

More Than Skin Deep: Sociodemographic Drivers and Quality-of-Life Impact of Childhood Dermatoses

K. Narotham Reddy¹, Nenavath Ranjith Kumar², SKN Manikanta³

¹Associate Professor, Department of Dermatology, Venereology and Leprosy, Government Medical College, Nandyala.

²Associate Professor, Department of Pediatrics, Government Medical College, Wanaparthy.

³Assistant Professor, Department of Pediatrics, GSL Medical College, Rajahmundry.

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Corresponding Author: Dr. SKN Manikanta

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Abstract:

Background: Pediatric dermatoses are common causes of outpatient morbidity and may reflect underlying socioeconomic, environmental, hygienic and nutritional factors. They can also affect school performance, sleep, self-esteem and psychosocial wellbeing.

Aim: To study the clinical spectrum, sociodemographic determinants and quality-of-life impact of pediatric dermatoses in a tertiary care hospital.

Methods: This prospective cross-sectional study was conducted in the Departments of Dermatology and Pediatrics, GSL Medical College, from December 2025 to April 2026. A total of 300 children aged birth to 16 years with clinically evident skin disorders were included. Demographic details, socioeconomic status, residence, overcrowding, hygiene practices, nutritional status and clinical diagnosis were recorded. Dermatoses were classified into infectious, eczematous, allergic, pigmentary, appendageal, nutritional, genetic and miscellaneous groups. Children aged 4–16 years were assessed using the Children's Dermatology Life Quality Index. Data were analyzed using appropriate statistical tests.

Results: Infectious dermatoses were the most common group, accounting for 39.3% of cases, followed by eczematous disorders in 20.7%. Infectious dermatoses were significantly associated with rural residence, lower socioeconomic status, overcrowding, poor hygiene and undernutrition. The mean CDLQI score was 8.4 ± 5.1 .

Conclusion: Pediatric dermatoses were strongly influenced by sociodemographic determinants and produced considerable quality-of-life impairment.

Keywords: Pediatric dermatoses; Infectious dermatoses; Sociodemographic determinants; Children's Dermatology Life Quality Index; Quality of life.

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Introduction

Pediatric dermatoses constitute an important proportion of dermatology and pediatric outpatient morbidity, as the child's skin is influenced by age, immunity, nutrition, hygiene, environment, socioeconomic status and exposure to infections. Recent hospital-based studies show that pediatric skin disorders include a wide spectrum of infectious, eczematous, allergic, pigmentary, appendageal, genetic and nutritional conditions, with infections and eczemas commonly contributing a major burden in tertiary care settings [1]. In children, skin diseases are not only diagnostic entities but also indicators of living conditions, overcrowding, hygiene practices, nutritional status and access to healthcare; therefore, identifying determinants is essential for prevention and early intervention [2]. Chronic and visible dermatoses such as atopic dermatitis, acne, psoriasis, vitiligo and recurrent infections may affect

sleep, school attendance, peer interaction, self-esteem and emotional wellbeing, making quality-of-life assessment an important component of pediatric dermatology research [3]. The Children's Dermatology Life Quality Index is a useful validated tool to quantify the psychosocial impact of skin diseases in children and helps link clinical severity with patient-centred outcomes [4]. Hence, the present study aims to describe the clinical spectrum of pediatric dermatoses, assess sociodemographic determinants, and evaluate quality-of-life impact among children attending a tertiary care hospital.

Methods

This prospective cross-sectional study was conducted in the Departments of Dermatology and Pediatrics, GSL Medical College, Rajahmundry from December 2025 to April 2026. Children

attending the dermatology and pediatric outpatient departments with clinically evident skin disorders during the study period were screened for eligibility. Children from birth to 16 years of age were included after obtaining informed consent from parents or guardians, and assent was obtained from older children wherever appropriate. Children who were critically ill, unwilling to participate, or whose parents did not provide consent were excluded. A consecutive sampling method was followed until the required sample size was achieved. The study was initiated after obtaining approval from the Institutional Ethics Committee. Confidentiality of participant information was maintained throughout the study, and all data were used only for research purposes.

