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Prevalence and risk factors of scabies in school-going children in rural Bangladesh

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Abstract

Introduction: Scabies is a common contagious skin infestation caused by *Sarcoptes scabiei* var. hominis, affecting millions of children worldwide, particularly in low-resource settings. It is associated with intense pruritus, secondary infections, and significant disruption to daily life. Children are especially vulnerable due to close contact in schools and households, overcrowding, and limited access to hygiene facilities. This study aimed to determine the prevalence of scabies and identify associated risk factors among school-going children in rural areas of Bangladesh.

Methods: This cross-sectional study was conducted among 108 school-going children aged 5–14 years in selected rural schools of Gazipur, Bangladesh, from January 2025 to December 2025, to assess the prevalence and risk factors of scabies. Data were analyzed using the Statistical Package for the Social Sciences version 26.

Results: Among 108 school-going children, scabies prevalence was 31.5%, with most affected children aged 10–14 years (61.1%) and male (57.4%). Common clinical features included nocturnal itching (91.2%), rash (85.3%), and burrows (50.0%), with 70.6% reporting a positive family history. Hygiene practices showed irregular bathing (43.5%), irregular soap use (32.4%), and sharing of clothes (53.7%) or bedding (59.3%). Overcrowding, family history, irregular bathing, and shared bedding were significant predictors, with adjusted odds ratios of 3.21, 3.76, 2.89, and 2.47, respectively.

Conclusion: Scabies continues to pose a major health problem among school-aged children in rural Bangladesh, affecting 31.5% of the study population. Key factors associated with infestation included overcrowded living conditions, infrequent bathing, sharing of bedding, and a family history of scabies.

Keywords: Hygiene practices, nocturnal itching, scabies

Introduction

Scabies is a contagious parasitic skin infestation caused by *Sarcoptes scabiei* var. *hominis* and remains a significant public health concern worldwide, particularly in low- and middle-income countries. The infestation is transmitted mainly through prolonged skin-to-skin contact and is facilitated by overcrowding, poor personal hygiene, and limited access to health care. Clinically, scabies presents with intense pruritus, erythematous papules, nodules, and burrows,

leading to considerable discomfort and impaired quality of life. Children are disproportionately affected due to close interpersonal contact and immature hygiene practices, making scabies a common childhood dermatological condition in resource-limited settings.[1,2] Globally, scabies affects more than 200 million people at any given time, with the highest prevalence reported in tropical and subtropical regions. Epidemiological studies have demonstrated that scabies prevalence among children may range from 5% to over 50% in endemic communities, particularly where poverty, overcrowding, and inadequate sanitation prevail. Beyond cutaneous symptoms, scabies contributes to substantial morbidity through secondary bacterial infections such as impetigo, cellulitis, and post-streptococcal complications, including acute glomerulonephritis and rheumatic heart disease.[3,4] Recognizing its burden, the World Health Organization designated scabies as a Neglected Tropical Disease in 2017, underscoring the need for targeted control strategies and improved surveillance.[1] School-going children represent a particularly vulnerable population for scabies transmission. Close physical contact in classrooms, shared learning materials, and frequent interaction during play facilitate rapid spread. Studies from various low-resource settings have consistently identified overcrowded living conditions, large family size, bed-sharing, sharing of clothing and towels, low parental education, and poor bathing practices as significant risk factors among school-aged children.[5,6] These factors are especially prominent in rural communities, where access to clean water, sanitation facilities, and healthcare services may be limited. In Bangladesh, scabies remains a common yet under-recognized dermatological problem, particularly among children from socioeconomically disadvantaged backgrounds. Several studies have documented a high prevalence of scabies among children residing in institutional and community settings, reflecting ongoing transmission in overcrowded environments. Research conducted in residential madrasahs in Bangladesh reported a high burden of scabies among children, with overcrowding, sharing of personal items, and contact with infected individuals identified as key risk factors. Similar findings have been reported in other child-dense settings, indicating that scabies continues to pose a significant public health challenge in the country.[7] Rural school-going children in Bangladesh face unique vulnerabilities that may further increase the risk of scabies infestation. Poverty, inadequate housing, limited hygiene facilities, and low awareness regarding skin diseases contribute to persistent transmission and recurrent infestations. Despite this, data specifically addressing the prevalence and associated risk factors of scabies among school-going children in rural Bangladesh remain limited. Most existing studies focus on institutionalized or urban populations, leaving a critical gap in understanding the burden of scabies in rural school settings.[8] Identifying the prevalence and risk factors of scabies among rural school children is essential for developing effective prevention and control strategies. Evidence from such studies can inform school-based interventions, community health education programs, and public health policies aimed at reducing transmission, preventing complications, and improving the overall health and well-being of children in rural Bangladesh.[9] This study aimed to determine the prevalence of scabies and identify associated risk factors among school-going children in rural areas of Bangladesh.

