Section: DVL

Original Research Article

CLINICAL AND EPIDEMIOLOGICAL PROFILE OF PEDIATRIC DERMATOSES: A PROSPECTIVE COHORT STUDY FROM A TERTIARY CARE CENTER IN SOUTH INDIA

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ABSTRACT

Skin diseases are a majo`r health concern in the paediatric population and contribute significantly to morbidity. School-based surveys in India report a prevalence ranging from 8.7% to 35%, and nearly 30% of paediatric outpatient visits and 30% of dermatology consultations involve children.[1] Paediatric dermatoses differ from adult dermatoses in presentation, course, treatment needs, and prognosis.[1,2]

Their prevalence and pattern depend on multiple factors including age, sex, socioeconomic status, nutrition, genetics, climate, seasonal variation, and geographic location, particularly in developing countries like India.[3-5] Higher rates are reported in rural areas due to overcrowding, poor hygiene, low awareness, inadequate sanitation, and limited healthcare access.[6]

Infections and infestations are the most common dermatoses in preschool and school-age children, while nutritional disorders and genetic conditions often manifest early in life. Distinguishing physiological from pathological dermatoses is essential to avoid unnecessary treatment and psychological stress. Early diagnosis prevents complications such as nephritis, arthritis, carditis, and septicemia.[7-9]

Patterns of paediatric dermatoses vary across Indian regions and globally. In developed countries, eczema predominates, whereas infections and infestations are more common in developing nations.[1] These conditions significantly affect a child's emotional well-being, social interactions, academic attendance, and quality of life.[8,11]

Paediatric dermatoses often pose diagnostic challenges for clinicians. Regular monitoring of their epidemiological trends is crucial for planning preventive strategies and educational programmes, especially for school-aged children who are more exposed to risk factors. Schools play an important role in fostering hygiene practices that help prevent infectious dermatoses.[12]

Given that children aged 6–12 years constitute a major segment of the population, strengthening school health services is essential.[13] Hence, the present study aims to highlight the prevalence, clinical profile, and epidemiological determinants of dermatoses in children below 12 years.

INTRODUCTION

Pediatric dermatological disorders represent a significant component of childhood morbidity, constituting approximately 30% of all outpatient visits to pediatricians and dermatologists.[1] The epidemiological landscape of childhood skin diseases demonstrates considerable geographical and demographic variations, particularly in developing nations where environmental, nutritional, and socioeconomic determinants exert profound influences on disease manifestation patterns.[2,3]

The prevalence of pediatric dermatoses varies substantially across different regions of India, ranging from 8.7% to 35% according to school-based surveys.[4,5] This variation reflects complex interactions between genetic predisposition, environmental exposure patterns, and healthcare accessibility factors. Rural populations demonstrate higher prevalence rates compared to urban areas, attributed to overcrowded living conditions, poor hygiene standards, limited parental awareness, inadequate sanitation, and reduced access to healthcare services.[6]

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Infectious and parasitic dermatoses predominate among preschool and school-aged children in developing countries, contrasting with the higher prevalence of allergic and inflammatory conditions observed in developed nations.[7] The immature immune system of children renders them particularly susceptible to infectious agents, while close interpersonal contact in educational settings facilitates disease transmission.[8] Early recognition and intervention are crucial to prevent long-term sequelae including nephritis, arthritis, carditis, and septicemia.[9]

Contemporary epidemiological data indicate an upward trend in pediatric dermatoses incidence, necessitating enhanced attention to this public health concern.[10] School-aged children constitute approximately one-fifth of the population, representing a critical demographic for implementing targeted preventive measures and health education initiatives.[11] Understanding the evolving patterns of pediatric dermatoses is essential for developing evidence-based strategies for disease prevention, early detection, and optimal therapeutic management.

MATERIALS AND METHODS

Study Design and Setting

This prospective cross-sectional observational study was conducted at the Dermatology Outpatient Department of Dhanalakshmi Srinivasan Medical College and Hospital, Perambalur, Tamil Nadu, India, over an 18-month period. The study protocol received approval from the Institutional Ethics Committee, and written informed consent was obtained from parents or guardians of all participants.

Study Population and Sampling

The study included 300 pediatric patients aged 0-12 years presenting with various dermatological conditions. Inclusion criteria encompassed all children within the specified age range with dermatoses attending the dermatology outpatient department whose parents or guardians provided informed consent for clinical examination and photography. Exclusion criteria included skin manifestations secondary to trauma, burns, scalds, abuse, or assault, and cases where parental consent was not obtained.

