



Mental Health Impacts of Atopic Dermatitis in Pediatric Populations

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Abstract:

Atopic dermatitis (AD) is an inflammatory skin disease which can have significant impacts on mental health outcomes in pediatric populations. AD damages the skin barrier and causes sensitivity, which then leads to negative impacts in sleep, social functioning, and physical comfort. This systematic review utilized the PubMed database and focused on the search terms “atopic dermatitis,” “adolescents,” and “anxiety.” These studies showed that atopic dermatitis can cause difficulty in sleeping, and these problems increase the risk of ADHD symptoms, emotional problems, and oppositional behavior. Early childhood AD, as well as sleep problems, increases the chances of developing negative mental health outcomes later. Severe AD increases the risk of psychiatric disorders like anxiety, depression, panic disorder, and bipolar disorder. Pruritus (itching) is also a significant driver of mental health problems and sleep disruptions. Children with atopic dermatitis express low social competence and participation in school and activities. Bullying and peer avoidance also become a problem, which causes distress and low self-esteem. AD is linked to negative mental health outcomes, and many different factors increase them. Sleep disturbances were the most common contributor to these mental health problems, and then came the physical and social symptoms. Treating AD should include both physical as well as psychological care for children, and early sleep intervention may reduce long-term mental health risks. A limitation of this review is only free full-text studies were used, and there was a dearth of literature on social factors given the inclusion criteria. For future research, there should be long-term studies focusing more on social functioning as well as studies on early interventions that target and focus mainly on sleep, physical symptoms, and support systems.

Background:

Atopic dermatitis (AD), also known as eczema, is a chronic, itchy skin disease that causes dry, discolored, and inflamed patches on the skin. AD is linked to a dysfunctional immune system, weakening the skin barrier. This causes the skin to become sensitive and prone to infections, with symptoms triggered by stress, irritants, and allergens. Around 60% of children with AD develop symptoms in their first year of life, and 90% develop symptoms by the age of 5 (American Academy of Pediatrics, 2021). AD often persists into adolescence and adulthood.

AD has numerous side effects that cause significant disturbances influencing the development and daily functioning of affected children throughout their lives. Atopic dermatitis affects sleep,

social functioning, and physical comfort, which can result in negative mental health outcomes. Continuous sleep disruption, physical discomfort, and negative social experiences can contribute to emotional distress, increasing the risk of depressive and anxiety symptoms in children with AD. Sleep disturbances are common, impacting 67% of children with AD. Additionally, between 20% to 40% of children and teens with AD experience bullying (National Eczema Association 2025). This systematic review aims to examine the literature to evaluate the relative contribution of sleep disturbances compared to other factors, including itching, pain, and social functioning, in explaining mental health problems among pediatric patients with atopic dermatitis.

Methods:

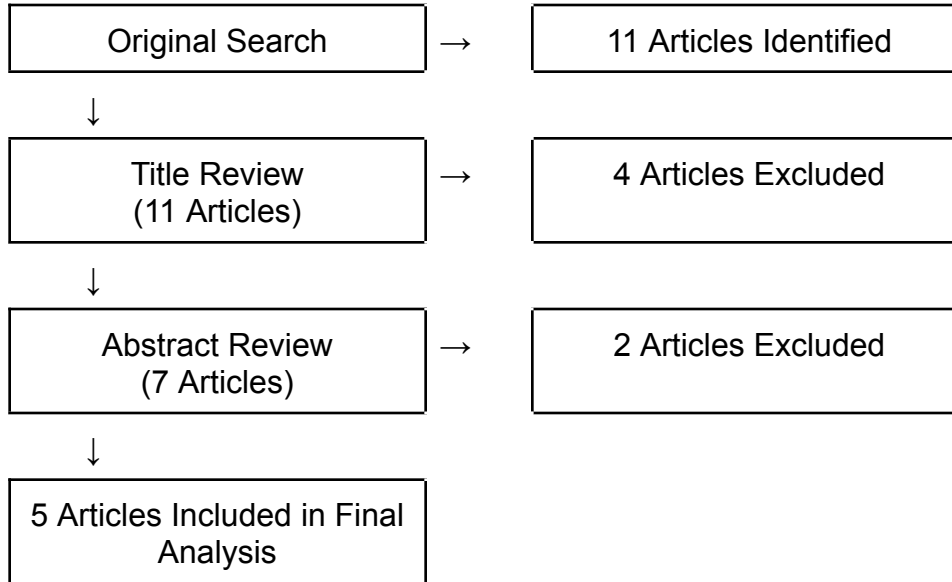
A comprehensive literature search was conducted using PubMed on October 16th, 2025 to uncover the different aspects of impacts that occur due to atopic dermatitis in adolescents. The search strategy employed the following terms: “atopic dermatitis” AND “adolescent” AND “anxiety.” To ensure the relevance of identified papers, the following inclusion criteria were applied: (1) articles that were published in the last 5 years, (2) free full text availability, (3) English language, and (4) focused on children between birth to 18 years. These filters were applied directly within the PubMed database using the search interface. The search yielded 11 articles meeting the inclusion criteria.