Methods

This cross-sectional study was conducted among 108 school-going children aged 5–14 years in selected rural schools of Gazipur, Bangladesh, from January 2025 to December 2025, to assess the prevalence and risk factors of scabies. Children with chronic dermatological conditions unrelated to scabies or without consent were excluded. Data were collected using a structured questionnaire capturing sociodemographic details (age, sex, class level, and family type), personal hygiene practices (bathing frequency, use of soap, and sharing of clothes and bedding), household characteristics (overcrowding and parental education), and family history of itching or scabies. Clinical examination was performed by trained clinicians to identify

scabies based on established criteria, including nocturnal itching, typical rash, burrows, and secondary infection. Overcrowding was defined as more than three persons per room, irregular bathing as ≤3 times/week, and sharing of clothes or bedding, as the use of the same items with siblings or peers. Data were analyzed using the Statistical Package for the Social Sciences version 26; descriptive statistics summarized participant characteristics, and Chi-square tests identified associations between scabies and potential risk factors. Variables with significant bivariate associations were further evaluated using multivariable logistic regression to determine independent predictors, presented as adjusted odds ratios (AORs) with 95% confidence intervals (CIs). Written informed consent was obtained from parents/guardians, and assent was obtained from children above 7 years. Children diagnosed with scabies were referred for appropriate treatment according to national guidelines.

Results

Out of 108 school-going children included in the study, 42 (38.9%) were aged 5–9 years, whereas 66 (61.1%) belonged to the 10–14-year age group. Male participants constituted 62 (57.4%) of the sample, whereas females accounted for 46 (42.6%). Nearly half of the children were enrolled in primary classes I–V (49, 45.4%), whereas 59 (54.6%) were studying in secondary classes VI–VIII. Regarding family structure, a majority of participants belonged to joint families (67, 62.0%), with the remaining 41 (38.0%) living in nuclear families [Table 1]. Among the 108 participants examined, scabies infestation was detected in 34 children, yielding an overall prevalence of 31.5%. The remaining 74 children (68.5%) did not show clinical evidence of scabies at the time of assessment [Table 2]. Among the 34 scabies-positive children, nocturnal itching was the most frequently reported symptom, present in 31 cases (91.2%). Typical scabetic rash was observed in 29 children (85.3%), while burrows were identified in 17 (50.0%). Secondary bacterial infection was noted in 11 children (32.4%). A positive family history of itching or scabies was reported by 24 children (70.6%), indicating probable household transmission [Table 3]. Regarding hygiene practices among the 108 participants, 61 children (56.5%) reported daily bathing, whereas 47 (43.5%) bathed 3 or fewer times per week. Regular use of soap during bathing was reported by 73 children (67.6%), whereas 35 (32.4%) used soap irregularly. Sharing of clothes was reported by 58 children (53.7%), and sharing of bedding was even more common, reported by 64 children (59.3%), whereas 50 (46.3%) and 44 (40.7%)

Table 1: Sociodemographic characteristics of the study participants (*n*=108)

Variable	Frequency (*n*)	Percentage
Age group (years)		
5–9	42	38.9
10–14	66	61.1
Sex		
Male	62	57.4
Female	46	42.6
Class level		
Primary (I–V)	49	45.4
Secondary (VI–VIII)	59	54.6
Residence type		
Nuclear family	41	38.0
Joint family	67	62.0

Table 2: Prevalence of scabies among study participants (*n*=108)

Scabies status	Frequency (*n*)	Percentage
Present	34	31.5
Absent	74	68.5

Table 3: Clinical features among scabies-positive children (*n*=34)

