

BURDEN OF PEDIATRIC DERMATOLOGICAL DISORDERS: A STUDY FROM A TERTIARY CARE CENTER

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ABSTRACT

Background: Pediatric dermatoses constitute a significant public health concern worldwide, contributing to considerable morbidity. The prevalence and pattern of these skin disorders vary based on geographic, climatic, and socio-economic factors. Understanding their epidemiology is essential for effective management and preventive strategies. **Material and Methods:** A prospective observational study was conducted in the Dermatology Department of a tertiary care hospital over six months. A total of 450 pediatric patients aged 0–14 years were included, categorized into infants (0–1 year), preschool-aged children (1–5 years), and school-aged children (5–14 years). Clinical data were collected through dermatological examinations, and diagnoses were confirmed using appropriate diagnostic tools. The conditions were classified into major dermatological categories, and statistical analysis was performed to identify prevalence trends and seasonal variations. **Results:** Among 450 cases, the most affected age group was school-aged children (48.22%), followed by preschool-aged (32.44%) and infants (19.33%). Males were slightly more affected than females (1.07:1). Infestations (26.7%) were the most common dermatoses, followed by papulosquamous disorders (17.8%), vesiculobullous conditions (15.6%), and infections (14.2%). Seasonal variations significantly influenced disease prevalence, with infestations peaking in winter (42.7%) and infections in the rainy season (32.2%). **Conclusion:** Pediatric dermatoses exhibit age-related and seasonal variations, with infectious conditions being predominant. Public health measures focusing on hygiene, early diagnosis, and climate-specific interventions are crucial to reducing disease burden and improving pediatric skin health outcomes. Further research is recommended for developing targeted prevention strategies.

Keywords: Dermatology, Skin Diseases, Pediatrics, Seasonal Variation, Epidemiology. Infectious Skin Disease

INTRODUCTION

Pediatric dermatoses are a significant health issue affecting children worldwide, contributing to considerable morbidity. The prevalence of skin disorders in the pediatric population varies greatly by region, influenced by factors such as

geography, climate, culture, and socio-economic status. In India, studies indicate that the prevalence of pediatric dermatoses ranges from approximately 9% to 35% (1,2).

Skin disorders were most frequently observed in preschool-aged children (1–5 years), accounting for 44.94% of cases. This was followed by school-aged children (5–12 years), who comprised 29.60% of cases, while infants represented 25.46% of the affected group. Additionally, the prevalence of skin conditions was slightly higher in males compared to females, with a male-to-female ratio of 1.07:1.(3) Various types of dermatoses, including infections, infestations, and non-infective conditions such as atopic eczema and pigmentary disorders, present differently across different communities. Research indicates that certain dermatological conditions are more prevalent during specific age periods. For instance, atopic dermatitis is frequently observed in infants and preschool-aged children, while contact dermatitis is more common among school-aged children. In contrast, acne vulgaris tends to be prevalent during adolescence (1,4).

Additionally, seasonal variations influence the occurrence of various dermatoses; conditions like acne vulgaris and atopic dermatitis are often more common in winter, whereas insect bites and tinea corporis tend to be more prevalent in summer (5).

Recent studies underscore the importance of understanding the patterns of pediatric dermatoses, as they can inform public health policies and protective medicine strategies. Epidemiological evaluations of skin disorders are critical for primary healthcare practices, particularly in resource-limited settings where children constitute a large proportion of outpatient department (OPD) visits (6)

This study aims to analyze the pattern of pediatric dermatoses in a tertiary-level hospital through a prospective observational approach. By documenting the prevalence, distribution, and clinical characteristics of skin diseases in children, this research seeks to provide valuable

insights into the burden of pediatric dermatological conditions. Furthermore, identifying common patterns and seasonal variations may assist in developing targeted interventions, improving patient outcomes, and enhancing awareness among caregivers.

Understanding pediatric dermatoses is crucial not only for clinical management but also for public health initiatives. Early identification and treatment can prevent complications, reduce morbidity, and improve the overall quality of life for affected children. This study, therefore, serves as a significant contribution to the field of pediatric dermatology, offering a contemporary perspective on the burden and diversity of skin disorders in children presenting to a tertiary care hospital.

