INSIGHTS-JOURNAL OF
HEALTH AND REHABILITATION

INSIGHTS-JHR
INSIGHTS-JOURNAL OF HEALTH
AND REHABILITATION

QUALITY OF LIFE IN PEDIATRIC PATIENTS WITH ATOPIC DERMATITIS

Original Research

Aisha Baloch[1]*, Mohammad Riaz Khan[2], Mahvish Aftab Khan[2], Amber Waqar[1]
[1]Department of Dermatology, Pakistan Institute of Medical Sciences, Islamabad, Pakistan.
[2]Assistant Professor, Department of Dermatology, Pakistan Institute of Medical Sciences, Islamabad, Pakistan.
Corresponding Author: Aisha Baloch, Department of Dermatology, Pakistan Institute of Medical Sciences, Islamabad, Pakistan, newton.law35@yahoo.com

Acknowledgement: We gratefully acknowledge the patients, their families, and clinical staff for their cooperation and support in this study.

Conflict of Interest: None Grant Support & Financial Support: None

ABSTRACT

Background: Atopic dermatitis (AD) is one of the most prevalent chronic skin disorders in childhood and is associated with a significant impact on quality of life (QoL).

Objective: This study investigates QoL impairment among paediatric patients with AD using the Children's Dermatology Life Quality Index (CDLQI).

Methodology: A total of 474 participants (mean age 14.1 ± 1.4 years; 56.5% male) were assessed. The mean CDLQI score was 9.6 ± 6.8, reflecting a moderate impairment.

Results: Severe impairment was reported by 35.6% and very severe impairment by 9.5% of patients.

Stratified analysis revealed that shorter duration of disease (<1 year), family history of atopy, urban environment, and exposure to allergens were significantly associated with worse QoL ($p < 0.05$). No significant differences were observed by gender or education level. These findings highlight the multifactorial burden of AD on children's lives, underscoring the need for targeted interventions including environmental modifications, patient education, and psychosocial support.

Conclusion: By integrating quantitative data with clinical interpretation, this research contributes to the growing evidence base on the psychosocial dimensions of AD and provides a foundation for improved multidisciplinary care strategies in pediatrics.

Key Words: Atopic Dermatitis, Quality of life, pediatrics.

© 2025 et al. Open access under CC BY License (Creative Commons). Freely distributable with appropriate citation.

INTRODUCTION

Usually starting in early childhood, atopic dermatitis (AD) is a chronic, recurrent inflammatory skin condition. It causes frequent flare-ups and remissions and is typified by xerosis, erythematous lesions, and pruritus. Between 15% and 20% of children worldwide are thought to have AD, with greater rates recorded in industrialized countries than in developing ones[1]. In addition to making dermatological management difficult, the illness has a significant negative influence on the psychological and emotional health of afflicted kids and their families.

A multifaceted concept, quality of life (QoL) includes psychological, social, emotional, and physical functioning. Due to obvious lesions and ongoing itching, children with AD frequently struggle in school, have trouble sleeping, have low self-esteem, and are bullied[2]. Parents express sentiments of frustration and powerlessness as a result of the chronic nature of the disorder, which further increases family stress[3].

Finlay and colleagues created the Children's Dermatology Life Quality Index (CDLQI), a validated tool that assesses the impact of skin disease across domains like symptoms, daily activities, leisure, school, personal relationships, and treatment burden, in order to systematically evaluate QoL in children with skin disorders [4]. Clinical and epidemiological studies have made extensive use of the CDLQI to measure the psychosocial burden of AD and inform treatment choices.

With a focus on demographic, clinical, and environmental variables, the current study attempts to investigate QoL impairment in pediatric AD patients. In order to better understand how AD impacts children's life and identify subgroups at higher risk for QoL impairment, this study uses statistical analysis and visual data visualization.

Significant differences in the prevalence of AD have been found by epidemiological research, with industrialized nations exhibiting greater rates than rural or developing nations. Westernized lifestyles, dietary modifications, and environmental pollutants have all been identified as significant risk factors[5,6.] The "atopic march" theory, which holds that early AD predisposes children to later allergic disorders, is supported by the fact that the incidence of AD is rising in tandem with other atopic diseases including asthma and allergic rhinitis[7].

