin-to-skin contact. Marital status can indirectly influence scabies risk through living conditions and hygiene practices, as sharing items like bedding or towels can increase transmission. However, hygiene varies by individual, not just marital status[15]. The relationship between scabies and water sources, including surface and underground water, is primarily indirect but significant in specific environmental contexts. Scabies is a skin infestation caused by the mite Sarcoptes scabiei, which spreads through close personal contact and shared items like clothing and bedding rather than directly through water[16]. In communities where water is scarce, people may bathe less frequently or share water for bathing, increasing the risk of scabies transmission[17].

Diet can indirectly affect an individual's overall health and immune system function, which might influence susceptibility to infections, including scabies[18].

A prior study identified scabies in 312 (22.3%) screened students. Among those affected, 26.4% had fewer than 10 lesions, 47.9% had between 10 and 49 lesions, and 25.7% had 50 or more lesions. One case of crusted scabies was diagnosed based on clinical observations. Most participants with scabies had lesions in more than one body region[19].

In participants with scabies, lesions were most commonly found on the upper limbs (82.6%). In contrast, lesions on the lower limbs were less

prevalent across the sample (43.4%)[20]. The role of hygiene is controversial[21]. In a previous study, 94.4% of the patients maintained daily washing habits. However, there was no statistically significant relationship between washing frequency and scabies infestation[22].

CONCLUSION

This study revealed a high prevalence of scabies in the Tando Muhammad Khan district, with adult males being the most affected group. The findings indicate that factors such as overcrowding, poor sanitation, and limited access to clean water significantly contribute to the disease's transmission. Most patients from lower socioeconomic backgrounds demonstrated a limited understanding of scabies and preventive practices. Crusted lesions and widespread involvement of multiple body areas were commonly observed. The study underscores the importance of implementing public health initiatives, promoting personal hygiene education, and enhancing access to water and healthcare services to lower the incidence of scabies.

Limitations of the Study

The study focused on patients from a single district in Pakistan, which may limit its applicability to other regions or the entire country. While 300 patients were included, a larger sample size would enhance the robustness of the findings and improve the ability to generalize the results. And we suggest multicenter studies to investigate potential differences between the different demographic groups with more accuracy.

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Data Sharing Statement: The corresponding author can provide the data proving the findings of this study on request. Privacy or ethical restrictions bound us from sharing the data publicly.

AUTHOR CONTRIBUTION

Shaikh M: Contributed to the conception and design of the work, Data collection, interpreted the data, drafted the work and substantively revised it.
Memon M: Data collection
Qureshi MY: Contributed to the conception and design of the work,
Qazi S: Data collection
Ismail B: Interpreted the data
Kashif M: Drafted the work and substantively revised it
All authors have approved the submitted version; they further agreed on their contributions and appropriately looked into and resolved the questions about the accuracy or integrity of any part of the work.

