Scholars Journal of Applied Medical Sciences
Abbreviated Key Title: Sch J App Med Sci
ISSN 2347-954X (Print) | ISSN 2320-6691 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Paediatrics

Incidence and Related Factors of Different Types of Skin Diseases among Children

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DOI: 10.36347/sjams.2022.v10i12.045 | **Received:** 23.10.2022 | **Accepted:** 07.12.2022 | **Published:** 10.12.2022

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Abstract **Original Research Article**

Background: The global burden of non-fatal diseases is greatly increased by skin problems. Children bear a disproportionately large portion of the burden of skin problems, which are also responsible for numerous visits to primary healthcare institutions. ***Objective:*** The goal of this study was to estimate the incidence of skin conditions in children and describe how they relate to different factors. ***Methods:*** This study was a prospective cross-sectional study conducted among 1722 patients at outpatient department (OPD) of Paediatrics in Abdul Malek Ukil Medical College Hospital, Noakhali, Bangladesh; from 1 April to 31 July 2022. Where 1040 Participants less than or equal to 15 years old and of both sexes who visited the hospital's Paediatrics department for Skin & Venereal diseases were included in this study. ***Result:*** A total of 1040 participants were recruited in this study, out of which 550 (52.9%) were boys and 490 (47.1%) were girls. 170 (16.3%) were aged between 0-5 years and followed by 410 (39.4%) were 6-10 years, 460 (44.2%) were 11-15 years. 620 (59.6%) were rural and 420 (40.4%) were urban. The majority of mothers, 484 (46.5%), were educated up to primary level. Most of the fathers, 502 (48.3%), studied up to secondary level. The majority of the participants, 263 (46.1%), had fungal infectious diseases whereas 178 (37.9%) of children had eczema, a non-infectious disease. ***Conclusion:*** The study comes to the conclusion that most prevalent type of skin illness identified in this study was fungal infection, followed by eczema and urticaria. Age, education level of parents, poor personal hygiene, history of prior skin disease, sharing of clothing and towels with other family members and socioeconomic position were the related factors that linked to skin disease in children.

Keywords: Skin diseases, Fungal, Infectious, Non-infectious, Acne, Bacterial, Eczema; Scabies.

INTRODUCTION

The global burden of non-fatal diseases is greatly increased by skin problems [1, 2]. Children bear a disproportionately large portion of the burden of skin problems, which are also responsible for numerous visits to primary healthcare institutions [3]. Skin conditions are very common everywhere in the world and have a serious impact on public health in both industrialized and developing nations [4]. Although it can affect anyone at any age, children are one of the most prevalent sufferers of skin conditions because of their thin, more fragile skin [5]. The clinical assessments showed that as the age of a child is increased; the skin's softness, smoothness, and general health are often decreased [6]. These variations in developmental stages may make children's skin more susceptible to irritation and inflammation [7]. Children are more prone to develop skin diseases due to minor skin injuries, exposure to microorganisms, and physical factors like extreme heat or cold. The prevalence of skin diseases ranged from 21 to 87% in a review of 18 prevalence studies (13 of which provided data specifically for children) [8]. Despite the fact that the majority of dermatological illnesses do not cause mortality, they do cause agony and incapacities. It affects the social, physical, and mental health of patients as well as the relationships they have with their friends, partners, and families [2, 9]. Particularly children feel a great deal of discomfort and embarrassment [8]. Physicians and health authorities alike frequently fail to consider how skin diseases affect

patients' quality of life. Skin disorders are becoming more common due to a number of factors, including the Human Immunodeficiency Virus (HIV), shifting social norms, homelessness, rising industrial chemical use, global warming and others [10]. When the disease load is stratified by age and location, there are additional differences. For instance, eczema is prevalent in affluent nations, whereas infections and infestations are prevalent in underdeveloped nations [11]. The goal of this study was to estimate the incidence of skin conditions in children and describe how they relate to different factors.

OBJECTIVE OF THE STUDY

The objective of this study was to evaluate the incidence of skin disease and its associated factors among the children.

