



## RESEARCH ARTICLE

### PATTERN OF SKIN DISEASES OF PEDIATRIC AGE GROUP (BELOW 12 YEARS) IN CMH DHAKA

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#### ARTICLE INFO

##### Article History:

Received 20<sup>th</sup> September, 2023  
Received in revised form  
27<sup>th</sup> October, 2023  
Accepted 15<sup>th</sup> November, 2023  
Published online 20<sup>th</sup> December, 2023

##### Key words:

Skin Diseases, Pediatric Group.

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#### ABSTRACT

**Background:** Epidemiological studies to determine the pattern of skin diseases among children are important for proper health care planning and management. The purpose of this study was to describe the pattern of skin diseases among pediatric patients seen at a dermatology outpatient clinic of Combined Military Hospital, Dhaka. **Objective:** Despite the high frequency of certain skin diseases among under twelve children in developing countries, they have so far not been regarded as a significant health problem in the development of public health strategies. This study will provide comprehensive data on the epidemiology of the commonest skin diseases in a developing country environment, documents their health importance, describes measures that could be used to continue them & permits a rational consideration of the problem. The Study will be performed with a view to future interlayer of matters relating to skin diseases in children integrated management of child hood illness (IMCI) program. **Methods:** A cross-sectional study of children (12 years old and below) who attended the dermatology clinic between January 2021 and June 2021. Data obtained from the medical records of the patients included age, gender, clinical features, laboratory features and diagnosis. Skin diseases were classified into various groups. **Results:** There were 90 children included in the study with a male to female ratio of 1:1.13. The most common dermatoses are Atopic dermatitis 28 (31.11 %), Scabies 15 (16.67%), Tinea corporis 12 (13.33%), Molluscum contagiosum 3 (3.33 %), Urticaria 9 (10.0 %), Miliaria 1 (1.11 %) and genetic disorder 2 (2.22 %). **Conclusion:** The study highlights the common dermatoses seen in children in a specialized dermatology clinic in a developing country. Most of the skin diseases observed can be controlled by proper environmental sanitation, adequate nutrition, reducing overcrowding and promoting good health-seeking behavior among parents and caregivers. Information obtained from the study may guide training in dermatology especially among pediatricians.

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Citation: Upendra Bhatnagar, Navin Rajesh B, Vijaykumar B Malashetty, Lakshmi Narayan G, Reshma Shaik and Vijayakumar Subramanian. 2023. "Pattern of skin diseases of pediatric age group (below 12 years) in cmh dhaka." *International Journal of Current Research*, 15, (12), 26588-26593.

## INTRODUCTION

Skin diseases constitute a major health problem affecting a large proportion of the population causing distress and disability<sup>1</sup>. They represent between 6% and 24% of general Paediatric consultations in sub-Saharan Africa with infectious diseases reported as the most common diagnoses made amongst children and adolescents<sup>2-4</sup>. Despite the high frequency of certain skin diseases in developing countries, they have not been regarded as significant health problem in the development of public health strategies in Bangladesh. Some skin disorders are exclusive to childhood, while others are found across all age groups but may differ in manifestation and treatment<sup>5</sup>.

The pattern of skin disease in any country is affected by ecological, environmental, racial and social factors as well as literacy levels<sup>4,7</sup>. In Bangladesh, recognized predisposing factors to skin disorders in children include poor personal hygiene, low parental level of education, overcrowded living conditions and low socioeconomic status of parents<sup>6-9</sup>. Prevalence studies from the community, primary health centers, dermatology clinics and general outpatient clinics have indicated differences in the distribution of skin diseases<sup>4,5,7-11</sup>. Community-based studies show a high burden of dermatophytosis among school children in both urban and rural areas in Nigeria<sup>8-10,12</sup>, while dermatology clinics have reported a higher incidence of eczematous disorders such as atopic dermatitis<sup>11,13,14</sup>. In developing countries, infective disorders mainly pyoderma and scabies have been reported as the major causes for visits among children evaluated in primary health care facilities<sup>1,4</sup>.