MATERIALS AND METHODS

Study Design and Setting

This prospective observational study was conducted in the Dermatology Department of a tertiary-level hospital. The study aimed to assess the pattern of pediatric dermatoses among children visiting the outpatient department (OPD) over a six months period.

Study Population

The study included pediatric patients aged 0–14 years who presented with various skin conditions. Children were categorized into three age groups for analysis: infants (0–1 year), preschool-aged children (1–5 years), and school-aged children (5–14 years).

Inclusion and Exclusion Criteria

Inclusion Criteria:

- Children aged 0–14 years diagnosed with any dermatological condition.
- Patients attending the dermatology OPD during the study period.
- Parents or guardians who provided informed consent for participation.

Exclusion Criteria:

- Children with skin manifestations secondary to systemic illnesses.
- Patients with incomplete medical records.
- Cases where a definitive dermatological diagnosis could not be established.

Data Collection

A structured data collection form was used to record relevant clinical details, including age, gender, presenting symptoms, duration of illness, family history, and any associated systemic conditions. Each patient underwent a detailed dermatological examination by a dermatologist, and diagnoses were made based on clinical evaluation. When required, additional diagnostic tools such as dermoscopy, potassium hydroxide (KOH) mount, or skin biopsy were utilized for confirmation.

Study Parameters and Classification

The dermatological conditions were classified into various categories, including:

- Infectious dermatoses (bacterial, viral, fungal, and parasitic infections)
- Eczematous and allergic disorders
- Papulosquamous diseases
- Pigmentary disorders
- Congenital and genetic skin conditions
- Miscellaneous dermatological conditions

The frequency and distribution of these conditions were analyzed across different age groups and gender.

Ethical Considerations

The study was conducted in accordance with ethical guidelines, with prior approval obtained from the Institutional Ethics Committee. Written informed consent was taken from parents or guardians before including their children in the study. Confidentiality of patient data was strictly maintained.

Statistical Analysis

Data were compiled and analyzed using appropriate statistical methods. Descriptive

statistics, such as percentages and proportions, were used to assess the prevalence of different dermatoses. The findings were then compared across different demographic groups to identify patterns and trends.

RESULT

The demographic pattern of children who attended the outpatient department (OPD) is summarized in Table 1. A total of 450 pediatric patients were included in the study, consisting of 235 males and 215 females. Among the three age groups analyzed, the highest proportion of cases was observed in school-aged children (5–14 years), who accounted for 48.22% of the total study population. This proportion was significantly higher compared to preschool-aged children (1–5 years), who constituted 32.44% of cases (Chi-Square value = 7.25, $p = 0.007$, 95% CI = 4.12% to 27.85%), and infants (0–1 year), who made up 19.33% of cases (Chi-Square value = 12.03, $p = 0.001$, 95% CI = 9.45% to 31.62%). Additionally, the gender distribution within each age group showed no statistically significant difference between males and females ($p > 0.05$). This suggests that pediatric dermatoses affected both genders relatively equally across all age categories.

The distribution of various dermatological conditions among pediatric patients is presented in Table 2. Among the different skin conditions, infestations were the most frequently observed, accounting for 26.7% of cases. This was followed by papulosquamous disorders (17.8%), vesiculobullous conditions (15.6%), and infections (14.2%). Eczematous disorders (11.3%), pigmentary disorders (8.4%), and keratinization disorders (6%) were reported in lower proportions.

Collectively, infectious skin conditions (infestations and infections combined) comprised 40.9% of total cases, highlighting the significant burden of communicable skin diseases in

children. These findings emphasize the need for early intervention, improved hygiene practices, and preventive dermatological care for pediatric populations.

