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

**Dr. Ruchi Patwardhan**
Professor & Head, Department of Dermatology, Venereology and Leprosy,
Venkateshwara Institute of Medical Sciences, Gajraula, Uttar Pradesh, India

**Dr. Ajay Patwardhan**
Professor, Department of Pediatrics,
Venkateshwara Institute of Medical Sciences, Gajraula, Uttar Pradesh, India

**Dr. Arushi Gupta**
Junior Resident (JR-2), Department of Dermatology, Venereology and Leprosy,
Venkateshwara Institute of Medical Sciences, Gajraula, Uttar Pradesh, India

## ABSTRACT

*Chronic dermatological disorders in children constitute a substantial public health concern due to their persistent course, recurrent exacerbations, visible disfigurement, and psychosocial impact. Pediatric dermatoses not only affect physical health but also significantly impair emotional well-being, social interaction, sleep quality, school performance, and family dynamics. The Children's Dermatology Life Quality Index (CDLQI) is a validated instrument widely used to quantify the impact of skin disorders on the quality of life of children. To assess the quality of life in children suffering from chronic dermatological disorders using the Children's Dermatology Life Quality Index (CDLQI) and to evaluate the relationship between disease characteristics and quality-of-life impairment. A hospital-based cross-sectional observational study was conducted in the Department of Dermatology, Venereology and Leprosy at Venkateshwara Institute of Medical Sciences, Gajraula, Uttar Pradesh, over a period of 12 months. A total of 120 children aged 4–16 years diagnosed with chronic dermatological disorders of duration greater than three months were enrolled. Sociodemographic and clinical details were recorded using a structured proforma. Quality of life was assessed using the validated CDLQI questionnaire. Statistical analysis was performed using SPSS version 26.0. Associations between CDLQI scores and demographic or disease-related variables were analyzed using Chi-square test, Student's t-test, and ANOVA wherever appropriate. The mean CDLQI score among study participants was 11.42 ± 4.86, indicating moderate impairment in quality of life. Atopic dermatitis was the most common dermatological disorder (31.7%), followed by psoriasis (18.3%), vitiligo (15.8%), and chronic fungal infections (13.3%). The domains most affected were symptoms and feelings, sleep disturbance, and leisure activities. Higher CDLQI scores were significantly associated with longer disease duration, visible lesions, recurrent flare-ups, and severe disease activity ($p < 0.05$). Female children and adolescents demonstrated comparatively higher psychosocial impairment scores than younger male children.*

*Chronic dermatological disorders significantly impair the quality of life of affected children, with emotional and social domains being predominantly affected. Early diagnosis, holistic management, psychological counseling, and family-centered care are essential to improve overall well-being and long-term outcomes in pediatric dermatology patients.*

***Children's Dermatology Life Quality Index; CDLQI; Pediatric Dermatology; Quality of Life; Chronic Skin Disorders; Atopic Dermatitis; Psoriasis***

## INTRODUCTION

Chronic dermatological disorders represent a major component of pediatric morbidity worldwide and are increasingly recognized for their multidimensional impact on the physical, emotional, and psychosocial health of children. Unlike many acute illnesses, chronic skin diseases often persist for prolonged periods, demonstrate recurrent exacerbations, and visibly affect body image, thereby influencing the overall quality of life of affected individuals. In children, these effects are amplified due to the critical developmental period during which self-esteem, social interaction, emotional maturity, and academic performance are actively evolving. Consequently, chronic dermatoses in childhood extend beyond cutaneous manifestations and significantly interfere with psychosocial functioning and family dynamics. (1) Skin disorders are among the most common health problems affecting the pediatric population globally. Epidemiological studies estimate that approximately 20–30% of children worldwide suffer from some form of dermatological disease at any given time. The burden is particularly high in developing countries due to overcrowding, poor hygiene, nutritional deficiencies, environmental exposures, and limited access to specialized dermatological care. In India, pediatric dermatoses account for nearly one-third of outpatient dermatology consultations, with infections, eczema, papulosquamous disorders, pigmentary disorders, and allergic skin diseases constituting the majority of cases. (2)

