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"ASSESSMENT OF QUALITY OF LIFE IN CHILDREN WITH CHRONIC DERMATOLOGICAL DISORDERS USING CHILDREN'S DERMATOLOGY LIFE QUALITY INDEX (CDLQI)"

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ABSTRACT

Background: *Chronic dermatological disorders in children constitute a significant public health concern due to their persistent course, recurrent nature, visible manifestations, and psychosocial impact. These conditions not only affect physical health but also adversely influence emotional well-being, social interactions, sleep quality, academic performance, and family functioning.*

Objectives: *To assess the quality of life in children with chronic dermatological disorders using the Children's Dermatology Life Quality Index (CDLQI) and to evaluate the association between disease characteristics and quality-of-life impairment.*

Methods: *A hospital-based cross-sectional observational study was conducted at Venkateshwara Institute of Medical Sciences, Gajraula, Uttar Pradesh, over a period of 12 months. A total of 120 children aged 4–16 years with chronic dermatological disorders of more than three months' duration were enrolled. Quality of life was assessed using the CDLQI questionnaire, and data were analyzed using SPSS version 26.0.*

Results: *The mean CDLQI score was 11.42 ± 4.86, indicating a moderate impact on quality of life. Atopic dermatitis was the most common dermatological disorder, affecting 31.7% of participants. Symptoms and feelings, sleep disturbance, and leisure activities were the most affected domains. Quality-of-life impairment was significantly associated with longer disease duration and involvement of visible body sites ($p < 0.05$).*

Conclusion: *Chronic dermatological disorders have a substantial negative impact on the quality of life of affected children. Routine assessment of quality of life and a holistic management approach incorporating psychological support, parental education, and family-centered care may help improve long-term outcomes.*

Keywords: *Children's Dermatology Life Quality Index; CDLQI; Pediatric Dermatology; Quality of Life; Chronic Dermatological Disorders; Atopic Dermatitis; Psoriasis.*

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INTRODUCTION

Chronic dermatological disorders constitute a significant component of pediatric morbidity worldwide and are increasingly recognized for their multidimensional impact on the physical, emotional, and psychosocial well-being of children. Unlike acute illnesses, chronic skin diseases often persist for prolonged periods, exhibit recurrent exacerbations, and adversely affect body image, thereby influencing overall quality of life. In children, these effects are particularly pronounced during critical developmental years when self-esteem, social relationships, and academic performance are actively evolving [1].

Epidemiological studies suggest that approximately 20–30% of children worldwide are affected by dermatological disorders. In India, pediatric dermatoses account for a substantial proportion of outpatient dermatology consultations, with infections, eczema, papulosquamous disorders, pigmentary disorders, and allergic skin diseases representing the most common conditions encountered [2].

The Children's Dermatology Life Quality Index (CDLQI), developed by Lewis-Jones and Finlay in 1995, is the most widely used and validated dermatology-specific quality-of-life instrument for children aged 4–16 years. The questionnaire consists of ten items, each scored from 0 to 3, yielding a total score ranging from 0 to 30, with higher scores indicating greater impairment in quality of life [6].

The present study was undertaken to assess the quality of life among children with chronic dermatological disorders using the CDLQI in a tertiary care teaching hospital in Uttar Pradesh and to evaluate the association between disease characteristics and quality-of-life impairment.

OBJECTIVES

Primary Objective

To assess the quality of life in children with chronic dermatological disorders using the Children's Dermatology Life Quality Index (CDLQI).

Secondary Objectives

1. To determine the extent of quality-of-life impairment associated with various chronic dermatological disorders.

2. To evaluate the association of demographic and clinical variables with CDLQI scores.

3. To identify the CDLQI domains most affected by chronic dermatological disorders and their influence on the quality of life of pediatric patients.

