

Childhood Atopic Dermatitis: A Nationwide Measurement of Quality of Life among Saudi Patients

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Abstract

Background: Atopic dermatitis (AD) negatively affects the quality of life (QoL). However, few studies from Saudi Arabia have assessed the effect AD has on the QoL of pediatric patients.

Objective: To determine the psychological impact of AD on pediatric Saudi patients using the Children's Dermatology Life Quality Index (CDLQI).

Methods: This cross-sectional was conducted across five tertiary hospitals located across five cities of Saudi Arabia from December 2018 to December 2019. The study included all Saudi patients aged 5–16 years who were diagnosed with AD for at least 6 months prior to visiting the dermatology clinic of the included hospitals. The quality of life in children with AD was assessed using the Arabic version of the CDLQI.

Results: A total of 476 patients were included, of which 67.4% were boys. AD had a very large and extremely large effect on the QoL in 17.4% and 11.3% of the patients, respectively; the QoL of only 5.7% of the patients was not impacted due to AD. The average CDLQI score was not significantly different between males and females (9.7 vs. 9.1, respectively; $P = 0.4255$). Domains related to symptoms and emotions were affected to a greater extent compared with the remaining domains, while the school domain was the least affected. The correlation between age and CDLQI ($r = 0.04$, $P = 0.52$) and between the duration of the disease and CDLQI ($r = 0.062$, $P = 0.18$) was not significant.

Conclusions: This study found that AD affects the QoL of a significant proportion of the Saudi pediatric patients, thereby highlighting the need to consider QoL as a measure of treatment success.

Keywords: Adolescent, atopic dermatitis, child, Children's Dermatology Life Quality Index, quality of life, skin disease

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INTRODUCTION


Dermatological diseases, in general, can significantly influence the physical, psychological, and social aspects of

the patients. Stress, anxiety, depression, embarrassment, and social isolation are common psychological difficulties

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linked with dermatological illnesses.^[1] Day-to-day and social activities may be significantly impacted by cutaneous conditions, which can have far-reaching effects on the patient's mental health. In children, dermatological illnesses can not only affect patients' quality of life (QoL) but also have substantial consequences for their caregivers.^[2]

Atopic dermatitis (AD) is one of the major cutaneous diseases and is known to affect the QoL,^[3] which is defined as "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns."^[4] Nocturnal itching leading to a deterioration in sleep quality is primarily responsible for the decline in the QoL of patients with AD.^[5,6] The worldwide prevalence of AD among children has been estimated to be around 5–20%.^[7] In Saudi Arabia, the prevalence of AD has been reported to be 6–13% among young adults and 11.5% in the general adult population.^[8,9] In the study of general adult population, about half reported moderate-to-large disease-related QoL impairment; in comparison, one in every five acne vulgaris patients reported moderate-to-large QoL impairments.^[9]

Studies regarding the impact of AD on the QoL of pediatric patients from Saudi Arabia are lacking. Therefore, the aim of this study was to evaluate the psychological impact of AD on pediatric patients in Saudi Arabia. The results of this study may help health-care providers to acquire a better understating regarding the effect of AD on the QoL, and accordingly tailor their treatment.

METHODS

Study design, setting, and participants

This cross-sectional study was conducted across five tertiary hospitals under the Ministry of National Guard from December 1, 2018, to December 1, 2019. These hospitals were located in Jeddah, Al-Madinah, Riyadh, Al-Ahsa, and Dammam, which represent major cities in the Western, Central, and Eastern regions of Saudi Arabia. The study included all pediatric Saudi patients (aged 5–16 years) who were diagnosed with AD for at least 6 months prior to visiting the dermatology clinic of the included hospitals. The diagnosis of AD was established using the criteria of Hanifin–Rajka.^[10] The study was conducted after obtaining ethical approval from the local ethical committee.

The estimated average prevalence of AD in Saudi Arabia is 10%.^[8] Therefore, with an acceptable degree of precision of 5% at the 95% level of confidence, the sample size was estimated to be 139 patients. However, all qualifying patients reporting to the participant hospitals in the study

duration were included, with a minimum target of 139 participants and at least 20% representation from each of the three regions to provide representativeness of the community in the tested sample.

Study tool and data collection

The QoL in children with AD was assessed using the Arabic version of the Children's Dermatology Life Quality Index (CDLQI), a self-administered, validated tool that has widely been used to assess the QoL of children with skin diseases.^[11] A professional bilingual team from RWS Life Sciences Inc. performed the English-to-Arabic translation and re-validation.