A detailed history was recorded using a predesigned case record form. Information regarding age, gender, residence, socioeconomic status, parental education, family size, overcrowding, hygiene practices, bathing habits, sharing of towels or clothes, contact history, nutritional status, recurrence of skin disease and previous treatment history was collected. Socioeconomic status was assessed using a standard socioeconomic classification applicable to the study population. Nutritional status was assessed clinically and, where required, by anthropometric measurements such as weight, height and body mass index according to age. Each child underwent complete dermatological examination under adequate light. The site, morphology, distribution, duration and extent of lesions were documented. Based on clinical diagnosis, pediatric dermatoses were classified into infectious, eczematous, pigmentary, appendageal, allergic, genetic, nutritional and miscellaneous disorders. Relevant investigations such as potassium hydroxide mount, Gram stain, bacterial culture, fungal culture, Wood's lamp examination, Tzanck smear, skin scraping or biopsy were performed whenever clinically indicated. Final diagnosis was made based on clinical findings supported by laboratory investigations wherever necessary.

The quality-of-life impact was assessed among children aged 4–16 years using the Children's Dermatology Life Quality Index. The questionnaire evaluated symptoms, feelings, leisure activities, school or holidays, personal relationships, sleep and treatment-related difficulties. The total CDLQI score was calculated and graded as no effect, small effect, moderate effect, very large effect or extremely large effect on quality of life (QOL). Data

were entered into Microsoft Excel and analyzed using appropriate statistical software. Continuous variables such as age and CDLQI score were expressed as mean and standard deviation, while categorical variables such as gender, residence, type of dermatosis, socioeconomic class and hygiene-related factors were expressed as frequency and percentage. The association between sociodemographic determinants and infectious dermatoses was assessed using Chi-square test or Fisher's exact test. Logistic regression analysis was performed to identify independent predictors of infectious dermatoses, including variables such as age group, residence, socioeconomic status, overcrowding, hygiene practices and nutritional status. A p-value of less than 0.05 was considered statistically significant.

Results

The mean age of the study population was 8.7 ± 4.2 years, and the majority belonged to the 6–10-year age group, accounting for 34.7% of cases (Table 1). Males constituted 54.7% and females 45.3%, giving a mild male predominance (Table 1). Rural children formed 59.3% of the study population, while 40.7% were from urban areas (Table 1). Lower and lower-middle socioeconomic groups together contributed 66.7% of cases (Table 1). Overcrowding was observed in 44% of children, and undernutrition was present in 30.7% (Table 1). Infectious dermatoses were the most common category, seen in 118 children, accounting for 39.3% of cases (Table 2). Eczematous disorders were the second most common group, observed in 20.7%, followed by allergic disorders in 12.7%, pigmentary disorders in 8.7% and appendageal disorders in 8% (Table 2). Infectious dermatoses were significantly more common among rural children compared with urban children, lower socioeconomic groups, children living in overcrowded households, those with poor hygiene practices and children with undernutrition (Table 3). The strongest associations were observed with poor hygiene practices and overcrowding, both showing statistically significant relationships with infectious dermatoses (Table 3). Among 258 children aged 4–16 years assessed using CDLQI, the mean CDLQI score was 8.4 ± 5.1 (Table 4). A moderate effect on QOL was observed in 31.8%, while very large and extremely large effects were noted in 17.1% and 4.6%, respectively, indicating considerable psychosocial burden among children with pediatric dermatoses (Table 4).

