

Original Article

Spectrum of Skin Diseases in Pediatric Patients Attending in a Tertiary Level Hospital

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This article is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).**ABSTRACT**

Introduction: The skin has a key role in communication of biological functions such as thermoregulation, sensation, and excretion. The skin acts as the interface between oneself and the surroundings, functioning as the primary contact point with the external world. Moreover, it forms a vital barrier against infections and prevents dehydration. However, the impairment of the skin's normal function can lead to significant morbidity and mortality. **Objectives:** The aim of this paper was to determine the spectrum of skin diseases in pediatric patients attending in the department of Skin & VD in a tertiary level hospital. **Methods & Materials:** This was a descriptive type of cross-sectional study conducted at the Department of Skin & VD in Mugda Medical College, Dhaka, Bangladesh, during January, 2023 to December, 2023. **Results:** A total of 100 OPD pediatric patients with skin disorders aged (1-15) years were enrolled in this study. The most frequent infective skin disease was scabies which

was 41(47.67%) followed *Tinea corporis* 19(22.09%), *Tinea capitis* 9(10.47%), *Pityriasis versicolor* 6(6.98%), *Carbuncles/furuncles* 3(3.48%), *Pityriasis rosea* 2(2.33%) and *Bullous impetigo* and *Tinea pedis* followed the same 2(2.33%), *Varicella* 1(1.16%) and *Candidiasis* followed the same 1(1.16%). The most frequent skin non-infective skin disease was observed *Atopic dermatitis* which was 4(28.57%) followed *Papular urticarial* 3(21.44%), *Acne* 2(14.29%) and *Alopecia* followed the same 2(4.29%), *Seborrheic dermatitis* 1(7.14%) and, *Miliaria*, *Tuberous sclerosis* followed the same 1(7.14%). **Conclusion:** This study investigated that 86% of the study children suffered from infective skin diseases which included scabies, *Tinea corporis*, *Tinea capitis*, *Pityriasis versicolor*, *Carbuncles/furuncles*,

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Pityriasis rosea, *Bullous impetigo*, *Tinea pedis*, *Varicella*, *Candidiasis* and 14% children suffered from non-infective skin diseases which included *Seborrheic dermatitis*, *Papular urticarial*, *Alpecia*, *Atopic dermatitis*, *Miliaria*, *Tuberous sclerosis* which are responsible for children morbidity and mortality in Bangladesh.

Key words: *Patients, pediatric, skin, spectrum, diseases*

INTRODUCTION

The skin has a key role in communication of biological functions such as thermoregulation, sensation, and excretion. It is the boundary between self and the environment, serving as the point of contact with the external environment^[1]. The skin serves as a crucial barrier against infections and dehydration. However, disruptions to its normal function can lead to significant health risks. Due to their thinner and more delicate skin, children's skin has a higher skin surface area to body volume ratio, which promotes better absorption. However, their skin's inability to control temperature leaves them vulnerable to a range of skin disorders^[2]. Skin diseases are prevalent among children globally, posing substantial health challenges and causing distress and disability^[3]. In many developing countries, skin diseases in children are common but are often underestimated, despite potentially serious implications signaled by changes in the skin^[4]. Skin conditions frequently encountered in tropical regions contribute significantly to morbidity, leading to functional impairment, strained familial relationships, poor self-esteem, psychiatric issues, stigma, and in severe cases, suicidal tendencies^[5]. Their ability to put kids at risk for other potentially fatal conditions like glomerulonephritis, carditis, arthritis, and septicemia is especially worrisome^[6]. Skin diseases are recognized as public health issues in developing nations due to their preventable nature and potential

as indicators of community development^[7]. There is a dearth of research on the range of skin diseases that affect primary school students in rural communities in Southeast Nigeria. Most of the studies that have been done are hospital-based, concentrate on particular conditions like superficial fungal infections, or involve secondary school students^[8]. It is imperative to evaluate the prevalence of skin conditions that particularly affect elementary school students across different communities. This is crucial because school-aged children are prone to bacterial skin infections due to their social interactions and close proximity, facilitating easy transmission of infections and infestations^[9]. Anyway, there are very few studies and limited data in Bangladesh regarding spectrum of pediatric skin diseases in national level. Therefore, the researcher has designed this study. The aim of this paper was to determine the spectrum of pediatric skin diseases among the children attending in pediatric department in a tertiary level hospital in Bangladesh.

OBJECTIVES

General Objective:

- To determine the spectrum of skin diseases in pediatric patients attending in the department of Skin & VD in a tertiary level hospital.

Specific Objectives:

- To know the demographic characteristics of pediatric patients with skin diseases.

- To identify the clinical characteristics of skin diseases with pediatric patients.
- To identify the etiologic agents of infective skin diseases with pediatric patients.
- To determine the infective and non-infective skin diseases among pediatric patients.

