ORIGINAL ARTICLE

ANNALS OF PUNJAB MEDICAL COLLEGE

Triggering Factors and Treatment of Scabies in Faisalabad

Sarwat Jahan[1], Rehan Anjum[2], Mohammad Furqan Adeel[3], Shireen Javed[4]

1 *Associate Professor, Department of Pharmacology, Aziz Fatimah Medical & Dental College, Faisalabad Pakistan*
Manuscript writing,

2 *Demonstrator, Department of Physiology, Aziz Fatimah Medical & Dental College, Faisalabad Pakistan*
Data collection, Validation of questionnaire

3 *Medical Officer, Prime Care Hospital, Faisalabad Pakistan*
Data collection

4 *PhD Scholar, Universiti Sains Malaysia, Malaysia*
Sample size calculation, Manuscript review, Data analysis

CORRESPONDING AUTHOR
Dr. Sarwat Jahan
Associate Professor, Department of Pharmacology, Aziz Fatimah Medical & Dental College, Faisalabad Pakistan
Email: sarwatirshad04@gmail.com

Submitted for Publication: 04-09-2024
Accepted for Publication 29-11-2024

How to Cite: Jahan S, Anjum R, Adeel MF, Javed S. Triggering Factors and Treatment of Scabies in Faisalabad. APMC 2024;18(4):319-323. **DOI: 10.29054/APMC/2024.1683**

ABSTRACT

Objective: To study the triggering factors and treatment of scabies in Faisalabad. **Study Design:** Cross sectional study. **Settings:** Aziz Fatima Hospital, Faisalabad Pakistan. **Duration:** 6 months (January to June 2024) after ethical approval from hospital. **Methods:** Total 149 cases of adults and children (>5 years of age) with the scabies attending various skin OPDs in Faisalabad, were included in study. Demographic details, clinical profile, family and past history was noted in predesigned proforma. Self-designed questionnaire was filled by patients after validation at the start of study, statistical analysis was done using SPSS version 26 software, with significance level as $p<0.05$. **Results:** Out of 149 cases, 64.4% male and 35.6 % were female, 31.5% cases were of 21-30 years, 62.4% patients with larger families (>5 members), 68.4% with a positive family history showed significant p-value of 0.001, 63.8% cases belong to poor socioeconomic and educational status. 73.2% cases lived with sharing clothes and articles, were more affected. Most common skin lesion was eczema 32.2% cases followed by 28.2% of vesicle cases. The most affected body parts were "Finger web, axilla and groin" (13.4%), with a significant p-value of 0.001. Treatment profile include 87.9% cases used permethrin 5% lotion, 66.4% taken anti histamine, 34.9% used Ivermectin, 20% were used permethrin lotion/steroids. **Conclusion:** Scabies is one of the most neglected tropical diseases of young age group, which could get relieved by proper treatment and improving personal hygiene

Keywords: *Acaricidal, Neglected disease, Contagious.*

INTRODUCTION

Scabies is a highly contagious and neglected skin disease caused by the mite Sarcoptes scabiei that burrows under the skin. It is more common in tropical regions and humid environments and becomes endemic in rural areas of developing countries. Due to overcrowding and too much close contact within the schools, it spreads quite rapidly among school children. The most commonly involved sites of disease in adults are wrists, buttocks, fingers, genitals, axillae, groins, and breasts in women, while in children and infants, there are the soles, palms, neck, and face.[1] Since 2013 WHO labelled scabies as a neglected disease.[2] Children under the age of two and elderly individuals are at the greatest risk. Knowledge of this condition is important for an early diagnosis to be made and treatment to be initiated, as misdiagnosis can lead to outbreaks and morbidity, which may lead to an increased economic burden, social isolation, severe anxiety, and frequent absenteeism among the infected people at work and school.[3] Scientific advances from the past five years suggest that scabies are amenable to population-level control, particularly through mass drug administration.[4] Treatment of this highly contagious skin manifestation involves hygienic measures and topical application or oral administration of specific acaricides. Ivermectin, permethrin, and benzyl benzoate are the most commonly applied therapies.[5,6]

This study was conducted to evaluate the triggering factors and treatment of scabies in Faisalabad.