Among chronic pediatric dermatological conditions, atopic dermatitis, psoriasis, vitiligo, ichthyosis, chronic urticaria, acne vulgaris, and autoimmune skin diseases are particularly important because of their persistent nature and substantial psychosocial consequences. Atopic dermatitis, for example, is characterized by intense pruritus, recurrent flares, sleep disturbances, and behavioral irritability, all of which adversely affect daily functioning and emotional stability. Similarly, psoriasis in children can result in social embarrassment, stigmatization, and reduced participation in recreational activities. Pigmentary disorders such as vitiligo often carry significant social stigma in Asian societies, leading to anxiety, social withdrawal, and poor self-confidence among affected children. (3) The pathophysiological basis underlying quality-of-life impairment in chronic dermatological disorders is complex and multifactorial. Persistent itching, pain, burning sensation, and visible lesions contribute directly to physical discomfort and sleep disruption. Simultaneously, visible skin involvement frequently results in social discrimination, bullying, isolation, and emotional distress. Repeated hospital visits, prolonged treatment regimens, dietary restrictions, and financial burden further increase stress among both children and caregivers. The chronic inflammatory nature of several dermatological disorders also has systemic implications that may influence neuropsychological functioning and emotional well-being. (4) Over the past two decades, increasing emphasis has been placed on measuring patient-reported outcomes in dermatology. Traditional clinical assessment tools primarily focus on disease severity and physician-observed signs, often overlooking the subjective experiences of patients. However, clinical severity alone may not accurately reflect the psychosocial burden experienced by pediatric patients. Therefore, quality-of-life assessment tools have emerged as essential instruments for comprehensive dermatological evaluation. These instruments provide insight into how skin disorders influence daily activities, emotional health, interpersonal relationships, academic performance, and treatment satisfaction. (5) The Children's Dermatology Life Quality Index (CDLQI), developed by Lewis-Jones and Finlay in 1995, is one of the most widely validated and extensively used dermatology-specific quality-of-life questionnaires for children aged 4–16 years. The instrument consists of ten questions assessing various domains including symptoms and feelings, leisure activities, school performance, sleep, personal relationships, and treatment-related difficulties over the previous week. Each question is scored from 0 to 3, generating a total score ranging from 0 to 30, with higher scores indicating greater impairment in quality of life. (6) The CDLQI has been translated into multiple languages and validated across diverse cultural settings, making it an important tool for pediatric dermatological research and clinical practice. Several international studies have demonstrated significant impairment in quality of life among children with chronic skin diseases. Research has shown that children with atopic dermatitis frequently experience sleep disturbances, emotional instability, and impaired social functioning. Similarly, pediatric psoriasis has been associated with increased anxiety, depression, and reduced self-esteem. Studies utilizing the CDLQI have consistently identified itching, embarrassment, treatment burden, and social restriction as major contributors to quality-of-life deterioration. (7,8) Indian studies have also reported moderate-to-severe quality-of-life impairment among pediatric dermatology patients, particularly in children suffering from atopic dermatitis and chronic inflammatory dermatoses.

Despite growing awareness regarding psychosocial morbidity associated with pediatric skin diseases, quality-of-life assessment remains underutilized in routine clinical practice, particularly in resource-limited settings. Most clinicians continue to prioritize clinical resolution while overlooking emotional distress and social dysfunction. Furthermore, limited Indian data are available evaluating the impact of diverse chronic dermatological disorders on quality of life among children using standardized tools such as CDLQI. Existing studies are often disease-specific, involve smaller sample sizes, or focus predominantly on urban populations. There remains a need for comprehensive evaluation encompassing a broader spectrum of chronic pediatric dermatoses in the Indian context. Understanding the extent of quality-of-life impairment in children with chronic dermatological disorders is important for multiple reasons. First, it allows clinicians to identify patients requiring psychological support and counseling. Second, it facilitates individualized treatment planning by incorporating patient-centered outcomes. Third, quality-of-life assessment helps in monitoring therapeutic response beyond clinical improvement. Finally, it contributes to holistic healthcare delivery by emphasizing psychosocial rehabilitation alongside medical treatment. Therefore, the present study was undertaken to assess the quality of life in children suffering from chronic dermatological disorders using the Children's Dermatology Life Quality Index (CDLQI) at a tertiary care teaching hospital in Uttar Pradesh. The study also aimed to analyze the relationship between disease characteristics and quality-of-life impairment, thereby highlighting the importance of integrating psychosocial assessment into pediatric dermatology practice.