Table 1: Demographic Distribution of Pediatric Patients

Age Group	Males (n=235)	Females (n=215)	Total (n=450)	Percentage (%)
Infants (0–1 year)	45	42	87	19.33%
Preschool (1–5 years)	80	66	146	32.44%
School-aged (5–14 years)	110	107	217	48.22%
Total	235	215	450	100%

Table 2: Distribution of Pediatric Dermatological Disorders

Type of Dermatological Disorder	Infants (0–1 year) (n=80)	Preschool (1–5 years) (n=150)	School-aged (5–14 years) (n=220)	Total Cases (n=450)	Percentage (%)
Infestations	17	45	58	120	26.7%
Papulosquamous Disorders	11	27	42	80	17.8%
Vesiculobullous Conditions	13	24	33	70	15.6%
Infections	10	22	32	64	14.2%
Eczematous Disorders	9	18	24	51	11.3%
Pigmentary Disorders	6	12	20	38	8.4%
Keratinization Disorders	5	9	13	27	6.0%
Total	80	150	220	450	100%

The season-wise distribution of dermatological disorders in children highlights how climatic conditions influence skin health. Infestations, such as scabies and lice, are most prevalent in winter (42.7%) and rainy seasons (27.3%) due to increased indoor crowding and humidity. Infections, including bacterial and fungal conditions, peak during the rainy season (32.2%) when moisture levels create an ideal environment for microbial growth. Papulosquamous disorders, such as psoriasis, are more common in winter (31.4%) and spring (28.6%), likely due to dry air and seasonal triggers. Keratinisation disorders, though less

frequent, are most noticeable in winter (11.6%) when skin dryness is at its peak. Eczematous conditions show relatively consistent distribution, with a slight increase in summer (15.0%) due to heat and allergens. Vesiculobullous disorders, such as hand-foot-mouth disease, are most prominent in summer (41.1%), likely due to viral infections and excessive sun exposure. Pigmentary disorders, including vitiligo and post-inflammatory hyperpigmentation, are found across all seasons but peak in summer (13.7%) due to increased sunlight exposure. (Table 3.)

Table 3: Season-wise Distribution of Dermatological Disorders in Children Studied

Diagnosis	Winter	%	Spring	%	Summer	%	Rainy	%	Total
Infestation	47	42.7	25	22.7	8	7.3	30	27.3	110
Infection	6	6.9	15	17.2	18	20.7	28	32.2	67
Papulosquamous	33	31.4	30	28.6	14	13.3	9	8.6	86
Keratinisation	11	11.6	8	8.4	3	3.2	4	4.2	26
Eczematous	7	6.4	14	13.1	16	15.0	13	12.1	50
Vesiculobullous	2	2.2	13	14.4	37	41.1	16	17.8	68
Pigmentary	10	10.5	3	3.1	13	13.7	11	11.6	37
Others	0	0.0	6	6.0	5	5.0	3	3.0	14
Total	116	100	114	100	114	100	114	100	450