AD causes significant psychological consequences in addition to its physical effects. Nocturnal pruritus is a common cause of sleep disruptions in children with AD, which can affect cognitive function and academic performance. Lesions that are visible frequently cause shame, bullying, and social stigma, all of which can lead to anxiety disorders or social disengagement. The ongoing care requirements of AD can lead to mental distress, sleep deprivation, and financial strain[8,9], which places a significant load on parents and caregivers as well.

Healthcare professionals must comprehend the complex nature of QoL impairment in AD. Therefore, in addition to measuring QoL impairment, this study aimed to pinpoint clinical and demographic indicators that could guide focused therapies.

METHOD:

474 children with atopic dermatitis were included in this cross-sectional investigation. Children with clinically proven AD between the ages of 10 and 16 were the inclusion criteria, and participants were sourced from outpatient dermatological clinics. Patients with other long-term systemic or dermatological conditions were excluded.

Age, gender, duration of AD, family history of atopy, environmental location (rural vs. urban), and exposure to allergens were among the demographic and clinical information gathered. The CDLQI, a 10-item questionnaire with scores ranging from 0 to 30, was used to measure quality of life. No impairment (0–1), minor impairment (2–5), moderate impairment (6–10), severe impairment (11–20), and extremely severe impairment (21–30) were the categories used to classify scores.

Descriptive statistics for demographic factors and inferential statistics to compare QoL scores across subgroups were part of the statistical study. When necessary, chi-square and independent t-tests were used, with a significance level of $p < 0.05$.

© 2025 et al. Open access under CC BY License (Creative Commons). Freely distributable with appropriate citation.

RESULTS:

In total, 474 children with atopic dermatitis, ages 12 to 16, were represented in the study. The participants' average age was 14.1 years (SD ±1.4), and 56.5% of them were men. Table 1 provides a summary of the research population's clinical and demographic features.

Table 1: Socio-demographic and Clinical Characteristics of Participants (n = 474)

Variable	**Frequency (%) / Mean ± SD**
Age (years)	14.1 ± 1.4
Gender	Male: 268 (56.5%) Female: 206 (43.5%)
Weight (kg)	48.7 ± 9.2
Height (cm)	155.4 ± 12.3
Duration of AD	<1 year: 102 (21.5%) 1–3 years: 181 (38.2%) >3 years: 191 (40.3%)
Family History of Atopy	Yes: 229 (48.3%) No: 245 (51.7%)
Presence of Comorbidities	Yes: 94 (19.8%) No: 380 (80.2%)
Environmental Setting	Urban: 291 (61.4%) Rural: 183 (38.6%)
Exposure to Allergens	Yes: 264 (55.7%) No: 210 (44.3%)

Overall, participants' mean CDLQI score was 9.6 ± 6.8, which suggests a moderate impairment of quality of life. 6.8% of respondents indicated no impairment, 17.7% reported little impairment, 30.4% reported moderate impairment, 35.6% reported severe impairment, and 9.5% reported very severe impairment, according to the CDLQI score distribution. According to stratified analyses, atopy family history, urban lifestyle, exposure to allergens, and shorter duration of AD (less than a year) were all substantially linked to lower quality of life. There was no significant correlation between QoL outcomes and gender or educational attainment.

© 2025 et al. Open access under CC BY License (Creative Commons). Freely distributable with appropriate citation.

