

## Quality of life in atopic dermatitis patients

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**Background and Purpose:** Atopic dermatitis (AD) is a common skin condition. The aim of this study was to evaluate the impact of AD on the quality of life of children or adults and to identify the area of patients' lives most affected by the disease.

**Methods:** Eighty six patients with AD who were referred to an immunology clinic and 98 patients (>4 years old) attending a general clinic acting as controls (without any chronic or severe disease) participated in this survey. A physician filled the Children's Dermatology Life Quality Index (CDLQI) questionnaire for 4-16 year old children and the Dermatology Life Quality Index (DLQI) questionnaire for individuals more than 16 years via face-to-face interview.

**Results:** There were significant differences between the mean of CDLQI score and DLQI score in case and control groups ( $p < 0.001$ ). For children and adults with AD, the mean score of each question was significantly higher than in the control group ( $p < 0.001$ ).

**Conclusions:** This study agreed with previous findings that AD has a major impact on physical well-being. The individuals dealing with AD and their families need more than just the physical treatment of symptoms. Educational and psychological support for patients and their families in addition to medical treatment of AD may improve their long-term physical outcomes.

**Key words:** Atopic dermatitis; Quality of life; Questionnaires

### Introduction

Atopic dermatitis (AD) is a common skin condition that affects 12-15% of all children in early childhood. Approximately 70% of cases begin within the first year of life and up to 90% within the first 5 years [1]. The persistence rate after puberty is about 10-15% of cases, and 10-20% of these children develop asthma [2]. While AD can persist into adulthood, adult disease is much less common than childhood disease. Determining a precise prevalence of AD in adults is difficult, as many people have different forms of dermatitis that may be within the spectrum of atopic disease [3]. The prevalence of AD is reported to have increased over the last 3

decades. Lifetime prevalence of AD has been reported at 12-37% [4].

Pruritus is a universal finding in AD. The pruritus can be severe, sometimes causing sleep disruption, irritability and generalized stress for affected patients and family members [5]. Other reported abnormalities include: difficulty falling asleep, diminished total sleep, greater sleep-related awakening, daytime tiredness, and irritability [6]. Pediatric AD can affect children's physical abilities, emotions and behavior, social skills, self-esteem, and overall psychological development [1].

Although there is good framework management for AD, the chronically relapsing course may disappoint not only the patient, but also the physician. Assessing the severity of AD as objectively and reproducible as possible is extremely important, not only for research purposes, but also in clinical practice [7].

Quality of life (QOL) is a broader concept and is concerned with whether disease or impairment limits a

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person's ability to fulfill a normal role and it can be used to assess the burden of illness and the outcomes of medical treatments. It is defined as the subjective perception of the impact of health status, including disease and treatment, on physical, psychological, and social functioning and well-being [8,9]. Increasing interest in measuring QOL can be attributed to the changing epidemiology of childhood disease from acute to chronic and from incurable to curable or palliative. At other times, it may simply be useful to understand the child's own perception of illness and its effect on day to day life [10]. Despite the prevalence of AD, little is known about how QOL of AD patients varies with disease severity and how it compares with that in the general public [8].

Establishment of the degree of QOL impairment in patients with AD can help managed care decide about their treatment. The aim of this study was to evaluate the impact of AD decision-makers on the QOL of children or adults and to identify the area of AD patients' lives most affected and use them to help guide appropriate management of AD.

## Methods

Eighty six patients with AD (fulfilling the criteria based on Adinoff and Clerk [11]) who were referred to an immunology clinic and 98 patients (>4 years old) attending a general clinic as a control group (without any chronic or severe disease), in the year 2005, participated in this survey. The patients were divided into 2 groups: those aged 4-16 years and those >16 years.

A physician filled out the Children's Dermatology Life Quality Index (CDLQI) [12] questionnaire for

children 4-16 years old and the Dermatology Life Quality Index (DLQI) [13] questionnaire for patients >16 years via face-to-face interview with the help of their parents. For the control group, the appropriate questionnaire for their age was used.

Questions related to symptoms such as pruritus (question 1), feelings (question 2), friendships (3), sleep (4), swimming and sports (5), family activities (6), meal times (7), treatment effects (8), dressing and undressing (9) and bath time (10). The questions all referred to the preceding week. Each question of the CDLQI or DLQI is answered by "not at all", "only a little", "quite a lot" or "very much". The maximum score for each of 10 questions is 3, making a maximum possible score of 30. Higher score was related to greater handicap. There was another question about the severity of AD which scored separately from none to extremely severe AD (0-3) [14].