The CDLQI includes 10 Likert scale items on a score from 0 (not at all) to 3 (very much). Question 7 included an extra option (prevented school), which was coded as 3. Unanswered questions were coded as zero as per instructions of the CDLQI. The CDLQI score was calculated for each respondent by summing the scores for the 10 questions. The final score was graded as follows: 0 or 1, no effect on the child's life; 2–6, small effect; 7–12, moderate effect; 13–18, very large effect; and 19–30, extremely large effect.

Residents and interns in the dermatology department at each hospital helped and facilitated the questionnaire distribution and collection process. Written informed consent was obtained from the parent of each participant. Children who were able to fill out the questionnaire by themselves were allowed to do so with no time restriction. Otherwise, they were helped by their parents, as necessary. Caregivers were asked to read the questions out loud and were instructed not to influence the answers.

Variables and statistical methods

Statistical analysis was performed using the Microsoft R software version 3.6.3 (Microsoft Corp., Redmond, WA, USA). Counts and percentages were used to summarize the distribution of categorical variables, while the mean and standard deviation were used to summarize the distribution of continuous variables. Pearson's correlation was used to assess the magnitude of the association between age (or duration of the disease) and CDLQI score. Hypothesis testing was performed at 5% level of significance.

RESULTS

The study sample included 476 children aged 5–16 years old. Of these, 67.4% were boys and the average age was 9 ± 3.6 years. The average disease duration was 4.5 ± 4.0 years. Children from dermatology clinics in the Central region represented 51.7% of the study sample,

while those from the Eastern and Western regions represented 22.9% and 25.4%, respectively.

The majority (64.3%) of the children did not think that AD affected their schoolwork, while 20.2% thought that it did affect but only to a small extent. Half of the respondents (50%) were comfortable with their daily skin treatment and did not believe that the treatment interfered with their daily life activities. Similarly, 54.2% thought that AD did not affect their friendships, and 55% did not avoid swimming or other sports because of AD. Furthermore, 46.6% thought their skin had been sore or painful only a little over the past week, and 31.7% reported that their skin had been painful or sore quite a lot over the past week. About one-fourth (22.5%) of the respondents thought that AD affected the clothing they wore over the past week quite a lot (they had to change or wear different/special clothes).

The emotion domain was the most affected domain, with 17.2% reporting that AD caused them to feel embarrassed/self-conscious or upset very much over the past week. Regarding leisure, 43.7% and 31.9% of the respondents thought that AD did not affect their leisure or affected only a little, respectively. AD did not affect sleep at all for 43.5% of the respondents, and only a little for 30.3% [Figure 1].

Domains related to symptoms and emotions were affected to a greater extent compared with the remaining domains, while the school domain was the least affected [Figure 2]. The correlation between age and CDLQI ($r = 0.04$, $P = 0.52$) and between the duration of the disease and CDLQI ($r = 0.062$, $P = 0.18$) was not significant.

AD was found to not affect the QoL in 5.7% of the patients. QoL was affected to a small and moderate extent

in 35.9% and 29.6% of the included children, respectively. AD had a very large and extremely large effect on QoL in 17.4% and 11.3% of the patients, respectively [Table 1]. The average CDLQI score was not significantly different between males and females ($P = 0.4255$).

DISCUSSION

Atopic dermatitis, a chronic inflammatory skin condition, is known to substantially influence the QoL.^[5,12] The results of the current study indicate that symptoms and emotions are the two most affected domains among pediatric Saudi patients with AD. This is similar to the findings of another study conducted on Saudi patients aged 0–4 years, where the authors concluded that AD negatively affected the QoL and that there was a proportional relationship between the impairment of QoL and the severity of the disease, irrespective of gender and other disease conditions.^[13] In a small cohort study from Brazil that included children aged 5–16 years, AD was found to disrupt the QoL of one-quarter of the included children to a very large or extremely large degree.^[14] Previously, disease severity, rather than demographic characteristics, has been reported as the main factor influencing the QoL in children with AD.^[2] This study’s findings support the findings of another study from Saudi Arabia that assessed the impact of several skin

Table 1: Effect of atopic dermatitis based on the children’s dermatology life quality index score (N=476)

Effect	n (%)
No effect (0–1)	27 (5.67)
Small (2–6)	171 (35.9)
Moderate (7–12)	141 (29.6)
Very large (13–18)	83 (17.4)
Extremely large (19–30)	54 (11.3)