In Nigeria, children and adults with skin diseases are managed by physicians in specialty clinics<sup>5, 6</sup> as Paediatric dermatology is an evolving subspecialty<sup>5,6</sup>. Skin diseases in children require a separate approach from adults because of differences in clinical presentation, treatment and prognosis. As such, there is a need to have accurate knowledge of the skin diseases affecting children. Although hospital-based studies can be affected by factors such as health-seeking behavior, accessibility to healthcare and socioeconomic factors, information obtained from such studies can provide data on the trends of skin disease. Therefore, a better understanding of the disease burden will provide information for health planning. This will go a long way to improving management and prevention of skin disorders. The aim of the study was to document the spectrum and frequency of skin diseases in various age groups of children who attended the dermatology outpatient clinic over a 1-year period. Skin diseases represent an important part of the morbidity among children and are possibly influenced by geographic, racial, social, cultural, and economic factors.<sup>1</sup> In developing countries, skin diseases constitute a significant public health problem because of certain climatic conditions such as high temperatures, humidity, poor hygiene, scarce access to water, and family households that may contribute to the development of these diseases. In 2005, The World Health Organization (WHO) published a detailed review of the literature about the epidemiology and management of the most common skin diseases among children in developing tropical countries. This review examined 18 studies mostly conducted in rural areas, and those studies found infection to be the most frequent skin disease. Bacterial diseases had the highest prevalence, oscillating between 0.2 and 35%, followed by tineacapitis with an occurrence of 1–17%, scabies prevalence varied between 0.2% and 24%; viral infections appeared at a rate of 0.4–9% (mostly molluscumcontagiosum); pediculosiscapitis prevalence between 0 and 54% and reactions caused by insect bites had an occurrence rate of 0–7.2%.<sup>2</sup> The frequency of skin diseases in those studies varied between 21 and 87%; despite being so frequent around the world, skin diseases have not been considered when developing strategies in public health. Therefore, it is of great importance to have national estimates of these diseases to develop strategies for their control and prevention.

## MATERIALS AND METHODS

**Type of study:** Cross-sectional study.

**Place of study:** Department of Pediatrics (OPD) and Department of Dermatology & Venereology (OPD), Combined Military Hospital, Dhaka.

**Period of study:** 1st June 2020 to 1st June 2021.

**Study population:** Under-twelve children attending with skin lesions in the Department of Pediatrics (OPD) and Department of Dermatology and Venereology (OPD), Combined Military Hospital, Dhaka.

**Sampling technique:** Purposive sampling.

**Sample size:** Sample size was calculated by

$$n = \frac{z^2 pq}{d^2}$$

n= the desired sample size = 80

z= Standard normal deviate usually set at 1.96

p= Proportion in the population. Prevalence of skin diseases in general population 35%. So p value will be 0.35.

q= 1-p, or, 0.65

d= Degree of accuracy which is considered as 0.10 (10%)

The putting the values in the above equation the sample size n is estimated as  $n = \frac{(1.96)^2(0.82)(0.18)}{(0.10)^2}$   
n = 87.35 (targeted sample size).

Considering the dropouts of samples, addition 10% is added to the calculation. So, finally 90 samples were taken for the data collection.  
Sample size = 90

### Selection criteria

#### Inclusion criteria

- Age less than 12 years.
- Congenital and acquired skin diseases.
- Gender: Both male and female
- Patients those parents agreed to give informed consent to take part in this study.

#### Exclusion criteria

- Above 12 year of children with or without skin lesion.
- Severely ill-children
- Not willing

**Operational definitions:** Pattern of skin disease will be diagnosed by defining criteria as below

**Atopic dermatitis:** This is a generalized eruption consisting of confluent, inflammatory papules that are erosive, excoriated and crusted.

**Scabies:** Pruritus (intense and widespread, usually spares the head and neck) often with minimal cutaneous findings. Skin colored, either linear or serpiginous burrows under stratum corneum.

**Tineacorporis:** Erythematous, sharply marginated plaque with peripheral enlargement and central clearing produce annular configuration with concentric rings or arcuate lesions.

