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Screening for emotional and psychosocial disorders in children with atopic dermatitis

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Abstract
Background: *Atopic dermatitis negatively affects the quality of life of its patients, and has a strong impact on social relationships, psychological state, and daily activities. Studies show that mental disorders are more common in individuals with atopic dermatitis than in the general population.*
Objectives: *To evaluate the quality of life and to screen for emotional and psychosocial disorders in children and adolescents with atopic dermatitis.*
Methods: *Application of the Children's Dermatology Life Quality Index (CDLQI) and Pediatric Symptoms Checklist (PSC) questionnaires in children aged 5 to 16 years, diagnosed with atopic dermatitis, and followed up in a pediatric dermatology outpatient clinic of a university hospital.*
Results: *Thirty-two questionnaires were completed, of which 13 (40.6%) were boys and 19 (59.4%) were girls. The average age was 9.3 years. There was relationship between emotional and psychosocial problems and medication use, as well as association between emotional and psychosocial problems and quality of life in children with atopic dermatitis.*
Conclusion*: The relationship of atopic dermatitis with worsening quality of life and mental health in children and adolescents should be considered during treatment. Periodic evaluation and application of screening tests for mental disorders are necessary, in addition to psychological and/or psychiatric monitoring to promote prevention and care of mental symptoms.*
Key-words: *Atopic dermatitis, screening, children, adolescent, questionnaire, mental disorders*

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I. Introduction

Atopic dermatitis (AD) is a chronic and relapsing inflammatory dermatosis, of variable severity, characterized by intense pruritus and eczematous lesions, with a characteristic distribution according to age group. It ranges from mild and localized to severe and disseminated forms. Its prevalence has increased in the last three decades, currently affecting around 15 to 20% of the pediatric population[1].

Dermatological diseases, such as AD, negatively affect the quality of life of its patients because of the intense itching, the appearance, and the restrictions imposed by the lesions and the treatment itself[2,3]. It has been shown to have a strong impact on the social relationships, psychological state, and daily activities of patients. Studies show that children with AD have a higher rate of attention deficit hyperactivity disorder (ADHD)[2,4], and a higher risk of developing anxious and depressive symptoms[5,6,7]. These data alert us to the long-term effects caused by this disease, both in children's behavior and development and in the psychological field.

Screening questionnaires for quality of life and neuropsychiatric disorders help in both diagnostic screening and follow-up of children with chronic conditions. AD can be delineated using various scoring systems, such as the Children's Dermatology Life Quality Index (CDLQI), Eczema Area and Severity Index (EASI), Scoring Atopic Dermatitis (SCORAD), Atopic Dermatitis Severity Index (ADSI), and others. Moreover, screening for psychoemotional disorders in children and adolescents with AD can be performed through validated instruments such as the Pediatric Symptoms Checklist (PSC), Child Behavior Checklist (CBCL), and the Behavioral Assessment Scale for Children - second edition (BASC-2).

The objective of this research was to perform a screening for emotional and psychosocial disorders and quality of life in children and adolescents diagnosed with AD.

II. Methods

This was a cross-sectional, observational, probabilistic, and retrospective epidemiological study, with children and adolescents diagnosed with AD of both genders, seen at a pediatric dermatology outpatient clinic of a university hospital in the city of Cascavel, PR, Brazil. The diagnosis of AD was performed by a dermatologist. All patients presented the following symptoms and signs: pruritus, xeroderma, typical morphology and characteristic distribution of lesions, onset in childhood, and chronicity of the condition. The sample was selected during outpatient clinic visits and through the evaluation of the patient's medical records through the electronic health management system (Tasy). The research was developed in the period from March to December 2022.

After the explanation about the dynamics of the research and signature of the Free and Informed Consent Form by those responsible and of the Adolescent or Child Written Informed Assent by participants older than 7 years, the Children's Dermatology Life Quality Index (CDLQI) and Pediatric Symptoms Checklist (PSC) questionnaires were applied.