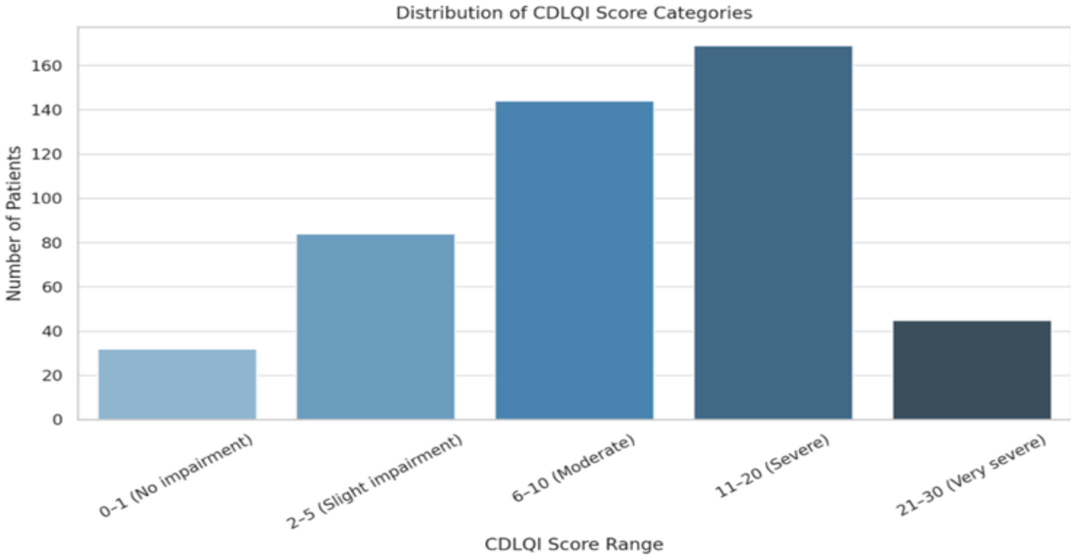

Figure 1 Highlights the proportion of children with mild to very severe QoL impairment due to atopic dermatitis.

The mean CDLQI scores did not differ statistically significantly when stratified by gender ($p = 0.18$); nevertheless, the average score for female individuals was marginally higher. Table 2 presents comparative data by gender, and Figure 2 illustrates this data.

Table 2: Distribution of CDLQI Score Categories

CDLQI Score (QoL Impairment)	Frequency (n)	Percentage (%)
0–1 (No impairment)	32	6.80%
2–5 (Slight impairment)	84	17.70%
6–10 (Moderate impairment)	144	30.40%
11–20 (Severe impairment)	169	35.60%
21–30 (Very severe)	45	9.50%

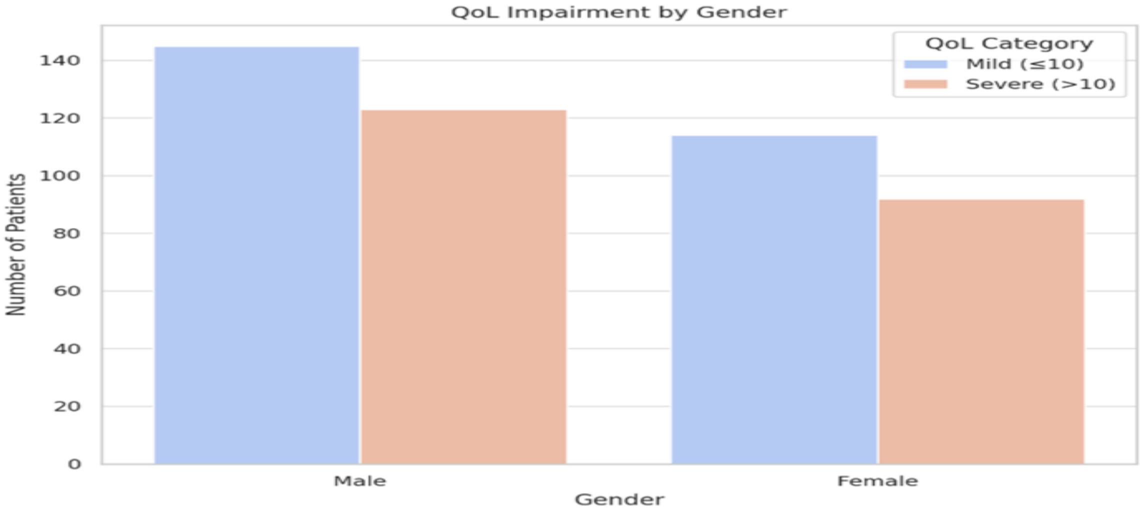

Figure 2 Comparison of male and female participants across QoL severity categories.

© 2025 et al. Open access under CC BY License (Creative Commons). Freely distributable with appropriate citation.

Quality-of-life outcomes were substantially correlated with the length of illness ($p < 0.01$). Compared to patients with a longer history of the disease, those with a shorter duration (less than a year) showed higher CDLQI values. Likewise, Table 3 indicates that children with a positive family history of atopic disorders had considerably higher QoL impairment ($p < 0.05$).