**Molluscumcontagiosum:** Discrete, solid, skin coloured, round, oval, hemispherical papules, nodules, and tumours with central umbilication or depression.

**Pyoderma:** Painful, irregular, boggy, blue-red ulcers with undermined borders and purulent necrotic bases.

**Pigmentary disorders:** Vitiligo, albinism, post inflammatory hyperpigmentation.

**Disorders of hair and nail:** Disease that affects hair & nail e.g. 20 nail dystrophy, alopecia areata etc.

**Miliaria:** Tiny, superficial clear vesicle.

**Nutritional deficiency disorders:** Diseases caused by insufficiency of one or more dietary essentials.

**Urticaria:** Urticaria is composed of well-defined wheals with erythematous borders and a lighter color centrally. Transient edematous papules and plaques, usually pruritic and caused by edema of the papillary body.

**Genetic Disorders:** Spectrum of disease due to genetic alteration.

**Psoriasis:** Multiple, well circumscribed, erythematous plaque covered with silvery white scale.

**Hemangioma:** Soft, bright red to deep purple, compressible nodule or plaque, 1-8 cm in diameter. On diascopy, does not blanch completely.

**Armed forces:** It includes members of Bangladesh Army, Bangladesh Navy and Bangladesh Air Force and their families.

**Procedures and preparing and organizing materials:** A semi-structured questionnaire (research instrument) containing all the variables of interest were used for data collection. The questionnaire was finalized following pretesting. Collected data were checked and edited daily.

**Data collection procedure:** A total number of 60 patients were randomly selected. Complete history, general, physical and dermatological examinations were done for all enrolled patients. History and physical findings were recorded in a structured questionnaire.

**Procedure of data analysis:** All collected data was checked and rechecked for omissions, inconsistencies and improbabilities. Data analysis was performed by statistical package of social science (SPSS) version 25. Data was edited coded and entered in to the computer statistical analysis was measured by using appropriate procedures like chi-square (x2) test, relative risk (RR) measurement, t test and proportion (d) test and others were applicable. Level of significance (p value) was set at 0.05 and confidence interval at 95%. Results were presented as figures and tables.

**Ethical considerations**

- The researcher was duly careful about ethical issues related to this study. In this study the following criteria was set to ensure maintaining the ethical values;
- All patients were given explanation of the study including the potential risks and obtainable benefits.
- All patients were included in the trial after taking their informed consent.
- The researcher also explains them that they have the right to refuse or accept to participate in the study.
- The patients were not given financial benefit from the study.
- All data obtained during study period from patient were treated as confidential.

**Limitation of the study**

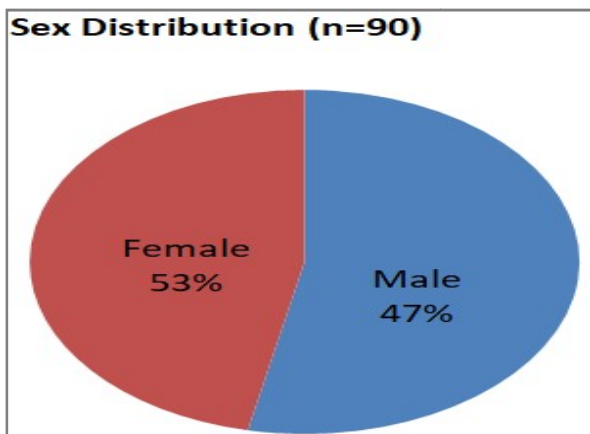
- The study population was only armed forces personnel so the result of study may not reflect the exact picture of country.
- Present study was conducted for a very short period of time.
- Small sample size was also a limitation of the present study.
- The diagnoses were clinical in most of the cases.

