Original Article

The Quality of Life and its Relationship to Disease Severity in Children with Atopic Dermatitis

Mariam Khurshid[1], Shayan Rizwan[2], Muneeza Rizwan[3], Sajida Bibi[4]

Abstract

Background: Atopic dermatitis (AD) is a common chronic inflammatory skin condition in children, characterized by pruritus, recurrent eczematous lesions, and fluctuating severity. Beyond its dermatological manifestations, AD imposes a significant psychosocial and functional burden on patients and their families.

Objective: This study aimed to determine the correlation between quality of life and disease severity among Pakistani children with atopic dermatitis.

Methods: This descriptive cross-sectional study was conducted in the Department of Dermatology, Pakistan Airforce (PAF) Hospital, Islamabad, over six months (January–June 2022). Seventy children aged 5–15 years, diagnosed with AD by Hanifin and Rajka criteria, were enrolled. Disease severity was assessed using the Scoring of Atopic Dermatitis (SCORAD) index, and quality of life was measured using the Children's Dermatology Life Quality Index (CDLQI). Data were analyzed using SPSS version 25, with Pearson's correlation applied to evaluate relationships between SCORAD and CDLQI scores.

Results: The mean age of participants was 10.2±2.8 years. According to SCORAD, 22.9% had mild, 70% moderate, and 7.1% severe disease. The mean SCORAD and CDLQI scores were 25.3 ± 8.0 and 9.8 ± 4.0, respectively. A statistically significant positive correlation was observed between disease severity and quality-of-life impairment ($r = 0.289$, $p = 0.015$).

Conclusion: Greater disease severity is associated with a higher degree of quality-of-life impairment among Pakistani children with atopic dermatitis. Regular use of standardized tools such as SCORAD and CDLQI can help clinicians identify patients requiring holistic care, including psychological and social support.

Keywords: Atopic dermatitis, Child, Dermatology, Pakistan, Quality of life, Severity of illness index.

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Authors Affiliation: [1-4]Department of Dermatology, PAF Hospital Islamabad, Fazaia Medical College, Air University
Corresponding Author: Dr. Sajida Bibi, Senior Registrar, Department of Dermatology, PAF Hospital Islamabad, Fazaia Medical College, Air University
Email: dr.sj97@gmail.com

Introduction

Atopic dermatitis (AD) is a prevalent chronic inflammatory skin disorder in children, marked by recurrent pruritic eczematous lesions and periods of remission. It significantly affects physical and psychological health, often impairing sleep, social interaction, and overall quality of life. Globally, atopic dermatitis (AD) affects approximately 15–20% of the pediatric population, making it one of the most common chronic inflammatory skin disorders in children.[1,2] In Asia, multicenter epidemiological studies have reported prevalence rates as high as 17%, attributed largely to increasing urbanization, industrialization, and environmental change across developing regions.[3]

Beyond the dermatologic manifestations, atopic dermatitis (AD) imposes significant emotional distress and psychosocial burden on affected children and their families. Sleep loss, poor school

performance, and social withdrawal are common consequences.[4,5] Family members also experience elevated stress and financial strain, further amplifying the disease burden.[7]

Several studies have demonstrated a clear link between disease severity and quality of life using validated tools like the Scoring of Atopic Dermatitis (SCORAD) and Children's Dermatology Life Quality Index (CDLQI).[8 9 10] However, local data from Pakistan remain limited despite the increasing prevalence and psychosocial implications of AD in the pediatric population.

Quality of life in dermatological conditions is often evaluated using validated questionnaires. For adults, the Dermatology Life Quality Index (DLQI) is widely used, whereas for children, the Children's Dermatology Life Quality Index (CDLQI) serves as the preferred tool. The CDLQI, developed by Lewis-Jones and Finlay, is specifically designed for patients aged 4–16 years and measures the psychological, social, and functional impact of skin disease on children's daily lives, including aspects such as symptoms, sleep, school, leisure, and interpersonal relationships.[9] Unlike the adult DLQI, which focuses on occupational and sexual domains, the CDLQI emphasizes emotional well-being and age-appropriate daily activities, offering a more accurate reflection of disease burden in the pediatric population.

The present study aims to assess the relationship between disease severity and quality of life among Pakistani children with AD. Findings are expected to enhance clinical understanding and support holistic management strategies.

Methods

This descriptive cross-sectional study was conducted in the Department of Dermatology, Pakistan Air Force Hospital, Islamabad, from January to June 2022. Ethical approval was obtained from the Institutional Review Board (IERB No. 2021-17). Written informed consent was obtained from parents or guardians, and assent was taken from children aged seven years or older.

A total of 70 children aged 5–15 years, diagnosed with atopic dermatitis according to the Hanifin and Rajka criteria, were enrolled through consecutive sampling. Children with other chronic dermatological or systemic illnesses were excluded. Demographic and clinical data were recorded after clinical examination by a dermatologist.

Disease severity was assessed using the Scoring of Atopic Dermatitis (SCORAD) index, which evaluates lesion extent, intensity, and subjective symptoms. The total score ranges from 0 to 103 and classifies disease as mild (<25), moderate (25–50), or severe (>50).