METHODS & MATERIALS

This was a descriptive type of cross-sectional study conducted at the Department Skin &VD in Mugda Medical College, Dhaka, Bangladesh, during January, 2023 to December, 2023. Purposive consecutive sampling technique was used in this study. Written informed consent was obtained from the legal guardians of the children and a total of 100 OPD pediatric patients with skin disorders aged (1-15) years were enrolled in this study. When the diagnosis was unclear, further laboratory testing, histopathological analyses, or clinical assessment were mostly used to identify the infectious and non-infectious skin diseases and to identify the etiologic agents. A pre-structured questionnaire was used to collect the demographic data of the study children and a Case Record Form (CRF) was used to collect the data of clinical and laboratory diagnosed reports of the study children. The collected data were analyzed using Statistical Package for Social Sciences (SPSS), version, 23.0. Descriptive statistical analysis were performed and the results were presented in tables and charts. The ethical clearance of this study was obtained from the ethics committee of Mugda Medical College, Dhaka, Bangladesh. The inclusion and exclusion criteria of this study was as follows:

Diagnosis primarily relied on clinical evaluation, with additional laboratory tests or histopathological examinations conducted when the diagnosis was uncertain.

Inclusion Criteria:

- Age: (1-15) years
- OPD patients with skin disorders
- Agreed to participate in this study

Exclusion

- Age >15 years
- Critically ill patients
- Unwilling to participate in this study

RESULTS

Table I shows the: demographic characteristics of the study children. According to age distribution of the children, the most frequent 55(55%) children belonged to the age group (11-15) years followed by 30(30%), (6-10) years and 15(15%), (1-5) years. The mean age of the patients was 10.06 ± 3.74 years. The median age of the children was 11 years. The majority of the children 60(60%) were male and 40(40%) were female. The maximum of the children 80(80%) were from urban area and 20(20%) children were from rural area. The most frequent 45(45%) children were from middle class family followed by 35(35%) children upper class family and 20(20%) children lower class family.

Table I: Demographic characteristics of the study children (n=100).

Demographic characteristics	Frequency	Percent
Age (years)		
1-5	15	15
6-10	30	30
11-15	55	55
Total	100	100
Mean age(years):	10.06±3.74	
Mode	13	
Median	11	
Range	14	
Gender		
Male	60	60
Female	40	40
Total	100	100
Residence		
Urban	80	80
Rural	20	20
Total	100	100
Socio-economic condition		
Upper	35	35
Middle	45	45
Lower	20	20
Total	100	100

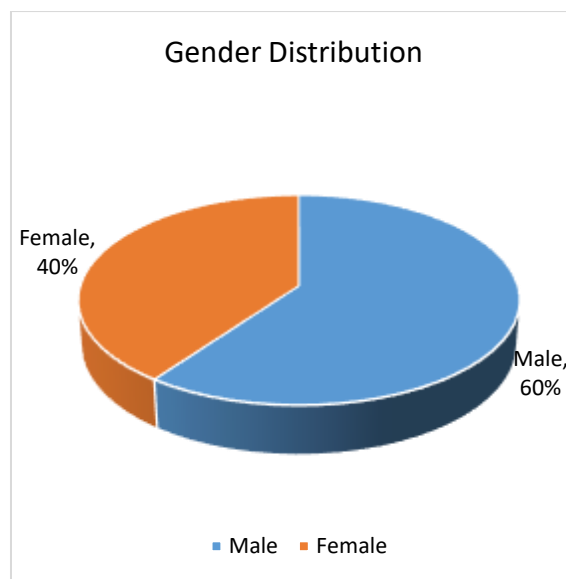


Figure 1: shows the gender distribution of the study children (n=100)

Figure 1 shows the gender distribution the studied population. 60% were male and 40% were female.

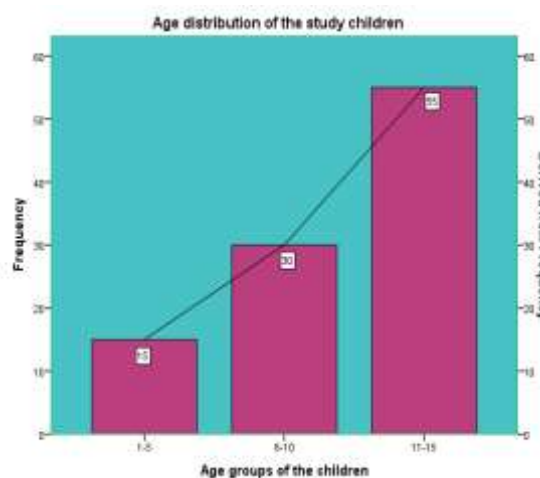


Figure 2 Shows the distribution of frequency of the study children according to age groups (n=100)

Figure 2 shows the distribution of frequency of the studied children according to age group. 15 were 1-5 age group, 30 were 6-10 age group and 55 were 10-15 age group.