**RESULTS**

**Table 4.1: Distribution of age (n=90)**

Age	Frequency	Percent
< 2 yrs	15	16.66
2-5 yrs	28	31.11
6-12 yrs	47	52.22
Total	90	100

Age of the patients were < 2 years in 16.66 % of the cases, in the age group of 2-5 years 31.11% cases, 6-12 years in 52.22%. Out of total 90 children 53 (53.33%) were male and 47 (46.67%) were female



**Figure 4.1. Pie chart of Sex Distribution**

**Table 4.2. Distribution of socioeconomic condition (n=90)**

Socioeconomic condition	Frequency	Percent
High	20	22.22
Middle	60	66.66
Low	10	11.11
Total	90	100

22.22 % of patients were from high socioeconomic class, 66.66 % from middle class and 11.11 % from poor class.

**Table 4.3: Family history of same disease in other family members (n=90)**

Same disease in other family members	Frequency	Percent
Present	40	44.44
Absent	50	55.55
Total	90	100.00

40 (44.44%) of the patients have a family history of same disease and 50 (55.55%) have no family history.

**Table 4.4. Distribution of Site of lesion (n=90)**

Site of lesion	Frequency	Percent
Head area	15	13.5
Genitalia	10	9
Face	15	13.5
Limb	25	22.5
Trunk	25	22.5

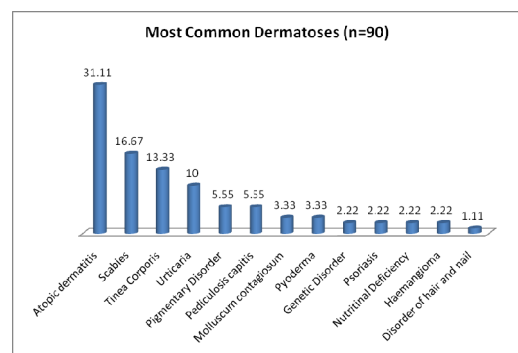
Head area was involved 15 (13.5%) cases, Genitalia area 10 (9%), Face 15 (13.5%), Limb 25 (22.5%), Trunk in 25 (22.5%)

**Table 4.5: Distribution of pattern of skin diseases (n=90)**

	Pattern of skin disease	Frequency of patients	Percent
1.	Atopic Dermatitis	28	31.11%
2.	Infections and infestations		
	Scabies	15	16.67%
	Pediculosiscapitis	5	5.5%
	Tineacorporis	12	13.33%
	Molluscum Contagiosum	3	3.33%
	Pyoderma	3	3.33%
3.	Pigmentary disorders	5	5.55%
4.	Disorders of hair and nails	1	1.11%
5.	Miliaria	1	1.11%
6.	Nutritional deficiency disorders	2	2.22%
7.	Urticaria	9	10%
8.	Genetic disorders	2	2.22%
9.	Psoriasis	2	2.22%
10.	Haemangiomas	2	2.22%
11.	Total	90	100.0

Atopic Dermatitis was present in 28 (31.11%) cases. Scabies was present in 15 (16.67%) cases, Pediculosiscapitis in 5 (5.55%) cases, Tineacorporis in 12 (13.33%) cases, Molluscumcontagiosum in 3 (3.33%) cases, Pyoderma in 3 (3.33%) cases, Pigmentary disorders in 5 (5.55%), Miliaria in 1(1.11%), Nutritional deficiency disorders in 2 (2.22%), urticaria in 9 (10.0%), Genetic disorders in 2 (2.22%).