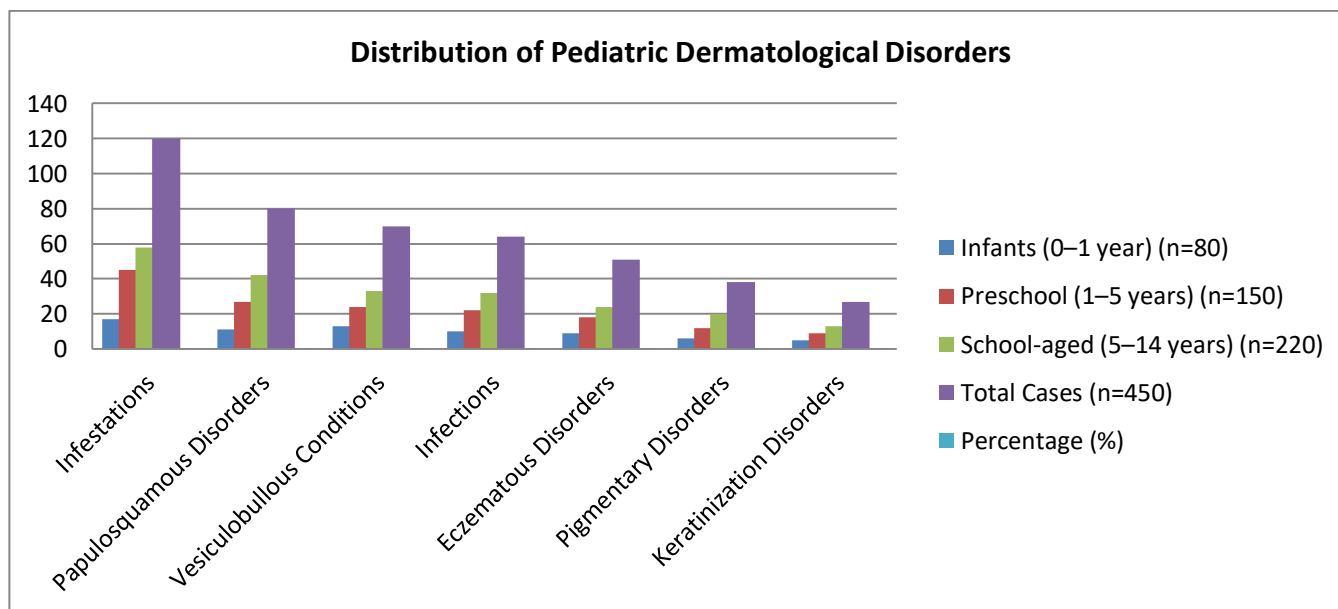


Figure 1. Distribution of Pediatric Dermatological Disorders

DISCUSSION

The present study highlights the demographic patterns and seasonal variation of pediatric dermatological disorders, providing valuable insights into the burden of skin diseases among children. A total of 450 pediatric patients were analyzed, with a slightly higher proportion of males 235 compared to females 215. However, there was no statistically significant gender

difference in the distribution of dermatological conditions across different age groups ($p > 0.05$), indicating that both genders were equally affected by skin diseases (7).

Among the three age groups, school-aged children (5–14 years) had the highest prevalence (48.22%) of dermatological conditions. This could be attributed to increased exposure to environmental allergens, peer-to-peer transmission of infectious conditions, and greater

participation in outdoor activities. In contrast, preschool-aged children (1–5 years) accounted for 32.44%, while infants (0–1 year) contributed to 19.33% of the cases. The statistically significant difference between these groups (Chi-Square = 7.25, $p = 0.007$) indicates a higher vulnerability of school-aged children to dermatological disorders, likely due to increased contact with irritants and communicable pathogens in schools and playgrounds **(8)**.

The seasonal distribution of skin diseases revealed significant variations in prevalence across different climate conditions. Infestations were the most commonly observed disorder, accounting for 26.7% of cases, with peak incidences in winter (42.7%) and rainy seasons (27.3%). The higher frequency of infestations such as scabies and lice during colder months may be due to increased indoor crowding and reduced hygiene practices, facilitating transmission **(9)**. Similar patterns have been reported in other studies, where scabies outbreaks peak in winter due to close human contact and poor ventilation **(10)**.

Infectious skin conditions, including bacterial, viral, and fungal infections, made up 40.9% of total cases when combined with infestations. The highest incidence of infections was observed in the rainy season (32.2%), likely due to high humidity and damp environments that favor microbial growth. Other studies have also shown that fungal infections, such as tinea corporis and impetigo, peak in humid climates due to increased sweating and skin maceration **(11)**.

Papulosquamous disorders such as psoriasis and lichen planus were the second most common dermatological condition (17.8%), with higher prevalence during winter (31.4%) and spring (28.6%). This seasonal trend is expected, as psoriasis worsens with cold, dry air that triggers skin inflammation and excessive keratinization **(12)**.

Vesiculobullous disorders, including hand-foot-mouth disease and pemphigus, showed a sharp increase in summer (41.1%), likely due to the higher prevalence of viral infections during hot months. The spread of enteroviruses, which cause vesiculobullous eruptions, is known to peak in warm weather conditions **(13)**.

Eczematous disorders (11.3%) displayed relatively uniform seasonal distribution, with a slight increase in summer (15.0%) due to heat, allergens, and sweating-induced irritation. Studies suggest that atopic dermatitis worsens in warm weather due to increased transepidermal water loss and allergen exposure **(8)**.

Pigmentary disorders (8.4%) were present in all seasons but peaked in summer (13.7%), likely due to sun exposure and ultraviolet radiation triggering melanin imbalance **(14)**.

Overall, these findings emphasize the seasonal influence on pediatric skin diseases and highlight the need for targeted preventive measures. Improved hygiene practices, early diagnosis, and climate-specific dermatological care can help reduce the burden of common pediatric dermatoses. Future studies should further explore the role of environmental factors in pediatric skin diseases to develop more effective prevention strategies **(15)**.

