

## IMPACTS ON THE QUALITY OF LIFE OF PEDIATRIC PATIENTS WITH ATOPIC DERMATITIS: A NARRATIVE REVIEW OF THE LITERATURE

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***Cleidiane dos Santos Alexandrino Silva***

Faculdade Integradas Adamantina- FAI  
Adamantina-São Paulo  
<https://lattes.cnpq.br/9537243482882715>

***Maria Clara Souza Pinheiro***

Faculdade de Ciências da Saúde Pitágoras de  
Codó, Codó-Maranhão  
<http://lattes.cnpq.br/7412215838487224>

***Louane Souza Calheiros***

Universidade Nilton Lins  
Manaus-Amazonas  
<http://lattes.cnpq.br/7625342034523943>

***Cláudio Calheiros Monteiro***

Universidade Nilton Lins  
Manaus-Amazonas  
<https://lattes.cnpq.br/8978488789812942>

***Juliany Rosina Bentes da Silva***

Universidade Nilton Lins  
Manaus-Amazonas  
<https://lattes.cnpq.br/9064172164901576>

***Yaago Rodrigues Magalhães***

Universidade Nilton Lins  
Manaus-Amazonas  
<http://lattes.cnpq.br/1455978469966065>

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**Bruno Luiz Ferreira Cavalcante**  
Universidade Nilton Lins  
Manaus-Amazonas  
<http://lattes.cnpq.br/7286952448018277>

**Kawanny Evellyn Reis Félix de Oliveira**  
Faculdade de Ciências da Saúde Pitágoras de  
Codó  
Codó-Maranhão  
<https://lattes.cnpq.br/7170600530057450>

**Bianca Cadore Morás**  
Universidade Comunitária da Região de  
Chapecó (UNOCHAPECÓ)  
Chapecó- Santa Catarina  
<http://lattes.cnpq.br/6380469541855404>

**Renata Fonseca Queiroz de Carvalho**  
Universidade Nilton Lins  
Manaus - Amazonas  
<http://lattes.cnpq.br/7011912833409132>

**Francisco Anderson Costa Batista Junior**  
Faculdade Nova Esperança de Mossoró -  
FACENE/RN  
Mossoró-Rio Grande do Norte  
<https://lattes.cnpq.br/2792501620717401>

**Emilly Vitória Carvalho Lobato**  
Universidade Nilton Lins  
Manaus-Amazonas  
<http://lattes.cnpq.br/6911618868322173>

**Abstract: Goal:** To analyze the impacts on the quality of life of pediatric patients affected by atopic dermatitis, relating it to the symptoms and severity of the disease. **Literature Review:** Atopic dermatitis (AD) is a complex condition that affects the quality of life of children, characterized by symptoms such as intense itching, erythema and skin lesions. In addition to the physical impacts, AD has significant emotional and social repercussions, often associated with other atopic conditions such as allergic rhinitis and asthma. Children with AD face socio-behavioral challenges, social isolation, anxiety and low self-esteem, due to the appearance of their skin and the need for continuous treatments. Psychological and social support is essential not only for patients but also for their families, who deal with high financial costs and emotional stress when managing the chronic condition. Final considerations: Atopic dermatitis in pediatric patients demands a multidisciplinary approach that considers physical, emotional and social aspects. It is essential to raise awareness about the condition, offer adequate psychological and social support, and develop more accessible and effective treatments to improve the quality of life of patients and their families. **Keywords:** Atopic Dermatitis, Children, Symptoms, Severity, Quality of life.