Table 3: Association Between Clinical Variables and QoL Impairment (CDLQI Categories)

Variable	**Mild QoL Impairment (CDLQI ≤10)**	**Severe QoL Impairment (CDLQI >10)**	**χ^2**	**p-value**
Gender	145	123	1.71	0.19
Duration of AD				**0.004**
- <1 year	29	73		
- 1–3 years	93	88		
- >3 years	107	84		
Family History				**0.01**
- Yes	102	127		
- No	127	118		
Environmental				**0.03**
- Urban	118	173		
- Rural	111	72		
Exposure to Allergens				**<0.001**
- Yes	100	164		
- No	129	81		

Quality of life is also significantly correlated with environmental conditions. Participants who lived in urban regions had higher CDLQI scores than those who lived in rural areas ($p = 0.02$), indicating that urban environments have a bigger impact on quality of life (Figure 3).

© 2025 et al. Open access under CC BY License (Creative Commons). Freely distributable with appropriate citation.

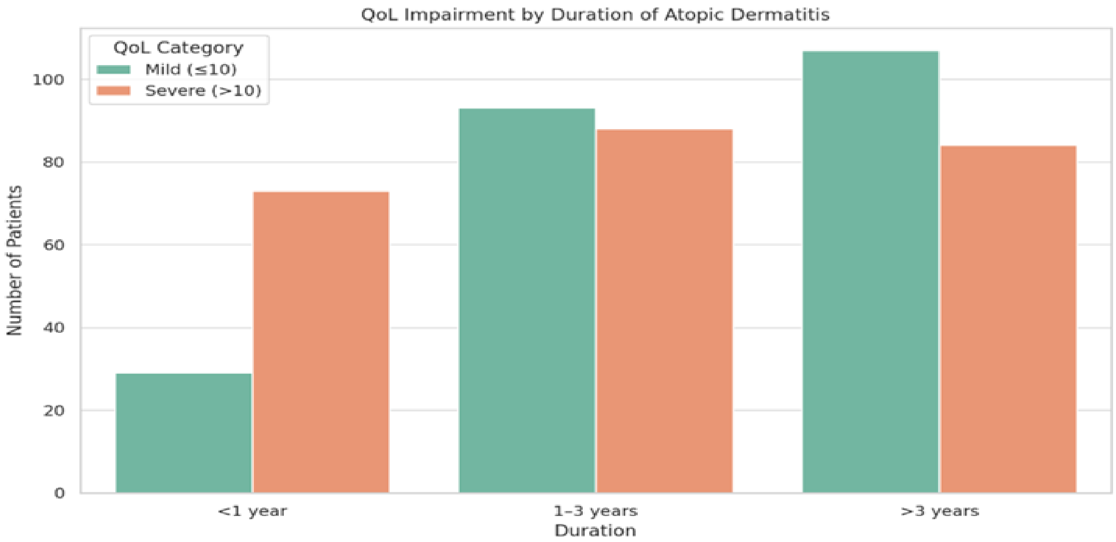

Figure 3 QoL Impairment by Duration of Atopic Dermatitis Shows a clear trend where shorter disease duration is associated with worse QoL.

Additionally, patients who reported being exposed to allergens such dust, dogs, or pollen on a regular basis had significantly higher CDLQI scores than kids who didn't (p = 0.03) (Figure 4).