MATERIALS AND METHODS

Study Design and Setting

This hospital-based cross-sectional observational study was conducted jointly by the Department of Dermatology, Venereology and Leprosy and the Department of Pediatrics at Venkateshwara Institute of Medical Sciences, Gajraula, Uttar Pradesh, over a period of 12 months from January 2025 to December 2025.

Sample Size and Participants

A total of 120 children aged 4–16 years with clinically diagnosed chronic dermatological disorders of more than three months' duration were enrolled in the study. The sample size was calculated using a confidence level of 95%, an allowable error of 10%, and an anticipated prevalence of quality-of-life impairment of 50%.

Sample size was calculated using the formula $\mathbf{n = Z^2pq/d^2}$, assuming a prevalence (p) of 50%, confidence level of 95% (Z = 1.96), and allowable error (d) of 10%.

Inclusion and Exclusion Criteria

Children aged 4–16 years diagnosed with chronic dermatological disorders, including atopic dermatitis, psoriasis, vitiligo, chronic fungal infections, acne vulgaris, chronic urticaria, and other persistent dermatoses, were included in the study. Children with severe systemic illnesses, psychiatric disorders, developmental disorders, cognitive impairment, or inability to comprehend the questionnaire were excluded.

Assessment Tool

Quality of life was assessed using the validated Children's Dermatology Life Quality Index (CDLQI), a dermatology-specific questionnaire designed for children aged 4–16 years [6]. The instrument consists of 10 items, each scored from 0 to 3, yielding a total score ranging from 0 to 30. CDLQI scores were interpreted as follows: 0–1 (no effect), 2–6 (small effect), 7–12 (moderate effect), 13–18 (very large effect), and 19–30 (extremely large effect) on quality of life [6].

Statistical Analysis

Data were entered into Microsoft Excel and analyzed using the Statistical Package for the Social Sciences (SPSS) version 26.0. Quantitative variables were expressed as mean ± standard deviation, whereas qualitative variables were presented as frequencies and percentages. Student's t-test was used for comparison between two groups, the Chi-square test was used for categorical variables, and one-way analysis of variance (ANOVA) was applied for comparison of mean values across more than two groups. A p-value <0.05 was considered statistically significant.

Ethical Approval

Ethical approval for the study was obtained from the Institutional Ethics Committee of Venkateshwara Institute of Medical Sciences, Gajraula, Uttar Pradesh. Written informed consent was obtained from parents or legal guardians prior to enrolment. Confidentiality and anonymity of all participants were maintained throughout the study.

RESULTS

A total of 120 children with chronic dermatological disorders were included in the study. The age of the participants ranged from 4 to 16 years, with a mean age of 10.8 ± 3.4 years. Of the total participants, 64 (53.3%) were males and 56 (46.7%) were females. Age-group distribution showed that 38 (31.7%) children were aged 4–8 years, 39 (32.5%) were aged 9–12 years, and 43 (35.8%) were aged 13–16 years. Atopic dermatitis was the most common dermatological disorder, affecting 38 (31.7%) children, followed

by psoriasis in 22 (18.3%), vitiligo in 19 (15.8%), chronic fungal infections in 16 (13.3%), acne vulgaris in 12 (10.0%), chronic urticaria in 8 (6.7%), and other chronic dermatoses in 5 (4.2%) children. The mean duration of disease was 18.6 ± 7.9 months.

Table 1. Distribution of Chronic Dermatological Disorders According to Age Group and Gender (n = 120)