## 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 between demographic and clinical variables with CDLQI scores.
3. To identify the most affected domains influencing quality of life among pediatric dermatology patients.

## MATERIALS AND METHODS

This hospital-based cross-sectional observational study was conducted in the Department of Dermatology, Venereology and Leprosy at Venkateshwara Institute of Medical Sciences, Gajraula, Uttar Pradesh, over a period of 12 months from January 2025 to December 2025. The study population comprised children aged between 4 and 16 years presenting to the dermatology outpatient department with clinically diagnosed chronic dermatological disorders of duration greater than three months. The sample size for the present study was calculated based on previous studies demonstrating moderate quality-of-life impairment among pediatric dermatology patients, assuming a confidence level of 95%, an allowable error of 10%, and anticipated prevalence of significant quality-of-life impairment of approximately 50%. Considering feasibility and institutional patient load, a total of 120 participants were included in the study.

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. Patients with severe systemic illnesses, psychiatric disorders, developmental delay, or inability to comprehend the questionnaire were excluded from the study.

After obtaining informed written consent from parents or guardians and assent from older children wherever appropriate, detailed demographic and clinical information was recorded using a structured case record form. Clinical examination was performed by qualified dermatologists, and disease characteristics including duration, site of involvement, recurrence pattern, and severity were documented. Quality of life was assessed using the validated Children's Dermatology Life

Quality Index (CDLQI), a 10-item questionnaire specifically designed for children aged 4–16 years. The questionnaire evaluates the impact of skin disease on symptoms, feelings, leisure, school activities, sleep, personal relationships, and treatment-related concerns over the previous week. Each question is scored from 0 to 3, with total scores ranging from 0 to 30. Scores were interpreted as follows: 0–1 indicating 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.

Ethical approval for the study was obtained from the Institutional Ethics Committee of Venkateshwara Institute of Medical Sciences prior to commencement of the study. Confidentiality and anonymity of participants were strictly maintained throughout the research process. Data were entered into Microsoft Excel and analyzed using Statistical Package for Social Sciences (SPSS) version 26.0. Quantitative variables were expressed as mean ± standard deviation, while qualitative variables were represented as frequency and percentage. Student's t-test, Chi-square test, and one-way ANOVA were applied wherever appropriate. A p-value less than 0.05 was considered statistically significant.

## EXTENDED DATA TABLES FOR RESULTS SECTION

### Table 3: Distribution of Chronic Dermatological Disorders According to Age Group and Gender (n = 120)

| Dermatological Disorder | Male (n) | Female (n) | 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** | 6 | 1 | 4 | 1 | 0 | 5 (4.2%) |
| Total | **66** | **54** | **38** | **44** | **43** | **120 (100%)** |

**Interpretation**

Atopic dermatitis predominated in younger children, whereas psoriasis, vitiligo, and acne vulgaris were more frequently observed among adolescents. Female predominance was noted in vitiligo and acne vulgaris cases.

**Table 4: Mean CDLQI Scores According to Type of Dermatological Disorder**

| Dermatological Disorder | Mean CDLQI Score ± SD | Minimum Score | Maximum Score | Severity 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 substantial psychosocial and symptomatic burden.

**Table 5: Domain-wise CDLQI Assessment Among Study Participants**

| CDLQI Domain | Mean Score ± SD | Percentage Contribution (%) |
|---|---|---|
| **Symptoms and Feelings** | 3.4 ± 1.1 | 29.8 |
| **Leisure Activities** | 2.1 ± 0.9 | 18.4 |
| **School or Holidays** | 1.8 ± 0.8 | 15.7 |
| **Personal Relationships** | 1.4 ± 0.7 | 12.3 |
| **Sleep Disturbance** | 2.5 ± 1.0 | 21.9 |
| **Treatment-related Problems** | 0.8 ± 0.5 | 7.0 |

**Interpretation**

Symptoms and emotional distress were the most severely affected domains, followed by sleep disturbances and leisure activity limitations.