MATERIALS AND METHODOLOGY

This study was a prospective cross-sectional study conducted among 1722 patients at the outpatient department (OPD) of Paediatrics in Abdul Malek Ukil Medical College Hospital, Noakhali, Bangladesh, from 1 April to 31 July 2022. Where 1040 Participants less than or equal to 15 years old and of both sexes who visited the hospital's Paediatrics department for Skin & Venereal Diseases were included in this study. Children aged more than 15 years, mental illnesses and those who had other diseases were excluded from the study. A pre-designed questionnaire was presented to collect information from the responders. The socio-demographic characteristics and illness patterns were examined in this study on the data sheet by some trained staff. Certain trained personnel recorded the data on the data sheet. A skilled dermatologist established the diagnosis based on the clinical evidence. Data were gathered from direct interviews with the patients at the appropriate departments conducted by the researcher and qualified colleagues. The collected data was first verified and corrected. Then, with the software SPSS (Statistical Package for Social Sciences) Version 21, they were processed and analyzed.

RESULT

Table 1: Socio-demographic characteristics of children

Variables	Frequency (N=1040)	Percentage
Age (Years)		
0-5	170	16.3
6-10	410	39.4
11-15	460	44.2
Sex		
Boys	550	52.9
Girls	490	47.1
Residence		
Rural	620	59.6
Urban	420	40.4
Education level of Mother		
Illiterate	132	12.7
Primary	484	46.5
Secondary	352	33.8
Higher education	72	6.9
Education level of Father		
Illiterate	40	3.8
Primary	320	30.8
Secondary	502	48.3
Higher education	178	17.1

Table 1 Socio-demographic characteristics of the children. A total of 1040 participants were recruited in this study, out of which 550 (52.9%) were boys and 490 (47.1%) were girls. 170 (16.3%) were aged between 0-5 years and followed by 410 (39.4%) were 6-10 years, 460 (44.2%) were 11-15 years. 620 (59.6%) were rural and 420 (40.4%) were urban. The majority, 484 (46.5%), mothers of the children were educated up to primary level. Most of the fathers, 502 (48.3%), studied up to secondary level.

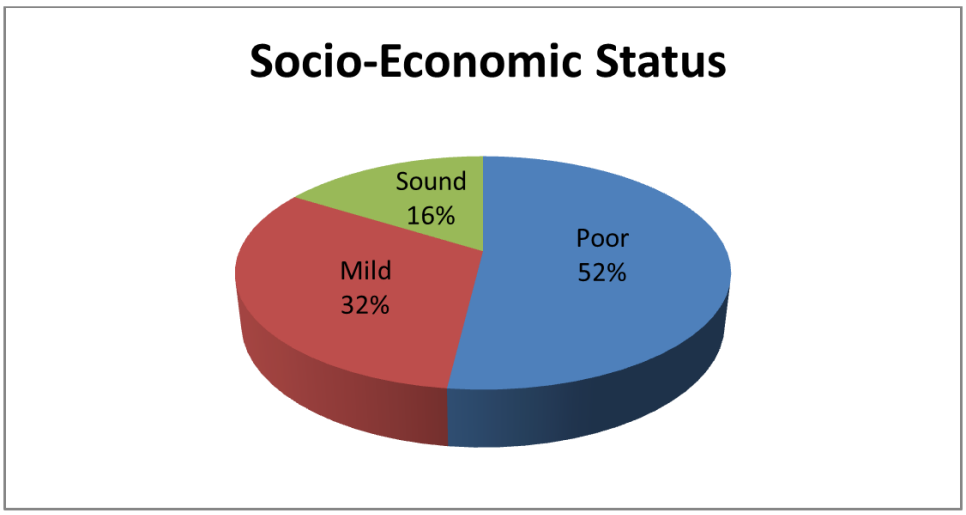

Figure 1: Distribution of socio economic status of respondents

According to yearly family income status in our study, out of 1040 respondents, 51% were from financially low-income families, 32% were from mild and 16% were from the sound.