Articles were considered relevant if they directly addressed the research question: “What is the relative contribution of sleep disturbances compared to other factors, including itching, pain, and social functioning, in explaining mental health problems among pediatric patients with atopic dermatitis?” To determine relevance, titles of all articles were first reviewed. For articles with relevant, appealing titles, abstracts were reviewed. A full paper review for all articles appearing relevant based on the abstract review was performed. Five articles were selected for inclusion based on their relevance to understanding the variety of factors that are associated with atopic dermatitis in adolescents (Figure 1).

The included articles were organized into 3 conceptual categories: (1) sleep, (2) physical factors, and (3) social factors. This categorization of the articles addressed the research question by allowing comparison of the relative contributions of sleep disturbances versus other components like physical influences (itching, pain) and social elements (talking to people, anxiety) in explaining mental health problems.

Figure 1

Article Identification Process



Note.

Results:

Sleep-Related Factors

Numerous studies and cohorts reported an association between mental health outcomes and sleep disturbances in pediatric populations with atopic dermatitis. In one study of 6484 children between the ages of 3 and 11, children reported difficulty initiating sleep and frequent nighttime awakenings related to sensations of itching (Radtke et al., 2023). A separate study of youth aged 6-16 years old showed that “sleep problems partially mediated the relationship between AD and oppositional behavior, hyperactivity, and overall ADHD symptoms in 6- to 16-year-old youth” (Radtke et al., 2023). Another prospective birth study cohort included 1578 infants with atopic dermatitis until age 10 and found that the coexistence of infant atopic dermatitis and sleep problems predicted emotional problems for children at the age of 10 (Radtke et al., 2023). In a retrospective population-based cohort study, Mann et al. (2025) examined children between 5 and 17 years old. This cohort used propensity-matched electronic health records to compare the risk of sleep and psychological comorbidities and revealed that “patients with urticaria and AD displayed increased risk of insomnia” (Mann et al., 2025). Collectively, these studies reveal how AD can impact sleep-related disorders for pediatric populations.

Physical Factors

Various studies indicate that skin-related symptoms and physical severity of atopic dermatitis are connected with increased psychological and behavioral disturbances in children and adolescents. In a cross-sectional study of patients between 6-17 years with atopic dermatitis, Moraes et al. (2023) revealed that children with moderate to severe AD have a higher chance of aggressive behaviors and sleep disorders. Furthermore, the study reported that 63% of pediatric patients with atopic dermatitis exhibited symptoms consistent with mental health disorders - specifically, internalizing disorders (i.e., depression and anxiety) were the most prevalent. A registry-based study examining children with childhood-onset AD in Finland from 1987 to 2017 revealed that increasing severity of AD was connected with elevated risk of psychiatric disorders, including panic disorder, depression, anxiety disorders, and bipolar disorder (Sequeiros et al., 2024). Supporting this finding, a nationwide Korean registry study reported a more than threefold increase in depression risk in individuals with severe AD compared to a 1.75-fold increase in moderate severity. Skin-related symptoms, specifically pruritus, were reported to be identified as a key physical contributor to psychological outcomes in individuals that have atopic dermatitis. Ratke et al. (2023) found that pruritus severity was associated with symptoms of depression, anxiety, and stress across the lifespan, and it was also revealed pruritus leads to impairment in sleep, which then influences mental health. In summary, these findings show that physical disease severity and symptoms of burden, especially pruritus, are strongly connected with mental health outcomes in pediatric populations with atopic dermatitis.