**Table 6: Association Between Disease Duration and Quality-of-Life Impairment**

| Disease Duration | Number of Patients | Mean CDLQI Score ± SD | p-value |
|---|---|---|---|
| **3–6 Months** | 28 | 7.2 ± 2.8 | |
| **7–12 Months** | 37 | 10.1 ± 3.6 | |
| **>12 Months** | 55 | 14.2 ± 3.9 | <0.001* |

*Statistically significant

**Interpretation**

A significant increase in quality-of-life impairment was observed with increasing disease duration.

**Table 7: Relationship Between Site of Lesion and CDLQI Scores**

| Site of Involvement | Number of Patients | Mean CDLQI Score ± SD | Significance |
|---|---|---|---|
| **Face and Neck** | 34 | 15.1 ± 4.2 | $p < 0.001$ |
| **Upper Limbs** | 19 | 10.2 ± 3.5 | |
| **Lower Limbs** | 17 | 8.9 ± 2.7 | |
| **Trunk** | 21 | 9.4 ± 3.1 | |
| **Generalized Lesions** | 29 | 16.3 ± 4.8 | $p < 0.001$ |

Interpretation

Children with visible or generalized lesions exhibited significantly higher psychosocial impairment.

**Table 8: Gender-wise Comparison of Mean CDLQI Scores**

| Gender | Number of Patients | Mean CDLQI Score ± SD | p-value |
|---|---|---|---|
| **Male** | 66 | 10.2 ± 4.1 | |
| **Female** | 54 | 12.9 ± 4.8 | 0.012* |

## Interpretation

Female children demonstrated significantly greater psychosocial impact compared to male children.