METHODS

This Cros Sectional study conducted for a period of six months from January 2024 to June 2024 after obtaining acceptance letter (Ref.NO IEC/311-23) on 8th June 2023 from Institutional ethical committee of the Aziz Fatima hospital in Faisalabad.

A total of 149 patients (adults and children greater than 5 years of age) were selected with the convenient sampling method who were newly diagnosed scabies from the

various private skin OPD clinics in Faisalabad. Diagnosis of the disease was made on the basis of presenting clinical symptoms include itching, which became aggravated at bedtime in the night, family history of similar symptoms, and typical skin lesions like papules, excoriations, and burrows at classical sites like finger webs, genitals, etc.

Patients with crusted scabies, pregnant and lactating women and children less than 5 years of age, patients having other cutaneous diseases like acne, psoriasis, etc., and systemic diseases like asthma, hypertension, diabetes, epilepsy, etc. were excluded from the study. After taking the informed consent, data on demographic details, clinical profile, past history, and family history was noted in the predesigned proforma. The self-designed questionnaire, validated by giving to the patients to be filled in the local language at the start of the study about scabies and its relation to the quality of life, afterward its detailed analysis was done

Sample size was calculated using an open Epi sample size calculator using the formula (n = z2 pq/d2)² to be 149, while data analysis was done using SPSS version 26. Descriptive statistics were used to show averages, percentages, and relative frequencies. Binary logistic regression was used for each triggering factor of scabies infestation. Bivariate logistic regression was used to calculate odds ratios (OR) and 95% confidence intervals (CI) were obtained and P-values <0.001was considered as significant.

RESULTS

Total 149 patients in this study were examined for relationship between socio-demographic characteristics, including (age, sex, family history, family size) and living behaviors including (sharing of clothes and articles) with the scabies outcome as illustrated in Table 1.

Table 1: Socio-Demographic details of patients with scabies (n=149)

Characteristics		Total No. of cases		OR (95% CI)	P-value
		Number	Percentage		
Sex	Male	96	64.4%	1.708 (0.790, 3.692)	0.001
	Female	53	35.6%		
Family size	1-5	56	37.6%	1.429 (0.678, 3.009)	0.034
	>5	93	62.4%		
Family History	Yes	102	68.46%	5.2 (1.895, 14.271)	0.001
	No	47	31.54%		
Sharing clothes & articles	Yes	109	73.2%	0.970 (0.439, 2.141)	0.093
	No	109	73.2%	0.970 (0.439, 2.141)	0.003

OR Odds ratio, CI Confidence interval, P-values <0.001 considered as significant

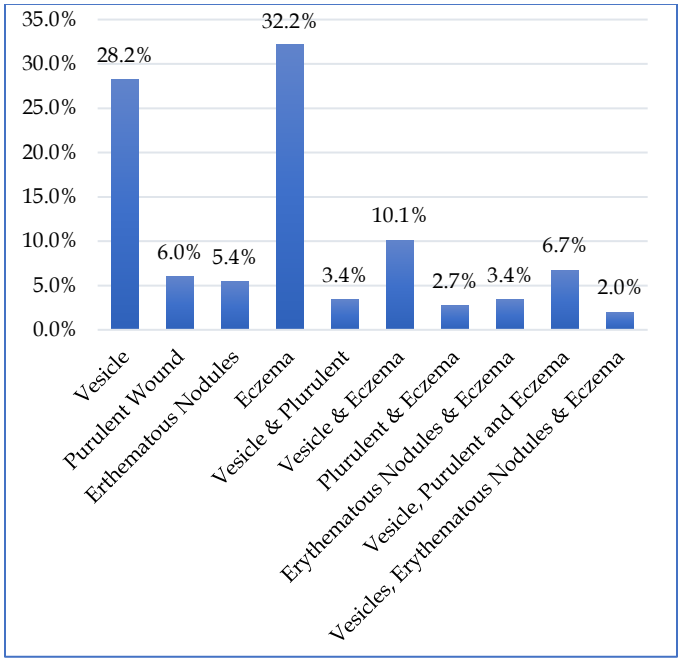
Clinical Profile: The most commonly associated skin lesion seen in this study was eczema 32.2% cases, followed by vesicles (28.2%) cases and 10% cases of eczema along with vesicles reported (fig.1). The most affected body parts in our study were combinations of multiple regions, particularly "Finger web, Axillary region, and Groin" 13.4%, "Axillary region and Groin" 8.7%, 6.0% "Finger web, Axillary region, Toe, Trunk, and Groin" (p= 0.001), indicating these areas are commonly involved. (table 2)