The CDLQI consists of a questionnaire to assess the quality of life in children with dermatological diseases, which consists of ten self-explanatory questions that can be answered with "very much", "a lot", "a little" or "no", with a score of three, two, one or zero, respectively[8]. The result is calculated by adding the scores obtained in each question, with scores ranging from 0 to 30 points, so that the higher the score, the greater the impact of the disease on the patient's quality of life. For this study, due to the small sample size, for statistical purposes, the patients were distributed into two groups, the first including those with scores less than or equal to 12, characterizing "no to moderate effect on the quality of life", and the second composed of those with scores higher than 12, referring to "severe to very severe effect".

The PSC is a screening instrument for emotional and/or psychosocial problems in children and adolescents, which includes 35 items that reflect the parents' impression of their child's behavior and development[9]. Possible answers include "often", "sometimes", and "never", with a score of two, one, or zero points respectively. The cutoff point used for a positive result in this study was 28 points or more, a situation in which the participant would need to be evaluated by a mental health professional.

The following variables were also analyzed: age, sex, race, family history of AD, and use of medication for treatment, in addition to CDLQI and PSC scores. According to the answers obtained for the "treatment modality", this was classified into 2 groups. For both groups, it was considered: Group 1 - the use of body moisturizers, second-generation antihistamine drugs (desloratadine, loratadine, hydroxyzine), corticosteroids, and topical immunosuppressants (desonide, mometasone, pimecrolimus) and Group 2- systemic use of corticosteroids for a period longer than 7 days (prednisone or prednisolone) and the use of the systemic immunosuppressant methotrexate, which was used as the drug of choice due to easier access.

For statistical analysis, a database containing all collected information was created and a spreadsheet was prepared using the Microsoft Software Excel® 2010 program, and for the analysis of variables, the Stata/SE v.14.1 Stata Corp LP, USA, 2021 software was used. To describe the age of the cases considered in the study, the statistics of mean, median, minimum, and maximum values, 1st and 3rd quartiles, and standard deviation were considered. Summarization of qualitative variables was done using frequencies and percentages. For the comparison of two classifications of PSC and CDLQI, concerning age, the Student's t-test for independent samples was considered. To evaluate the association between qualitative variables, Fisher's Exact Test was considered. P values lower than 0.05 indicated statistical significance.

This research was approved by the Research Ethics Committee of the Western Paraná State University under protocol number 5.224.128/2022.

III. Results

Thirty-two questionnaires were evaluated, 13 (40.6%) were male and 19 (59.4%) female and ages ranged from 5 to 15 years (mean: 9.3 years, median: 9.5, and SD: ±2.9). Table 1 shows the demographic variables, and tables 2 and 3 the correlations between these variables and the scores on the PSC and CDLQI scales respectively.

Table 1. Demographic profile of children and adolescents with atopic dermatitis participating in the study.

Variable		
Age	Average	Median
	9.3 years	9.5 years
Gender	Male	Female
	13 (40.6%)	19 (59.4%)
Race	White	African Brazilian
	23 (71.9%)	9 (28.1%)
Family history of atopy	Yes	No
	18 (56.3%)	10 (31.3%)
Medication use	Symptomatic (group 1)	Immunossupressive (group 2)
	27 (84.4%)	5 (15.6%)
PSC[1]	Negative (<27)	Positive (≥28)
	26 (81.3%)	6 (18.8%)
CDLQI[2]	Nonetomoderate effect	Severe to very severe effect
	25 (78.2%)	7 (21.8%)

[1]PSC: Pediatric Symptoms Checklist
[2]CDLQI: Children's Dermatology Life Quality Index

Table 2. Relation among Pediatric Symptoms Checklist score and gender, race, family history of atopy and medication use.

	Gender				p-value[2]
PSC[1]	Male		Female		
	n	%	n	%	
Negative (<28)	12	92.3%	14	73.7%	0.361
Positive (≥28)	1	7.7%	5	26.3%	
Total	13	100.0%	19	100.0%	
	Race				
PSC	White		African Brazilian		
	n	%	n	%	
Negative (<28)	20	87.0%	6	66.7%	0.314
Positive (≥28)	3	13.0%	3	33.3%	
Total	23	100.0%	9	100.0%	
	Family history of atopy				
PSC	Yes		No		
	n	%	n	%	
Negative (<28)	14	77.8%	9	90.0%	0.626
Positive (≥28)	4	22.2%	1	10.0%	
Total	18	100.0%	10	100.0%	
	Medication use				
PSC	Symptomatic (group 1)		Immunossupressive (group 2)		
	n	%	n	%	
Negative (<28)	24	88.9%	2	40.0%	0.034
Positive (≥28)	3	11.1%	3	60.0%	
Total	27	100.0%	5	100.0%	

[1]PSC: Pediatric Symptoms Checklist.
[2]p-values below 0.05 indicates statistical relevance.

