

Prevalence of Clinical Skin Conditions seen in Pediatric Outpatient Department

Authors

Sanjana Challagalla¹, Revathi Yeleswaram¹, Shradha Salunkhe¹, Sharad Agarkhedkar¹

¹Department of Paediatrics, Dr. D.Y. Patil Medical College, Hospital & Research Centre, Dr. D.Y. Patil Vidyapeeth, Pune, Maharashtra, India

Corresponding author

Dr. Revathi Yeleswaram, Department of Paediatrics, Dr. D.Y. Patil Medical College, Hospital & Research Centre, Dr. D.Y. Patil Vidyapeeth, Pune, Maharashtra, India – 18.

Email address: yrevathi18@gmail.com

ABSTRACT

Background: Dermatological manifestations (DM) in a developing country like India, where living conditions are poor and a variety of causes contribute to the various skin disorders, especially in children.

Aim: The aim of our study was to estimate the incidence rates of pediatric skin diseases in Pune region.

Materials and Methods: The data from departmental registries were evaluated for 260 children for 18-months period which served as a single group. The collected data comprised of all pediatric out patient department (OPD) patients aged two months to fifteen years who presented with a dermatological manifestation. The diagnosis was documented at the pediatric OPD. Mean and standard deviation were computed for quantitative factors such as age, while frequency and percentages were used to report qualitative variables such as gender and diagnoses of various skin conditions.

Results: Infections was seen in 55% of the cases, followed by allergic reactions (25.4%) and other dermatoses (19.6%). Out of 66 patients of allergic reactions, seborrhoeic dermatitis was the most common with 39.5%, followed by eczema (25.9%) and urticaria seen in 16.6. Xeroses was most common from other dermatoses which was seen in 14% of the cases. Infections such as pityriasis was seen in 52 cases, followed by tinea capitis in 20 and tinea pedis in 21 cases.

Conclusion: Patterns of skin problems serve as an indicator of community development and the quality of health care accessible. Our research provides preliminary baseline information for future epidemiologic and clinical research.

Keywords: Clinical disease patterns, Pediatric OPD, Scabies, Dermatoses.

INTRODUCTION

Dermatological manifestations (DM) throughout childhood can be caused by a wide range of infectious and non-infectious disorders, and they are accountable for more than thirty percent of all visits to pediatric outpatient departments.^{1,2} The incidence of various dermatologic conditions in children varies according to age, race, geographical locations, climate, nutrition, heredity, hygiene conditions, poverty, malnutrition, congestion, illiteracy, and communal backwardness that is prevalent in low-income countries. These factors all play key roles.³⁻⁶ In a developing country like India, where living conditions are poor and a variety of causes contribute to the various skin disorders, DMs are quite frequent in children, regardless of their age. Furthermore, a variety of factors contribute to the many skin diseases. It is estimated that the rate of DM in children in India ranges from 8.7 to 35% of the population.⁷⁻⁹ There is a substantial morbidity associated with skin diseases, although fatality rates appear to be lower. Not only is the prompt diagnosis of skin diseases essential for the treatment of patients, but it is also essential for preventing the spread of infectious disease.^{10,11}

It is common knowledge that the distribution of skin diseases looks very different in many nations around the world and in various parts of the country.¹² There have been a number of studies conducted to determine the prevalence of DMs in children from various regions of India; however, there is an extremely limited amount of data available on the prevalence of DMs in children from the western region of India. Different types of dermatoses have presented themselves to pediatric physicians in various parts of the world as a direct result of the growing number of cases of malnutrition in emerging nations.

It is very essential to bear in mind that the DMs that appear on a child's skin could be a sign as to the underlying ailment that they are suffering from; however, the literature on the pattern of skin diseases is lacking. It is essential to have an understanding of the prevalence, clinical patterns, and factors that are responsible for dermatosis in order to counsel parents on prevention and provide the most effective therapy to patients. This information can also be used as reference material for future studies that compare and contrast different treatments. Therefore, the aim of our study was to estimate the incidence rates of pediatric skin diseases in Pune region.