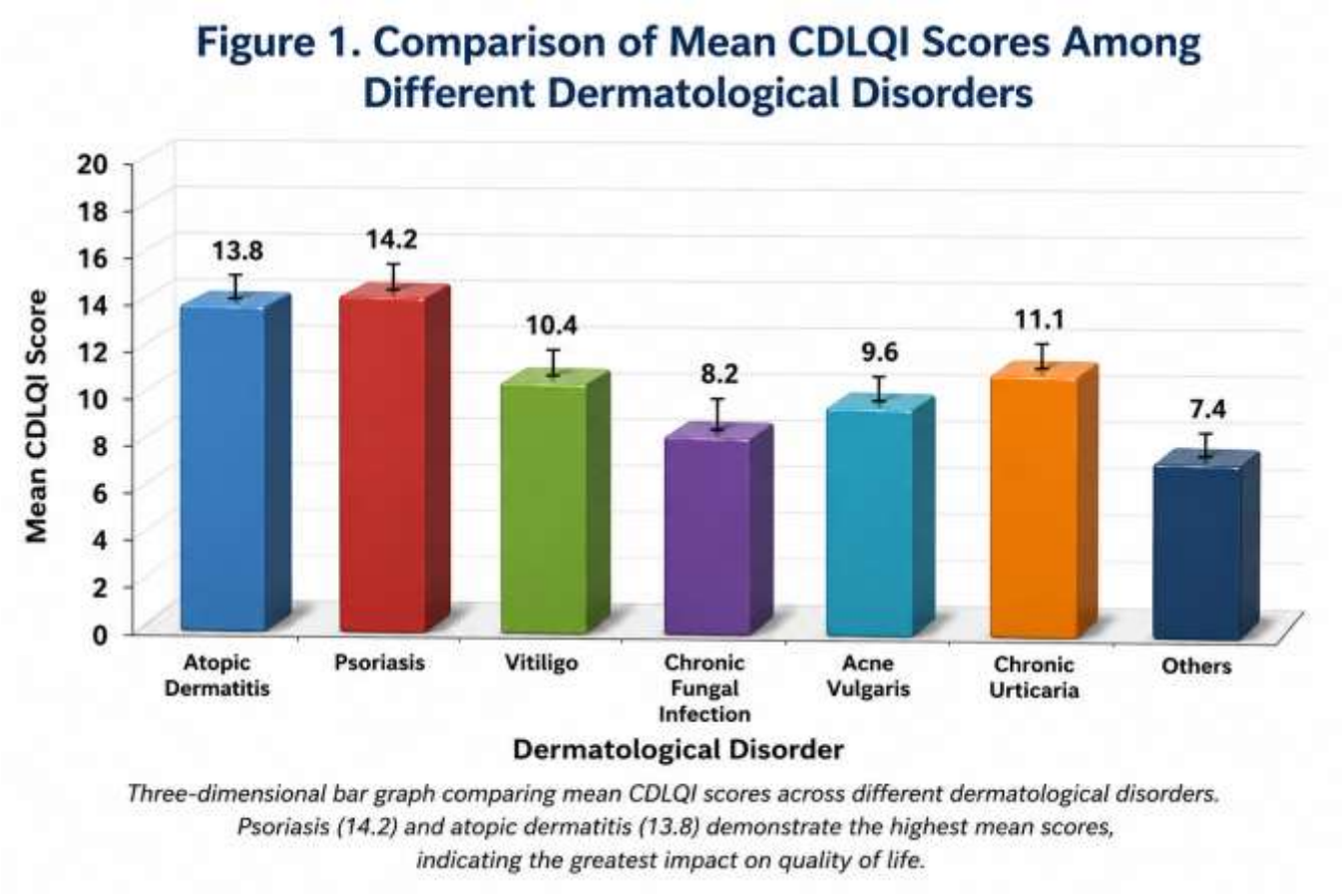
Dermatological Disorder	Male	Female	4–8 Years	9–12 Years	13–16 Years	Total (%)
Atopic Dermatitis	22	16	18	13	7	38 (31.7)
Psoriasis	11	11	4	8	10	22 (18.3)
Vitiligo	7	12	3	6	10	19 (15.8)
Chronic Fungal Infection	10	6	5	7	4	16 (13.3)
Acne Vulgaris	4	8	0	2	10	12 (10.0)
Chronic Urticaria	6	2	4	2	2	8 (6.7)
Others	4	1	4	1	0	5 (4.2)
Total	**64**	**56**	**38**	**39**	**43**	**120 (100)**

Interpretation: Atopic dermatitis was the most prevalent chronic dermatological disorder, followed by psoriasis and vitiligo. Most participants belonged to the 13–16 years age group (35.8%), followed by the 9–12 years (32.5%) and 4–8 years (31.7%) age groups.