## INTRODUCTION

Atopic dermatitis (AD) is a chronic, recurrent inflammatory skin disease characterized by intense itching and erythematous or vesicular maculopapular lesions, scaling, dryness, crusting and/or lichenification (GIAVINA-BIANCHI et al., 2019). It can be triggered by infections, recurrent use of antibiotics, foods, cosmetics and fragrances. Patients with the disease have little tolerance to temperature extremes, whether hot or cold, which can initiate symptoms such as sweating and dry skin, triggering itching. Exposure to environmental

allergens, such as dust mites, pollen, fungi, cigarette smoke and pet dander, can intensify the symptoms of atopic dermatitis. Food allergens, found most commonly in eggs, milk, peanuts, wheat, soy, tree nuts and fish, also contribute to childhood cases (SOUZA et al., 2019).

AD appears most commonly in children under 5 years of age, but can persist into adulthood in up to 50% of cases (PETERLE et al., 2024). In Brazil, atopic dermatitis (AD) affects between 5% and 10% of children under 12 years of age, causing a major impact on their lives and those of their families (SILVA et al., 2020). Furthermore, atopic dermatitis is a socially and psychologically significant condition due to its chronicity, recurrence, high prevalence, intense itching, and interference with sleep and daily activities (ALVARENGA et al., 2009). As a result, in these patients there is an incidence of behavioral problems such as anxiety, depression, somatic complaints, social isolation, irritability, disobedience and the development of Attention Deficit Hyperactivity Disorder (SILVA et al., 2020).

Thus, abstention from school and leisure activities may occur due to prejudice and fear of non-acceptance by the community, which leads to significant negative impacts. These adverse effects have the potential to result in cognitive problems, including difficulties in learning at school and challenges in family and social environments. In some cases, this can lead to anything from mild and temporary cognitive disorders to lasting changes in personality and mood (GASCON et al., 2012).

Considering the relevance of the topic and the lack of national studies, this narrative review of the literature aims to analyze the impacts caused on the quality of life of pediatric patients affected by atopic dermatitis, relating it to the symptoms and severity of the disease.

## LITERATURE REVIEW

### DEFINITION

Atopic dermatitis (AD) is a chronic inflammatory skin disease, manifested as eczema, and generally associated with a personal or family history of atopy. It is characterized by erythema, edema and vesicles in the acute phase, and by scaly erythematous plaques with lichenification in the chronic phase. Patients with AD have dry skin and a reduced threshold for itching, with eczema that can persist from childhood to adulthood, affecting quality of life. Atopic individuals have a hereditary predisposition to immediate IgE-mediated hypersensitivity, and the presence of eczema, pruritus and history of allergies are criteria for the diagnosis of AD (ANTUNES et al., 2017). In most cases, it is related to other atopic diseases, mainly allergic rhinitis and asthma, and also to a greater predisposition to viral, bacterial and fungal infections (AMARAL et al. 2012).

### EPIDEMIOLOGY

Atopic dermatitis (AD) is a chronic inflammatory skin disease, common throughout the world and growing, especially in industrialized countries. In Brazil, the incidence of AD is 13% among children and adolescents. In 90% of cases, injuries begin in the first five years of life, and the disease can persist throughout life (SILVA et al., 2020). The prevalence of atopic dermatitis has increased over the last three decades, especially in developed countries. Currently, around 15-20% of children and 1-3% of adults are affected worldwide (SANTOS et al., 2021).

## SYMPTOMATOLOGY

The clinical presentation of atopic dermatitis (AD) varies from localized to disseminated forms. Characteristics include itching, chronic or recurrent lesions, with distribution and morphology varying according to age. The classic lesion is eczema, a skin inflammation that presents erythema, papules, seropapules, vesicles, scales, crusts and lichenification, in addition to nonspecific histological findings such as spongiosis, acanthosis, parakeratosis, lymphocytic infiltrate and exocytosis. Although clinical characteristics change according to age group, many patients present lesions typical of different ages simultaneously (PALLER et al., 2015; EICHENFIELD et al., 2014).