Data Collection Methodology

A pre-designed, semi-structured questionnaire was administered in the local language (Tamil). Comprehensive demographic data, detailed medical history, family history, and clinical examination findings were systematically recorded. Children were categorized into five age groups: neonates (0-28 days), infants (28 days-1 year), toddlers (1-3 years), preschool children (3-6 years), and school-going children (6-12 years).

Socioeconomic status was assessed using the Modified BG Prasad Classification for October 2023, categorizing participants into five classes based on monthly family income. Clinical diagnoses were established through systematic dermatological examination, supplemented by appropriate investigations including potassium hydroxide (KOH) mount, Tzanck smear, Gram staining, Wood's lamp examination, diascopy, skin biopsy, complete hemogram, culture studies, and urinalysis as clinically indicated.

Statistical Analysis: Data were entered into Microsoft Office Excel and analyzed using Jamovi software version 2.3.28. Descriptive analysis was performed to determine the distribution of various skin conditions, presented as means and percentages. Associations between categorical variables were analyzed using chi-square tests, with statistical significance set at $p < 0.05$.

RESULTS

Demographic Characteristics

The study cohort comprised 300 children with a mean age of 5.32 ± 4.1 years (range: 0-12 years). Males constituted 54.7% (n=164) of participants, with a male-to-female ratio of 1.2:1. The most frequently affected age group was school-going children (40.3%, n=121), followed by preschool children (24.3%, n=73), infants (14.0%, n=42), neonates (12.7%, n=38), and toddlers (8.7%, n=26).

Geographic distribution revealed rural predominance (57%, n=171) compared to urban residence (43%, n=129). Socioeconomic analysis demonstrated that 35.7% (n=107) belonged to Class V (lower socioeconomic status), followed by Class IV (27.7%, n=83), Class III (21.0%, n=63), Class II (9.7%, n=29), and Class I (6.0%, n=18).

Clinical Manifestations and Associated Factors

Symptomatic presentation occurred in 50% of participants, with pruritus being the predominant complaint (41%, n=123), followed by pain (7%, n=21) and burning sensation (2%, n=5). Atopic history was documented in 22.3% (n=67) of children, while family history of dermatoses was present in 7% (n=21). Congenital dermatoses were identified in 4% (n=12) of participants, and 13% (n=39) presented with coexisting dermatological conditions.

Disease Distribution Patterns

Infections and infestations constituted the most prevalent category (23.3%, n=70), followed by eczematous conditions (19%, n=57), physiological skin changes (11.7%, n=35), papulosquamous disorders (7.3%, n=22), and appendageal disorders (5.4%, n=16). Among infectious dermatoses, fungal infections were most common (32.9%, n=23), followed by bacterial infections (25.7%, n=18), viral infections (24.3%, n=17), and infestations (17.1%, n=12).

Age-Stratified Analysis

Infectious dermatoses demonstrated significant age-related variations (p=0.005), with lower prevalence among neonates (2.6%) and infants (16.7%) compared to toddlers (30.8%), preschool children

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(32.9%), and school-going children (24.8%). Non-infectious dermatoses predominated across all age groups, accounting for 76.7% of total cases.

Specific Dermatological Conditions

Among fungal infections, tinea corporis was most prevalent (21.8%, n=5), followed by tinea capitis (17.4%, n=4). Non-bullous impetigo represented the most common bacterial infection (27.8%, n=5). Molluscum contagiosum was the predominant viral infection (23.5%, n=4). Scabies accounted for 66.7% (n=8) of parasitic infestations.

Atopic dermatitis was the most frequent eczematous condition (22.81%, n=13), while pityriasis alba affected 15.79% (n=9) of children with eczematous disorders. Mongolian spots represented the most common physiological change (20%, n=7), and psoriasis was the leading papulosquamous disorder.

