Original Article

Prevalence of Scabies and Impetigo in Patients of Different Age Groups in a Tertiary Level Hospital

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Abstract

Background:Scabies and impetigo are found as two common skin diseases in developing countries. Scabies affects the whole family and has more impact on children and elderly people. The present study aims to provide an update on the prevalence and severity of scabies and impetigo in individual of different ages visited a tertiary level hospital.

Methods: This observational cross sectional study includes a total of 3680 subjects complaining the clinical symptoms of scabies and impetigo. The patients were selected randomly and examined in outpatient department of Sylhet Women's Medical Hospital during the period January, 2019 to October, 2020.

Results: Scabies and impetigo were observed in 65.76% (n=2420) and 34.23% (n=1260) patients, respectively. However, the majority of scabies patients (65.74%, n=1591) were associated with impetigo. Both diseases were prevalent in males (57.02% in scabies and 57.14% in impetigo) compared to females (42.98% in scabies and 42.86% in impetigo). The highest prevalence of scabies (33.63%, n=814) and impetigo (40.88%, n=515) was observed among the individual aged 1-10 years. However, prevalence of the both diseases decreased gradually with the increase of age from 11-20 years to 51-60 years and above. Scabies lesions were more prevalent in upper extremities in patients aged 10-30 years and above. However, lower extremities in patients aged <10 years were found as the more prevalent sites for scabies lesions.On the other hand, impetigo lesions were the most prevalent in lower extremities followed by upper extremities in patients of all age groups. Although scabies and impetigo lesions were mostly mild (>50%) to moderate (~20-35%), lesions were severe in 15.58% of scabies patients aged 10-30 years and 22.89% of impetigo patients aged <10 years.

Conclusions: Results reported herein supports the notion that scabies and impetigo are prevalent in school going children.

Keywords: Impetigo, lesions, prevalence, scabies.

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Introduction:

Scabies is caused by *Sarcoptes scabiei* var hominis, a known parasitic mite.[2] This disease is transmitted to people when they are contacted with an infected person within households and institutions.[3]

Impetigo, a common bacterial infection of the skin, usually occurs in people with scabies due to scratching of the lesions.[4,5-8] It usually generates complications being associated with bacterial infection such as septicemia, glomerulonephritis, and rheumatic heart disease particularly in tropical regions.[9-12]In industrialized countries, scabies and impetigo are considered as irritant diseases. However, in many resource-poor setting, these diseases are endemic and reach prevalence as high as 25% in overall and up to 50% in children.[13]

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Although the scabies affects all social classes, some groups, such as children, the elderly, immunocompromised individuals, the residents of care facilities or overcrowded populations with low socio-economic status are particularly at risk of becoming infected.[14] It is observed as sporadic case in developed countries. However, scabies and impetigo is endemic in most of the developing countries like Bangladesh. Although many studies have been done on prevalence of scabies and impetigo in other countries, very limited studies have been reported involving patients from Bangladesh. In the present study, it has been focused on the prevalence of scabies and impetigo in Bangladeshi individuals of different age groups.

Methods

Patients and ethical approval

Outdoor patients of different ages of both genders having scabies and impetigo attended in the Department of Dermatology, Sylhet Women's Medical College Hospital (SWMCH), Sylhet, Bangladesh during the period from January, 2019 to October, 2020 were included in the present cross-sectional study. The objective of the study was briefly described to the patients or their attendants. Patients aged 18 years and above gave their written consents. In case of infants and children, their parents or attendants were interviewed.After interview as per the questionnaires,data of all the patients were recorded for further analysis. The Institutional Ethical Committee of SWMCH approved the study.

Diagnosis

Scabies was diagnosed clinically by taking careful history including that of close personal contacts and family along with meticulous examination of lesions.Involvement of scabies in patients was assessed by examining seven common sites. These sites include finger webs, flexural aspect of wrists and elbows, axillae, umbilicus, buttocks, and genitalia (genital scabies).These sites were examined for the appearance of burrows. Burrows appear on the skin surface as a wavy and scaly gray line.[15]Despite burrows, papules, vesicles, pustules (secondary bacterial infection) and nodules are seen in the affected sites. Episodes of itching especially at night were asked. The appearance of papules, pustules, pus and ulcerative lesions with erythema was considered for diagnosis of impetigo.

Severity assessment

The severity assessment of scabies and impetigo was done by the number of lesions using a previously validated methodology.[11,16,17] Scabies was classified as mild (1 to 10 lesions), moderate (11 to 49 lesions) and severe (50 or more lesions). Impetigo was classified as very mild (1 to 5 lesions), mild (6 to 10 lesions), moderate (11 to 49 lesions) and severe (50 or more lesions).

Statistical analysis

Data were collected on a predesigned questionnaire and complied and analyzed using SPSS for Windows version 16. Only descriptive statistics with percentage and pie charts were applied.A p-value of ≤ 0.05 was considered to be statistically significant.