Quality of life was assessed using the Children's Dermatology Life Quality Index (CDLQI), a 10-item questionnaire addressing symptoms, emotions, leisure, school activities, relationships, sleep, and treatment-related aspects. Each item was scored from 0 (not at all) to 3 (very much), giving a maximum total of 30, where higher scores indicate greater impairment. For better comprehension, the questionnaire was translated into Urdu and administered in the language most familiar to each participant. The questions were also explained verbally in Urdu by the investigator to ensure understanding. Younger children or those with limited literacy completed the form with the help of their parents or guardians. This approach ensured that all responses accurately reflected the child's own perceptions and experiences.

Data were analyzed using SPSS version 25. Quantitative variables were expressed as mean ± standard deviation, and qualitative variables as frequencies and percentages. Pearson's correlation coefficient was used to assess the relationship between SCORAD and CDLQI scores, and a $p < 0.05$ was considered statistically significant.

Results

A total of 70 children aged 5–15 years participated, with a mean age of 10.2 ± 2.8 years. There were 36 (51.4%) boys and 34 (48.6%) girls. A positive family history of atopy was present in 42 (60%) participants.

Based on the Scoring of Atopic Dermatitis (SCORAD) index, most children had moderate disease. The mean SCORAD score was 25.3 ± 8.0. Table 1

shows that 49 (70%) children had moderate, 16 (22.9%) mild, and 5 (7.1%) severe disease.

Table 1: *Distribution of Patients According to Disease Severity (n = 70).*

Disease Severity (SCORAD)	Frequency (n)	Percentage (%)
Mild (<25)	16	22.9
Moderate (25–50)	49	70
Severe (>50)	5	7.1
Total	70	100.0

The mean Children's Dermatology Life Quality Index (CDLQI) score was 9.8 ± 4.0, indicating a moderate effect on quality of life. As summarized in Table 2, most children (52; 74.3%) reported a moderate impact, while 13 (18.6%) had a small effect and 5 (7.1%) experienced large or extreme impairment.

Table 2: *Distribution of Patients According to Quality-of-Life Impact (CDLQI).*

CDLQI Category	Score Range	Frequency (n)	Percentage (%)
Small effect	0–5	13	18.6
Moderate effect	6–10	52	74.3
Large / Extreme	>10	5	7.1
Total	–	70	100.0

A statistically significant positive correlation was found between SCORAD and CDLQI scores (r = 0.289, p = 0.015), indicating that increased disease severity corresponded with greater impairment in quality of life.

Table 3: *Correlation between Disease Severity (SCORAD) and Quality of Life (CDLQI).*

Variables	Mean ± SD	r-value	p-value
SCORAD	25.3 ± 8.0	0.289	0.015
CDLQI	9.8 ± 4.0		

Discussion

This study found a statistically significant positive correlation between disease severity (SCORAD) and quality-of-life impairment (CDLQI) in Pakistani children with atopic dermatitis (r = 0.289, p = 0.015). Greater clinical severity was associated with poorer quality of life, aligning with global literature on AD's psychosocial burden.[11]

Our findings are consistent with international studies: Monti et al, reported a moderate correlation (r = 0.40, p < 0.001) in Italian children[12], while Li et al, in China[13] and Kouassi et al, in Côte d'Ivoire observed similarly strong associations.[14]. Local data are limited but comparable—Javed et al, found a mean CDLQI of 11.6 ± 5.3 among Pakistani children,[15] while Ahmed et al, demonstrated that eczema severity significantly affected quality of life in local patients.[16]

Regional evidence from Indians[17] and Saudi Arabia[18] mirrors these outcomes, confirming that AD severity strongly influences psychosocial well-being. Key domains such as pruritus, sleep disturbance, and emotional distress were most affected, consistent with findings by Egeberg et al.[19] and Beattie and Lewis-Jones[5].

This study adds to existing literature by providing locally validated data linking disease severity with QoL impairment in Pakistani children—an area previously underrepresented in dermatological research. Regular assessment using SCORAD and CDLQI could enhance early identifi cation of children needing additional psychological or social support. Children with significant quality-of-life impairment or psychological distress should be referred for psychiatric or psychological evaluation and counseling.

Limitations include the single-center design, lack of socioeconomic stratification, and cross-sectional nature, which precludes causal inference. Future multicenter and longitudinal studies are warranted.

Conclusion

In conclusion, higher disease severity in children with atopic dermatitis correlates with greater quality-of-life impairment. Integrating QoL eva-

luation into clinical practice can improve holistic care and reduce psychosocial distress for affected children and families.

Ethical Approval: The Ethical Review Committee, PAF Hospital, Islamabad approved this study vide letter No. LM NO FPGMI/ 100372/3/Org.

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Author's Contribution

MK: Conception & design, acquisition of data, analysis & interpretation, drafting of article.

SR: Conception & design, revising it critically, final approval of the version to be published.

MR: Conception & design, acquisition of data, analysis & interpretation, drafting of article.

SB: Conception & design, acquisition of data, analysis & interpretation, drafting of article.

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