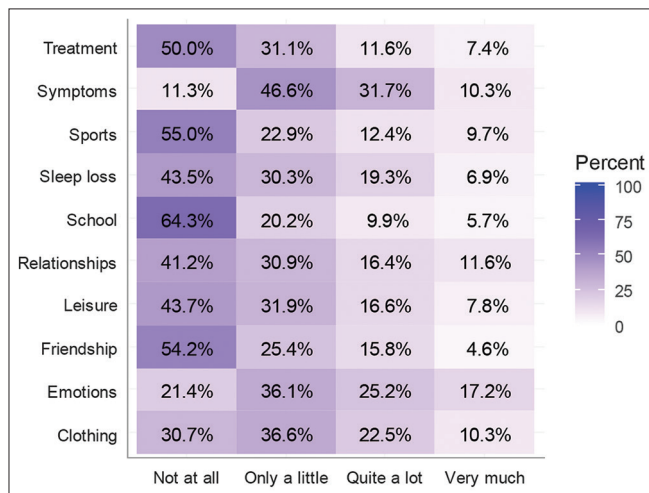


Figure 1: Descriptive statistics for individual CDLQI questions. CDLQI – Children’s Dermatology Life Quality Index

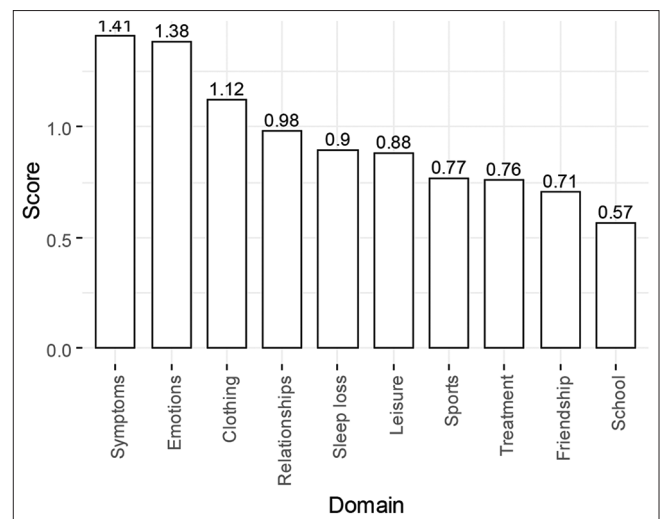


Figure 2: The average score for CDLQI domains. CDLQI – Children’s Dermatology Life Quality Index

disorders on QoL and found that the effect of AD on QoL was equal to, or greater than, that of acne vulgaris.^[9] Our results are consistent with those of previous research that evaluated the impact of AD on academic performance and found that it had a negligible influence on outcomes.^[15]

The current study enrolled patients in tertiary hospitals, where advanced treatment options are routinely made accessible to patients. This might explain why a proportion of the patients reported minimal impact of AD on QoL. A meta-analysis showed that the average CDLQI score was higher for AD compared with other conditions such as alopecia, molluscum contagiosum, vitiligo, and warts, indicating that AD affects the QoL to a greater extent in AD than these conditions.^[16]

In a previous study, nighttime itching leading to sleep disruption and mental distress was shown to be most linked to decrease in QoL. As itching became more severe, the QoL proportionally reduced. The afflicted people's QoL was disrupted to the point that even the caretaker was disturbed.^[2] The treatment journey is another factor related to the reduction in QoL in both the patient and the caregiver, and this is particularly the case if the patient is a child.^[17] Collectively, it is reasonable to infer that controlling itchiness and the severity of the disease may result in better QoL.

When evaluating patients with AD, existing local practices seldom use QoL scales. Nonetheless, the findings of this study highlight the need to measure QoL in AD patients. Doing so will aid clinicians in gauging the extent of the condition and identifying those who require a change in therapy. In addition, considering patients' perspectives is crucial when determining the overall benefit of therapy. The correlation between AD severity and QoL is an important topic for future research. Factors related to children's and carers' health and QoL should be evaluated in future research.

One limitation of the current study is that the correlation between disease severity and QoL could not be investigated, as data regarding disease severity was lacking. Moreover, this study only assessed the QoL of patients who presented to tertiary care centers.

CONCLUSIONS

This study found that AD affected the QoL of about 94% of the children, with the effect being large or extremely large in about 28.7% and with no significant difference across gender, age groups, and disease duration. In addition,

symptoms and emotions were found to be the two most affected domains. These findings highlight the value of considering QoL as a measure of treatment success.

Ethical considerations

The study was carried out in accordance with the code of ethics of the Declaration of Helsinki, 2013. The study was approved in January 2017 by the Ethics and Research Committee of King Abdulaziz Medical City, Riyadh, Saudi Arabia, under the approval number RC16/224/R. Written informed consent was obtained from the parent of each participant.

Data availability statement

The datasets generated and/or analyzed during the current study are not publicly available but are available from the corresponding author on reasonable request.

Peer review

This article was peer-reviewed by three independent and anonymous reviewers.

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Conflicts of interest

There are no conflicts of interest.

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