Table 2. Mean CDLQI Scores According to Type of Dermatological Disorder

Dermatological Disorder	Mean CDLQI Score ± SD	Minimum Score	Maximum Score	Interpretation
Atopic Dermatitis	13.8 ± 4.1	6	24	Very Large Effect
Psoriasis	14.2 ± 4.6	7	25	Very Large Effect
Vitiligo	10.4 ± 3.7	4	19	Moderate Effect
Chronic Fungal Infection	8.2 ± 2.9	3	15	Moderate Effect
Acne Vulgaris	9.6 ± 3.5	5	16	Moderate Effect
Chronic Urticaria	11.1 ± 4.0	5	18	Moderate Effect
Others	7.4 ± 2.1	3	11	Small to Moderate Effect

Interpretation: Children with psoriasis and atopic dermatitis demonstrated the highest CDLQI scores, indicating a substantial negative impact on quality of life.



Three-dimensional bar graph comparing mean CDLQI scores across different dermatological disorders. Psoriasis (14.2) and atopic dermatitis (13.8) demonstrate the highest mean scores, indicating the greatest impact on quality of life.

Table 3. Domain-wise CDLQI Assessment Among Study Participants

CDLQI Domain	Mean Score ± SD	Percentage Contribution (%)
Symptoms and Feelings	3.4 ± 1.1	28.3
Leisure Activities	2.1 ± 0.9	17.5
School or Holidays	1.8 ± 0.8	15.0
Personal Relationships	1.4 ± 0.7	11.7
Sleep Disturbance	2.5 ± 1.0	20.8
Treatment-related Problems	0.8 ± 0.5	6.7

Interpretation: Symptoms and feelings constituted the most affected domain, followed by sleep disturbance and leisure activities.

Quality-of-life impairment increased significantly with increasing disease duration. The mean CDLQI score increased from 7.2 ± 2.8 among children with disease duration of 3–6 months to 10.1 ± 3.6 among

those with disease duration of 7–12 months and 14.2 ± 3.9 among those with disease duration exceeding 12 months. One-way ANOVA demonstrated a statistically significant association between disease duration and quality-of-life impairment ($p < 0.001$).

Children with lesions involving the face and neck (mean CDLQI score: 15.1 ± 4.2) and those with generalized lesions (mean CDLQI score: 16.3 ± 4.8) demonstrated significantly greater quality-of-life impairment than children with lesions confined to the upper limbs (10.2 ± 3.5), lower limbs (8.9 ± 2.7), or trunk (9.4 ± 3.1) ($p < 0.001$).

Gender-wise analysis revealed significantly higher mean CDLQI scores among female children compared to male children (12.9 ± 4.8 vs. 10.2 ± 4.1; $p = 0.012$), indicating greater psychosocial impairment among females.