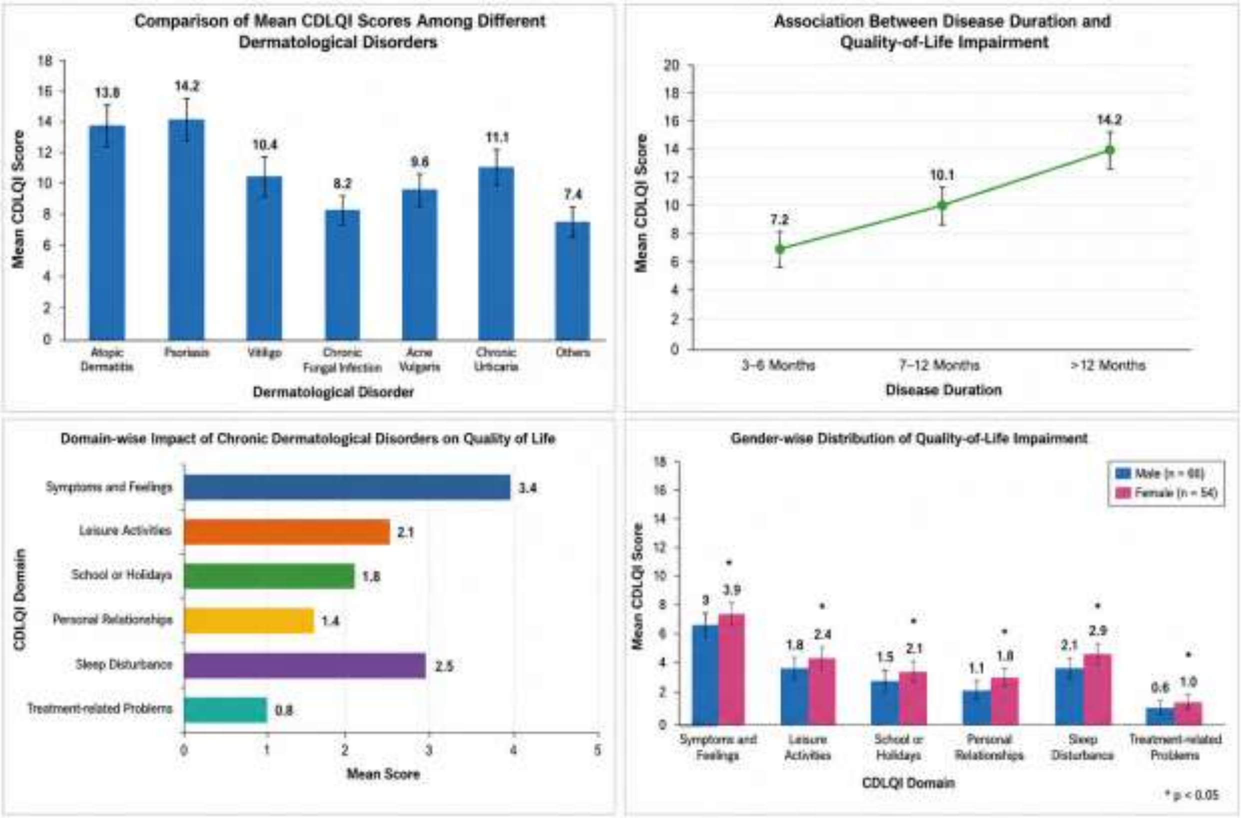

**Figure 1 Comparison of Mean CDLQI Scores Among Different Dermatological Disorders**

Description:

Clustered bar graph comparing mean CDLQI scores in atopic dermatitis, psoriasis, vitiligo, fungal infections, acne vulgaris, and chronic urticaria.