Results

Prevalence of scabies and impetigo based on age and gender

During the study period, a total of 3680 patients were included. Scabies was observed in 65.76% participants (n=2420).The highest prevalence (33.36%) of scabies was observed in children aged 1–10 years compared to participants of other age groups (Table 1). However, the prevalence of scabies was also very high (27.97%) in the participants at the age of 11-20 years. The frequency of occurrence of scabies was more in males compared to females (Figure 1).

Table 1: Prevalence of scabies and impetigo in participants of different age groups

Age groups	Scabies (n=2420)		Impetigo (n=1260)	
	Number (n)	%	Number (n)	%
6-12 months	153	6.32	341	27.06
1-10 years	814	33.63	515	40.87
11-20 years	677	27.97	169	13.41
21-30 years	401	16.57	90	7.14
31-40 years	190	7.85	63	5
41-50 years	80	3.30	47	3.73
51-60 years	63	2.60	29	2.30
>60 years	42	1.73	6	0.47

Impetigo was observed in 34.23% (n=1260) of participants. Impetigo followed a similar age distribution to that of scabies. The most affected age group was the 1–10 years (40.87%) followed by the 6–12 months (27.06 %) (Table1). Prevalence of impetigo was also more in males in comparison with females (Figure 1)

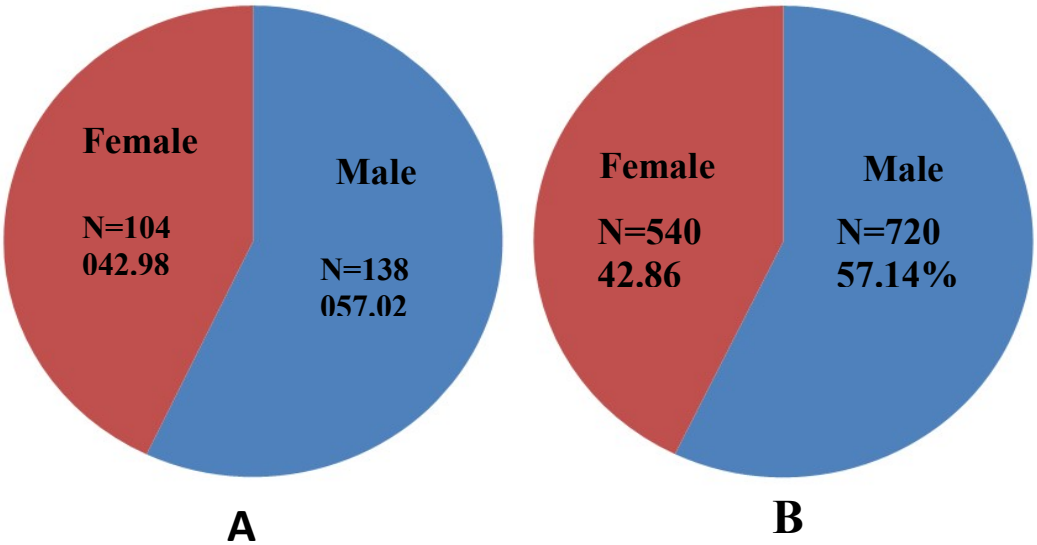

Figure 1: Prevalence of scabies (A) and impetigo (B) in males and females

Distribution of sites of lesions in patients of different age groups

Lesions of scabies and impetigo are distributed in scalp or face, trunk, and lower and/or upper extremities. In scabies patients, lesions in overall were the most frequent on the upper extremities (46.07 %) followed by the lower extremities (34.09%) (Table 2). Scabies lesions were the most common in the upper extremities in patients of 10-30 years and above. However, in patients of <10 years, lesions were common in the lower extremities. In impetigo patients, lesions in overall were most frequently observed on the lower extremities (57.69%) followed by upper extremities (Table 2). This trend of lesions in the lower extremities was consistent across all age groups with the highest in 10-30 years old participants. Impetigo lesions on the scalp, face, and neck were more common in those aged less than 10 years (17.52%) than in all other age groups. The distribution of scabies and impetigo lesions was similar in both males and females.

Table 2: Distribution of sites of lesions in scabies and impetigo patients of different age groups

Sites of lesion	Scabies, n (%)				Impetigo, n (%)			
	<10 years N=967	10-30 years N=1078	>30 years N=375	Overall N=2420	<10 years N=856	10-30 years N=259	>30 years N=145	Overall N=1260
Scalp/face	88 (9.10)	53 (4.92)	15 (4)	156 (6.44)	150 (17.52)	11 (4.24)	3 (2.06)	164 (13.01)
Upper extremities	265 (27.40)	630 (58.44)	220 (58.67)	1115 (46.07)	235 (27.45)	40 (15.44)	45 (31.03)	320 (25.39)
Trunk	104 (10.75)	170 (15.77)	50 (13.33)	324 (13.38)	21 (2.45)	21 (8.10)	7 (4.82)	49 (3.88)
Lower extremities	510 (52.74)	225 (20.87)	90 (24)	825 (34.09)	450 (52.57)	187 (72.20)	90 (62.06)	727 (57.69)

Severity of scabies and impetigo

Among participants with scabies, most had mild disease (54.35%) (Table 3). The percentage of mild disease was the highest among the patients aged >30 years. More than 32% scabies patients of all age groups suffered from moderate disease. However, at least 15% of scabies patients aged between 10-30 years had severe disease. In case of impetigo, most participants (58.73%) had mild disease (Table 3). However, more than 75% patients aged >30 years had mild disease. About 15-25% impetigo patients of different age groups suffered from moderate disease. Nevertheless, about 23% of impetigo patients of <10 years had severe disease.