REFERENCES

1. Ural ZK, Çatak B, Ağaoğlu E. Prevalence of scabies in the Covid-19 pandemic period and determination of risk factors for scabies: a hospital -based cross-sectional study in Northeast Turkey. Acta Parasitol. 2022; 67(2): 802-8. doi: 10.1007/s 11686-022-00524-6. Epub 2022 Feb 2.
2. Azene AG, Aragaw AM, Wassie GT. Prevalence and associated factors of scabies in Ethiopia: systematic review and Meta-analysis. BMC Infect Dis. 2020; 20(1): 380. doi: 10.1186/s12879-020-05106-3.
3. El-Moamly AA. Scabies as a part of the World Health Organization roadmap for neglected tropical diseases 2021–2030: what we know and what we need to do for global control. Trop Med Health. 2021; 49(1): 64. doi: 10.1186/s41182-021-00348-6.
4. Chandler DJ, Fuller LC. A review of scabies: an infestation more than skin deep. Dermatology. 2019; 235(2): 79-90. doi: 10.1159/000495290. Epub 2018 Dec 13.
5. Kim HS, Hashimoto T, Fischer K, Bernigaud C, Chosidow O, Yosipovitch G. Scabies itch: an update on neuroimmune interactions and novel targets. J Eur Acad Dermatol Venereol. 2021; 35 (9): 1765-76. doi: 10.1111/jdv.17334. Epub 2021 May 29.
6. Lee S, Kim J, Kim M, Lee U. Risk factors for scabies treatment resistance: a retrospective cohort study. J Eur Acad Dermatol Venereol. 2022; 36(1): 126-32. doi: 10.1111/jdv.17713. Epub 2021 Oct 10.
7. Chosidow O, Hay RJ. Control of scabies and secondary impetigo: optimizing treatment effectiveness in endemic settings. Lancet Infect Dis. 2019; 19(5): 454-6. doi: 10.1016/S1473-3099 (19)30068-4. Epub 2019 Apr 4.
8. Al-Jassani MJ, Al-lamy NA, Kadhim AJ, Hammood GA. Incidence of Human Scabies in Babylon Province, Iraq. IJPQA. 2023; 14(1):87-90.
9. Rainer LA, Molefi TL, Kololo SO, Leeme TB, Selemogo M, Molefi M. Prevalence and associated risk factors of scabies and impetigo: A cross-sectional study in Tutume district, Botswana. PLoS Negl Trop Dis. 2024; 18(6): e0011495. doi: 10.1371/journal.pntd.0011495.
10. Reta MW, Derseh BT, Sahilu BY. Determinants of Scabies among Primary School Children in Habru District: A case control study. Research Square. 2020; 1-16. doi: 10.21203/re.20670/v1.
11. Isnaini I, Rosida A, Widyamala E. The Prevent Scabies with Healthy Living. Asian J Comm Services. 2024; 3(4): 365-74. doi: 10.55927/ ajcs.v3i4.8759.
12. Yerramilli A, Bowen AC, Marcato AJ, McVernon J, Carapetis JR, Campbell PT et al. Body distribution of impetigo and association with host and pathogen factors. Peer J. 2022; 10(11): e14154. doi: 10.7717/peerj.14154.
13. Yirgu R, Middleton J, Cassell JA, Bremner S, Davey G, Fekadu A. Quality of life among adults with scabies: A community-based cross-sectional

study in north-western Ethiopia. PLoS Negl Trop Dis. 2024; 18(8): e0012429. doi: 10.1371/journal.pntd.0012429.
14. Hay R, Steer A, Engelman D, Walton S. Scabies in the developing world-its Prevalence, complications, and management. Clin Microbiol Infect. 2019; 18(4): 313-23. doi: 10.1111/j.1469-0691.2012.03798.x.
15. Ben-Noun L. DETRIMENTAL SCABIES. 2022. Publisher: B.N. Publication House, Israel
16. Ejigu K, Haji Y, Toma A, Tadesse BT. Factors associated with scabies outbreaks in primary schools in Ethiopia: a case-control study. Res Rep Trop Med. 2019; 10: 119-27. doi: 10.2147/RRTM.S214724.
17. Melese F, Malede A, Sisay T, Geremew A, Gebrehiwot M, Woretaw L et al. Cloth sharing with a scabies case considerably explains human scabies among children in a low socioeconomic rural community of Ethiopia. Trop Med Health. 2023; 51(1):52. doi:10.1186/s41182-023-00544-6.
18. Bayisenge U. The lived experience of people affected with scabies: Case from Rwanda. Brighton and Sussex Medical School. Paper Presentation in EASA Conference, Barcelona, 2024.
19. Korte LM, Bowen AC, Draper AD, Davis K, Steel A, Teodora I et al. Scabies and impetigo in Timor-Leste: a school screening study in two districts. PLoS Negl Trop Dis. 2018; 12(5): e0006400. doi: 10.1371/journal.pntd.0006400.
20. Romani L, Whitfeld MJ, Koroivueta J, Kama M, Wand H, Tikoduadua L et al. The epidemiology of scabies and impetigo in relation to demographic and residential characteristics: baseline findings from the skin health intervention Fiji trial. Am J Trop Med Hyg. 2019; 97(3): 845-850. doi: 10.4269/ajtmh.16-0753. Epub 2017 Jul 19.
21. Puspita SIA, Ardiati FN, Adriyani R, Harris N. Factors of personal hygiene habits and scabies symptoms at Islamic boarding school. J Promkes. 2021; 9(2): 91-100. doi: 10.20473/jpk.V9.I2.2021.91-100.
22. Badwi EA, Yousuf SA. Prevalence of scabies cases in two public hospitals Aden/Yemen. Elec J Univ Aden Basic Appl Sci. 2022; 3(4): 304-12. doi: 10.47372/ejua-ba.2022.4.200.