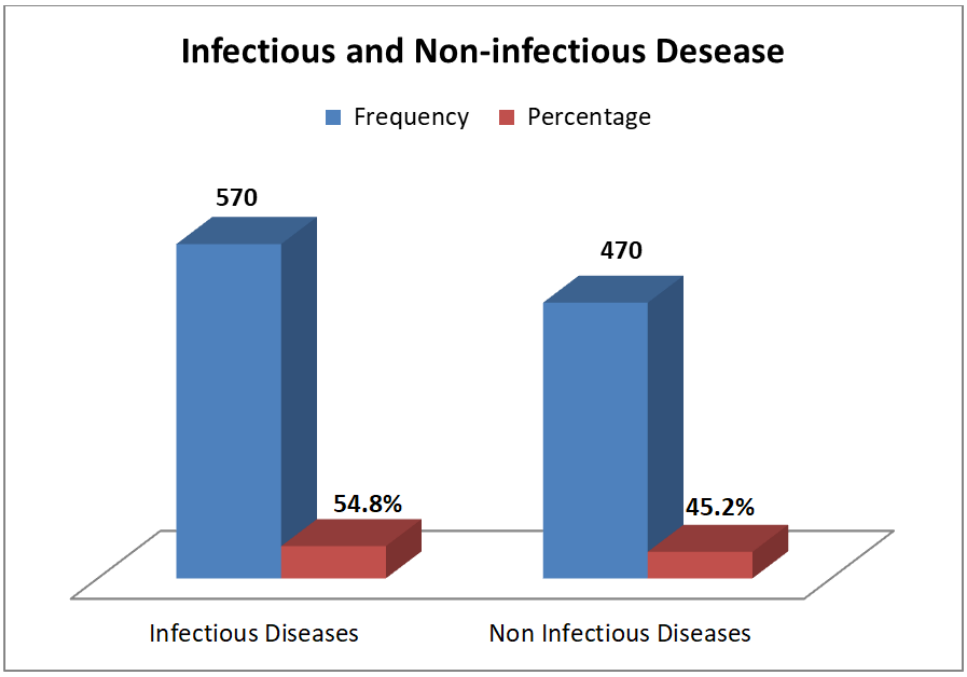

Figure 2: Distribution - infectious and non-infectious diseases of respondents

In this figure 2 we found that 570 (54.8%) paediatric patients of our study were suffering from infectious diseases and 470 (45.2%) were non-infectious.

Table 2: Distribution of infectious diseases of respondents (n=570)

Infectious Diseases	Frequency	Percentage
Parasitic	89	15.6
Fungal	262	46.1
Bacterial	142	24.9
Viral	53	9.3
Other infectious diseases	24	4.2
Total	**570**	**100.0**

Table 2 showed the distribution of infectious diseases of respondents where 89 (15.6%) had parasitic, 263 (46.1%) had fungal, 142 (24.9%) had bacterial, 53 (9.3%) had viral and 24 (4.2%) had other infections.

Table 3: Distribution of non-infectious diseases of respondents (n=470)

Non-Infectious Diseases	Frequency	Percentage
Eczema/Dermatitis	178	37.9
Urticaria	150	31.9
Acne	67	14.3
Drug reaction	15	3.2
Vitiligo	41	8.7
Other non-infectious diseases	19	4.0
Total	**470**	**100.0**

Table 3 demonstrates that Eczema and Dermatitis is the non-infectious disease that affects the greatest proportion 178 (37.9%) of children. The remaining patients had 150 (31.9%) cases of urticaria, 67 patients (14.3%) had acne, 15 had a medication reaction, 41 had vitiligo, and the remaining 19 (4.0%) had various other non-infectious skin conditions.

Table 4: Factors associated with skin disease among children

Variables	Frequency (N=520)	Percentage	P Value
Age (Years)			
0-5	170	16.3	0.044
6-10	410	39.4	
11-15	460	44.2	
Sex			
Boys	550	52.9	0.84
Girls	490	47.1	
Residence			
Urban	620	59.6	0.048
Rural	420	40.4	
Education level of Mother			
Illiterate	132	12.7	0.041
Primary	484	46.5	
Secondary	352	33.8	
Higher education	72	6.9	
Education level of Father			
Illiterate	40	3.8	0.043
Primary	320	30.8	
Secondary	502	48.3	
Higher education	178	17.1	
Exchange of clothes and towels to the other family member			
Yes	720	69.2	0.035
No	320	30.8	
Personal hygiene			
Good	450	43.3	0.049
Bad	590	56.7	
Family member suffered by skin disease currently or in the past 1 year			
Yes	795	76.4	0.045
No	245	23.6	
Previous history of skin disease			
Yes	640	61.5	0.032
No	400	38.5	
Socio-economic status			
Poor	531	51.1	0.002
Mild	332	31.9	
Sound	177	17.0	

