

Clinical Profile Of Scabies Among Institutionalised Children In Bangladesh: A Cross-Sectional Descriptive Study

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Abstract

Introduction: Scabies is a neglected tropical skin infection mostly affecting children living in overcrowded institutional environments. The objective of this study was to investigate the clinical characteristics of scabies among institutionalized children in Bangladesh.

Methods: This cross-sectional descriptive study was conducted among children attending a private hospital in Dhaka, Bangladesh between July and December 2025. Children aged below 18 years residing in Islamic residential boarding schools and clinically diagnosed with scabies according to the 2020 International Alliance for the Control of Scabies (IACS) criteria were included in this study. Data regarding sociodemographic characteristics, environmental exposures, hygiene-related practices, and clinical characteristics were collected by face-to-face interviews and thorough physical examination. Descriptive statistics were used for data analysis.

Results: A total of 106 children with scabies were included. The mean age of the participants was 11.8 years (SD 3.35 years), and 69% were male. Overcrowding was common, with 73% residing in rooms shared by more than five children, while 82% reported shared sleeping. Nearly, 51% shared bedding, clothes, or toiletry items, and 67% reported pruritus among close contacts. The most commonly affected sites were the interdigital spaces (73%), wrists (66%), and hands (60%). Mild scabies was observed in 48% of participants, whereas 33% and 19% had moderate and severe disease, respectively.

Conclusions: Scabies among institutionalized children in Bangladesh was characterized by substantial exposure to overcrowded living environments and contact history of scabies with classical lesion distribution. Strengthened institutional infection prevention and contact-based management strategies are needed to reduce scabies transmission.

Keywords: Scabies; Institutionalized children; Clinical profile; Neglected tropical disease; Bangladesh

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I. Introduction

Scabies is a highly contagious parasitic skin infestation caused by the mite *Sarcoptes scabiei* var. *hominis* [1]. The disease is one of the major neglected tropical diseases affecting more than 175 million people, particularly in low- and middle-income countries [2,3]. Children are disproportionately vulnerable to this disease. In endemic tropical settings, the prevalence of scabies among children may range from 9% to 23%, with significantly higher rates reported in institutional environments such as boarding schools, orphanages, refugee camps, and residential care facilities [4].

Besides clinical manifestations, scabies has several psychological, social, and economic consequences [5,6]. Daily activities, sleep quality and educational performance of the infected children can be impaired by persistent itching [5]. Moreover, excoriation of lesions may lead to secondary bacterial infections, like impetigo caused by *Streptococcus pyogenes* and *Staphylococcus aureus*, which can cause severe complications such as cellulitis, abscess, and sepsis [7]. The chronic itching and visible skin lesions may also contribute to social stigma and psychological distress among the affected children [5].

Scabies primarily transmits through prolonged skin-to-skin contact. Besides, indirect transmission through shared bedding, clothes, or personal items may also occur, especially in overcrowded institutional settings [8]. Hence, the institutionalized children are considered a high-risk population to be infected with scabies [9–11]. Studies from several countries of Asia and Africa reported a high prevalence of scabies in institutional settings and identified overcrowding and close-contact exposure as a risk factor of disease propagation in these settings [2–4].

Bangladesh is an endemic site for scabies [12]. Tropical climate, high population density, and poor socioeconomic condition of the people of the country facilitate transmission of the disease. Institutionalized children residing in Islamic residential boarding schools or similar facilities are particularly vulnerable for scabies because of close interpersonal contact and crowded living conditions with a prevalence of more than 30% [12,13]. However, despite the recognized burden of scabies in these settings, evidence regarding the clinical profile and anatomical distribution of lesions among affected children remains limited. Most of the previous studies primarily focused on prevalence estimates and risk factors rather than the clinical characteristics of infected children. Characterizing the clinical manifestations and distribution of scabies lesion among these children may improve clinical recognition, support early diagnosis in primary care settings, and guide targeted infection prevention and control strategies in high-risk environments.

Therefore, the objective of this study was to investigate the clinical profile of scabies among institutionalized children of Bangladesh.

II. Methods

Study design and setting

This was a cross-sectional study conducted in a private hospital in Dhaka, Bangladesh from July 2025 to December 2025.