Table 2: Clinical Profile in Patients with Scabies (n=149)

Most affected body parts	Number	Percent	
Finger web	10	6.7%	0.001 **P-value**
Axillary region	2	1.3%	0.001 **P-value**
Toe	3	2.0%	0.001 **P-value** 0.367
Trunk	3	2.0%	
Groin	13	8.7%	
Finger web and axillary region	11	7.4%	
Finger web and Toe	4	2.7%	
Finger Web and Trunk	6	4.0%	
Finger Web and Groin	9	6.0%	
Axillary region and Toe	2	1.3%	
Axillary region and Trunk	1	0.7%	
Axillary region and Groin	13	8.7%	
Toe and Trunk	4	2.7%	
Trunk and Groin	5	3.4%	
Finger Web, Axillary Region, and Toe	2	1.3%	
Finger web, Axillary region, and Trunk	5	3.4%	
Finger web, Axillary region, and Groin	20	13.4%	0.001 **P-value**
Finger web, Toe, and Trunk	2	1.3%	0.367 **P-value**
Finger web, Toe and Groin	4	2.7%	
Finger web, Trunk, and Groin	2	1.3%	
The axillary region, Toe, and Groin	1	0.7%	
The axillary region, Trunk, and Groin	1	0.7%	
Toe, Trunk, and Groin	3	2.0%	
Finger web, Axillary region, Toe, and Trunk	5	3.4%	
Finger web, Axillary region, Toe, and Groin	5	3.4%	
Finger web, Axillary region, Trunk, and Groin	4	2.7%	
Finger web, Axillary region, Toe, Trunk, and Groin	9	6.0%	

P-values <0.001 considered as significant

Figure 1: Associated skin lesions in patients with scabies



In the current study, among triggering factors related to the increased incidence of scabies there was a significant association between age and the scabies (p-value of 0.007), Educational status reveals a substantial relationship with scabies (p=0.000), suggesting that lower educational attainment may be linked to a higher number of cases. Winter season may account for significant occurrence of the scabies outcome as compared with rainy season (p= 0.001) (Table3).

Table 3: Triggering factors of scabies among study participants (n=149)

Characteristics		Total No. of cases		P-value
		Number	%	
Age Group	Less than 11	22	14.8%	0.007
	11-20	36	24.2%	
	21-30	47	31.5%	
	31-40	21	14.1%	
	41-50	13	8.7%	
	51-60	5	3.4%	
	Greater than 60	5	3.4%	
Income per month	Less than 50k	95	63.8%	0.091
	50k to 1 Lac	32	21.5%	
	1 Lac to 5 Lac	17	11.4%	
	More than 5 lacs	5	3.4%	
Educational Status	Primary	29	19.5%	0.000
	Middle	36	24.2%	
	Matric	41	27.5%	
	Bachelor	28	18.8%	
	Master	15	10.1%	
In which season were symptoms noticed	Winter	88	59.1%	0.001
	Summer	52	34.9%	0.001
	Rainy season	9	6.0%	0.001

P-values <0.001 considered as significant

In our study, among participants that had taken medical treatment, 87.9% of patients used permethrin 5% lotion, 66.4% taken antiallergy, 34.9% used Ivermectin, and 21.5% patients were applied moisturizer while 20.1% were used permethrin lotion /steroids (Table 4)

Table 4: Treatment taken among study participants (n=149)

Characteristics		Number	Percent
Ivermectin	Yes	52	34.9%
	No	97	65.1%
Permethrin Lotioin	Yes	131	87.9%
	No	18	12.1%
Permethrin Lotion / Steroid	Yes	30	20.1%
	No	119	79.9%
Moisturizer	Yes	32	21.5%
	No	117	78.5%
Antiallergy	Yes	99	66.4%
	No	50	33.6%

DISCUSSION

Various studies regarding scabies infestation gave information about the associated risk factors and the basis for the selection of control and therapeutic strategies.[2] According to the results of the current study, the highest proportion of cases falls within the 21-30 age group (31.5%), followed by the 11-20 age group (24.2%). These results were in accordance with the study conducted by Pragya Ashok Nair *et al* in 2016,[1] However, a previous study showed a high prevalence of scabies were noted in children more than 10 years of age.[8]