Social Factors:

Various studies identified social functioning impairments that are connected with psychological outcomes in children and adolescents with atopic dermatitis. In a cross-sectional study of children between 6 to 17 years with atopic dermatitis, Moraes et al. (2023) revealed that patients with AD show impairments in social competence, which are mainly pronounced in age-appropriate activities such as playing. Qualitative studies involving children between the ages of 8 to 12 with atopic dermatitis also revealed that high rates of bullying, peer avoidance, and negative social interactions, which were connected to the increased rates of the emotions of self-consciousness, poor self-esteem and self-image, and lastly emotional distress (Radtke et al., 2023). A nationally representative cross-sectional study analyzed data from the 1996 to 2015 Medical Expenditure Panel Surveys, examining behavioral and social outcomes among 2553 U.S. children with AD (Cheng et al., 2021). After adjusting for sociodemographic characteristics and co-occurring asthma (a condition that commonly co-occurs with atopic dermatitis and can impact sleep and mood), children with atopic dermatitis expressed a higher prevalence of difficulties with nervousness, staying out of trouble, behavior at home, and getting along with siblings and peers. Furthermore, the study also revealed functional impairment in

school settings, which increased the rates of chronic school absenteeism (Cheng et al., 2021). These findings emphasize the social consequences of AD. Peer victimization and impairment in social functioning have also been shown as contributing factors to mental health results in children that have atopic dermatitis. Together, these findings show how social impairments, that include reduced peer interaction, exposure to bullying, and behavioral difficulties, are frequent among adolescents and children with atopic dermatitis and are connected with various psychological and behavioral outcomes.

Discussion:

The current body of literature indicates that AD is significantly associated with negative mental health outcomes in pediatric populations. Among all the factors discussed, sleep disturbances emerged as the most frequently studied cause of mental health problems. Across all the studies mentioned in this review, children and adolescents with AD consistently showed higher rates of psychological, behavioral, and emotional difficulties. These findings emphasize the need for a comprehensive approach to managing atopic dermatitis that addresses both physical symptoms and psychological factors as well.

Sleep disturbances appear to play a central role in explaining mental health outcomes in pediatric patients with atopic dermatitis (Radtke et al., 2023; Mann et al., 2025). Multiple studies have reported difficulty initiating sleep and persistent nighttime awakenings, increasing the risk of sleep disorders in children with AD. These constant sleep disruptions are associated with emotional distress, symptoms of anxiety, and behavioral problems. These associations increase the risk of anxiety and depression at a young age. The findings of the study highlight sleep as a key target for early intervention to potentially reduce mental health risks in children with atopic dermatitis.

Physical factors are the next most frequently reported contributor to mental health outcomes in pediatric patients with atopic dermatitis. Various studies reveal that the severity of AD is connected to higher rates of negative behavioral and psychological outcomes. Common outcomes are anxiety and depressive symptoms. Skin-related symptoms, specifically pruritus, play a significant role by causing constant sleep disturbance due to physical discomfort. These factors start to increase emotional stress and worsen the mental health of pediatric patients over time, resulting in life-changing mental health conditions. This study's findings suggest that effective management of physical symptoms of AD may help reduce psychological distress and negative mental health diagnoses in children with atopic dermatitis.

Among the articles reviewed, social factors are the next most frequently reported contributor to mental health problems in children with atopic dermatitis. Children and

adolescents with AD regularly experience difficulties with participating in activities, peer interactions, and social competence. For children with atopic dermatitis, peer avoidance and bullying contribute to emotional distress, as well as visual dissatisfaction to low self-esteem and poor self-image. The challenges that children with AD face spread into school and home environments, negatively impacting behavior, relationships, and psychological well-being. Overall, these findings show that impaired social functioning is a major contributor to mental health disorders in pediatric populations with atopic dermatitis.

Limitations

This review paper has various limitations which should be considered when interpreting the findings. One limitation is the reliance on freely available full-text articles, which may have restricted access and exclusion of some studies that required payment. Due to this, some relevant data and findings may not be included in this review. Additionally, there was limited existing research identified specifically focusing on social factors which can reduce the depth of the conclusions regarding the overall social impact of atopic dermatitis in pediatric populations. Future studies with broader access to full data sets and more emphasis on social functions would likely strengthen the understanding of the relationships between social factors of children with AD.

Future Directions

Future research should explore concepts not evaluated in the already existing literature, such as the interaction between long-term relationships, atopic dermatitis, and mental health outcomes in pediatric populations. Additionally, more research that focuses on social factors like peer relationships and school function could help clarify the main contribution to psychological outcomes in children with AD. Studies examining the effectiveness of early interventions intended to prevent sleep disturbances, reduce symptom severity, and improve social support can provide significant insight and detail into reducing mental health risks in these patients. Expanding research in these areas would improve clinical management and the quality of life for children that suffer with atopic dermatitis.



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