The mean total score of each questionnaire in patients with AD was compared with the mean total score of the control group by *t* test. The relation between CDLQI and DLQI findings and severity of AD was evaluated by Pearson correlation test. This survey was undertaken in the Children Medical Center Hospital with ethical approval from the ethical board of Tehran University of Medical Science.

## Results

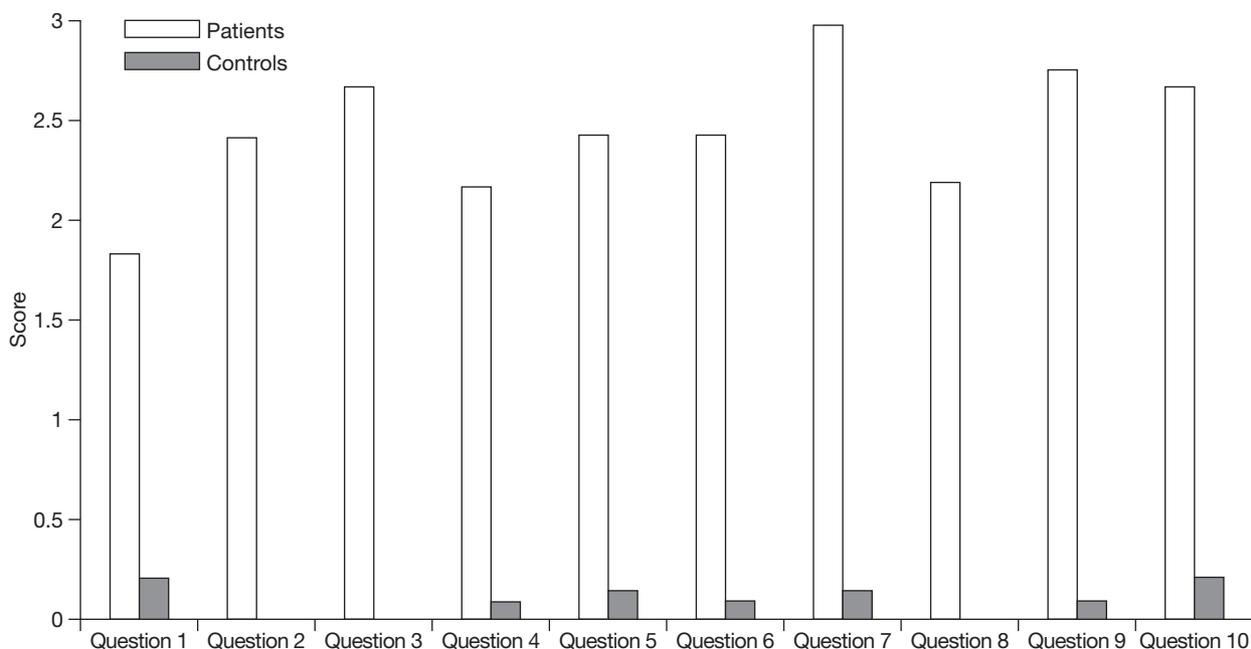
Details of the study population are shown in Table 1. There were significant differences between the mean CDLQI and DLQI scores in the case and control groups ( $p < 0.001$ ).

The mean scores for children with AD were significantly higher than those for the control group ( $p < 0.001$ ).

**Table 1.** Details of the study population

	Children		Adults	
	Patients (n = 36)	Controls (n = 54)	Patients (n = 40)	Controls (n = 44)
Gender (%)				
Female	58.3	48	75	57.2
Male	41.7	52	25	42.8
Age (years) [mean ± SD]	7.41 ± 2.56	8.97 ± 1.66	38.25 ± 10.42	36.05 ± 7.28
Mean AD duration (years) [range]	4.3 (0-11)		20.6 (2-37)	
Mean severity of AD (0-3)	2.26		1.8	
CDLQI or DLQI (mean ± SD) [range]	16.5 ± 3.9 (10-21)	0.44 ± 0.93 (0-4)	20.5 ± 4.7 (12-24)	1.15 ± 0.85 (1-5)
Mean CDLQI/DLQI score by severity group				
1 (mild)	12.5		9.5	
2 (moderate)	16		12	
3 (severe)	21		18	