Participants

Children residing in the Islamic residential boarding schools (madrasahs) were considered as the study population. These institutions generally accommodate children in shared residential environments characterized by close interpersonal contact and shared living facilities.

Children aged below 18 years residing in these institutions and clinically diagnosed with scabies were included in the study. Participants were eligible if they fulfilled the diagnostic criteria for clinical scabies according to the 2020 consensus criteria developed by the International Alliance for the Control of Scabies. The IACS clinical diagnostic criteria were the presence of at least one of the following features: scabies burrows (Category B1), typical lesions (papules, pustules, nodules) in a typical distribution (such as finger webs, wrists, ankles, axillae, male genitalia) (Category B2), and typical lesions in a typical distribution in a patient with a history of itch and contact with a person who has similar symptoms (Category B3) [14]. Children who did not meet these clinical criteria were excluded from the study.

A consecutive sampling technique was used for recruitment of the participants. A total of 106 children diagnosed with scabies were included in the final analysis.

Data collection

Data were collected through face-to-face interviews with the participants using a semi-structured case record form (CRF). The CRF included sections on sociodemographic characteristics, institutional living conditions, hygiene-related practices of the participants, exposure history, and clinical characteristics of scabies. Sociodemographic information included age, sex, and the approximate number of children residing in the institution. Environmental and hygiene-related information included overcrowding (defined as more than five children sharing the same room), number of children sharing the same toilet, sleeping arrangements, frequency

of bathing, sharing of bedding or personal items, fingernail hygiene, and ironing of clothes and bedding. Exposure-related information included history of pruritus among close contacts.

After the interview, a thorough clinical examination was performed for each participant by a trained physician. The anatomical distribution of lesions was documented, including involvement of interdigital spaces, hands, wrists, arms, elbows, axillae, abdomen, thorax, back, buttocks, genital and inguinal regions, and head and neck regions. Multiple lesion sites were recorded where applicable. Besides, severity of scabies was categorized according to lesion burden as mild (1 to 10 lesions), moderate (11 to 49 lesions) and severe (≥ 50 lesions) [14].

Statistical analysis

Statistical analyses were performed using R version 4.4.2. Continuous variables were summarized using mean and standard deviation (SD), whereas categorical variables were presented as frequencies and percentages. The sociodemographic characteristics and hygiene practice of the participants, anatomical distribution and severity of scabies lesions were summarized descriptively using tables and figures.

III. Results

Sociodemographic characteristics

A total of 106 children clinically diagnosed with scabies were included in the study. The mean age of the participants was 11.8 years (SD 3.35 years). Nearly half of the participants (44%) aged below 12 years. Male participants constituted approximately two-thirds of the study population (69%). The majority of the children resided in institutions accommodating a large number of children (**Table 1**).

Table 1: Sociodemographic characteristics of the participants (n = 106)

Characteristics	Mean (SD) or n (%)
Age (years), mean (SD)	11.87 (3.35)
Age group (years)	
<12	47 (44.3)
12–17	59 (55.7)
Sex	
Female	33 (31.1)
Male	73 (68.9)
Number of children residing in the institution	
<100	38 (35.8)
≥ 100	68 (64.2)

Environmental and hygiene-related characteristics

Overcrowding was common, with 73% of the participants residing in overcrowded rooms shared with more than five children. More than half of the children (56%) reported sleeping on the floor. Nearly 51% of the children shared bedding, clothes, or toiletry items with other children. Regarding personal hygiene practices, most participants (83%) reported bathing at least once daily, 78% reported keeping their fingernails consistently short, and 52% reported ironing clothes and bedding regularly. History of pruritus among close contacts was reported by 67% of the participants (**Table 2**).