**Most common Dermatoses (n=90)**



**Figure 4.2. Bar diagram of most common dermatoses**

Table 4.6. Distribution of pattern of skin diseases by age

Pattern of skin disease	Age						p value*
	≤ 2 yrs n1=15		2- 5 yrs n2=28		6-12 yrs n3=47		
	n	%	n	%	n	%	
1. Atopic Dermatitis	8	9	8	28.8	12	25.53	0.81
<b>2. Infections and infestations</b>							
a. Scabies	0	0.0	5	17.85	10	21.28	0.96
b. Pediculosiscapitis	0	0.0	2	7.1	3	6.3	0.68
c. Tineacorporis	0	0.0	4	14.29	8	17.02	0.42
d. Molluscumcontagiosum	1	6.6	1	3.5	1	2.18	0.21
e. Pyoderma	1	6.6	1	3.5	1	2.18	0.242
3. Pigmentary disorders	0	0.0	2	7.1	3	6.3	0.55
4. Disorders of hair and nails	0	0.0	0	0.0	1	2.18	0.47
5. Miliaria	1	6.6	0	0.0	0	0.0	0.84
6. Nutritional deficiency disorders	2	13.33	1	3.5	0	0.0	0.88
7. Urticaria	0	0.0	2	7.1	7	14.58	0.57
8. Genetic disorders	0	0.0	2	7.1	0	0.0	0.84
9. Psoriasis	0	0.0	1	3.5	1	2.18	0.42
10. Hemangiomas	2	0.0	0	0.0	0	0.0	0.42

Table 4.7. Distribution of pattern of skin disease by sex

Pattern of skin disease	Sex				pvalue*
	Male n1=48		Female n2=42		
	n	%	n	%	
Atopicdermatitis	15	31.25	13	30.95	0.52
<b>Infectionsandinfestations</b>					
• Scabies	10	20.83	5	11.90	0.288
• Pediculosiscapitis	0	0.0	5	11.90	0.34
• Tineacorporis	5	10.41	7	16.67	0.22
• Molluscumcontagiosum Andotherviraldisorders	2	4.17	1	2.3	0.82
• Pyoderma	2	4.17	1	2.3	0.25
Pigmentarydisorders	3	6.25	2	4.7	0.72
Disordersofhairandnails	1	2.08	0	0.0	0.95
Miliaria	0	0.0	1	2.3	0.24
Nutritionaldeficiency	1	2.08	1	2.3	0.51
Urticaria	7	14.58	2	4.7	0.18
Geneticdisorders	1	2.08	1	2.3	0.71
Psoriasis	2	4.1	0	0.0	0.34
Hemangiomas	0	0.0	2	4.7	0.34
Others					

\*Chi-square and Fisher's Exact test was done to measure the level of significance.

Figure within parentheses indicate in percentage.

Table 4.8: Distribution of pattern of skin disease by socioeconomics condition

Pattern of skin disease	Socio economic condition						p value*
	High n1=20		Middle n2=60		Low n3=10		
	n	%	n	%	n	%	
Atopic Dermatitis	10	52.6	27	25.2	3	4.1	0.001
<b>Infections and infestations</b>							
Scabies	1	5.3	8	7.5	17	23.0	0.04
Pediculosiscapitis	0	0.0	0	0.0	1	1.4	0.42
Superficial mycoses	0	0.0	14	13.1	11	14.9	0.21
Pyoderma	5	26.3	18	16.8	32	43.2	0.001
Pigmentary disorders	0	0.0	4	3.7	1	1.4	0.46
Disorders of hair and	0	0.0	1	0.9	1	1.4	0.87
Miliaria	0	0.0	6	5.6	4	5.4	0.57
Nutritional deficiency disorders	0	0.0	2	1.9	1	1.4	0.82
Urticaria	1	5.3	5	4.7	6	8.1	0.63
Genetic disorders	0	0.0	2	1.9	3	4.1	0.50
Psoriasis	0	0.0	1	0.9	0	0.0	0.65
Hemangiomas	0	0.0	1	0.9	0	0.0	0.65

Chi-square test was done to measure the level of significance. Figure within parentheses indicate in percentage.

Atopic Dermatitis is more common among 6-12 years (25.53%) than compare to < 2 years (9%) and 2-5 years (28.8%). Scabies is also more common among 6-12 years (21.28%) than compare to < 2 years (0.0%) and 2-5 years (17.85%). Disorders of hair and nail is found in 2.18% cases in >6-year age group but no cases found below 2-year age.

Pattern of skin diseases have no significant difference between male and female except that there are a little higher prevalence of Atopic dermatitis (31.25%) and Scabies (20.83%) in Male children but Tineacorporis are common among girls (16.67%) then boys (10.41%). pediculosiscapitis is not seen among boys. Chi-square test was done to measure the level of significance.