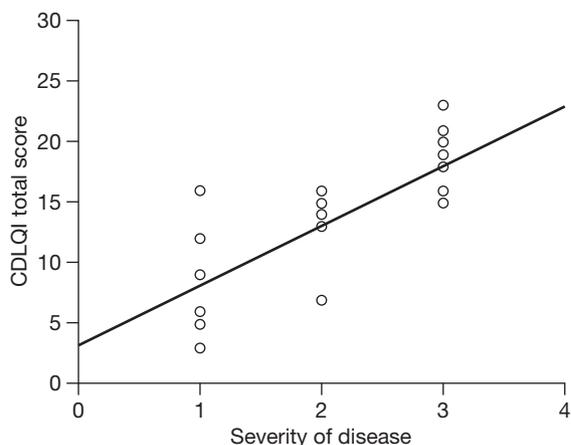
Abbreviations: AD = atopic dermatitis; CDLQI = Children's Dermatology Life Quality Index; DLQI = Dermatology Life Quality Index



**Fig. 1.** Mean score of Children's Dermatology Life Quality Index in patient and control groups.

[Fig. 1]. Questions relating to meal times and dressing (question 7 and 9) scored highest overall and pruritus (question 1) scored lowest. The correlation between CDLQI and the severity of AD was significantly positive ( $r = 0.78, p < 0.001$ ) [Fig. 2].

For adults with AD, the scores of each question were also significantly higher than in the normal group ( $p < 0.001$ ) [Fig. 3]. In adults, dressing and undressing and bath time were the most problematic situations, and family activities was the least difficult. Also, correlation between DLQI and severity of AD was significantly positive ( $r = 0.88, p < 0.001$ ).



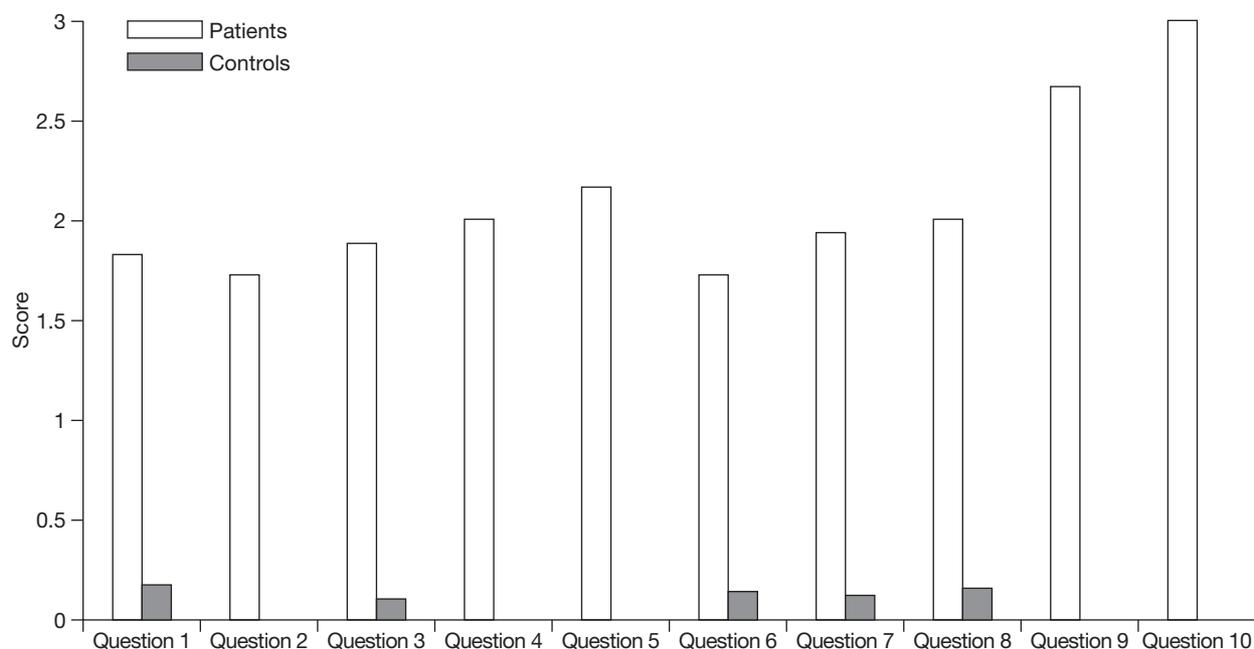
**Fig. 2.** Relation between Children's Dermatology Life Quality Index (CDLQI) and severity of atopic dermatitis.

## Discussion

AD is a chronic skin condition of both children and adults. It can have profound effects on the QOL, disrupting family and social relationships, interfering with play, sport and school, and affecting normal development [12,15].

Interest in assessing QOL has emerged in response to advances in medical care. Especially in situations in which care may not be possible, it becomes important to establish that treatment at least makes patients feel better [10]. A better understanding of the impact of AD may help to improve the clinical decision-making process around patient care and to facilitate the allocation of health resources [8].