Table 3. Relation among Children's Dermatology Life Quality Index score and gender, race, family history of atopy, medication use and PSC score.

	Gender				p-value*
CDLQI[1]	Male		Female		
	n	%	n	%	
None to moderate effect (≤12)	12	92.3%	13	68.4%	0.195
Severe to very severe effect (>12)	1	7.7%	6	31.6%	
Total	13	100.0%	19	100.0%	
	Race				
CDLQI	White		African Brazilian		
	n	%	n	%	
None to moderate effect (≤12)	19	82.6%	6	66.7%	0.370
Severe to very severe effect (>12)	4	17.4%	3	33.3%	
Total	23	100.0%	9	100.0%	
	Family history of atopy				
CDLQI	Yes		No		
	n	%	n	%	
None to moderate effect (≤12)	14	77.8%	8	80.0%	
Severe to very severe effect (>12)	4	22.2%	2	20.0%	1.000
Total	18	100.0%	10	100.0%	
CDLQI	Medication use				

	Symptomatic (group 1)		Immunossupressive (group 2)		
	n	%	n	%	
None to moderate effect (≤12)	23	85.2%	2	40.0%	0.057
Severe to very severe effect (>12)	4	14.8%	3	60.0%	
Total	27	100.0%	5	100.0%	

CDLQI	PSC[2] Negative (<28)		Positive (≥28)		
	n	%	n	%	
None to moderate effect (≤12)	24	92.3%	1	16.7%	< 0.001
Severe to very severe effect (>12)	2	7.7%	5	83.3%	
Total	26	100.0%	6	100.0%	

[1]CDLQI: Children's Dermatology Life Quality Index.
[2]PSC: Pediatric Symptoms Checklist.
*p-values below 0.05 indicates statistical relevance.

IV. Discussion

AD is a chronic and relapsing inflammatory dermatosis that affects up to 20% of the pediatric population. It has a significant impact on daily activities and interpersonal relationships, drastically affecting patients' quality of life[10, 11, 12]. Mental disorders are more common in individuals with AD than in the general population, regardless of disease severity, but more frequent in patients with more severe conditions[13, 14, 15]. Some studies have shown that children and adolescents with AD had a higher prevalence of mental disorders such as anxiety and depression[16,17]. In this study, there was a lower percentage of children and adolescents who were prone to emotional and psychosocial problems when compared to the literature[18, 19]. This may be related to the low number of participants in the research.

It was observed relationship between the use of immunosuppressants and PSC score, indicating that more severe cases of AD, requiring the use of systemic medication, are more likely to develop mental disorders, which corroborates the findings of other studies[20, 21].There was also evidence of an association between PSC's positivity and poorer quality of life, indicating that AD patients are more prone to psycho-emotional disorders and have a poorer quality of life. Similar data are also verified in the specialized literature[13, 18].

Some limitations of the study included the low number of participants and the fact that it was a cross-sectional study, making it impossible to evaluate the persistence of symptoms or their intensification over time, which could lead to the development of mental disorders. Also, data on the patient's behavior were obtained from a single source of information, the parents and/or guardians who accompanied them during the outpatient clinic visit. Finally, disease severity was not assessed by applying a specific clinical score for AD, such as the Scoring Atopic Dermatitis (SCORAD).

It was therefore concluded that quality of life and the development of mental disorders in children with AD were related to the use of immunosuppressive medications. Periodic evaluation and the application of screening tests for mental disorders should be adjunctive in the therapeutic management of patients with AD. Once psycho-emotional symptoms are diagnosed early, follow-up by a mental health professional will be conducted to improve the prognosis. Subsequent research may include the application of severity assessment scores and specific scales for pruritus.

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