Table 2: Environmental and hygiene related characteristics of the participants (n = 106)

Variables	n (%)
Overcrowding in the room	
No	29 (27.4)
Yes	77 (72.6)
Sleeping place	
On bed	47 (44.3)
On floor	59 (55.7)
Bathing frequency	
At least once daily	88 (83.0)
Less than once daily	18 (17.0)
Sharing bedding, clothes, or toiletry items	
No	52 (49.1)
Yes	54 (50.9)
Fingernails always kept short	
No	23 (21.7)
Yes	83 (78.3)
Ironing clothes and bedding	
No	51 (48.1)
Yes	55 (51.9)
Pruritus among close contacts	

No	35 (33.0)
Yes	71 (67.0)

Clinical characteristics of scabies

The most commonly affected anatomical site was the interdigital spaces (73%), followed by the wrists (66%) and hands (60%). Lesions were also frequently observed on the legs (46%), elbows (43%), and arms (42%). Involvement of the genital and inguinal area was observed in 39% of the participants, while abdominal lesions were present in 34%. Less commonly involved sites included the feet (30%), thorax (26%), axillae (23%), back (22%), buttocks (20%), and head, scalp, neck, and face region (15%) (Figure 1).

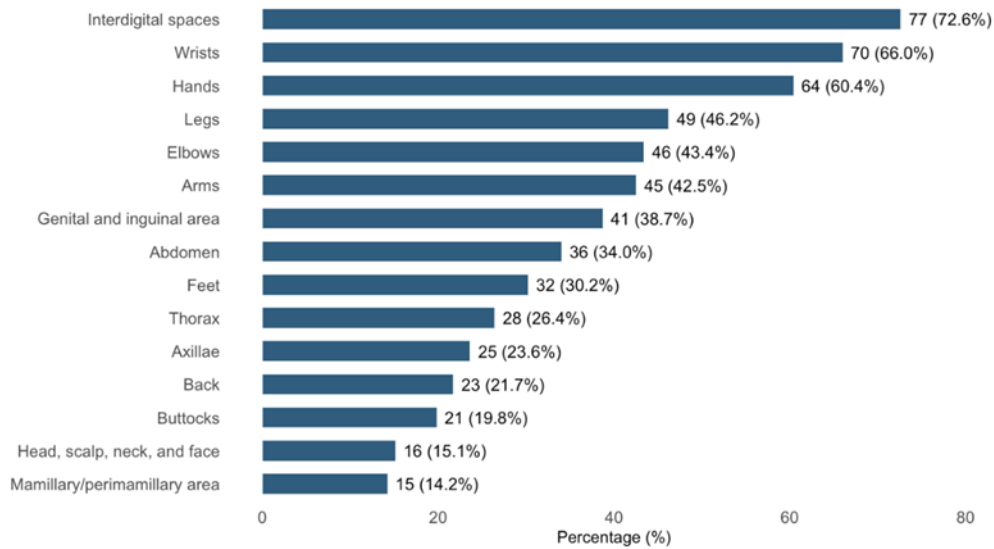


Figure 1: Sites of scabies lesion of the participants (n = 106)

Nearly half of the participants (48%) had mild scabies, while 33% and 19% had moderate and severe scabies, respectively (Figure 2).

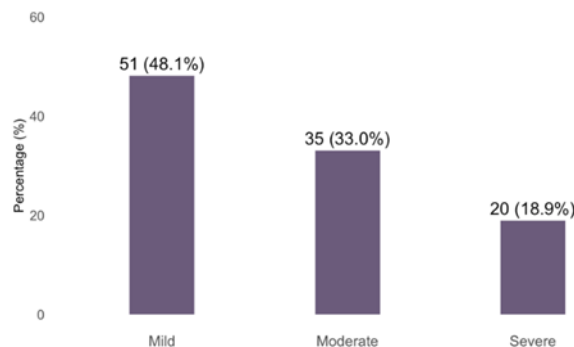


Figure 2: Severity of scabies lesion of the participants (n = 106)

IV. Discussion

In this study among institutionalized children clinically diagnosed with scabies, we observed that scabies predominantly affected male adolescents residing in overcrowded living environments. Close-contact exposures and poor hygiene practices were highly prevalent among the participants, including shared sleeping arrangement, sharing personal items, and history of pruritus among close contacts. Clinically, nearly half of the participants had mild scabies, while approximately one-fifth had severe disease. The most commonly affected anatomical sites were the interdigital spaces, wrists, and hands, followed by the legs, elbows, and genital or inguinal regions.