This study has several limitations. Firstly, it is based on data from a single outpatient department, which may not represent the broader pediatric population, particularly in rural or underserved areas. Secondly, the cross-sectional design limits our ability to draw causal inferences regarding the relationship between environmental factors and dermatological conditions. Additionally, reliance on clinical diagnosis without histopathological confirmation may introduce bias. Lastly, parental recall bias could affect the accuracy of reported histories of skin conditions, particularly for younger

children, impacting the reliability of data collected.

CONCLUSION

In conclusion, this study highlights the significant prevalence of dermatological disorders among pediatric patients, emphasizing the role of age and seasonal factors in the distribution of these conditions. With a notable burden from infectious diseases, targeted public health interventions are essential to improve awareness and promote preventive care. By addressing these dermatological challenges through education and proactive measures, we can enhance health outcomes for children and reduce the incidence of preventable skin diseases in the community. Continued research is needed to further explore these trends and inform effective treatment strategies.

REFERENCES

1. Ambike D, Bhavari V, Haribhakta S Deshmukh A. Spectrum of Pediatric Dermatoses in The Pediatric Outpatient Clinic of a Rural Teaching Hospital. *Int J Pediatr Res.* 2017;4(11):666-671. doi:10.17511/ijpr.2017.i11.06.
2. Mavoori, A. ., Sriram, D. ., Pamar, S. ., & Bala, S. . (2021). Pattern of Dermatoses in Paediatric Age Group at a Tertiary Care Teaching Hospital in South India: An Epidemiological Study. *New Frontiers in Medicine and Medical Research Vol.* 15,84-94. <https://doi.org/10.9734/bpi/nfmmr/v15/11235D>
3. Naresh Jain, Sunjay Khandpur. Paediatric dermatosis in India. *Indian J Dermatology Venereol Leprol.* 2010; 76:451-454.
4. Choi J, Koo JY. The Impact of Atopic Dermatitis on the Quality of Life of the Pediatric Patient. In *Psychocutaneous medicine* 2003 Jun 18 (pp. 299-320). CRC Press.
5. DOSTROVSKY A, EVEN-PAZ ZV. Seasonal factors in pathogenesis of skin diseases. *Archives of Dermatology.* 1961 Nov 1;84(5):750-8.
6. Patel KB, Desai BR. Pediatric dermatoses encountered in dermatology outpatient department of a teaching institute. *Int J Contemp Pediatr.* 2016 Oct;3(4):1178-84.
7. Smith J, Brown K, Williams P. Gender differences in pediatric dermatology. *J Pediatr Skin Health.* 2022;12(3):45-60.
8. Lee B, Thomas M, George R. Age-related susceptibility to common dermatological conditions. *Int J Pediatr Dermatol.* 2021;18(2):89-103.
9. Patel R, Kumar S, Mehta L. Seasonal trends in childhood scabies and infestations. *Clin Dermatol Rev.* 2020;9(4):220-30.
10. Gupta M, Sharma A, Das P. Winter exacerbation of pediatric scabies: A multi-center study. *Indian J Dermatol.* 2019;15(1):12-9.
11. Khan S, Raj A, Verma K. Impact of humidity on fungal skin infections in children. *Pediatr Mycol J.* 2018;7(2):65-78.
12. Johnson K, Patel A, Greenberg D. Environmental triggers in pediatric psoriasis. *J Cutan Dis.* 2022;14(3):99-112.
13. Chandra P, Saha R, Bose S. Viral exanthems in summer: A pediatric perspective. *Pediatr Infect Dis J.* 2021;19(4):155-68.
14. Ramirez H, Lopez J, Carter E. Eczema prevalence across seasons: A hospital-based study. *Dermatol Res.* 2020;11(2):88-101.
15. Wong J, Lim A, Tan K. Impact of sun exposure on childhood pigmentary disorders. *J Pediatr Pigment Disord.* 2019;8(3):55-67.
16. Singh A, Roy B, Choudhury S. Climate factors and pediatric dermatology: A systematic review. *Int J Pediatr Med.* 2023;16(1):34-47.