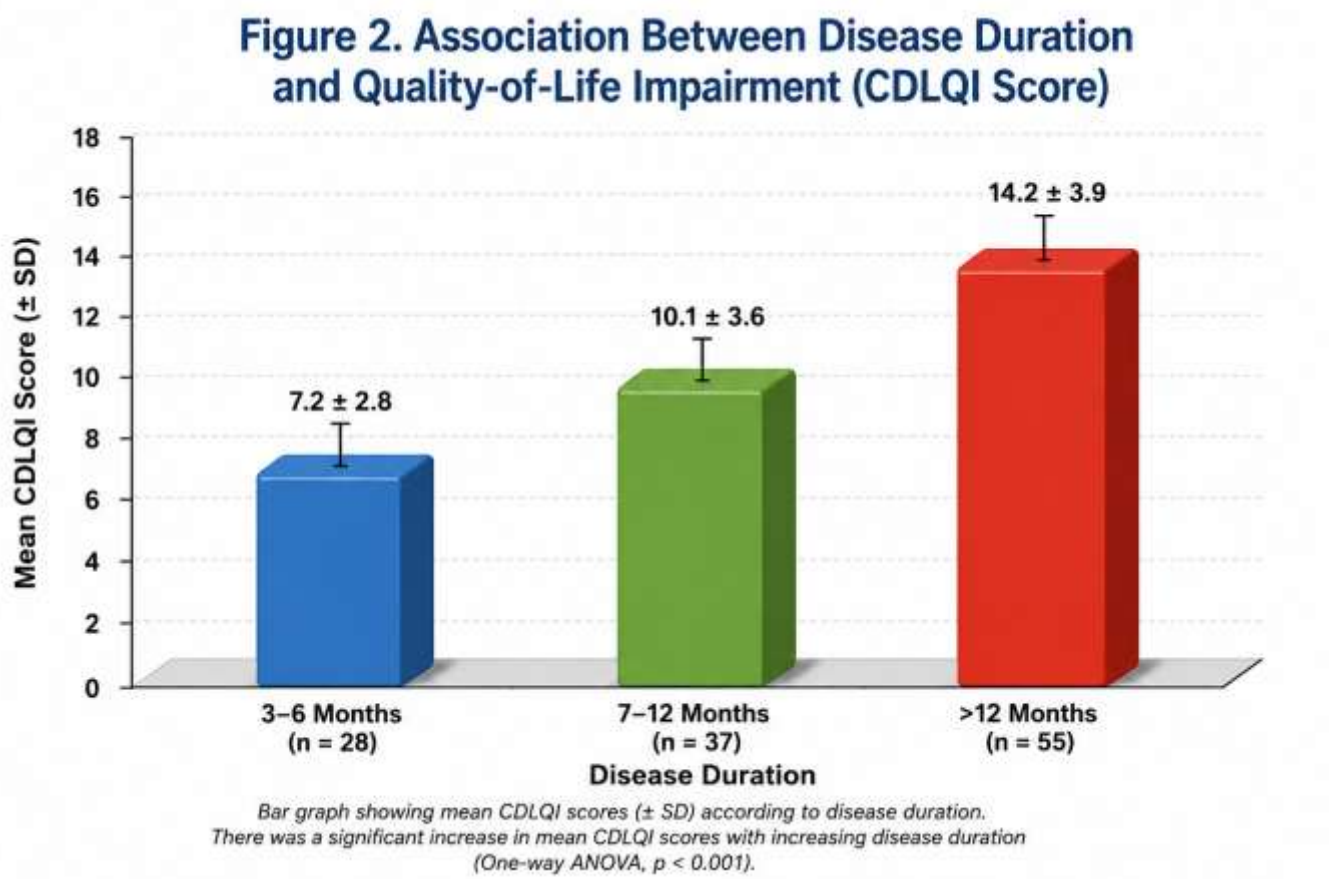
Table 4. Association Between Disease Duration and Quality-of-Life Impairment

Disease Duration	**Number of Patients (%)**	**Mean CDLQI Score ± SD**	**p-value**
3–6 Months	28 (23.3)	7.2 ± 2.8	
7–12 Months	37 (30.8)	10.1 ± 3.6	
>12 Months	55 (45.8)	14.2 ± 3.9	<0.001*
Total	**120 (100)**	**11.42 ± 4.86**	

*Statistically significant ($p < 0.05$)

Interpretation: Quality-of-life impairment increased significantly with increasing disease duration. Children with disease duration greater than 12 months demonstrated the highest mean CDLQI scores, indicating a greater psychosocial burden.