Almost two-thirds of the scabies infected children included in our study was male aged between 12 to 17 years. This predominance of male participants is consistent with the findings of previous studies conducted in Bangladesh as well as in other low- and middle-income countries [4,12,13]. A recent meta-analysis including seventy studies reported that male children had nearly twenty percent higher risk of being infected by scabies compared to female children [4]. However, we included only institutionalized children in our study.

Hence, our observation may partly reflect the higher representation of male students in residential schools in Bangladesh. Moreover, boys may engage more frequently in close-contact recreational activities like playing, thereby facilitating transmission.

Majority of our participants resided in overcrowded rooms with shared sleeping arrangement. Similarly, practices of sharing personal items bedding, clothes, or toiletry items were common among the participants of our study. Although direct skin contact remains the principal mode of transmission, sharing personal items has also been identified as a risk factor of indirect transmission of scabies [4,15–17]. These findings are comparable to reports from previous studies conducted among institutionalized children from orphanages and boarding schools, where overcrowding was consistently identified as a major facilitator of scabies [12,13,16]. Finally, a substantial proportion of participants of our study reported pruritus among close contacts, highlighting the clustered nature of scabies transmission within institutional settings. Similar findings have been consistently reported in previous studies, where history of itching among family members or roommates was identified as a significant risk factor of scabies [4,16,17].

In our study, mild scabies constituted the largest proportion of cases, followed by moderate and severe disease. This finding is consistent with previous studies conducted in Bangladesh where most of the affected children presented with mild-to-moderate disease [12,13]. However, the presence of severe scabies among nearly one in five children is clinically significant, as severe disease may indicate delayed diagnosis and barriers to access to the healthcare facilities. The anatomical distribution of scabies lesions observed in this study mostly aligns with the classical distribution pattern of scabies [14]. Interdigital spaces, wrists, and hands were the most commonly affected sites in our study participants.

The findings of our study have several public health and clinical implications. First, the high prevalence of overcrowding and shared sleeping practices among affected children signifies the need for minimum residential standards in institutional settings such as Islamic boarding schools and orphanages. Second, the high proportion of participants reporting pruritus among close contacts supports the need for routine screening and simultaneous treatment of close contacts during scabies management. Institution-wide treatment approaches may be more effective than isolated case management in reducing reinfestation and interrupting transmission cycles. Third, hygiene promotion interventions among children should not only include personal hygiene education alone, but also incorporate interventions such as improved reduced sharing of personal items and better access to laundry and sanitation facilities.

However, several limitations of our study should also be considered while interpreting the findings. First, participants were recruited from a single primary healthcare center, which may limit the generalizability of the findings to other institutional settings in Bangladesh. Second, diagnosis of scabies was based on clinical assessment without dermoscopic or microscopic confirmation, which may have introduced some degree of diagnostic misclassification despite the use of standardized IACS criteria. Third, information on hygiene-related practices and history of close contact with scabies was self-reported which is susceptible to recall bias and social desirability bias. Finally, the study did not assess other clinical characteristics such as secondary bacterial infection, duration of disease, treatment history etc. which could have provided additional insights into disease severity.

V. Conclusions

Among the institutionalized children with scabies, history of overcrowded and shared living conditions and pruritus among close contacts was common. Lesions predominantly involved the interdigital spaces, wrists, and hands, reflecting the classical clinical distribution. Although most of the participants had mild scabies, a considerable proportion presented with moderate-to-severe infestation. These findings highlight the importance of mass management approaches and strengthened infection prevention measures within institutional settings to reduce scabies transmission.

Declarations

Ethics approval and consent to participate: The study protocol was reviewed and approved by Institutional review board, Bangladesh. The all authors declare no human subjects were harmed and the procedures followed were in accordance with the ethical standards and regulations established by the Helsinki Declaration of the World Medical Association. Formal informed written consent was obtained from the parent/guardian of the minor participants involved in the study. Assent was also obtained from children aged 12 years or more. Participation was voluntary, and confidentiality of all collected information was strictly maintained throughout the study.

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Formal analysis: MIC, NP, MMEK, and ASMAR

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Methodology: MIC, GRC, and ASMAR

Project administration: MIC, and NP

Software: MIC, and ASMAR

Supervision: MIC, NP, GRC, MMEK, AKMSR, MHC and ASMAR

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