Clinical feature	Frequency (*n*)	Percentage
Nocturnal itching	31	91.2
Typical rash	29	85.3
Burrows	17	50.0
Secondary infection	11	32.4
Family history of itching	24	70.6

children, respectively, did not share clothes or bedding [Table 4]. Scabies was present in 26 children (76.5%) living in overcrowded households compared to 34 children (45.9%) without scabies, showing a statistically significant association (P = 0.003). Sharing bedding was reported by 25 scabies-positive children (73.5%) versus 39 scabies-negative children (52.7%) (P = 0.031). Irregular bathing was observed in 21 affected children (61.8%) compared to 26 unaffected children (35.1%) (P = 0.012). A family history of scabies was present in 24 infected children (70.6%) compared to 29 non-infected children (39.2%) (P = 0.002). Low parental education was also significantly associated, being present in 22 scabies-positive children (64.7%) versus 33 scabies-negative children (44.6%) (P = 0.048) [Table 5]. On multivariable logistic regression analysis, overcrowding emerged as a significant independent predictor of scabies infestation with an AOR of 3.21 (95% CI: 1.38–7.44; P = 0.006).

Table 4: Personal hygiene practices of the participants (n=108)

Hygiene practice	Category	Frequency (n)	Percentage
Bathing frequency	Daily	61	56.5
	≤3 times/week	47	43.5
Use of soap	Regular	73	67.6
	Irregular	35	32.4
Sharing clothes	Yes	58	53.7
	No	50	46.3
Sharing bedding	Yes	64	59.3
	No	44	40.7

Table 5: Association between selected risk factors and scabies (n=108)

Risk factor	Scabies present n (%)	Scabies absent n (%)	P-value
Overcrowding	26 (76.5)	34 (45.9)	0.003
Sharing bedding	25 (73.5)	39 (52.7)	0.031
Irregular bathing	21 (61.8)	26 (35.1)	0.012
Family history of scabies	24 (70.6)	29 (39.2)	0.002
Low parental education	22 (64.7)	33 (44.6)	0.048

Children who shared bedding had a 2.47-fold higher likelihood of scabies (95% CI: 1.05–5.80; P = 0.038). Irregular bathing was associated with an increased risk of infestation (AOR: 2.89; 95% CI: 1.21–6.88; P = 0.017). A family history of scabies remained strongly associated with infestation (AOR: 3.76; 95% CI: 1.58–8.94; P = 0.003) [Table 6].

Discussion

In this study of 108 rural school-going children, the overall prevalence of scabies was 31.5%, reflecting a substantial burden within the community. Comparable prevalence estimates have been reported in Bangladesh institutional settings, where Hasan *et al.* observed a scabies prevalence of 34% among madrasah children, and Hasan *et al.* found 31.6% among orphanage children in Dhaka.[7] These findings suggest that even outside boarding institutions, rural school attendees share high exposure risks due to similar environmental and behavioral circumstances. Our clinical symptom profile among scabies-positive children revealed nocturnal itching in 91.2%, typical rash in 85.3%, burrows in 50.0%, and secondary infection in 32.4%, with 70.6% reporting family history of itching. Hasan *et al.* similarly documented nocturnal itching in more than 90% of affected children and contact history in approximately 66%.[7] Hygiene practices in our cohort showed that 43.5% of children bathed ≤3 times/week, 32.4% used soap irregularly, 53.7% shared clothes, and 59.3% shared bedding. The systematic review by Armitage *et al.* highlighted weak personal hygiene and sharing of clothes or bedding, defined as major

Table 6: Multivariable logistic regression analysis of factors associated with scabies (n=108)

Variable	Adjusted odds ratio	95% confidence interval	P-value
Overcrowding	3.21	1.38–7.44	0.006
Sharing bedding	2.47	1.05–5.80	0.038
Irregular bathing	2.89	1.21–6.88	0.017
Family history of scabies	3.76	1.58–8.94	0.003