Disease duration was categorized as 3–6 months in 28 (23.3%) children, 7–12 months in 37 (30.8%) children, and more than 12 months in 55 (45.8%) children. A significant increase in mean CDLQI scores was observed with increasing disease duration ($p < 0.001$), indicating greater quality-of-life impairment among children with longer disease duration.



DISCUSSION

The present study evaluated the quality of life among children with chronic dermatological disorders using the Children's Dermatology Life Quality Index (CDLQI). The mean CDLQI score of 11.42 ± 4.86 indicated a moderate degree of quality-of-life impairment, which is consistent with findings reported in previous national and international studies. Beattie and Lewis-Jones reported that chronic inflammatory skin disorders significantly affect emotional well-being, sleep quality, and social functioning in children [9]. Similarly, Salek et al. demonstrated moderate-to-severe quality-of-life impairment among children suffering from chronic eczema and psoriasis [10].

Atopic dermatitis was the most common dermatological disorder in the present study, accounting for nearly one-third of all cases. The chronic and relapsing nature of the disease, persistent pruritus, sleep disturbances, and prolonged treatment requirements contribute substantially to psychosocial morbidity. Previous studies have shown that sleep disruption adversely affects concentration, academic performance, mood, and behavioral functioning in children [11].

Children with psoriasis demonstrated comparatively higher CDLQI scores, indicating a greater psychosocial burden. Visible skin lesions, social embarrassment, stigmatization, and concerns regarding physical appearance may contribute to reduced self-esteem and impaired social interaction. Bilgic et al.

reported that children with psoriasis frequently experience anxiety, social withdrawal, and diminished self-confidence [12].

Vitiligo also contributed significantly to quality-of-life impairment, particularly among adolescents with facial involvement. Social stigma, cosmetic concerns, and fear of peer rejection may adversely affect emotional well-being and social participation in affected children [13].

Symptoms and feelings constituted the most severely affected CDLQI domain in the present study. Sleep disturbance was another prominently affected domain, reflecting the impact of chronic itching and discomfort associated with inflammatory dermatoses. Such disturbances may negatively influence cognitive development, academic achievement, and emotional regulation [14,15].

A statistically significant association was observed between disease duration and quality-of-life impairment ($p < 0.001$), with children experiencing disease duration greater than 12 months demonstrating higher CDLQI scores than those with shorter disease duration [16]. This finding suggests that prolonged disease exposure may increase psychosocial stress and adversely affect overall well-being.

Female children demonstrated significantly higher CDLQI scores than male children, indicating greater psychosocial impairment. This observation may be related to sociocultural influences, greater concern regarding physical appearance, and increased emotional sensitivity during childhood and adolescence [17].

Children with lesions involving visible body sites, particularly the face and neck, as well as those with generalized skin involvement, demonstrated significantly greater quality-of-life impairment. The strengths of the present study include the use of a validated quality-of-life assessment tool, inclusion of a broad spectrum of chronic dermatological disorders, and generation of region-specific data from North India. However, the study was limited by its single-center design and the absence of dedicated psychological assessment scales for evaluating associated psychiatric comorbidities [18]. The majority of participants belonged to the older pediatric age group (13–16 years), suggesting that chronic dermatological disorders and their psychosocial consequences become increasingly evident during late childhood and adolescence.

CONCLUSION

Chronic dermatological disorders exert a substantial negative impact on the quality of life of affected children, particularly in emotional, symptomatic, and social domains. Moderate-to-severe quality-of-life impairment was observed in the majority of participants, with a greater burden among children with prolonged disease duration and visible skin involvement.

The Children's Dermatology Life Quality Index (CDLQI) proved to be an effective and practical instrument for assessing psychosocial morbidity in pediatric dermatology patients. Routine assessment of quality of life in clinical practice may facilitate comprehensive patient-centered care and enable early identification of psychosocial concerns requiring appropriate intervention.

A holistic management approach integrating appropriate dermatological treatment, psychological counseling, parental education, and social support is essential for improving the overall well-being and long-term outcomes of children living with chronic dermatological disorders.

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