Figure within parentheses indicate in percentage. The prevalence of scabies, pediculosiscapitis, superficial mycosis, dermatitis & eczema is higher among poorly ventilated household condition.

## DISCUSSION

Present study was carried out to explore the Pattern of skin diseases in under twelve children, attending in OPD of CMH Dhaka. In 16.66 % of children, age was < 2 years, in 31.11 % cases age was of 2-5 years and 52.22 % cases age was 6-12 years. Out of total 90 children 48 (53.33%) were male and 42 (46.67%) were female, with a male: female ratio 1.1: 1. The most common dermatoses encountered was Atopic dermatitis, which were seen in 31.11% of the study population. Similar results were reported earlier. In a study by Karthikeyan, undertaken to determine the pattern of dermatoses in children in south India, Atopic dermatitis was also most common (54.5%)<sup>12</sup>. In a study, found that Atopic dermatitis contributed to 50% of their cases in Garhwal region of Uttar Pradesh, India by Thappa<sup>3</sup>. Various other authors have reported them occurring in the range of 35.6% to 85.2% by Bhatia<sup>3</sup>. In all these studies, whether institution based or community based, the Atopic dermatitis was the main group of dermatoses. The higher frequency of infections and infestations in our study could possibly be due to large rural population attending our hospital belonging to low socio-economic status. In current study, 66.66% of our patients were from middle class, 11.11% from poor class and 22.2% were from high socioeconomic class.

The higher frequency of infections and infestations in our study could possibly be due to large rural population attending our hospital belonging to low socio-economic status. In current study, 66.66% of our patients were from middle class, 11.11% from poor class and 22.2% were from high socioeconomic class. Scabies, tineacorporis, molluscumcontagiosum and other viral disorders and pyoderma had significantly higher prevalence among poor and middle class. Among non-infectious dermatitis, dermatitis and eczema had significantly low prevalence in lower socio-economic class. Other noninfectious dermatitis has no significant difference of occurrence among different socio-economic group. In many developing countries such as India, where malnutrition, overcrowding, and poor sanitation are prevalent, infections and ectoparasitic skin diseases such as scabies and pediculosis are common. In our study Atopic dermatitis 28 (31.11 %) was the most common non-infectious dermatosis. Atopic dermatitis was also the most common non-infectious dermatoses in the study by Karthikeyan and comprised 54.5% of non-infectious dermatomes.

The prevalence of scabies has varied from 5.1 % to 22.4% in various studies by Bhatia<sup>5</sup>, which matches with my study result (scabies 16.67%). Pediculosiscapitis was found in 5 (5.55%) of our series, two school surveys done at Himachal Pradesh by Patel RB<sup>10</sup> and Pondicherry by Dorga S<sup>15</sup> in India had almost similar result 0.6%. In my study dermatitis and eczema is 31.11% where a cross sectional study was done by Bhatia kk<sup>7</sup> dermatitis and eczema was 39.2% which is almost similar with my result. Here I found pigmentary disorder in 5.55 % and nail disorder 1.11% where in a study by William HC<sup>9</sup>, pigmentary disorders (3.4%) and nail disorders (0.8%). In my study urticaria 10.0, miliaria 1.11%, nutritional deficiency disorder 2.22%, genetic disorder 2.22%. A study by Karthikeyan was undertaken over 10,000 patients in south India<sup>12</sup>, where miliaria (4.1%), nutritional deficiency disorders (2.8%), urticaria (2.5%), genetic disorders (2.1%).

## CONCLUSION

In current study different types of skin diseases are identified which are encountered among under 12 children attending in dermatology OPD in CMH Dhaka. Atopic dermatitis is the most common (31.11%) disease affecting under 12 children. Other common dermatoses are scabies 16.67%, tineacorporis 13.33%, molluscumcontagiosum 3.33%, urticaria 10.0%, miliaria 1.11% and genetic disorders 2.22 %. Scabies, tineacorporis, molluscumcontagiosum and pyoderma had significantly higher prevalence among poor and middle class. Among non-infectious

dermatitis, eczema had significantly low prevalence in lower socio-economic class. Other noninfectious dermatitis has no significant difference of occurrence among different socio-economic group. Seborrheic dermatitis is very common among neonates.