global determinants of scabies among children.[6] Ararsa *et al.* also found that Ethiopian children who shared clothes or bedding had significantly higher infestation rates.[10] This study shows significant associations between scabies and multiple risk factors. Overcrowding was present in 76.5% of scabies cases compared with 45.9% of non-cases (P = 0.003), sharing bedding in 73.5% versus 52.7% (P = 0.031), irregular bathing in 61.8% versus 35.1% (P = 0.012), family history in 70.6% versus 39.2% (P = 0.002), and low parental education in 64.7% versus 44.6% (P = 0.048). Hasan *et al.* similarly identified overcrowding in 68% of infested children compared with 42% of controls and significant associations with contact history and shared sleeping spaces.[7] Reta *et al.* reported that children in crowded households were significantly more affected than those in non-crowded homes during scabies outbreaks in Ethiopia.[11] These parallels indicate that both structural conditions (crowding and low parental education) and behavioral patterns (irregular bathing and contact with infected individuals) are consistent predictors of scabies across diverse child populations. Multivariable logistic regression showed that overcrowding (AOR 3.21, 95% CI 1.38–7.44, P = 0.006), family history (AOR 3.76, 95% CI 1.58–8.94, P = 0.003), irregular bathing (AOR 2.89, 95% CI 1.21–6.88, P = 0.017), and sharing bedding (AOR 2.47, 95% CI 1.05–5.80, P = 0.038) remained independent predictors of scabies. In comparison, Ararsa *et al.* reported AORs of 3.50 (95% CI 1.40–8.76) for shared bedding and 2.80 (95% CI 1.15–6.84) for household contact history among Ethiopian school children.[10] Similarly, Engelman *et al.* emphasized that living in crowded conditions and close contact with infected individuals increased risk by 2–4 fold across low-income country settings.[4] The comparable strength of association reinforces that overcrowding and close interpersonal networks are potent drivers of scabies transmission. Low parental education, although associated in bivariate analysis, did not remain significant in the adjusted model, a finding also noted by Hasan *et al*., who reported that behavioral and environmental conditions exert stronger effects than sociodemographic variables alone.[7]

Limitations of the study

Its cross-sectional design prevents establishing of causality. The sample was limited to a few rural schools, which may reduce generalizability. Diagnosis was based on clinical examination without laboratory confirmation, potentially causing misclassification.

Conclusion

Scabies remains a significant health concern among school-going children in rural Bangladesh, with a prevalence of 31.5%. Overcrowding, irregular bathing, sharing of bedding, and a positive family history were identified as key risk factors contributing to infestation.

Recommendation

To reduce the burden of scabies among school-going children in rural Bangladesh, it is recommended to implement regular health education on personal hygiene, discourage the sharing of clothes and bedding, and promote measures to reduce overcrowding at home and in schools. Early detection and treatment of affected children and household contacts should also be prioritized.

References

1. World Health Organisation. Report of a WHO Meeting on Skin-Related Neglected Tropical Diseases in West Africa, Geneva, 3-5 October 2022. Geneva: World Health Organisation; 2023.
2. Hay RJ, Steer AC, Engelman D, Walton S. Scabies in the developing world--its prevalence, complications, and management. Clin Microbiol Infect 2012;18:313-23.
3. Karimkhani C, Colombara DV, Drucker AM, Norton SA, Hay R, Engelman D, *et al*. The global burden of scabies: A cross-sectional analysis from the global burden of disease study 2015. Lancet Infect Dis 2017;17:1247-54.
4. Engelman D, Marks M, Steer AC, Beshah A, Biswas G, Chosidow O, *et al*. A framework for scabies control. PLoS Negl Trop Dis 2021;15:e0009661.
5. Romani L, Steer AC, Whitfeld MJ, Kaldor JM. Prevalence of scabies and impetigo worldwide: A systematic review. Lancet Infect Dis 2015;15:960-7.

6. Armitage EP, Senghore E, Darboe S, Barry M, Camara J, Bah S, *et al*. High burden and seasonal variation of paediatric scabies and pyoderma prevalence in the Gambia: A cross-sectional study. PLoS Negl Trop Dis 2019;13:e0007801.
7. Hasan MJ, Rafi MA, Choudhury T, Hossain MG. Prevalence and risk factors of scabies among children living in Madrasahs (Islamic religious boarding schools) of Bangladesh: A cross-sectional study. BMJ Paediatr Open 2024;8:e002421.
8. Islam K, Islam MI, Jahan T, Yusuf MA, Chowdhury SH, Zohora FT. Pattern of skin diseases among rural adult patients attending the dermatology OPD at a tertiary care hospital in Bangladesh. Bangladesh J Med Microbiol 2025;19:54-9.
9. Engelman D, Fuller LC, Steer AC, International Alliance for the Control of Scabies Delphi Panel. Consensus criteria for the diagnosis of scabies: A Delphi study of international experts. PLoS Negl Trop Dis 2018;12:e0006549.
10. Ararsa G, Merdassa E, Shibiru T, Etafa W. Prevalence of scabies and associated factors among children aged 5-14 years in meta Robi District, Ethiopia. Plos One 2023;18:e0277912.
11. Reta MW, Derseh BT, Sahilu BY. Determinants of scabies among primary school children in Habru district: A case-control study.

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