Materials and Methods

This was a retrospective study conducted in Outpatient unit of department of pediatrics at Dr. D. Y. Patil Medical College, Hospital and Research Centre, Pune situated in the state of Maharashtra, the western region of India. The data from departmental registries were evaluated for 260 children for 18 months which served as a single group. The collection of data was authorized by the Institutional Ethical and Review Committee. The collected data comprised of all pediatric out patient department (OPD) patients aged two months to fifteen years who presented with a dermatological manifestation and were subsequently referred to the Dermatology department for diagnosis and treatment. The diagnosis was documented at the Pediatric OPD. Patients under 1 month of age were eliminated due to the probability of birthmarks and rashes, while patients above 15 years of age were not seen in the pediatric

OPD. The patients were divided by gender and age into four categories: infants aged 1 to 12 months, toddlers aged 1 to 3 years, preschoolers aged 3 to 6 years, school-aged children aged 6 to 12 years, and others aged 12 to 15 years. The consultant Dermatologist's diagnosis at the Dermatology department was considered, and the varied diagnoses were categorized as infections, infestations, and other dermatoses. The information was entered into version 11 of SPSS for analysis. Study characteristics included age, gender and skin issues. Mean and standard deviation were computed for quantitative factors such as age, while frequency and percentages were used to report qualitative variables such as gender and diagnoses of various skin conditions. The statistical analysis was conducted, and a p-value of 0.05 was deemed statistically significant.

Results

A total of 260 patients were included in the study. Out of 91 patients, 114(43.9%) were girls and 146(56.1%) were boys. Based on the age group, 29 were infants (11%), 41 were toddlers (15.8%), 36 were preschoolers (13.8%), and 154 (59.4%) were school going age group category. (Table 1) Infections was seen in 55% of the cases, followed by allergic reactions (25.4%) and other dermatoses (19.6%). (Table 2) Out of 66 patients of allergic reactions, seborrhoeic dermatitis was the most common with 39.5%, followed by eczema (25.9%) and urticaria seen in 16.6. (Table 3) Xeroses was most common from other dermatoses which was seen in 14% of the cases. (Table 4) Infections such as pityriasis was seen in 52 cases, followed by tinea capitis in 20 and tinea pedis in 21 cases. (Graph 1)

No patient was above the age of 12 years. The highest number of cases reported was found to be Scabies of 26.3% followed by Atopic Dermatitis of 13.1%.

Table 1: Demographic details

Age group	Frequency	Percentage (%)
Infants	29	11
Toddlers	41	15.8
Preschool age (3-6 years)	36	13.8
School age	154	59.4
Gender		
Male	146	56.1
Female	114	43.9

Table 2: Spectrum of dermatoses

Type of diagnosis	Frequency	Percentage (%)
Infections	143	55
Allergic reactions	66	25.4
Other dermatoses	51	19.6
Total	260	100

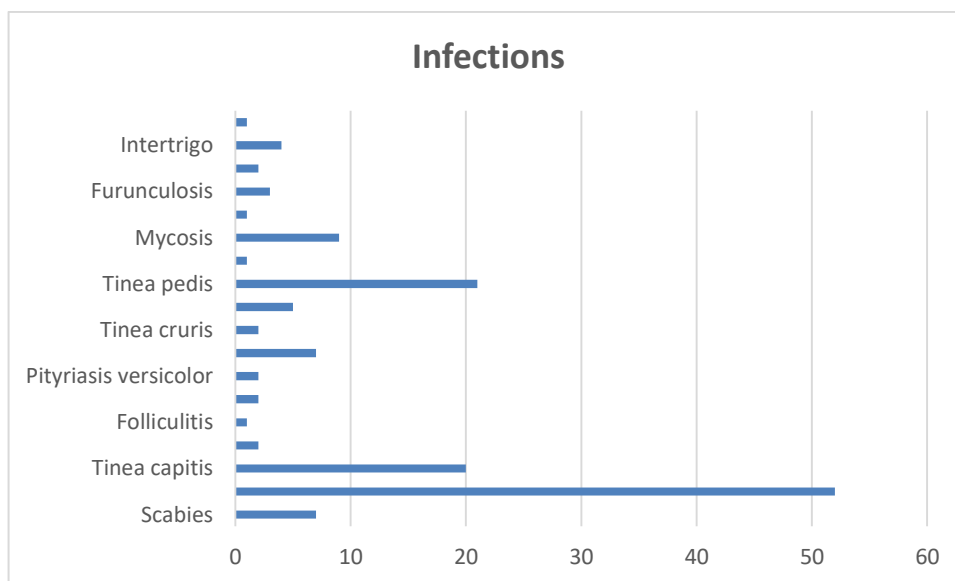
Table 3: Distribution of allergic reactions

