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Epidemiology and Treatment Outcomes of Genital Scabies in High-Risk Populations

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Abstract **Original Research Article**

Introduction: The epidemiology and clinical features of scabies remain largely unknown in various communities. ***Methodology:*** This prospective study was done at the Department of Skin & VD at Community Based Medical College Bangladesh, Winnerpar, Mymensingh from June 2020 to June 2022. A well-structured questionnaire was used for data collection. ***Result:*** A study included 150 individuals to assess scabies infestation. A questionnaire gathered socio-demographic and behavioural data. Key findings showed that 77.5% of participants reported itching, while 68.6% had excoriations, 61.8% had vesicles, and 58.8% had papules. Sleep disturbances were experienced by 64%, and lymphadenopathy was noted in 48.3% of cases. Lesions were primarily located on the abdomen (35.5%), inguinal area (19.1%), and interdigital spaces (14.2%). Significant poverty-related factors linked to infestation included illiteracy (OR: 7.15), low household income (OR: 7.25), lack of a solid floor (OR: 12.17), and overcrowding (OR: 1.98). Risky behaviours such as sharing beds (OR: 2.11) and clothes (OR: 2.51) were also associated with scabies, while regular bathing (OR: 0.37) and using bathing soap (OR: 0.36) were protective factors. ***Conclusion:*** Scabies is a very common in the studied communities and is linked to significant morbidity. The disease is closely associated with extreme poverty.
Keywords: Scabies, epidemiology, parasitic skin disease, treatment outcomes, genital scabies.
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INTRODUCTION

Scabies is a common and contagious parasitic skin disease that poses a significant public health issue, particularly in tropical and subtropical regions [1, 2]. Hundreds of millions of people are affected by scabies, especially in impoverished urban and rural communities around the world [3-6]. While outbreaks have been reported in closed groups in high-income countries, the disease is more prevalent in resource-poor communities in low- and middle-income countries located in tropical climates [7-9]. High rates of scabies and re-infestation in endemic settings are often linked to factors such as armed conflicts, homelessness, overcrowding, and the communal use of clothes, beds, and pillows [10, 11]. In resource-limited communities in India, certain Pacific islands, and among Australian Aboriginal populations, the prevalence of scabies is reported to range from 18% to 70% [1, 8, 12]. Severe complications, including abscess formation, lymphadenopathy, and post-streptococcal glomerulonephritis, are common among those affected [8, 13-15]. Effective control and prevention strategies through chemotherapy require significant public health resources and support at home, as treatment can often be cumbersome and stressful [2, 16]. The target of this report was to study the epidemiology and treatment outcomes of genital scabies in high-risk populations in Bangladesh. Ethical clearance was obtained and written consent was obtained from the relevant authorities.

Objectives

- *General objective:* The objective of this research is to study genital scabies in high-risk populations.
- *Specific objective*: This study aims to specify the epidemiology and treatment outcomes of genital scabies in high-risk populations.

METHODOLOGY

In this prospective study was done on 150 patients, who visited the Department of Skin & VD at Community Based Medical College Bangladesh, Winnerpar, Mymensingh with the symptoms of genital scabies. The population were both male and female aged between 10 and 50 and the study duration was from June 2020 to June 2022.

- *Inclusion criteria:* This study involves patients at least 10 years of age, residing in Bangladesh, and being diagnosed with genital scabies.
- *Exclusion criteria*: Patients aged below 10 or over 50 were excluded from this study.

Demographic data, including age, sex, education, household size, and marital status, were weighted as necessary to align with population proportions. The data were entered into a database twice and cross-checked for entry errors using SPSS version 16.0 for Windows (SPSS Inc., Chicago, IL, USA). Chi-squared statistics were used to determine the significance of differences in relative frequencies between groups. Bivariate analysis and multivariate logistic regression models were employed to identify variables that are independently associated with the prevalence of scabies. The ethical review committee of Community Based Medical College Bangladesh, Winnerpar, Mymensingh has approved the study. A well-informed written consent paper was signed by the patients.

RESULT

A total of 150 adult patients were evaluated who were presented with seborrheic. The study population was primarily illiterate, with an illiteracy rate of almost 90%. Males and age groups>50 years were disproportionately highly represented in the study population. Excoriations, vesicles, and papules were the most common skin lesions [Table-1]. Table 2 presents, the prevalence of scabies stratified by socio-demographic and cultural factors is presented. Itching was the most common symptom (77.5%), with 56% presenting severe itching, and 52% complaining of itching-related sleep disturbance. Lymphadenopathy was identified commonly in the inguinal and cervical regions, in about half of the infected cases [Table-3]. Poverty-related factors like illiteracy, low income, inadequate housing, unemployment, and overcrowding were significantly linked to scabies. Sharing beds and clothing also increased the risk of infestation. In contrast, regular bathing and consistent use of soap offered protection. Multivariate logistic regression confirmed that these poverty-related factors were independently associated with scabies [Table-4].