Table 3: Severity of lesions in scabies and impetigo patients of different age groups

Severity of lesions	Scabies, n (%)				Impetigo, n (%)			
	<10 years N=967	10-30 years N=1078	>30 years N=375	Overall N=2420	<10 years N= 856	10-30 years N=259	>30 years N=145	Overall N=1260
Mild	550 (56.87)	560 (51.94)	220 (58.66)	1330 (54.95)	440 (51.40)	190 (73.35)	110 (75.86)	740 (58.73)
Moderate	330 (34.12)	350 (32.46)	135 (36.00)	815 (33.67)	220 (25.70)	45 (17.37)	25 (17.24)	290 (23.01)
Severe	87 (8.99)	168 (15.58)	20 (5.33)	275 (11.36)	196 (22.89)	24 (9.26)	10 (6.89)	230 (18.25)

Discussion

Scabies was reported more than 2500 years before.[18] It is a common dermatose susually occurred in low socio-economic conditions, overcrowding and poor hygiene.[19] In developing countries, people being faced to poverty, overcrowding, poor housing, malnutrition, ill health are still fighting with communicable and non-communicable diseases. Scabies spreads predominantly by personal contact or by close contact with fomites (contaminated clothing, bedding, towels, cups, toys, books, door handles, taps etc) or by shaking hands. It is prevalent among slum dwellers, school children, families, roommates, immigrants, homeless and sexual contact.[20] Very recently, the World Health Organization categorized scabies to Neglected Tropical Diseases with a view to prioritize the condition in low and middle income countries

.[21]Furthermore, the International Alliance for the Control of Scabies was formed to bring professionals together from across the globe.[22]A study showed that the prevalence of scabies was 21.86% in Bangladesh.[23]

The present study revealed that scabies being connected to poverty, overcrowding, and sometimes water scarcity was prevalent among school going children in rural communities. The ratio of male to female scabies patients was about 1.32:1 which was with a marginal increase in favor of male. This study further revealed that scabies and impetigo were highly prevalent in children of 1-10 years.Almost a three-quarter of the infected children were associated with skin itching. Most of the skin rashes persisted for more than one month on the body of the affected individual. This high figure with longer persistence might be alarming in view of the massive enlightenment toward achieving universal basic education. However, the figure might be representative of the communities in the north east part of Sylhet in Bangladesh.

In developing countries, complication of scabies and impetigo is usually observedamong preschool children, adolescents and elderly.[24] However, in the present study, it has been observed that the prevalence of scabies and impetigo deceases after the childhood (Table 1). A fatal post streptococcal glomerulonephritis may be a result of infection by group A streptococci in the presence of scabies. Other complications of scabies include impetigo, furunculosis, cellulitis, pyelonephritis, abscess, pyogenic pneumonia, and sepsis leading to death.[18] Impetigo was diagnosed by the presence of discrete pustular or ulcerated lesions concomitant with erythema, bullae or frank pus and crusting. Impetigo in the presence of scabies is considered as a secondary bacterial infection.In the present study, the presence of impetigo was found associated with scabies. The majority of participants with scabies (65.74%, n=1591) were diagnosed with impetigo.However, impetigo may develop irrespective of scabies. The reason of more susceptibility of children to impetigo might be their lower immunity. Furthermore, increased rate of impetigo and secondary bacterial infection make scabies a burden.[25]Improvement in the epidemiological situation of scabies and impetigo depends on the elevation of socio-economic conditions. It is also important to educate the public about the rules of hygiene and hygiene standards to improve the epidemiological situation of scabies and impetigo.

Conclusion

In developing countries, scabies and impetigo cause distress and discomfort to children and all of the family members. The present study supports the notion that both scabies and impetigo are prevalent in children of school going age although these diseases may occur to a person of any age. Scabies and impetigo including their complications can be controlled with increased awareness, better case finding, education of the staff at the rural health unit and by taking simple means such as improvement of personal hygiene and other healthful living. The findings obtained in this study and subsequent discussion with other literatures indicate that the present study may offer a tool for future research and planning for preventing and controlling scabies and impetigo including their complications.

Contribution of Authors: Concept, design of the study and manuscript editing: PAC; Critical review of the manuscript: TAC.

Conflict of Interest: Authors have no conflict of interest.

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