This Table 4 shows that age (P=0.044), residential status (P=0.048), parental education level (P=0.041, P=0.0043), personal hygiene (P=0.049), a family member suffering from skin disease now or within the past year (P=0.045), exchange of clothing and towels with another family member (P=0.035), prior history of skin disease (P=0.042), and

socioeconomic status (P=0.002) were statistically associated with skin disease in children.

DISCOUSSION

Main objective of this study was to look at the incidence of skin conditions and the contributing factors in children. A prevalence of 60.4% was reported for skin problems in children, with boys being more afflicted than females. These results are comparable to those from prior studies conducted among school children in Tanzania by Komba *et al.,* (57.3%), Ferie *et al.,* (55%), Lulu Y *et al.,* (58.3%), and Janaki M *et al.,* (59.3%) demonstrating that skin problems affect children equally frequently [12-15]. Khalifa *et al.,* reported a somewhat lower frequency of 40.9% among youngsters in Iran, which could be explained by differences in the two settings' environments, geographies, and patterns of health- seeking behavior [16]. Infections accounted for 54.8% of this study's most common skin problems, which is comparable with prior results among children. A survey conducted among children also found that infections and infestations predominated [17]. Similar findings among children were observed in studies from India and Pakistan [18-20]. According to certain other studies, infectious skin illnesses are the most prevalent among children [14, 21-24]; this finding is similar to ours. Some research suggests that non-infectious and non-transmissible skin illnesses are widespread, which contradicts our study's results [5, 16, 25], it may be justified that this study was conducted in an area with low social class, common treatment-seeking behavior, and poor hygiene habits, which leads to a higher prevalence of infectious skin disorders than non-infectious ones. According to studies done in Bangladesh and other developing nations, the prevalence of infectious diseases may indicate a low degree of sanitary status and a low socioeconomic status. This is further supported by higher burden of non-infectious skin conditions reported from studies conducted in countries with higher socioeconomic status, including Iraq, Switzerland, Turkey, and Kuwait [16, 26-28]. In this study, superficial fungal infection accounted for 46.1% of the infectious conditions, which is similar to findings from studies reported from Egypt (78.6%), Nigeria (87.9%), and India (65.5%) [18, 29, 30]. Male children were more affected by fungal infections than female children, which might be attributed to differential hygienic practices. In this study, Eczema was the most common (37.9%) non-infectious disease. This finding is in contrast to reports from several other studies conducted among children. Urticaria (31.9%) and acne (14.3%) were the non-infectious skin conditions in this study. Acne vulgaris contributed to 7.8% of all skin conditions and was noted in children above 12 years, reflecting hormonal influence at this age [12]. In our study, there was a strong correlation between the prior history of skin disease, personal cleanliness, and parental education; however, there was no significant correlation between age and the disorder of skin problems. Several studies from India, Iraq and Nigeria also found a statistically significant link between parental education and child outcomes [14, 13, 24, 33]. This may be due to the fact that children over the age of nine conduct the majority of their daily self-care and hygiene tasks on their own, while children under the age of nine rely heavily on their parents for these tasks. Children with poor personal hygiene and sharing towels/clothes with family members are also more likely to develop skin diseases. Another study that matched our findings also discovered a strong correlation between skin disease, poor personal hygiene, and sharing bedding and clothes [15].

CONCLUSION

The study comes to the conclusion that there is an alarmingly high point prevalence of skin disorders among children. The most prevalent type of skin illness identified in this study was fungal infection, followed by eczema and urticaria. Age, poor personal hygiene, history of prior skin disease, sharing of clothing and towels with other family members and socioeconomic position were the factors that were strongly linked to skin disease in children.

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