In our study males were more commonly reported scabies infestation (64.4%) as compared to females 35%). This finding of current study is in accordance with results of the previous studies.[9,10] However analysis conducted in in north-east Poland, did not show any differences in the prevalence between women and men (54.7% vs. 45.3%; p=0.321).[11]

The strongest relation was seen with a positive family history of scabies in our study (68.46%) with a highly significant p-value of 0.001. Previous studies found similar correlation of family history with high prevalence of scabies infestation[9,12] In this study living behavior of study participants including sharing clothes and articles was 73.2% with significant p-value of 0.003. Similar results were reported in the previous studies[12,13] revealed that poor living standards and personal hygiene play a very key role in spreading skin diseases like scabies.

The majority of cases in this study belonged to a poor socio-economic background and earned less than 50,000 per month (63.8%). however, this association is not statistically significant (p=0.091). Educational status in our study reveals a significant relationship with scabies

(p=0.000), where individuals with education levels up to Matric constitute the largest group (27.5%), followed by those with Middle (24.2%) and Primary education (19.5%), suggesting that poverty and poor educational attainment were the major triggering factors for scabies. These results in our study were in accordance with the previous studies conducted in poor communities of rural Nigeria[8] and in primary schools in Ethiopia.[9]

The most affected body parts in our study were combinations of multiple regions, particularly "Finger web, Axillary region, and Groin" (13.4%). In the study conducted in southeast Iran, in primary schoolchildren of low socio-economic areas, the most affected body parts of scabies lesions were the web spaces between the fingers and wrists. Similar findings were seen in the study conducted by Pragya Ashok Nair *et al* in the rural area of tertiary care,[1] where the most affected site was the area between the fingers (73.52%), followed by hands (61.76%) and then the genitals area (40.19%). According to the previous study, the main cause of the involvement of hands and wrist infection is poor hygiene, close contact with the infected person, and frequent handling of the mite-contaminated materials.[14]

The mites, sarcoptic scabies, can live even outside the human body. Infectious time is as long as two days at 21° C. They can survive for a longer period of time at lower temperatures along with the higher humidity.[7] In the current study, out of 149 cases, 88(59.1%) cases, symptoms of scabies were noticed in the winter season as compared with the rainy season 9(6%); previous studies revealed a similar correlation of winter season with a high prevalence of scabies, mainly spread due to increased personal contact along with increased mites' survival.[15,16,17]

In contrast to this, according to some previous studies, the highest prevalence of scabies documented in countries with hot and tropical climate.[18,19]

The most common associated skin lesion seen in the current study was eczema (32.2%) followed by vesicles (28.2%), and 10% cases of eczema along with vesicles were reported; the previous study revealed 99.17% cases of itching skin rash in which Nearly three-fourths, 73.41% tiny red borrows or blisters on their skin.[9] However, only a few cases were observed of the presence of burrows for scabies. Still, on the other hand, non-specific secondary lesions like excoriated papules, eczematous or lichenized plaques, and nodules were more commonly observed.[20, 21]

CONCLUSION

With the outcomes of our study, it may be concluded that scabies is one of the most prevalent and important health problems among the young age group, it spreads rapidly from person to person through skin contact and from infected clothing and undefined use of drugs, especially in people from rural areas with poor hygiene which could get relieved by taking properly defined treatment along with improving personal hygiene. The prompt diagnosis and properly defined treatment of this highly prevalent diseases will be help to limit the financial burden in medical consultation and treatment.

LIMITATIONS

The sample size was small in this study, and we excluded patients with crusted scabies and patients having other cutaneous like acne, psoriasis, etc.

SUGGESTIONS / RECOMMENDATIONS

By introducing certain educational workshops, active surveillance with early diagnosis by medical or allied staff along with community involvement to provide prompt treatment, particularly in rural areas ultimately leading to improved health outcomes and quality of life. Traditional treatment including topical permethrin and Ivermectin may replace with the development of novel drugs in future.

CONFLICT OF INTEREST / DISCLOSURE

All authors declared no competing interests in this work.

ACKNOWLEDGEMENTS

The authors of this article are thankful to Dr. Beenish Altaf for her unconditional support and cooperation in this study.