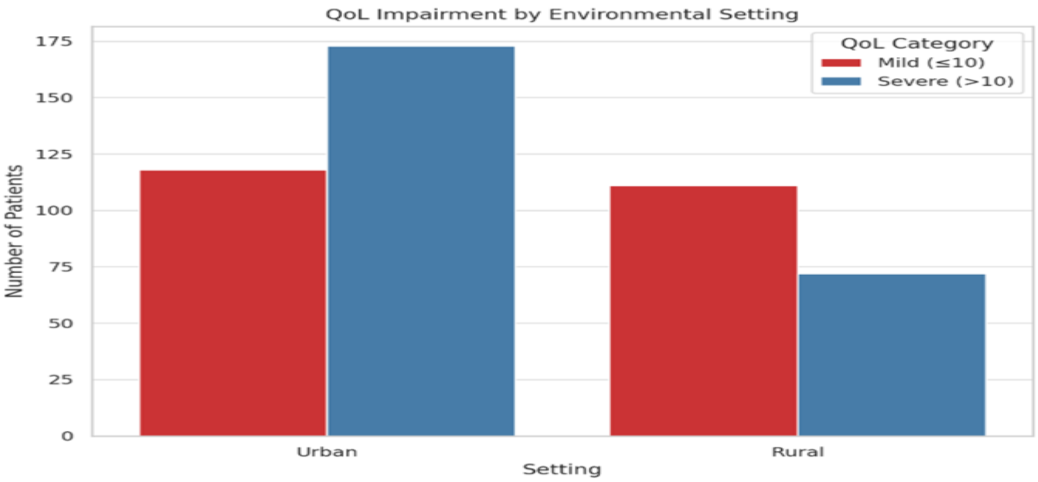

Figure 4 QoL Impairment by Environmental Setting Illustrates the higher burden of disease in children living in urban areas compared to rural ones.

Overall, the findings highlight the enormous impact that atopic dermatitis has on children's quality of life, with family history, environmental exposure, and disease duration all showing up as important variables.

DISCUSSION:

According to the study's findings, which are in line with studies from other countries, children with AD suffer significant impairments in their quality of life. The psychological and functional costs of AD are highlighted by the fact that over one-third of children reported significant impairment[10,11].

© 2025 et al. Open access under CC BY License (Creative Commons). Freely distributable with appropriate citation.

It's interesting to note that children with shorter disease durations (less than a year) reported more impairment; this finding might be a reflection of the acute psychological distress that follows diagnosis and the early difficulties associated with managing the disease. Coping mechanisms and adaptation may eventually lessen the psychological strain.

Atopy family history was also associated with a lower quality of life, indicating a potential genetic and environmental clustering of risk factors. Greater impairment was linked to living in an urban area, most likely as a result of increased pollution, different lifestyles, and exposure to allergens in urban settings as opposed to rural ones. The clinical significance of allergy avoidance techniques was highlighted by the fact that allergen exposure was a substantial predictor of severe QoL impairment.

In contrast to some earlier research, this cohort[12] showed no gender differences. This could be a result of reporting variances, sample size, or cultural differences. Disparities in QoL related to gender may be clarified by additional multicenter study.

These results highlight the need for comprehensive approaches to managing AD that involve patient education, allergy avoidance, psychological support, and family counseling in addition to pharmaceutical treatment. Dermatologists can detect patients who are more likely to experience psychological distress and take necessary action by integrating QoL assessment into standard clinical care.

Numerous worldwide research supports the finding that living in an urban area is associated with a lower quality of life. Research on East Asian cultures, for example, has similarly shown that AD severity and impairment are higher in urban regions, which is probably due to environmental triggers including air pollution, decreased microbial exposure, and lifestyle changes[13]. Clinically significant evidence links exposure to allergens to severe impairment, underscoring the significance of customized avoidance techniques in management regimens.

In contrast to certain European cohorts, where women reported higher levels of psychosocial distress[14], there are no gender differences. These disparities could be explained by cultural differences in reporting, gender conventions, and parental views of the burden of disease.

This study's comparatively large sample size (n=474), which improves statistical power and subgroup analysis reliability, is one of its main strengths. Furthermore, combining environmental and demographic factors offers a comprehensive understanding of the factors that contribute to quality-of-life deterioration. Nonetheless, it is necessary to recognize some restrictions. Since the study is cross-sectional, it is impossible to determine causal links. The CDLQI is a single tool that does not adequately capture the wider psychosocial aspects of AD, and parent-reported data may have been skewed by recall bias. Additionally, the study's generalizability may have been impacted by its restriction to a certain age range and geographic area.

In order to evaluate how QoL impairment changes over time, especially in relation to treatment responses and disease duration, future research should concentrate on longitudinal designs. It would be extremely beneficial to conduct interventional research examining the effects of psychological support, patient education, and allergen reduction on QoL results. Furthermore, including qualitative approaches like focus groups or interviews may yield deeper understandings of the real-life experiences of kids and their families.

LIMITATIONS:

Small sample size, lack of time and funding constrains are the limitations of this study.