**Conflict of Interest:** No conflict of interest

**Funding Statement:** Self

## LIST OF ABBREVIATION

**IMCI-** Integrated Management of Childhood Illness  
**AFMI-** Armed Forces Medical Institute  
**CMH-** Combined Military Hospital  
**AK-** Actinic Keratosis  
**AN-** Acanthosis Nigricans  
**CP-** Cicatricial Pemphigoid  
**CTD-** Connective Tissue Disorder  
**DH-** Dermatitis Herpetiformis  
**EDV-** Epidermodysplasiaverruciformis  
**HPV-** Human papillomavirus  
**HIV-** Human immunodeficiency virus  
**KS-** Kaposi's sarcoma  
**PFB-** Pseudofolliculitisbarbae  
**PF-** Pemphigus foliaceus  
**PPK-** Palmar plantar keratoderma  
**PR-** Pityriasisrosea  
**PRP-** Pityriasisrubrapilaris  
**SSSS-** Staphylococcal scalded skin syndrome

## REFERENCES

1. Sen KG., Ali A., Mostofa MK., Sarkar SK., Sorcar C. 2015. Begum K. Prevalence of Scabies in Skin and VD OPD of Faridpur Medical College Hospital. *Faridpur Medical College Journal*.10(1):17-9.
2. World Health Organization. 2005. Epidemiology and management of common skin diseases in children in developing countries. World Health Organization.
3. Thappa DM. 2002. Common skin problems. *The Indian Journal of Pediatrics*. Aug;69(8):701-6.
4. Sharma NK, Garg BK, Goel M. 1986. Pattern of Skin Diseases in Urban School Children. *Indian journal of dermatology, Venereology And Leprology*. 1;52(6):330-1.
5. Bhatia V. 1997. Extent and pattern of paediatric dermatoses in rural areas of central India. *Indian journal of dermatology, venereology and leprology*. Jan 1;63(1):22-5.
6. Behl PN, Mohanty KC, Banerjee S. 1979. Ecological study of skin diseases in Delhi area. *Indian J Dermatology Venereology & Leprology*., 45: 260264.
7. Bhatia KK. 1984. Pattern of skin disease in a semi-urban Community in Delhi. *Indian J Dermatology Venereology & Leprology*., 50: 213-214.
8. Patodi RK, Sharma SK, Patodi SK. 1977. Health status of school children in some primary schools of Indore city. *Indian J Pub Health*., 21: 2-5.
9. Williams HC. Epidemiology of skin diseases. In: Champion RH, Burton JL, Burns DA, Breathnach SM, eds. *Textbook of dermatology*, 6th ed. Oxford: Blackwell Science, 1998:139-158.
10. Patel RB, Udani RH, Khanna SA. 1982. Pediatric dermatoses and eradication in slums. *Indian J Pediatrics*., 49: 135-139.
11. Currie BJ, Carapetis JR. 2000. Skin infections and infestations in Aboriginal communities in northern Australia. *Australas J Dermatol*., 41:139-43.
12. Karthikeyan K, Thappa DM, Jeevankumar B. 2004. Pattern of pediatric dermatoses in a referral center in South India. *Indian j pediatrics*. Apr;41(4):373-6.
13. Pramod and Agarwal, *Annals of Saudi Medicine*, Vol 17, No 1, 1997 Provider and the care of skin disease. *Arch Dermatology* 2001; 137: 25-29.