Table 1: Sociodemographic profile of study participants

Variable	Category	Frequency	Percentage
Age group	<1 year	28	9.3
	1–5 years	82	27.3
	6–10 years	104	34.7
	11–16 years	86	28.7

Gender	Male	164	54.7
	Female	136	45.3
Residence	Rural	178	59.3
	Urban	122	40.7
Socioeconomic status	Lower	74	24.7
	Lower middle	126	42
	Upper middle/upper	100	33.3
Overcrowding	Present	132	44
	Absent	168	56
Nutritional status	Normal	208	69.3
	Under nutrition	92	30.7

Table 2: Clinical spectrum of pediatric dermatoses

Type of dermatosis	Frequency	%
Infectious dermatoses	118	39.3
Eczematous disorders	62	20.7
Allergic/urticarial disorders	38	12.7
Pigmentary disorders	26	8.7
Appendageal disorders	24	8
Nutritional dermatoses	16	5.3
Genetic/congenital disorders	9	3
Miscellaneous	7	2.3

Table 3: Association between determinants and infectious dermatoses

Determinant	Infectious dermatoses n/N (%)		χ^2 value	p-value
	Present	Absent		
Rural residence	82/178 (46.1)	96/178 (53.9)	8.42	0.004
Urban residence	36/122 (29.5)	86/122 (70.5)		
Lower/lower-middle SES	91/200 (45.5)	109/200 (54.5)	10.58	0.001
Upper-middle/upper SES	27/100 (27.0)	73/100 (73.0)		
Overcrowding present	68/132 (51.5)	64/132 (48.5)	14.36	<0.001
Overcrowding absent	50/168 (29.8)	118/168 (70.2)		
Poor hygiene practices	73/138 (52.9)	65/138 (47.1)	20.12	<0.001
Good hygiene practices	45/162 (27.8)	117/162 (72.2)		
Under nutrition	47/92 (51.1)	45/92 (48.9)	8.21	0.004
Normal nutrition	71/208 (34.1)	137/208 (65.9)		

Table 4: CDLQI score among children aged 4–16 years

CDLQI effect category	Score range	Frequency	%
No effect	0–1	34	13.2
Small effect	2–6	86	33.3
Moderate effect	7–12	82	31.8
Very large effect	13–18	44	17.1
Extremely large effect	19–30	12	4.6
Total	-	258	100

Discussion:

The present study showed that pediatric dermatoses formed a clinically diverse group, with the highest burden observed in school-age children and a mild male predominance. The mean age of 8.7 ± 4.2 years and predominance of the 6–10-year age group suggested that exposure outside the home, school contact, environmental factors and developing personal hygiene habits may influence the occurrence of skin disorders in children. Similar hospital-based pediatric dermatology studies have reported wide regional variation in disease pattern,

but most have consistently shown that infections, eczema and allergic disorders are common contributors to pediatric dermatology outpatient morbidity [1,2]. Raghavon et al. reported that infections and infestations constituted a major component of pediatric dermatoses in Western India, while Aiholli et al. emphasized the need for multidisciplinary evaluation of pediatric dermatology cases in tertiary care settings [1,2]. The present findings support this concept, as the spectrum included infectious, eczematous, allergic, pigmentary, appendageal, nutritional and congenital

conditions. This distribution indicates that pediatric dermatoses should not be viewed only as minor skin complaints, but as disorders influenced by age, immune status, living environment, nutrition, socioeconomic position and access to health care.

Infectious dermatoses were the most common category in the present study, accounting for 39.3% of cases. This finding was comparable with several Indian and South Asian studies where infections and infestations formed the leading diagnostic group among children attending dermatology or pediatric outpatient services [5 – 7]. Jawade et al. observed that infections and infestations were the most common dermatoses among children in a tertiary care centre in South Gujarat, and Kandpal et al. also reported infections as the largest group among pediatric dermatoses in Uttar Pradesh [6, 7]. The high proportion of infectious dermatoses in the present study may be explained by the predominance of rural children, lower and lower-middle socioeconomic groups, overcrowding and poor hygiene practices. These determinants facilitate person-to-person transmission of bacterial infections, fungal infections and infestations such as scabies. Gauchan et al. and Pathak et al. similarly demonstrated that low socioeconomic status, crowding and poor personal hygiene were strongly associated with infectious childhood dermatoses [5, 8]. Therefore, the infectious burden observed in the present study has important public health implications because many of these conditions are preventable through hygiene education, early diagnosis, appropriate treatment of cases and household-level preventive measures.