Allergic reactions	Frequency	Percentage (%)
Atopic dermatitis	5	9
Seborrhoeic dermatitis	26	39.5
Urticaria	11	16.6
Eczema	17	25.9
Pompholyx	6	9
Total	66	100

Table 4: Patient distribution based on different dermatosis (other)

Different dermatosis (other)	Frequency	Percentage (%)
Plantar keratitis	2	3.9
Pityriasis lichnenoides chronica	2	3.9
Malaria	1	1.9
Epidermolysis bullosa	2	3.9
Pityriasis rosea	1	1.9
Lichen planus	2	3.9
Lichen sclerosus	3	6
Acne	1	1.9
Plantar keratoderma	2	3.9
Xerosis	6	14
Post inflammatory hyperpigmentation	3	6
Vitiligo	2	3.9
Keratosis	2	3.9
Burn scar	2	3.9
Peeling of skin	2	3.9
Photomelanosis	2	3.9
Scaly skin	2	3.9
Phrynoderma	2	3.9
Traumatic wound	2	3.9
Psoriasis	5	9.8
PMLE	2	3.9
Aphthous ulcer	2	3.9
Total	51	100

Graph 1: Distribution of Infection



Discussion

Socioeconomic position, occupation, education, cleanliness, customs, medical care quality, family size, family history, and excess crowding in schools or households all affect skin disease patterns. Skin problems in children may indicate systemic disease and are often diagnosed late since knowledge of skin disease in a society is lacking. It should be made aware that some children in this age range spend a lot of time at home with their parents and later at play school. Skin problems are noticeable to others and can cause psychosocial disturbance and anxiety in parents since the affected child may be bullied. India is evolving, hence low socioeconomic status is more common among backward communities and slum areas. These lead to inadequate hygiene measures, which causes skin problems, especially in children.^{5,9} In our area, there is a substantial data gap in terms of epidemiology for pediatric dermatoses. This retrospective study was conducted to determine the prevalence of various dermatological symptoms among children in the Pimpri district of Maharashtra. DMs have been observed to vary not only from one geographical area to another, but also from one state to another and also within various socioeconomic strata of the population as well.

The most prevalent DM in the age group of infants was seborrheic dermatitis followed by HFM. Seborrheic dermatitis is a form of papulosquamous disease affecting the areas of the face, scalp, back, chest, and flexural areas. It appears as scales that are greasy looking and reddish in color. *Malassezia furfur* is the organism that causes seborrheic dermatitis.¹³⁻¹⁵ Infantile seborrheic dermatitis is more common during the first three months of life. In a study of 500 children, bacterial infections were the most prevalent dermatoses across all age groups (27.39%), followed by seborrheic dermatitis (10.49%).¹⁶ In a 2015 study by Y. Vamseedhar et al., seborrheic dermatitis was seen in 31 (6.2%) of 500 children, which is comparable to our findings.¹⁷ Coxsackie virus is the pathogen that is responsible for the highly contagious HFM sickness. blisters or sores in the mouth and rashes on the hands and feet are symptoms of the herpes simplex virus family, which includes the herpes simplex

virus.¹⁸ Atasi S et al observed that HFM viral infections were seen in 10.2%¹⁹ of their study population, while G Awal et al discovered that 8.1% of their group was affected by HFM viral infections.²⁰

The most prevalent DM in the age group of toddlers was Scabies followed by Atopic Dermatitis and Urticaria. In a recent paper that involved 1943 children, the prevalence of parasite infestations was found to be 22.8% indicating that parasitic infestations are quite frequent. The high prevalence among school children could be related to the sharing of fomites; the low awareness level among school staffs about fundamental dermatological signs and symptoms; and nondetection of illness were the key causes for the high prevalence.²¹