Table II shows the sites distribution of skin diseases among the study children. According to sites distribution of skin diseases of the children, the most frequent sites were trunk 33 (33%) followed face 14(14%), 12(12%) neck 12(12%), 11(11%) , lower limb 11(11%), head followed the same 11(11%). upper limb 6(6%), armpit 2(2%), anal/ perianal followed the same 2(2%) and overall generalized 6(6%).

Table II Sites of skin diseases among the study children (n=100).

Sites of skin diseases	Frequency	Percent
Head	11	11
Neck	12	12
Face	14	14
Armpit	2	2
Trunk	33	33
Upper limb	6	6
Lower limb	11	11
Buttocks	3	3
Anal/perianal	2	2
Generalized	6	6
Total	100	100

Table III: shows the etiologic agents of infective skin diseases among the study children. According to etiologic agents’ distribution of infective skin diseases, the most frequent agents were parasitic 35(40.70%) and followed 30(34.88%) were fungal, 20(23.26%) were bacterial and 1(1.17%) was viral.

Table III: Etiologic agents of infective skin diseases among the study children (n=86).

Etiologic agents	Frequency	%
Fungal	30	34.88
Bacterial	20	23.26
Parasitic	35	40.70
Viral	1	1.17
Total	86	100

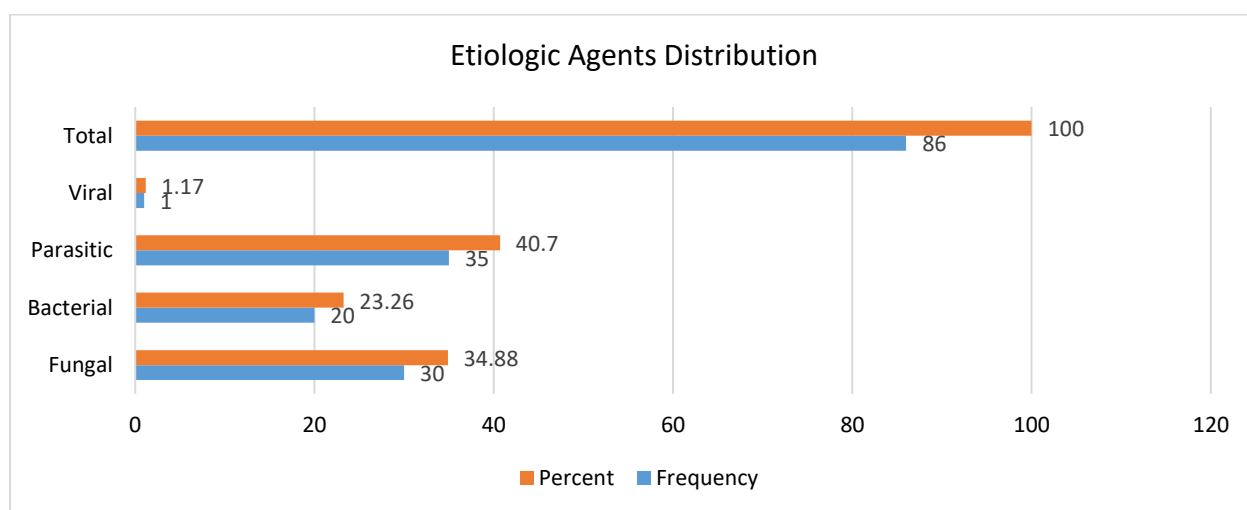


Figure 3 shows the distribution of etiologic agents of infective skin diseases among the study children (n=100).

Figure 3 shows the distribution of etiologic agent of infective skin diseases among the studied children.

Table IV shows the diagnosis of infective skin diseases among the study children. According to diagnosis of infective skin diseases, the most frequent infective skin disease was scabies which was 41(47.67%) followed Tinea corporis 19(22.09%), Tinea capitis 9(10.47%), Pityriasis versicolor 6(6.98%), Carbuncles/furuncles 3(3.48%), Pityriasis rosea 2(2.33%) and Bullous impetigo and Tinea pedis followed the same 2(2.33%), Varicella 1(1.16%) and Candidiasis followed the same 1(1.16%).

Table IV: Diagnosis of infective skin diseases among the study children (n=86).

Infective skin diseases	Frequency	Percent
Tinea capitis	9	10.47
Pityriasis versicolor	6	6.98
Scabies	41	47.67
Tinea corporis	19	22.09
Carbuncles/furuncles	3	3.48
Pityriasis rosea	2	2.33
Bullous impetigo	2	2.33
Varicella	1	1.16
Candidiasis	1	1.16
Tinea pedis	2	2.33
Total	86	100

Table V shows the diagnosis of non-infective skin diseases among the study children. According to diagnosis of non-infective diseases, the most frequent non-infective skin disease was observed Atopic dermatitis which was 4(28.57%) followed Papular urticarial 3(21.44%), Acne 2(14.29%) and

Alopecia followed the same 2(4.29%), Seborrheic dermatitis 1(7.14%) and, Miliaria, Tuberous sclerosis followed the same 1(7.14%).