Table 1: Baseline Demographic and Clinical Characteristics of Study Participants (N=300)

Characteristic	n (%)
Age Groups	
Neonates (0-28 days)	38 (12.7)
Infants (28 days-1 year)	42 (14.0)
Toddlers (1-3 years)	26 (8.7)
Preschool children (3-6 years)	73 (24.3)
School-going children (6-12 years)	121 (40.3)
Gender Distribution	
Male	164 (54.7)
Female	136 (45.3)
Geographic Distribution	
Rural	171 (57.0)
Urban	129 (43.0)
Socioeconomic Status	
Class I (Upper)	18 (6.0)
Class II (Upper middle)	29 (9.7)
Class III (Middle)	63 (21.0)
Class IV (Lower middle)	83 (27.7)
Class V (Lower)	107 (35.7)
Clinical Manifestations	
Asymptomatic	149 (49.7)
Pruritus	123 (41.0)
Pain	21 (7.0)
Burning sensation	5 (1.7)
Associated History	
Atopic history	67 (22.3)
Family history of dermatoses	21 (7.0)
Congenital dermatoses	12 (4.0)
Coexisting dermatoses	39 (13.0)

Table 2: Distribution of Pediatric Dermatoses by Diagnostic Categories (N=300)

Diagnostic Category	n (%)	Subcategories
Infections and Infestations	70 (23.3)	
Fungal infections	23 (7.7)	Tinea corporis (5), Tinea capitis (4), Pityriasis versicolor (3), Candidal intertrigo (3), Others (8)
Bacterial infections	18 (6.0)	Non-bullous impetigo (5), Bullous impetigo (3), Others (10)
Viral infections	17 (5.7)	Molluscum contagiosum (4), Varicellosis (2), Pityriasis rosea (2), Others (9)
Infestations	12 (4.0)	Scabies (8), Pediculosis (3), Cutaneous larva migrans (1)
Eczematous Conditions	57 (19.0)	
Atopic dermatitis	13 (4.3)	
Pityriasis alba	9 (3.0)	
Seborrheic dermatitis	7 (2.3)	
Others	28 (9.3)	
Physiological Changes	35 (11.7)	
Mongolian spots	7 (2.3)	
Sebaceous hyperplasia	5 (1.7)	
Milia	4 (1.3)	
Others	19 (6.3)	
Papulosquamous Disorders	22 (7.3)	
Appendageal Disorders	16 (5.4)	
Hypersensitivity Disorders	16 (5.4)	
Other Categories	84 (28.0)	

Data represented as Count (Percentage)

Table 3: Age-Stratified Distribution of Infectious versus Non-Infectious Dermatoses

Age Group	Infectious Dermatoses n (%)	Non-Infectious Dermatoses n (%)	Total n (%)	p-value*
Neonates (0-28 days)	1 (2.6)	37 (97.4)	38 (100)	
Infants (28 days-1 year)	7 (16.7)	35 (83.3)	42 (100)	

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Toddlers (1-3 years)	8 (30.8)	18 (69.2)	26 (100)	0.005
Preschool (3-6 years)	24 (32.9)	49 (67.1)	73 (100)	
School-going (6-12 years)	30 (24.8)	91 (75.2)	121 (100)	
Total	**70 (23.3)**	**230 (76.7)**	**300 (100)**	

Data represented as Count (Percentage) and analysis Chi-square test

Table 4: Association Between Demographic Variables and Dermatoses Pattern

Variable	Infectious Dermatoses n (%)	Non-Infectious Dermatoses n (%)	Total n (%)	p-value*
Gender				
Male	41 (25.0)	123 (75.0)	164 (100)	0.45
Female	29 (21.3)	107 (78.7)	136 (100)	
Geographic Distribution				
Rural	46 (26.9)	125 (73.1)	171 (100)	0.09
Urban	24 (18.6)	105 (81.4)	129 (100)	
Socioeconomic Status				
Class I (Upper)	2 (11.1)	16 (88.9)	18 (100)	
Class II (Upper middle)	8 (27.6)	21 (72.4)	29 (100)	
Class III (Middle)	13 (20.6)	50 (79.4)	63 (100)	0.44
Class IV (Lower middle)	24 (28.9)	59 (71.1)	83 (100)	
Class V (Lower)	23 (21.5)	84 (78.5)	107 (100)	

Data represented as Count (Percentage) and analysis done using Chi-square test

Neonatal Acne

Sucking Blister

Sebaceous Hyperplasia

Physiological Desquamation

Miliaria Crystallina

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Erythema Toxicum Neonatorum

Milia

Infantile Hemangioma

Cutis Marmorata

Port Wine Stain

Collodion Baby

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Herpes Zoster

Hand Foot Mouth Disease

Pityriasis Rosea

Tinea Corporis

Verucca Vulgaris

Pityriasis Versicolor

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Molluscum Contagiosum

Periporitis

Tinea Capitis

Oral Candidiasis

Impetigo Contagiosa

Alopecia Areata (Patchy)