People with AD tend to report lower health-related QOL and greater psychological distress than the general population. Adults and children with AD are also at risk for psychological difficulties. Children with AD often have behavioral problems such as increased dependency, fearfulness, and sleep difficulties. Peer and teacher relations may be affected by AD because of fear of infection, the child's physical appearance, or limitations on sports participation [3]. Pruritus can affect both sleep and mood. Sleep loss during the night can lead to increased daytime drowsiness, and may result in school problems [16]. According to our results, the CDLQI scores indicated that the QOL areas most



**Fig. 3.** Mean score for each question of Dermatology Life Quality Index in patient and control groups.

affected among children included itchiness/pain, sleeping dressing, and problems with treatment.

There were significant differences between children or adults with AD and healthy persons in both total QOL and individual questions. That pruritus was less problematic in our patients may have been related to their age, because pruritus is a major concern in infants and children under 4 years old.

This study had a number of limitations. First, the sample size was small. Second, our study was conducted in an academic medical center, and the sample has some selection bias. We also excluded subjects who refused to fill the questionnaires, and who had major illnesses. This study agreed with previous findings that AD has a major impact on symptoms and physical well-being, as measured by a disease-specific instrument. In summary, AD is often associated with significant morbidity. It should be possible to improve QOL by eliciting better quality information from patients, in order to set and achieve more realistic goals.

## References

- Whalley D, Huels J, McKenna SP, Van Assche D. The benefit of pimecrolimus (Elidel, SDZ ASM 981) on parents' quality of life in the treatment of pediatric atopic dermatitis. *Pediatrics*. 2002;110:1133-6.
- Wuthrich B. Clinical aspects, epidemiology, and prognosis of atopic dermatitis. *Ann Allergy Asthma Immunol*. 1999;83:464-70.
- Carroll CL, Balkrishnan R, Feldman SR, Fleischer AB Jr, Manuel JC. The burden of atopic dermatitis: impact on the patient, family, and society. *Pediatr Dermatol*. 2005;22:192-9.
- Mortz CG, Lauritsen JM, Bindslev-Jensen C, Andersen KE. Prevalence of atopic dermatitis, asthma, allergic rhinitis, and hand and contact dermatitis in adolescents. The Odense Adolescence Cohort Study on Atopic Diseases and Dermatitis. *Br J Dermatol*. 2001;144:523-32.
- Correale CE, Walker C, Murphy L, Craig TJ. Atopic dermatitis: a review of diagnosis and treatment. *Am Fam Physician*. 1999;60:1191-8, 1209-10.
- Chamlin SL, Frieden IJ, Williams ML, Chren MM. Effects of atopic dermatitis on young American children and their families. *Pediatrics*. 2004;114:607-11.
- Severity scoring of atopic dermatitis: the SCORAD index. Consensus Report of the European Task Force on Atopic Dermatitis. *Dermatology*. 1993;186:23-31.
- Kiebert G, Sorensen SV, Revicki D, Fagan SC, Doyle JJ, Cohen J, et al. Atopic dermatitis is associated with a decrement in health-related quality of life. *Int J Dermatol*. 2002;41:151-8.
- Carr AJ, Gibson B, Robinson PG. Measuring quality of life: is quality of life determined by expectations or experience? *BMJ*. 2001;322:1240-3.
- Eiser C, Morse R. The measurement of quality of life in children: past and future perspectives. *J Dev Behav Pediatr*.

- 2001;22:248-56.
11. Adinoff AD, Clerk RA. Management of skin disease. In: Bierman CW, Pearlman DS, Shapiro GG, Busse WW, eds. Allergy, asthma and immunology from infancy to adulthood. 3rd ed. Philadelphia, USA: WB Saunders Co.; 1996: 613-32.
  12. Lewis-Jones MS, Finlay AY. The Children's Dermatology Life Quality Index (CDLQI): initial validation and practical use. *Br J Dermatol.* 1995;132:942-9.
  13. Finlay AY, Khan GK. Dermatology Life Quality Index (DLQI)—a simple practical measure for routine clinical use. *Clin Exp Dermatol.* 1994;19:210-6.
  14. Holm EA, Esmann S, Jemec GB. Patient education and morbidity in atopic eczema. *Dermatol Nurs.* 2005;17: 35-46.
  15. Balkrishnan R, Housman TS, Carroll C, Feldman SR, Fleischer AB. Disease severity and associated family impact in childhood atopic dermatitis. *Arch Dis Child.* 2003;88: 423-7.
  16. Muldoon MF, Barger SD, Flory JD, Manuck SB. What are quality of life measurements measuring? *BMJ.* 1998;316: 542-5.