The association analysis showed that rural residence, lower socioeconomic status, overcrowding, poor hygiene practices and undernutrition were significantly associated with infectious dermatoses. Among these, poor hygiene and overcrowding showed the strongest relationships, indicating that social and environmental determinants play a central role in the transmission of pediatric skin infections. This is consistent with the study by Pathak et al., who reported significant associations between infectious dermatoses and hygiene-related variables, and with Sanei-Dehkordi et al., who found that scabies infestation in schoolchildren was influenced by low socioeconomic status, use of shared articles, large family size and inadequate hygiene facilities [5, 9]. Undernutrition was also significantly associated with infectious dermatoses in the present study. Nutritional deficiency may impair skin barrier function and immune responses, thereby increasing susceptibility to recurrent infections, delayed healing and inflammatory dermatoses. The findings reinforce the need for dermatology–pediatrics collaboration, as treatment should not be limited to topical or systemic drugs alone. Children with

recurrent or extensive skin disease should also be assessed for nutrition, hygiene practices, household crowding, school exposure and family history of similar lesions.

Ecematous disorders were the second most common group in the present study, followed by allergic disorders, pigmentary disorders and appendageal disorders. This pattern agrees with previous pediatric dermatoses studies where eczema and dermatitis frequently followed infections in overall prevalence [1,6,7]. Ecematous disorders, particularly atopic dermatitis, are important in children because they are chronic, relapsing and associated with itching, sleep disturbance, school absenteeism and family stress. Na et al. and Kisieliene et al. reported that atopic dermatitis has a measurable impact on the QOL of children and their families, with greater impairment observed in more severe disease [10,11]. Pigmentary and appendageal disorders, though less frequent than infections and eczema, are also important because visible skin changes may produce embarrassment, social withdrawal and parental anxiety. Kelly et al. highlighted that pediatric skin diseases such as acne, atopic dermatitis and psoriasis can affect body image, self-esteem, peer relationships and psychological wellbeing [12]. Thus, the clinical spectrum observed in the present study supports the inclusion of quality-of-life assessment along with routine clinical diagnosis.

The CDLQI assessment in children aged 4–16 years showed a mean score of 8.4 ± 5.1 , with moderate, very large or extremely large effects in a substantial proportion of children. This demonstrates that pediatric dermatoses can produce psychosocial burden beyond physical symptoms. Lewis-Jones and Finlay originally developed the Children's Dermatology Life Quality Index as a practical instrument for assessing the impact of skin disease in children, and subsequent studies have confirmed its usefulness across pediatric dermatology conditions [13]. Goyal et al. reported that CDLQI-based assessment helps quantify the emotional and functional impact of skin disorders among Indian children [14]. The present findings therefore strengthen the argument that pediatric dermatology research should include patient-centred outcomes, especially in chronic, recurrent, visible or symptomatic dermatoses. Overall, this study showed that pediatric dermatoses in a tertiary care hospital were shaped by both clinical and social determinants. The findings support integrated clinical care, health education, hygiene promotion, nutritional assessment and early referral between pediatrics and dermatology. Future multicentric studies with microbiological confirmation, seasonal analysis and follow-up outcomes may further improve the understanding of disease burden and intervention priorities.

Conclusion

Pediatric dermatoses in the present study showed a broad clinical spectrum, with infectious dermatoses being the most common, followed by eczematous and allergic disorders. Rural residence, lower socioeconomic status, overcrowding, poor hygiene practices and undernutrition were significantly associated with infectious dermatoses, highlighting the role of social and environmental determinants. The study also demonstrated a meaningful quality-of-life impact among children, particularly in chronic, recurrent and visible skin diseases. These findings emphasize the need for integrated dermatology–pediatrics care, hygiene education, nutritional assessment and early treatment to reduce disease burden and improve child wellbeing.

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