In the infantile phase, determined by birth until the sixth month of life, the most common symptoms are intense itching and skin lesions with erythema, papules, vesicles and formation of crusts, which are located on the face and spare the central mass. The extensor side of the limbs and trunk can also be affected. Eczema outbreaks can be triggered by respiratory infections, climate changes, emotional factors and food. During the period between 8 and 10 months of age, eczema lesions tend to occur in the extensor regions of the limbs, probably due to friction caused by crawling or dragging on the floor. Although patients with generalized eczema may improve at this stage, it is unlikely that the disease will disappear completely (PALLER et al., 2015; GRIFFITHS et al., 2016).

The pre-pubertal phase, which is characterized, from the age of 2 and persists until puberty, by injuries in the flexural regions of the knees and elbows, neck, wrists and ankles. Erythematous papules and vesicles are gradually replaced by lichenification (thickening, darkening and accentuation of skin creases). Itching is always present and can be difficult to control. It is important to highlight that 60% of patients show significant

improvement or complete disappearance of the lesions at this stage of the disease. Patients who had severe forms of the disease and significant psychological changes in childhood are more likely to have the disease persist into adulthood. This aspect is crucial, as it highlights the importance of greater control of the emotional condition in atopic children (PALLER et al., 2015; EICHENFIELD et al., 2014).

## DISEASE SEVERITY

AD is diagnosed clinically and is based on the clinical-laboratory diagnostic criteria established by Hanifin and Rajka. Complementary exams help, but are not sufficient to conclude the diagnosis (PEREIRA et al., 2021). Hanifin and Rajka's diagnostic criteria are divided into major and minor. There are 4 major criteria characterized by the presence of itching, rash on the face and/or extensor surface in younger children and infants, chronic and recurrent dermatitis, personal or family history of atopy (asthma, allergic rhinitis and atopic dermatitis) and 22 minor ones such as xerosis, ichthyosis, palmar hyperlinearity, keratosis pilaris, positive prick test, increased serum IgE, tendency to skin infections (*S. aureus*/Herpes), tendency to nonspecific dermatitis of hands and feet, nipple eczema, cheilitis, recurrent conjunctivitis, Dennie-Morgan infra orbital fold, keratoconus, anterior subcapsular cataract, periorbital darkening, facial erythema or pallor, pityriasis alba, itching with perspiration, anterior neck folds, intolerance to wool and lipid solvents, perifollicular accentuation, food intolerance, influenced course due to environmental and/or emotional factors, white dermographism. The patient is identified with AD if they present at least three of the major criteria and three of the minor ones (PRADO et al., 2022).

Atopic dermatitis can be classified as mild, moderate and severe, depending on the skin worsening and symptoms present (BARBOSA, 2023). The degree of severity of the disease can be analyzed using the Eczema Area and Severity Index, EASI. Developed by Hanifin et al., the EASI measures the severity of the dermatosis based on the presence of clinical signs such as erythema, papules, excoriations and lichenification, in addition to the affected body surface area. The score ranges from 0 to 72, with higher scores indicating greater severity of the disease (ALVARENGA et al., 2009).

### IMPACTS ON QUALITY OF LIFE

The symptoms and severity of the disease have a direct relationship with psychosocial manifestations. When the patient has a mild level of the disease, they present areas with xerosis, infrequent itching (with or without inflamed areas) which is related to a small impact on quality of life. When the level is moderate, there are areas with xerosis, frequent itching associated with inflammation (with or without signs of excoriation and localized areas of skin thickening that have a moderate impact on daily and psychosocial activities, frequent sleep disturbances. Severe symptoms such as diffuse xerosis, constant itching associated with inflammation (with or without signs of excoriation, thickened skin with bleeding, lichenification and changes in pigmentation) are linked to limitations in daily and psychosocial activities and lost nights' sleep (BRASIL, 2023).

Atopic Dermatitis can have major repercussions in terms of psychosocial aspects. Being frequently found in children, it exerts a harmful influence on the clinical and emotions, leisure, interpersonal relationships and school environment, directly reflecting on greater family commitment. Neto et al. (2005) identified in their study that children with

atopic dermatitis present socio-behavioral difficulties, limitations in participation in social activities and frequent characteristics of dependence and vulnerability. Furthermore, these children exhibit a high degree of anxiety and emotional lability, resulting from low self-esteem and insecurity (BRAGA et al., 2023).