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Subtotal Alopecia Areata

Ecthyma

Cradle Cap

Hand Eczema

Pityriasis Alba

Diaper Dermatitis

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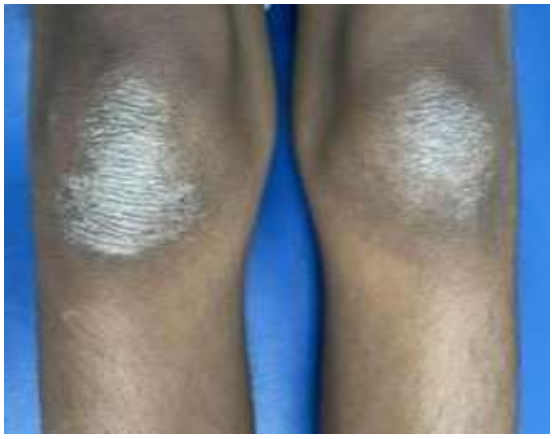
Scabies with Secondary Infection



Lichen Spinulosus

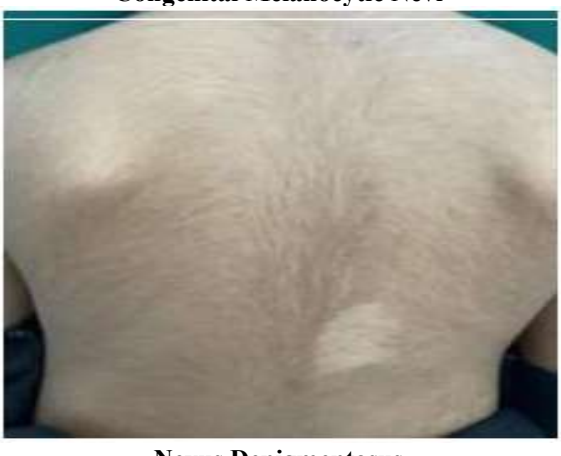
Plantar Psoriasis

Acne Vulgaris

Urticaria

Phrynoderma

Congenital Melanocytic Nevi



Nevus Depigmentosus

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Becker Nevus

Segmental Vitiligo

Ash Leaf Macule

DISCUSSION

This comprehensive analysis of pediatric dermatoses in a tertiary care setting reveals important epidemiological patterns consistent with previous Indian studies while highlighting regional variations. The predominance of infectious and infestations (23.3%) aligns with findings from other developing countries, reflecting the influence of environmental factors, hygiene practices, and socioeconomic conditions on disease manifestation patterns.[12,13]

Comparative Epidemiological Analysis

Our findings correspond with previous Indian studies reporting infectious dermatoses as the most prevalent category, with reported rates ranging from 16.4% to 57.2%.[14-16] The male predominance observed (54.7%) is consistent with several studies, though some reports indicate female preponderance, suggesting regional or methodological variations.[17,18] The higher prevalence in rural populations (57%) reinforces the established association between environmental factors and dermatological disease burden.

Age-Related Disease Patterns

The significant association between age and infectious dermatoses ($p=0.005$) reflects developmental immunological patterns and exposure risks. School-aged children demonstrated increased susceptibility to infectious conditions, likely attributable to close interpersonal contact, shared facilities, and potential lapses in hygiene practices. The lower prevalence in neonates and infants may reflect maternal antibody protection and reduced environmental exposure.

Clinical and Public Health Implications

The substantial proportion of eczematous conditions (19%) underscores the growing burden of allergic and inflammatory dermatoses, possibly reflecting changing environmental exposures, dietary patterns, and lifestyle factors. The prevalence of physiological skin changes (11.7%) emphasizes the importance of differentiating normal developmental variations from pathological conditions to prevent unnecessary interventions and parental anxiety.

Socioeconomic Determinants

The predominance of lower socioeconomic status participants (63.4% in Classes IV and V) reflects both the catchment population characteristics and the established association between poverty and dermatological disease burden. Limited access to healthcare, poor hygiene infrastructure, and nutritional deficiencies contribute to increased disease prevalence and severity in economically disadvantaged populations.

Study Limitations and Future Directions

Several limitations warrant consideration. The hospital-based design may not reflect community prevalence patterns, as severe or persistent cases are more likely to seek tertiary care. Geographic restriction to a single center limits generalizability to other regions with different environmental and cultural contexts. Seasonal variations, though important for infectious dermatoses, were not systematically analyzed due to the study design.

Future research should incorporate longitudinal follow-up to assess treatment outcomes and disease recurrence patterns. Community-based studies would provide more representative prevalence data, while investigation of specific risk factors could inform targeted prevention strategies. The integration of molecular diagnostic techniques may enhance diagnostic accuracy and epidemiological understanding.