The most prevalent DM in the age group of preschoolers was scabies and pityriasis Alba followed by Atopic Dermatitis. RC Sharma et al showed the incidence of parasitic infestations to be the highest of 53.6% with scabies as the major infestation of 46.4%, followed by others as the most common.²² In a 2016 study, 324 children were examined under 5 years of age showing that males had a higher incidence of skin diseases than females of 59.6%.²³ The incidence of skin diseases was 45.4%, and scabies was observed in 44 (13.6%) children. Preschoolers accounted for 70.24 percent of all skin disease cases. Below the age of five, pyoderma was the most prevalent lesion at 29.81%, followed by scabies at 13.55%.²⁴ In 2015, S Jawade et al. examined 1021 children; the ratio of females to males was 1:1.4. In the newborn period, 12.97% were affected by erythema toxicum neonatorum, 9.92% were affected by scabies, and 7.63% were affected by seborrheic dermatitis. Atopic dermatitis accounted for 4.27 percent of non-infectious disorders, Pityriasis alba accounted for 4.16 percent, seborrheic dermatitis accounted for 3.60 percent, and Pityriasis rosea accounted for 3.15 percent.²⁴ Preadolescent children aged 3 to 16 are most commonly affected by pityriasis alba, with onset typically occurring between 6-12 years. Incidence rates are even greater among children from lower socioeconomic situations, when the overall prevalence might reach 90%.²⁵

The most prevalent DM in the age group of school going children was Scabies followed by Atopic Dermatitis. K Karthikeyan and colleagues discovered about 14.2% of scabies cases.²⁶ Additionally, scabies is highly contagious having a propensity to transmit from person to person through direct skin contact²⁷; it is prevalent in children younger than 6 years and older than 2 years; and more than three-quarters of mite infestations are found on the extremities, that is, the hands and feet.²⁸ For atopic dermatitis, similar numbers were published in papers by S Jawade,²⁴ (4.27%), M Balai et al²⁹ (5.77 %), G Jose³⁰ (0.58%) respectively

The limitation of this study is our sample size selected. Very few patients in some etiological groups could be included which restricted a more detailed analysis. It could be more extensive if more cases until the age of 15 would be included so that all school going children can be studied to provide an analysis as a whole.

CONCLUSION

Recent trends indicate an increase in the number of pediatric patients with skin problems. Their prevalence can be reduced by enhancing the nutrition and cleanliness and sanitation of

children. Patterns of skin problems serve as an indicator of community development and the quality of health care accessible. Our research provides preliminary baseline information for future epidemiologic and clinical research. To decrease referrals to tertiary hospitals, general practitioners and primary care physicians should get training in the diagnosis and management of common skin problems. To acquire a deeper understanding of the complex interplay of elements, a larger study sample and longer time period will be required.

Conflict of Interest: The authors declare no conflicts of interest.

Funding: No funding received.

REFERENCES

1. Jain N, Khandpur S. Pediatric dermatoses in India. *Indian Journal of Dermatology, Venereology, and Leprology*. 2010;76(5):451-54.
2. WHO. Epidemiology and management of common skin diseases in children in developing countries. 2005. Available from: http://whqlibdoc.who.int/hq/2005/WHO_FCH_CAH_05.12_eng.pdf [Accessed 20th August 2022].
3. Sharma NK, Garg BK, Goel M. Pattern of skin diseases in urban school children *Indian J Dermatol Venereol Leprol* 1986;52:330-1.
4. Hancox JG, Sheridan SC, Feldman SR, et al. Seasonal variation of dermatologic disease in the USA: a study of office visits from 1990 to 1998. *Int J Dermatol*. 2004;43:6–11.
5. Thappa DM. Common skin problems. *Indian J Pediatr* 2002;69:701–706
6. Basavaraj KH, Navya MA, Rashmi R. Relevance of psychiatry in dermatology: Present concepts. *Indian J Psychiatr* 2010;52(3):270.
7. Dogra S, Kumar B. Epidemiology of skin diseases in school children: a study from northern India. *Pediatr dermatol* 2003;20(6):470-73.
8. Upendra Y, Sendur S, Keswani N, Pallava A. Prevalence of dermatoses among the tribal children studying in residential schools of South Chhattisgarh, India. *Indian J Paediatr Dermatol*. 2018;19(1):15.
9. Jose G, Vellaisamy SG, Govindarajan N, Gopalan K. Prevalence of common dermatoses in school children of rural areas of Salem; a region of South India. *Indian J Paediatr Dermatol*. 2017;18:202-8 .
10. Sarkar SK, Islam AKMS, Sen KG, Ahmed ARS. Pattern of skin diseases in patients attending OPD of Dermatology Department at Faridpur Medical College Hospital, Bangladesh. *Faridpur Med Coll J*. 2010;5(1):14-16.
11. Najdawi F, Fa'ouri M. Frequency and types of skin disorders and associated diabetes mellitus in elderly Jordanians. *La Rev St Mediterr Orient* 2002; 8: 574-578.
12. Symvoulakis EK, Krasagakis K, Komninos ID, Kastrinakis I, Lyronis I, Philalithis A, et al. Primary care and pattern of skin diseases in a mediterranean island. *BMC Fam Pract* 2006;7: 6.
13. Sarifakioglu E, Yilmaz AE, Gorpelioglu C, Orun E. Prevalence of scalp disorders and hair loss in children. *Cutis*. 2012;90(5):225-9.