14. Gul U, cakmak SK, Gonul M, Kilic A, Bilgil S. 2008. Pediatric skin disorders encountered in a dermatology outpatient clinic in Turkey. *Pediatric Dermatology* Vol. 25 No. 2 March/April.
15. Dogra S and Kumar B. 2003. Epidemiology of Skin Diseases in Northern India *Pediatric Dermatology* Vol. 20 No. 6 470-473, 2003
16. Raddadi AA, Abdullah SA, Damanhour ZB. 1999. Pattern of skin diseases at King Khalid National Guard Hospital: A 12-month prospective study *Annals of Saudi Medicine*, Vol 19, No 5.
17. Vikas B. Extent and pattern of pediatric dermatoses in rural areas of Central India. *Indian J Dermatology Venereology & Leprology* 1997; 63: 22-25.
18. Ghosh SK, Saha DK, Roy AK. 1995. A clinicoaetiological study of dermatoses in pediatric age group. *Indian J Dermatol.*, 40: 29-31.
19. Sarma DR and Tosniwal SK, PATTERN OF SKIN DISEASES IN CHILDREN IN INDORE. *Indian J. kedlat.*, 30: 335, 1963.
20. Klaus Wolff, Lowella Goldsmith, Stephen I Kats, Barbara A Gilchrest, Amy S Paller, David J. 2008. Leffell editors. *Fitzpatrick's Dermatology in General Medicine*. 8th ed. New York: McGraw Hill Medical. p. 5.
21. Taplin. D, Lansdell L, Allen AA, Rodriguez R, Corets A. 1973. Prevalence of streptococcal pyoderma in relation to climate and hygiene. *Lancet* i:501-3.
22. Kapil U, Sood AK. 1989. Morbidity pattern in children, below three years attending a rural health centre in Haryana. *Indian Pediatr.*, 26:550-2.
23. Zaman S, Jalil F, Karlberg J, Hanson LA. Early child health in Lahore, Pakistan: VI. Morbidity. *Acta Paediatr (Suppl)* 1993;390:63-78.
24. Porter W. 1979. Seasonal change and its effect on the prevalence of infectious skin disease in a Gambian village. *Trans R Soc Trop Med Hyg.*, 74:162-8.
25. Stanton B, Khanam S, Nazrul H, Nurani S, Khair T. 1987. Scabies in urban Bangladesh. *J Trop Med Hyg.*, 90:219-26.
26. Al-Amin A, Rasul CH, Siddique SI. 1997. Scabies and its complications in relation to socio-economic status. *Bangladesh J Dermatol Venereol Lepr.*, 14:13-5.
27. Gibbs S. 1996. Skin disease and socio-economic conditions in rural Africa: Tanzania. *Int J Dermatol.*, 35:633-9.
28. Lawrence DN, Facklam RR, Sottnek FO, Hancock GA, Neel JV, Salzano FM. 1979. Epidemiological studies among Amerindian populations of Amazonia. I. Pyoderma: prevalence and associated pathogens. *Am J Trop Med Hyg.*, 28:548-58.
29. Capetis JR, Connors C, Yarmirr D, Krause V, Currie BJ. 1997. Success of a scabies control program in an Australian Aboriginal community. *Pediatr Infect Dis.*, 16:494-9.
30. Mahe A, Prual A, Konate M, Bobin P. 1995. Skin diseases of children in Mali: a public health problem. *Trans R Soc Trop Med Hyg.*, 89:467-70.
31. Burkhart CG. 1983. Scabies: and epidemiologic reassessment. *Ann Intern Med.*, 98:498-503.
32. Nair BKH, Joseph A, Kandamuthan M. 1977. Epidemic scabies. *Indian J Med Res.*, 65:513-8.
33. Reid HF, Birju B, Holder Y, Hospedales J, Poon-King T. 1990. Epidemic scabies in four Caribbean islands, 1981-1988. *Trans R Soc Trop Med Hyg* 1990;84:298-300.
34. Verma BL, Srivastava RN. 1990. Measurement of the personal cost of illness due to some major water-related diseases in an Indian rural population. *Int J Epidemiol.*, 19:169-76.
35. Jacyk WK. 1988. Ringworm infections in the nomadic Fulani of Nigeria, with particular reference to favus. *Mycopathologia.*, 101:121-2.
36. Kamalam A, Thambiah AS, Bagavandas M, Govindaraju S. 1981. Mycoses in India—study in Madras. *Trans R Soc Trop Med Hyg.*, 75:92-100.

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