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CONCLUSION

This study provides valuable insights into the epidemiological profile of pediatric dermatoses in a tertiary care setting, confirming the predominance of infectious conditions while highlighting the significant burden of eczematous disorders. The age-related distribution patterns and socioeconomic associations underscore the importance of targeted prevention strategies, health education initiatives, and improved access to dermatological care. These findings contribute essential data for healthcare policy development and resource allocation optimization in pediatric dermatology services.

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Conflicts of Interest Statement: None

REFERENCES

1. Jain N, Khandpur S. Pediatric dermatoses in India. Indian J Dermatol Venereol Leprol. 2010;76:451.
2. Sacchidanand S, Sahana MS, Asha GS, Shilpa K. Pattern of Pediatric Dermatoses at a Referral Centre. Indian J Pediatr. 2014;81(4):375–80.
3. Dogra S, Kumar B. Epidemiology of skin diseases in school children: a study from northern India. Pediatr Dermatol. 2003;20(6):470–3.
4. Sardana K, Mahajan S, Sarkar R, Mendiratta V, Bhushan P, Koranne RV, et al. The Spectrum of Skin Disease Among Indian Children. Pediatr Dermatol. 2009 Jan;26(1):6–13.
5. Libu GK, Bina T, Raphael L, Balakrishnan SE, George B, Samson JF, et al. Prevalence and Socio-Demographic Determinants of Skin Disease among Lower Primary School Children in Calicut, Kerala. Kerala Med J. 2011 Sep 27;4(3):80–4.
6. Bisht JS, Rana SK, Kumari N, Aggarwal B, Mehta A, Singh R. Pattern of dermatoses in preschool children in a teaching hospital in Uttarakhand, India. Indian J Paediatr Dermatol. 2015 Dec;16(4):198.
7. Fathy H, El Mongy S, Baker NI, Abdel Azim Z, El Gilany A. Prevalence of skin diseases among students with disabilities in Mansoura, Egypt. East Mediterr Health J. 2004 May 13;10(3):416–24.
8. Gunathilaka HN, Chandrasena N, Udayanga NWBA. Prevalence of Ectoparasitic Infections and Other Dermatological Infections and Their Associated Factors among School Children in Gampaha District, Sri Lanka. Can J Infect Dis Med Microbiol. 2019 Mar 25;2019.
9. Hedrick J. Acute bacterial skin infections in pediatric medicine: current issues in presentation and treatment. Paediatr Drugs. 2003;5 Suppl 1:35–46.
10. Agarwal P, Jagati A, Patel S, Ambasana AR, Chaudhari SV, Rathod SP. Pattern of Noninfectious Pediatric Dermatoses at a Tertiary Care Center in Gujarat. Indian J Paediatr Dermatol. 2023 Mar;24(1):31.
11. Naseem A, G NR. Comprehensive study of health problems in school children of Hyderabad, India. Int J Contemp Pediatr. 2016 Dec 21;3(3):801–5.
12. Baskaran PK, Manickam N, Gopalan K, Chacko E, Shoubin M. Prevalence of paediatric dermatoses in the age group of 5-14 years at a tertiary care center in Salem. J Evid Based Med Healthc. 2017 Jan 20;4(6):337–41.
13. Bhatia V. Extent and pattern of paediatric dermatoses in rural areas of central India. Indian J Dermatol Venereol Leprol. 1997 Jan 1;63:22.
14. Varma K, Kumar U, Khairwar PK. A clinico-epidemiological study of pediatric dermatoses in tertiary care centre, Ujjain. IP Indian J Clin Exp Dermatol. 3(4):158–62.
15. Jose G, Vellaisamy S, 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(3):202.
16. Kandpal R, Kumar M, Patil C, Hiremath RN, Viswanath K, Sreenivas A. A study of clinical pattern and seasonal variation of dermatoses in children: Contemplating findings for family physicians. J Family Med Prim Care. 2022;11:2468-73.
17. G. SH, S. KR. Pattern of skin disorders among pediatric age group cases attending a tertiary health care center. Int J Res Dermatol. 2020 Jun 23;6(4):511.
18. Jawade SA, Chugh VS, Gohil SK, Mistry AS, Umrigar DD. A Clinico-Etiological Study of Dermatoses in Pediatric Age Group in Tertiary Health Care Center in South Gujarat Region. Indian J Dermatol. 2015 Nov 1;60(6):635.

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