Table-1: Demographic characteristics of the patients

Variable		N (%)
Sex	Male	129 (85.8%)
	Female	21 (14.2%)
Age group (years)	10-20	31 (20.8%)
	21-30	70 (46.4%)
	31-40	35 (23.4%)
	>50	14 (9.4%)
Education	Illiterate	132 (88.0%)
	Primary	14 (9.6%)
	Post-primary	4 (2.4%)
Presence Of scabies-typical lesions	Yes	98 (65%)
	No	52 (35%)
Type of lesions	Papules	88 (58.8%)
	Crusted papules	48 (32.3%)
	Vesicles	93 (61.8%)
	Macules	74 (49.2%)
	Pustules	70 (40.6%)
	Excoriations	103 (68.6%)

Table-2: Prevalence of scabies and bivariate analysis of socio-demographic and behavioural factors

Variables		N	% (95% CI)	OR (95% CI)	*p* Value
Age group	10-20	31	60.6 (50.5-69.9)	2.16 (1.00–4.56)	0.013
	21-30	70	79.7 (73.9-84.6)	2.90 (1.34–3.19)	0.016
	31-40	35	49.6 (40.3-59.0)	1.97 (0.17–2.28)	0.585

Variables		**N**	**% (95% Cl)**	**OR (95% CI)**	***p* Value**
	>50	14	40.4 (26.7-55.7)	Ref.	
Sex	Male	129	63.4 (58.6>67.9)	0.52 (0.04–0.72)	0.015
	Female	21	74.6 (62.7-83.9)	Ref.	
Illiteracy	Yes	132	70.5 (6.9-74.6)	7.15 (3.71–13.95)	<0.001
	No	18	25.0 (15.1-38.1)	Ref.	
Occupaton	Unemployed	133	68.3 (6.3.7-2.26)	3.83 (1.65–8.89)	<0.001
	Farming	9	40.0 (23.2-59.2)	1.19 (0.40–3.55)	0.764
	Wage earner	8	36.0 (18.7-57.4)	Ref.	
No. of persons/room/bed	<4	54	50.3 (42.8-57.8)	Ref.	0.004
	>4	96	73.2 (67.9-79.9)	1.98 (1.08–2.81)	
House structure	Bricks	51	59.5 (51.7-66.9)	Ref.	
	Adobe	96	66.9 (61.5–72.0)	1.15 (0.18–1.28)	0.071
	Wood/tree	3	90.9 (57.1–99.5)	2.20 (1.26–2.61)	0.031
Type of floor	Sandy	31	93.5 (79.2–98.9)	12.17 (2.83–52.34)	0.001
	Clay	9	70.0 (63.9–75.4)	1.96 (1.34–2.86)	0.001
	Cemented	110	39.6 (33.9–45.6)	Ref.	
Shared beds and pillows	Yes	106	70.2 (65.0–74.8)	2.11 (1.42–3.14)	<0.001
	No	44	52.7 (44.4–60.9)	Ref.	
Sharing of clothes	Yes	41	77.8 (69.7–84.3)	2.51 (1.57–3.99)	<0.001
	No	109	59.9 (54.7–64.9)	Ref.	
Bathing habits	Regular	100	58.0 (52.4–63.3)	0.37 (0.24–0.56)	<0.001
	Irregular	50	79.0 (72.3–84.5)	Ref.	
Use of bathing soap	Regular	105	58.3 52.9–63.5)	0.36 (0.21–0.53)	<0.001
	Irregular	45	80.7 (73.2–86.5)	Ref.	

Table-3: Clinical features and topographical location of scabies infestation (n = 150)

Variable	**N (%)**
Itching	116 (77.5%)
Light	27 (17.9%)
Moderate	5 (2.88%)
Severe	84 (56.3%)
Sleeping disturbance	96 (64%)
Due to itching	79 (52.4%)
Due to pain	23 (15.4%)
Others	48 (32.2%)
Lymphadenopathy	72 (48.3%)
CerviCal	33 (22.3%)
Axillar	21 (14%)
Inguinal	96 (64.1%)
Infected skin	102 (68.3%)
Suppuration	55 (36.6%)
No complaints	31 (20.6%)
Topographical location of lesions Abdomen	115 (35.4%)
InguinaI/thigh	29 (19.1%)
Wrist	19 (12.6%)
Interdigital	22 (14.5%)
Legs	3 (7.1%)
Elbow	42 (28%)
Buttock	12 (8.3%)
Arms	6 (3.7%)
Hands	21 (13.8%)
Feet	1 (0.6%)
Thorax	1 (0.6%)