CONCLUSION:

According to this study, a considerable majority of children with atopic dermatitis report moderate to severe impairment in their quality of life. Poorer results were linked to factors like short disease duration, family history, living in an urban area, and exposure to allergens. In addition to implementing a multidisciplinary strategy to management that addresses the disease's medical and psychological components, clinicians should incorporate QoL assessment into routine therapy.

© 2025 et al. Open access under CC BY License (Creative Commons). Freely distributable with appropriate citation.

AUTHOR CONTRIBUTION

Author	Contribution
Aisha Baloch*	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published
Mohammad Riaz Khan	Substantial Contribution to study design, acquisition and interpretation of Data Critical Review and Manuscript Writing Has given Final Approval of the version to be published
Mahvish Aftab Khan	Substantial Contribution to acquisition and interpretation of Data Has given Final Approval of the version to be published
Amber Waqar	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published

REFERENCES:

1. Beattie, P. E., & Lewis-Jones, M. S. (2006). A comparative study of impairment of quality of life in children with skin disease and children with other chronic childhood diseases. British Journal of Dermatology, 155(1), 145-151.
2. Chamlin, S. L., Frieden, I. J., Williams, M. L., & Chren, M. M. (2004). Effects of atopic dermatitis on young American children and their families. Pediatrics, 114(3), 607-611.
3. Hon, K. L., Leung, T. F., Wong, K. Y., Chow, C. M., Ng, P. C., & Lam, M. C. (2005). Quality of life and psychosocial issues are important outcome measures in atopic dermatitis. Journal of Dermatological Treatment, 16(2), 83-87.
4. Lewis-Jones, M. S., & Finlay, A. Y. (1995). The Children's Dermatology Life Quality Index (CDLQI): initial validation and practical use. British Journal of Dermatology, 132(6), 942-949.
5. Nutten, S. (2015). Atopic dermatitis: global epidemiology and risk factors. Annals of Nutrition and Metabolism, 66(Suppl. 1), 8-16.
6. Odhiambo, J. A., Williams, H. C., Clayton, T. O., Robertson, C. F., & Asher, M. I. (2009). Global variations in prevalence of eczema symptoms in children from ISAAC Phase Three. Journal of Allergy and Clinical Immunology, 124(6), 1251-1258.
7. Silverberg, J. I. (2017). Public health burden and epidemiology of atopic dermatitis. Dermatologic Clinics, 35(3), 283-289.
8. Kim, J. P., Chao, L. X., Simpson, E. L., & Silverberg, J. I. (2016). Persistence of atopic dermatitis (AD): a systematic review and meta-analysis. Journal of the American Academy of Dermatology, 75(4), 681-687.
9. Deckers, I. A., McLean, S., Linssen, S., Mommers, M., van Schayck, C. P., & Sheikh, A. (2012). Investigating international time trends in the incidence and prevalence of atopic eczema 1990–2010: a systematic review of epidemiological studies. PLoS One, 7(7), e39803.
10. Weidinger, S., & Novak, N. (2016). Atopic dermatitis. The Lancet, 387(10023), 1109-1122.
11. Paller, A. S., & Mancini, A. J. (2015). Hurwitz Clinical Pediatric Dermatology: A Textbook of Skin Disorders of Childhood and Adolescence. Elsevier Health Sciences.
12. Charman, C. R., Morris, A. D., Williams, H. C. (2000). Topical corticosteroid phobia in patients with atopic eczema. British Journal of Dermatology, 142(5), 931-936.

© 2025 et al. Open access under CC BY License (Creative Commons). Freely distributable with appropriate citation.

13. Eckert, L., Gupta, S., Amand, C., Gadkari, A., & Mahajan, P. (2017). Impact of atopic dermatitis on health-related quality of life and productivity in adults in the United States. Journal of Investigative Dermatology, 137(6), 1362-1370.
14. Carroll, C. L., Balkrishnan, R., Feldman, S. R., Fleischer, A. B., & Manuel, J. C. (2005). The burden of atopic dermatitis: impact on the patient, family, and society. Pediatric Dermatology, 22(3), 192-199.

© 2025 et al. Open access under CC BY License (Creative Commons). Freely distributable with appropriate citation.