Table V: Diagnosis of non-infective skin diseases among the study children (n=14).

Non- infective skin diseases	Frequency	Percent
Miliaria	1	7.14
Papular urticarial	3	21.44
Acne	2	14.29
Seborrheic dermatitis	1	7.14
Atopic dermatitis	4	28.57
Alopecia	2	14.28
Tuberous sclerosis	1	7.14

DISCUSSION

The range of skin diseases in children within a community can be shaped by genetic makeup, climate, socioeconomic status, occupation, educational background, personal hygiene practices, cultural customs, quality of medical care, family size, family history, and overcrowding in schools or households^[10,11]. These factors contribute to the distinct patterns of skin diseases observed in each community, leading to significant variations reported across different regions of the world and even within the same country^[11]. The aim of this paper was to investigate the spectrum of skin diseases among pediatric patients attending in pediatric department with different types of skin diseases. This study observed the mean age of the children was 10.06±3.74 years and the most frequent age group was (11-15.) years. The majority of

the children was male (60%) and 40% children were female. This findings indicate that the male children dominant than the female children in the prevalence of skin diseases. These findings are comparable with another study conducted at the Department Venereology in Sher-e-Bangla Medical College Hospital, Barishal, Bangladesh by DMK Kamruzzaman et al, (2021). In their study, they observed, among the pediatric patients, the pattern of pediatric skin diseases was higher in male (52.15%), than in female (47.85%)^[12]. This current study observed that the maximum of the children 80(80%) were from urban area and 20(20%) children were from rural area. The most frequent 45(45%) children were from middle class family followed by 35(35%) children upper class family and 20(20%) children lower class family. These findings of this present study are almost persistent with another studies conducted in Nigeria by Ewurum, et al. (2022). In their study, they observed 65.9% children were from upper class family and followed by 21% middle class family and 13.1% lower class family^[13]. In our study, we observed, the most frequent skin diseases sites were trunk 33 (33%) followed face 14(14%), 12(12%) neck 12(12%), 11(11%) , lower limb 11(11%), head followed the same 11(11%). upper limb 6(6%), armpit 2(2%), anal/ perianal followed the same 2(2%) and overall generalized 6(6%). Our study also observed the most frequent etiologic agents were parasitic 35(40.70%) followed 30(34.88%) fungal, 20(23.26%) bacterial and 1(1.17%) viral. These findings our study are similar to another study conducted in Southern Ethiopia by Reid, A.J. et al, (2019). They found that bacterial infections (21.3%, n = 398), fungal infections (18.8%, n = 351), and infestations (9.9%, n = 185) were all present in their study. ^[14] In

our study we found that the most frequent infective skin disease was scabies which was 41(47.67%) followed Tinea corporis 19(22.09%), Tinea capitis 9(10.47%), Pityriasis versicolor 6(6.98%), Carbuncles/furuncles 33.48%), Pityriasis rosea 2(2.33%) and Bullous impetigo and Tinea pedis followed the same 2(2.33%), Varicella 1(1.16%) and Candidiasis followed the same 1(1.16%). Similar observation was noted in India and Brazil^[15, 16]. This present study finally observed, , the most frequent non-infective skin disease was observed Atopic dermatitis which was 4(28.57%) followed Papular urticarial 3(21.44%), Acne 2(14.29) and Alopecia followed the same 2(4.29%), Seborrheic dermatitis 1(7.14%) and , Miliaria, Tuberous sclerosis followed the same 1(7.14%). These findings of our study are comparable with another study conducted in Pakistan^[17].

CONCLUSION

This study investigated that 86% of the study children suffered from infective skin diseases which included scabies, Tinea corporis , Tinea capitis , Pityriasis versicolor, Carbuncles/furuncles, Pityriasis rosea ,Bullous impetigo ,Tinea pedis , Varicella , Candidiasis and 14% children suffered from non-infective skin diseases which included Seborrheic dermatitis, Papular urticarial, Alopecia, Atopic dermatitis, Miliaria, Tuberous sclerosis which are responsible for children morbidity and mortality in Bangladesh. Therefore a comprehensive frame work is demand of the time to decrease the rate of children mortality in Bangladesh context.

Limitations Of the Study:

This was a single Centre study with a purposive sampling technique over a short period of time. Therefore, the results of this study may not reflect the whole country.

Recommendations:

To justify the results of this study, a multi-center study may be conducted over a long period of study duration with a large calculated sample size.

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Conflict of Interest: None declared

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