Table-4: Multivariate analysis of factors independently associated with scabies

Variable	Adjusted Odd Ratio	95% Cl	p Value
Household income <1 minimum wage	3.22	1.94—3.85	0.026
Sharing of bed and pillow	4.03	2.53-32.21	0.015
Female sex	2.62	1.56—3.52	0.062
Poor housing conditions (no brick house)	2.61	1.94-3.06	<0.0)1
Unemployment	2.24	1.15-2.59	o.wl
Sharing of clothes	2.11	1.8.82.253	0.041
Illiteracy	1.57	1.01-1.93	o.(102
Irregular bathing with soap	1.95	0.97-2.13	0.011
Age ≥15 years	0.92	0.42-1.05	0.062

DISCUSSION

This study highlights the extremely high prevalence and morbidity associated with scabies. The disease is linked to poverty-related factors, even within the communities examined, which can be described as extremely resource-poor and facing precarious living conditions. The recorded prevalence of 61% underscores the under-recognition of scabies in these resource-limited communities and the challenges involved in accessing health care [23]. This prevalence rate is comparable to findings from specific high-risk populations worldwide, such as displacement camps in Sierra Leone (67%) [24], orphanages in Thailand (87%) [25], a leprosarium in Korea (87%) [26], and a rural village in Papua New Guinea (80%) [27]. Other studies conducted in Nigeria reported lower prevalence rates, ranging from 5% to 57% [20–22]. Similarly, other African countries such as Cameroon (18%) [28] and Malawi (36%) [29], along with Cambodia (4.3%) [30], Brazil (9-10%) [9, 10, 31], and Fiji (24%) [2], also reported lower prevalence rates compared to this study.

The prevalence of scabies and its associated burden are linked to various factors, including socio-economic conditions, overcrowding, and behavioural patterns. Our study confirmed that poor housing and sharing bedding and pillows are significant risk factors. Overcrowding was exacerbated by the influx of refugees due to recent communal clashes and terrorist threats. This condition is a recognized risk factor for scabies, as seen in previous studies from regions like Egypt, Sierra Leone, and Brazil. Additionally, indicators of poverty such as unemployment, low income, and communal clothing use were significantly associated with scabies. Our analysis also emphasized that good hygiene habits serve as important protective factors [37].

A key finding of this study is the uneven distribution of scabies, with significantly higher prevalence in females compared to males. However, the high non-participation rate among females warrants caution in interpreting this data. Additionally, scabies prevalence varied with age, being more common among school-aged children than older groups. This aligns with findings from other endemic areas, highlighting the role of poor hygiene and interaction in transmission among mobile age groups. In our context, many affected children are Almajiri (beggars) from private Islamic schools. The occurrence of scabies in those over 21 may result from ongoing contact with infected children, particularly among females [37].

The distribution of scabies lesions varied among participants, with over 14% exhibiting multiple types, commonly found on the abdomen, inguinal/thigh area, interdigital space, hands, and wrists. This aligns with previous reports. The local climate encourages behaviours, especially among male children, that facilitate prolonged close contact and body exposure, leading to more lesions on these areas [3, 6, 9].

The current study shows a high prevalence of itching (77.5%) and excoriation (68.3%) among the affected population [33, 34]. Scabies-related itching is an allergic immune response to mite products, and secondary bacterial infections are common in resource-limited settings due to poor hygiene and overcrowding. Intense scratching can lead to skin breaks, facilitating these infections, and lymphadenopathy is often associated with secondarily infected scabies lesions [9, 13, 17, 29, 30, 32, 35, 36]. Present findings indicate high rates of both itching and lymphadenopathy, similar to those seen in other parasitic skin diseases like tungiasis and cutaneous larva migrans. Additionally, 64% of individuals with scabies reported sleep disturbances, a number comparable to the 77% reported in Brazilian communities, suggesting a link between sleep issues and the activity of sarcoptic mites [6].

Scabies is becoming increasingly common among Nigerian children, especially in poor rural areas with limited healthcare. Current socioeconomic conditions, such as families sharing clothing and living spaces, contribute to the ongoing high prevalence of this parasitic skin disease [20-22].

The effectiveness of oral ivermectin against scabies and other parasitic diseases, such as pediculosis and lymphatic filariasis, has been well-documented in endemic areas. Integrating oral ivermectin treatment into existing parasite control programs, along with health

education and training for health personnel, can enhance these efforts.***

Conclusion

We have confirmed that even in the least developed and precarious communities, poverty-related variables are important risk factors for infestation and that hygiene habits may still have a protective effect, even in settings with extremely high transmission pressure. Communal clashes and disturbances related to displacement, overcrowding, and unemployment may further increase prevalence and scabies-related morbidity. Given the risk of sequelae related to chronic infestation and bacterial superinfection, an urgent response from the healthcare sector is mandatory.

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Conflicts of interest: N/A

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