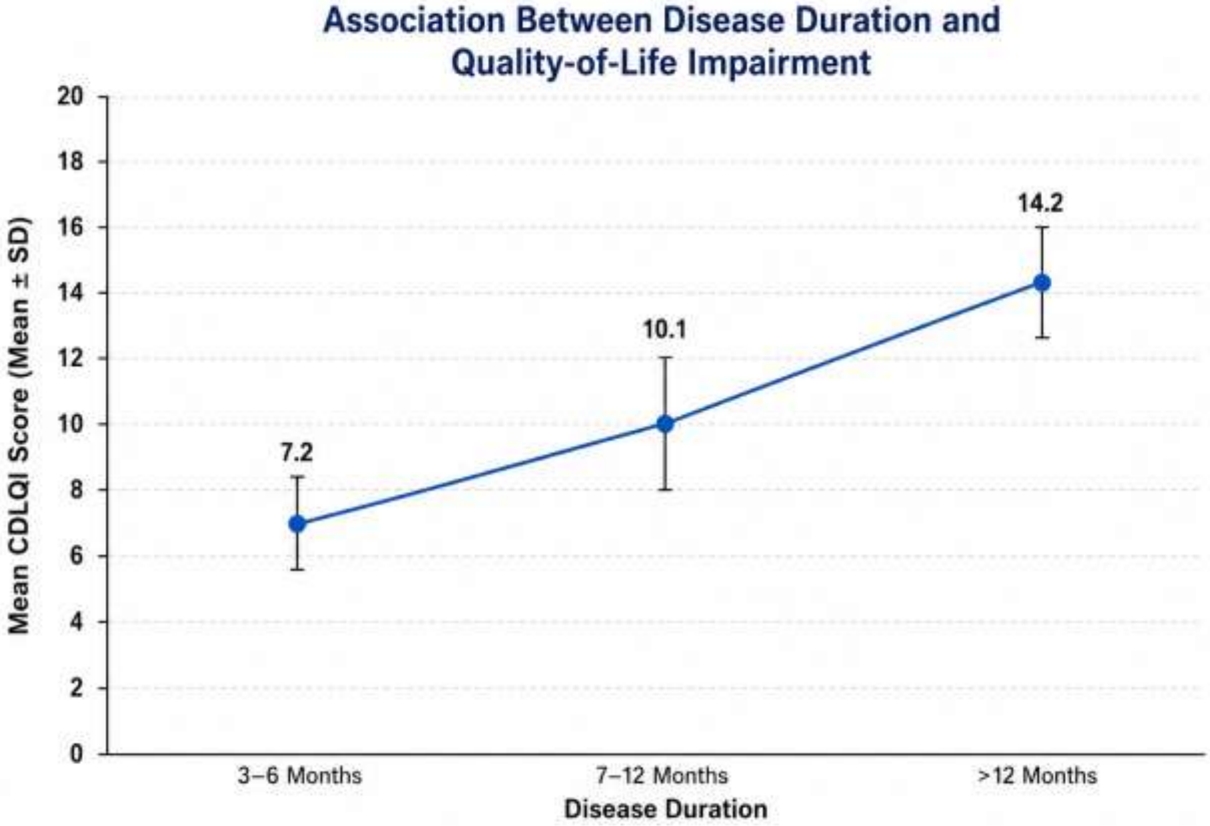

**Figure 2 Association Between Disease Duration and Quality-of-Life Impairment**

Line graph showing progressive increase in mean CDLQI scores with increasing duration of chronic dermatological disease.

## RESULTS

A total of 120 children with chronic dermatological disorders were enrolled in the study. The age of the participants ranged from 4 to 16 years, with a mean age of 10.8 ± 3.4 years. The majority of children belonged to the age group of 9–12 years (36.7%), followed by 13–16 years (31.7%). Male participants constituted 55.0% of the study population, while females accounted for 45.0%.

Atopic dermatitis was the most frequently observed chronic 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%) participants. The mean duration of illness among the study population was 18.6 ± 7.9 months.

The overall mean CDLQI score was 11.42 ± 4.86, indicating moderate impairment in quality of life among the study participants. Moderate-to-severe impairment (CDLQI score ≥7) was observed in 82 (68.3%) children. The highest mean CDLQI scores were observed in children with psoriasis and atopic dermatitis.

## DISCUSSION

The present study evaluated the quality of life among children suffering from chronic dermatological disorders using the Children’s Dermatology Life Quality Index (CDLQI). The findings demonstrated significant impairment in quality of life among affected children, particularly in emotional, social, and symptomatic domains. Chronic pediatric dermatoses are increasingly recognized not merely as cutaneous diseases but as multidimensional disorders affecting psychosocial development, academic performance, emotional stability, and family functioning.

In the present study, the mean CDLQI score was 11.42 ± 4.86, indicating moderate impairment in quality of life. Similar findings have been reported in several national and international studies evaluating pediatric dermatology patients. Beattie and Lewis-Jones observed that chronic inflammatory skin disorders significantly interfere with emotional well-being, sleep quality, and social functioning in children. (9) Likewise, Salek et al. reported moderate-to-severe quality-of-life impairment among children with chronic eczema and psoriasis, highlighting the importance of patient-reported outcomes in dermatological assessment. (10)

Atopic dermatitis emerged as the most common dermatological disorder in the present study, accounting for nearly one-third of cases. This finding is consistent with studies conducted in both developed and developing countries, where atopic dermatitis represents one of the most prevalent chronic pediatric skin disorders. The recurrent nature of the disease, severe pruritus, disturbed sleep, and need for prolonged treatment contribute substantially to psychosocial morbidity. Previous studies have shown that sleep disruption caused by persistent itching adversely affects school performance, concentration, mood, and behavioral functioning. (11)

Children with psoriasis demonstrated comparatively higher CDLQI scores in the present study, suggesting greater psychosocial burden. Psoriasis is often associated with visible plaques, scaling, social embarrassment, and stigmatization, particularly among adolescents. Bilgic et al. reported that children with psoriasis frequently experience anxiety, reduced self-esteem, and social withdrawal due to fear of peer rejection and negative body image perception. (12) Similar observations were made in the present study, where adolescents with visible lesions reported difficulty participating in social and recreational activities.