14. Turner GA, Hoptroff M, Harding CR. Stratum corneum dysfunction in dandruff. *International journal of cosmetic science*. 2012;34(4):298-306.
15. Berk T, Scheinfeld N. Seborrheic dermatitis. *Pharmacy and Therapeutics*. 2010;35(6):348.
16. Jain N, Khandpur S. Pediatric dermatoses in India. *Indian J Dermatol Venereol Leprol*. 2010;76(5):451.
17. Vamseedhar Y, Ahamed SM, Kumar UV, Mohan CR. A study on pattern of skin diseases among children presenting to RIMS, Kadapa, AP. *Journal of evolution of medical and dental sciences-JEMDS*. 2015;4(67):11637-42.
18. Phommasone K, Dubot-pères A. Hand-Foot-Mouth Disease. *Lao Medical Journal*. 2012(3):16-24.
19. Samanta A, Achar A. Patterns of Infant Dermatoses—A Cross Sectional Study in A Tertiary Care Centre. *Annals of International Medical and Dental Research*. 2016;3(1):1-5.
20. Awal G, Singh SP, Sharma S, Kaur J. Spectrum and pattern of pediatric dermatoses in under five population in a tertiary care centre. *International Journal of Research in Dermatology*. 2016;2(4):69-76.
21. Upendra Y, Sendur S, Keswani N, Pallava A. Prevalence of dermatoses among the tribal children studying in residential schools of South Chhattisgarh, India. *Indian J Paediatr Dermatol*. 2018;19(1):15.
22. Sharma RC, Mendiratta V. Clinical profile of cutaneous infections and infestations in pediatric age group. *Indian J Dermatol*. 1999;44:174-8.
23. Ramos JM, Molés-Poveda P, Tessema D, Kedir M, Safayo G, Tesfasmaria A, Reyes F, Belinchón I. Skin problems in children under five years old at a rural hospital in Southern Ethiopia. *Asian Pacific journal of tropical biomedicine*. 2016;6(7):625-9.
24. Jawade SA, Chugh VS, Gohil SK, Mistry AS, Umrigar DD. A clinicoetiological study of dermatoses in pediatric age group in tertiary health care center in South Gujarat region. *Indian journal of dermatology*. 2015;60(6):635.
25. Jadotte YT, Janniger CK. Pityriasis alba revisited: perspectives on an enigmatic disorder of childhood. *Cutis*. 2011;87(2):66-72.
26. Sardana K, Mahajan S, Sarkar R, Mendiratta V, Bhushan P, Koranne RV, Garg VK. The spectrum of skin disease among Indian children. *Pediatric dermatology*. 2009;26(1):6-13.
27. Karthikeyan K, Thappa DM, Jeevankumar B. Pattern of pediatric dermatoses in a referral center in South India. *Indian Pediatr* 2004;41:373-377.
28. Karthikeyan K. Crusted scabies. *Indian Journal of Dermatology, Venereology, and Leprology*. 2009 Jul 1;75(4):340.
29. Balai M, Khare AK, Gupta LK, Mittal A, Kuldeep CM. Pattern of pediatric dermatoses in a tertiary care centre of South West Rajasthan. *Indian journal of dermatology*. 2012 Jul;57(4):275.
30. Jose G, Vellaisamy SG, Govindarajan N, Gopalan K. Prevalence of common dermatoses in school children of rural areas of Salem; a region of South India. *Indian Journal of Paediatric Dermatology*. 2017 Jul 1;18(3):202.