FUNDING

This study received no any financial support from the hospital.

REFERENCES

1. Nair PA, Vora RV, Jivani NB, Gandhi SS. A study of clinical profile and quality of life in patients with scabies at a rural tertiary care centre. J Clin Diagn Res. 2016 Oct;10(10):WC01-WC04.
2. Sanei-Dehkordi A, Soleimani-Ahmadi M, Zare M, Jaberhashemi SA. Risk factors associated with scabies infestation among primary schoolchildren in a low socio-economic area in southeast of Iran. BMC Pediatr. 2021 May 25;21(1):249.
3. Leung AK, Lam JM, Leong KF. Scabies: a neglected global disease. Curr Pediatr Rev. 2020 Feb;16(1):33-42.
4. Osinubi O, Grainge MJ, Hong L, Ahmed A, Batchelor JM, Grindlay D, Thompson AR, Ratib S. The prevalence of psychological comorbidity in people with vitiligo: a systematic review and meta-analysis. Br J Dermatol. 2018 Apr;178(4):863-78.
5. Engelman D, Cantey PT, Marks M, Solomon AW, Chang AY, Chosidow O, et al. The public health control of scabies: priorities for research and action. Lancet. 2019 Jul 6;394(10192):81-92.
6. 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 Aug 16;49(1):64.

7. Sunderkötter C, Aebischer A, Neufeld M, Löser C, Kreuter A, Bialek R, Hamm H, Feldmeier H. Increase of scabies in Germany and development of resistant mites? Evidence and consequences. J Dtsch Dermatol Ges. 2019 Jan;17(1):15-23.
8. Ugbomoiko US, Oyedeji SA, Babamale OA, Heukelbach J. Scabies in resource-poor communities in Nasarawa state, Nigeria: epidemiology, clinical features and factors associated with infestation. Trop Med Infect Dis. 2018 Jun 4;3(2):59.
9. 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 Aug 27;119-27.
10. Kouotou EA, Nansseu JR, Kouawa MK, Zoung-Kanyi Bissek AC. Prevalence and drivers of human scabies among children and adolescents living and studying in Cameroonian boarding schools. Parasit Vectors. 2016 Dec;9(1):1-6.
11. Korycińska J, Dzika E, Kloch M. Epidemiology of scabies in relation to socio-economic and selected climatic factors in north-east Poland. Ann Agric Environ Med. 2020;27(3):374-8.
12. Sara J, Haji Y, Gebretsadik A. Scabies outbreak investigation and risk factors in East Badewacho District, Southern Ethiopia: unmatched case control study. Dermatol Res Pract. 2018;2018:7276938.
13. El SN, El TA, Nasif GA, Hassan NS, Aliaa N. Epidemiological Study of Scabies in Primary Schools, Fayoum. Prim Health Care Gen Pract. 2017;1(2):1-5.
14. Sharaf MS. Scabies: Immunopathogenesis and pathological changes. Parasitol Res. 2024 Mar;123(3):149.
15. 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 Aug 16;49(1):64.
16. Korycińska J, Dzika E, Kloch M. Epidemiology of scabies in relation to socio-economic and selected climatic factors in north-east Poland. Ann Agric Environ Med. 2020;27(3):374-8.
17. Arlian LG, Morgan MS. A review of Sarcoptes scabiei: past, present and future. Parasit Vectors. 2017 Dec;10(1):1-22.
18. Engelman D, Cantey PT, Marks M, Solomon AW, Chang AY, Chosidow O, et al. The public health control of scabies: priorities for research and action. Lancet. 2019 Jul 6;394(10192):81-92.
19. Romani L, Steer AC, Whitfeld MJ, Kaldor JM. Prevalence of scabies and impetigo worldwide: a systematic review. Lancet Infect Dis. 2015 Aug;15(8):960-7.
20. Cassell JA, Middleton J, Nalabanda A, Lanza S, Head MG, Bostock J, et al. Scabies outbreaks in ten care homes for elderly people: a prospective study of clinical features, epidemiology, and treatment outcomes. Lancet Infect Dis. 2018 Aug;18(8):894-902.
21. Thomas C, Coates SJ, Engelman D, Chosidow O, Chang AY. Ectoparasites: scabies. J Am Acad Dermatol. 2020 Mar;82(3):533-48.