In addition to constant exposure to situations of prejudice due to the unsightly condition of the skin in different social contexts, the symptoms of atopic dermatitis cause physical discomfort. There is also a need to establish treatment routines, which do not always produce immediate effects and compete with other activities that are more attractive to the child (SILVA et al.2020). Children with higher levels of stress and intense and frequent symptoms can cause significant social and psychological damage to the family, affecting the structural dynamics and communication between members. Some parents or caregivers with a high degree of anguish and difficulties in creating bonds with their children tend to have more difficulty adhering to therapy, often abandoning treatment before obtaining definitive results (BRAGA et al.,2023).

Furthermore, there is another impact on the lives of family members, which would be the economic issue, as caring for these patients is quite expensive. A study carried out by Alvarenga et al. found that the economic cost of managing the disease, such as treatment, consultations, special clothing, among others, has the greatest impact on quality of life, differing from other studies that present sleep disorders and tiredness/exhaustion as being the biggest causes of harm to the family (ALVARENGA et al., 2009).

Among the symptoms of the disease presented by children, itching, especially at night, is what most causes changes in the quality and quantity of sleep in these patients, causing tiredness, irritability, difficulty concentrating and learning, and poor school performance.

A study carried out by Weber et al. in 2004, pointed out that this symptom appeared daily in 74.2% of the studied population, and in patients with severe AD, the itching was more intense and recurrent compared to patients with mild and moderate disease (ALVARENGA et al., 2009). Furthermore, it appears that the greater severity of the disease, especially the intensity of the itching, is a psychosocial factor that worsens depression (JUNIOR et al., 2022).

From the perspective that increased levels of psychosocial stress worsen the eczematous condition of AD, several biological pathways may be involved in this process. Inflammasomes, which are essential multiprotein complexes in the innate immune response, may play a fundamental role in this mechanism. They detect danger signals and infections, leading to the activation of pro-inflammatory cytokines such as IL-1 $\beta$  and IL-18, which promote inflammation. Additionally, the hypothalamic-pituitary-adrenal (HPA) axis and the nervous system friendly (SNS) are also relevant. The HPA axis is activated in response to stress, resulting in the release of cortisol, a hormone that modulates the immune and inflammatory response. The sympathetic nervous system, in turn, releases catecholamines, such as adrenaline and noradrenaline, in stressful situations, which can also influence the immune response. In relation to neurotransmission, there are pathways through which inflammatory molecules can influence the availability of monoamines, which play a fundamental role in the development of depression (JUNIOR et al., 2022).

## FINAL CONSIDERATIONS

This analysis revealed the significant impact on the quality of life of pediatric patients with atopic dermatitis. The psychosocial impacts of AD are profound. Children with AD often face socio-behavioral challenges, social isolation, and emotional difficulties such as anxiety and low self-esteem. These factors are exacerbated by the need for ongoing treatments and the experience of prejudice due to the appearance of the skin. Psychological and social support is, therefore, crucial to improving the quality of life of these patients and their families. The effects of AD also extend to family members, who face significant financial costs and emotional challenges in managing their children's chronic condition. The complexity of care, which includes expensive treatments and frequent consultations, aggravates family stress, negatively influencing the dynamics and communication between members. The relationship between increased levels of psychosocial stress and exacerbation of the eczematous condition of AD indicates the importance of holistic treatment that includes not only medical interventions but also strategies to manage stress and emotional support. From this perspective, atopic dermatitis in pediatric patients requires a multidisciplinary approach that addresses the physical, emotional and social aspects of the disease. Improving awareness about the condition, offering adequate psychological and social support, and developing more accessible and effective treatments are essential steps to mitigating the impacts of AD and improving the quality of life of patients and their families.

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