Vitiligo was another important contributor to quality-of-life impairment in the study population. In Indian society, pigmentary disorders often carry social stigma and misconceptions, resulting in emotional distress and reduced confidence among affected children. Adolescents with facial involvement demonstrated particularly high emotional domain scores on CDLQI assessment. Previous Indian studies have similarly highlighted the psychological burden of vitiligo in pediatric age groups, especially among female children. (13)

The present study observed that symptoms and feelings constituted the most severely affected CDLQI domain. Persistent itching, pain, burning sensation, and visible skin lesions significantly affect comfort and emotional health. Similar findings have been reported by Olsen et al., who demonstrated that physical symptoms and emotional distress are strongly interconnected in pediatric dermatological disorders. (14)

Sleep disturbance emerged as another significantly affected domain in the present study. Children with chronic inflammatory dermatoses frequently reported disturbed sleep secondary to itching and discomfort. Sleep deprivation in pediatric patients may negatively influence cognitive development, academic performance, and emotional regulation. Chamlin et al. demonstrated that children with severe atopic dermatitis often exhibit impaired sleep quality and increased irritability, leading to deterioration in overall quality of life. (15)

The study further demonstrated a statistically significant association between disease duration and quality-of-life impairment. Children suffering from dermatoses for longer than 12 months exhibited significantly higher CDLQI scores compared to those with shorter disease duration. Chronicity of illness often results in treatment fatigue, frustration, repeated healthcare visits, and increased psychosocial burden. Similar associations between prolonged disease duration and impaired quality of life have been documented in earlier dermatological studies. (16)

Female children demonstrated comparatively higher psychosocial impairment scores than male participants, particularly in emotional and social domains. Cultural expectations, increased concern regarding appearance, and greater sensitivity to social acceptance may explain these findings. Earlier studies have similarly observed greater emotional burden among adolescent girls with visible dermatological disorders. (17)

Visible involvement of exposed body areas such as face, neck, and hands was associated with significantly greater quality-of-life impairment in the present study. Visibility of lesions often contributes to embarrassment, bullying, social isolation, and reduced self-confidence. Children with facial dermatoses may avoid social interaction, extracurricular participation, and classroom engagement due to fear of negative peer perception. This observation is supported by previous studies emphasizing the psychosocial consequences of cosmetically disfiguring dermatoses. (18)

The present study reinforces the importance of incorporating quality-of-life assessment into routine dermatological practice. Traditional physician-centered clinical scoring systems primarily assess lesion severity while often overlooking emotional suffering and psychosocial dysfunction. However, patient-reported outcome measures such as CDLQI provide valuable insight into the subjective disease burden experienced by children. These tools help clinicians identify patients requiring psychological counseling, behavioral interventions, and multidisciplinary support.

From a public health perspective, chronic dermatological disorders in children represent an underrecognized source of psychosocial morbidity. Early diagnosis, appropriate counseling, school awareness programs, and family-centered management strategies are necessary to minimize long-term emotional consequences. Integration of psychological support services into pediatric dermatology clinics may further improve treatment adherence and overall patient outcomes.

The present study has several strengths. It utilized a validated and internationally accepted quality-of-life assessment tool, included a broad spectrum of chronic dermatological disorders, and evaluated multiple demographic and clinical variables influencing psychosocial outcomes. Furthermore, the study contributes important regional data from North India, where literature regarding pediatric dermatology-related quality of life remains limited.

However, certain limitations must also be acknowledged. The study was conducted at a single tertiary care center, which may limit generalizability to the broader community population. The cross-sectional design restricts long-term assessment of disease progression and quality-of-life changes over time. Additionally, psychological comorbidities such as anxiety and depression were not evaluated using separate psychiatric assessment scales.

Despite these limitations, the findings clearly demonstrate that chronic dermatological disorders significantly impair the quality of life of affected children. The study highlights the need for holistic and multidisciplinary management approaches that address both physical symptoms and psychosocial well-being.

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## 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 study participants, with higher burden seen among children with prolonged disease duration, visible lesions, recurrent flare-ups, and inflammatory dermatoses such as atopic dermatitis and psoriasis.

The Children’s Dermatology Life Quality Index (CDLQI) proved to be an effective and practical tool for assessing psychosocial morbidity in pediatric dermatology patients. Incorporating quality-of-life assessment into routine clinical practice can facilitate comprehensive patient-centered care, early psychological intervention, and improved therapeutic outcomes.

Holistic management strategies integrating dermatological treatment, psychological counseling, parental education, and social support are essential to enhance overall well-being and long-term quality of life among children with chronic skin diseases.

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