

BACKGROUND

Atopic dermatitis (AD) is a chronic skin disorder characterized by the inflammation of the skin that can result in itchiness, redness, and oozing. Although AD can develop at any age, it is most common in children, with a worldwide prevalence of around 10-20%.¹

Studies have shown that children suffering from moderate to severe AD experience morbidity and impairment in quality of life, including having a significantly greater risk of developing sleep disturbances, which can lead to poorer performances in school and familial stress.²⁻⁴ While some studies suggest a correlation between AD and psychological disorders, such as anxiety and depression,⁵⁻⁷ others have found no such link.^{8,9}

To better understand these mixed findings, it is important to examine predictors that contribute to the development of sleep and mental health disorders in pediatric patients with AD.

SIGNIFICANCE

Limited studies focus on factors that increase the association with the development of sleep and mental health disorders in children with moderate to severe AD. Conducting a comprehensive chart review of the electronic health record (EHR) will help us gain more insight into this debilitating disease and its impact on the pediatric population.

OBJECTIVE

The aim of this study is to determine patient factors that are associated with higher prevalence of mental health and sleep disorders in pediatric patients with AD.



METHODS

Data Source: Baylor Scott & White Health EHR

Study Period: Jan 1, 2014 – March 31, 2023

Inclusion criteria:

- Age ≤18 years during the study period
- Having a diagnosis of AD (ICD-10 L20, L20.9, and L20.8x) between January 1, 2020 and December 31, 2022
- Having at least one drug indicated for treatment of AD

Exclusion criteria:

- Patients who have no AD or mild AD

Primary Outcome:

- The association of increased prevalence of attention-deficit/hyperactivity disorder (ADHD), anxiety, depression, suicide ideation (SI), and sleep disorders in AD patients with age, sex, race, insurance type, median income, having a prescription for biologics, and having a prescription for methotrexate

Data Analysis:

- Multivariate logistic regression analyses were performed to examine the association of age, sex, race, income, insurance type, having a prescription for biologics, and having a prescription for methotrexate with AD comorbidities
- Frequencies of the associated comorbidities and treatment drugs prescribed were summarized using descriptive statistics
- Diagnosis of diseases were determined through ICD-10 codes and physician notes in the EHR
- Median household income was determined by the American Community Survey 2021 5-year estimates. These values are in 2021 inflation-adjusted dollars. Results are current and comparable to the US Census Bureau.

RESULTS

Table 1. Patient demographics

Baseline Characteristics	Number of Patients (n=300)
Age, median (SD)	11.0 (4.6)
Female (n, %)	151 (50.3%)
Race (n, %)	
Non-Hispanic White	87 (29.0%)
Black or African American	68 (22.7%)
Hispanic or Latino	88 (29.3%)
Asian	22 (7.3%)
Other	12 (4.0%)
Unknown	23 (7.7%)
Insurance type (n, %)	
Commercial	124 (41.3%)
Government	132 (44.0%)
Self-Pay/Other	44 (14.7%)
Median household income	
Under \$25,000	1 (0.3%)
\$25,000 under \$50,000	69 (23.0%)
\$50,000 under \$75,000	149 (49.7%)
\$75,000 under \$100,000	40 (13.3%)
\$100,000 under \$150,000	39 (13.0%)
\$150,000 and above	2 (0.7%)

Table 2. AD-associated comorbidities

Comorbidities	Number of Patients (n=300)
Sleep disorder	83 (27.7%)
ADHD	36 (12.0%)
Anxiety	33 (11.0%)
Depression	18 (6.0%)
Suicide ideation	4 (1.3%)

Table 3. Medications prescribed to patients

Medication	Number of Patients (n=300)
triamcinolone 0.1% topical	262 (87.3%)
dupilumab (DUPIXENT)	166 (55.3%)
hydrocortisone 2.5% topical	156 (52.0%)
crisaborole (Eucrisa) 2% topical	121 (40.3%)
tacrolimus 0.1% topical	115 (38.3%)
clobetasol 0.05% topical	67 (22.3%)
fluocinonide 0.05% (Lidex) topical	62 (20.7%)
fluocinolone 0.01% (Derma Smoothe) topical	48 (16.0%)
pimecrolimus 1% topical	41 (13.7%)
methotrexate 25 mg	20 (6.7%)
abrocitinib (CIBINQO)	1 (0.3%)
risankizumab-rzaa (SKYRIZI)	1 (0.3%)
udapacitinib (RINVOQ)	1 (0.3%)

Age is a significant predictor for associated comorbidities in AD pediatric patients, including anxiety, depression, and sleep disorders. Older patients had higher odds of having a diagnosis of anxiety or depression, while having lower odds of having a diagnosis of sleep disorder.

LIMITATIONS

- Retrospective study was subject to missing data
- EHR provided only what was prescribed to patients thus cannot confirm if medications were taken by patients

DISCUSSION/CONCLUSIONS

- Age had a significant association with anxiety (OR=1.286, 95% CI: 1.1-1.503), depression (OR=1.341, 95% CI: 1.094-1.644), and sleep disorder (OR=0.888, 95% CI: 0.819-0.962)
- Findings are consistent with a previous study showing anxiety/depression being associated with older age¹⁰
- Parents of younger patients may report sleeping problems more frequently than those of older patients
- Overall, our study shows slightly lower prevalence of ADHD (12% vs 12%-20%), anxiety (11% vs 8%-46%), depression (6% vs 6%-30%), SI (1.3% vs 3%-22%), and sleep disorders (27.7% vs 7%-52%) compared to previous studies of this population^{3,11,12,13}
- This raises concerns for potential underreporting of these comorbidities in this pediatric sample
- Future studies using larger samples and different predictors as well as examining changes in comorbidity prevalence based on treatments are warranted

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DISCLOSURES

Authors of this presentation have no concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.

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