Sleep disturbance is twice as prevalent in children and adolescents with atopic dermatitis:
A population-based cohort study in English primary care

P2954

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Introduction

Children and adolescents with **atopic dermatitis (AD)** often experience delayed sleep onset and may wake during the night due to pruritus, reducing both sleep duration and quality. Despite how common AD is in childhood and the **widespread effects of sleep disturbance**, population-based research into AD-related sleep disturbance is limited.

This study aimed to estimate the **burden of sleep disturbance** in children and adolescents with AD, using a nationally representative primary care database in England, and to **identify the groups most at risk**.

Methods

Children and adolescents (aged 2-<18 years) registered at practices contributing to the Clinical Practice Research Datalink (CPRD) Aurum database of routinely collected medical records (01/03/2003 - 01/03/2023).

Active AD cases were identified using at least one AD-specific code and two AD treatment codes within 365 days. Each case was matched with up to 4 controls. Cases were exact matched on sex, ethnicity, deprivation and region, with nearest neighbour on age and duration of practice registration.

The primary outcome was any sleep disturbance recorded in primary care. Associations were evaluated using Cox regression. In addition to sociodemographic variables models were also adjusted for baseline atopic comorbidities (allergic rhinitis, asthma, urticaria, food allergy, inflammatory bowel disease, rheumatoid conditions, and family history of atopy).

Results

A total of **643,012 active AD cases** were identified and matched to **2,546,802 unaffected controls**.

For active AD cases, **49% were female** and age at index date was **3.3 years** (inter quartile range [IQR] 2.0, 7.8).

Follow-up time was 1.34 years for active AD cases (IQR 0.95, 2.04) and 1.30 years for matched controls (IQR 0.90, 1.98).

Active AD age distribution

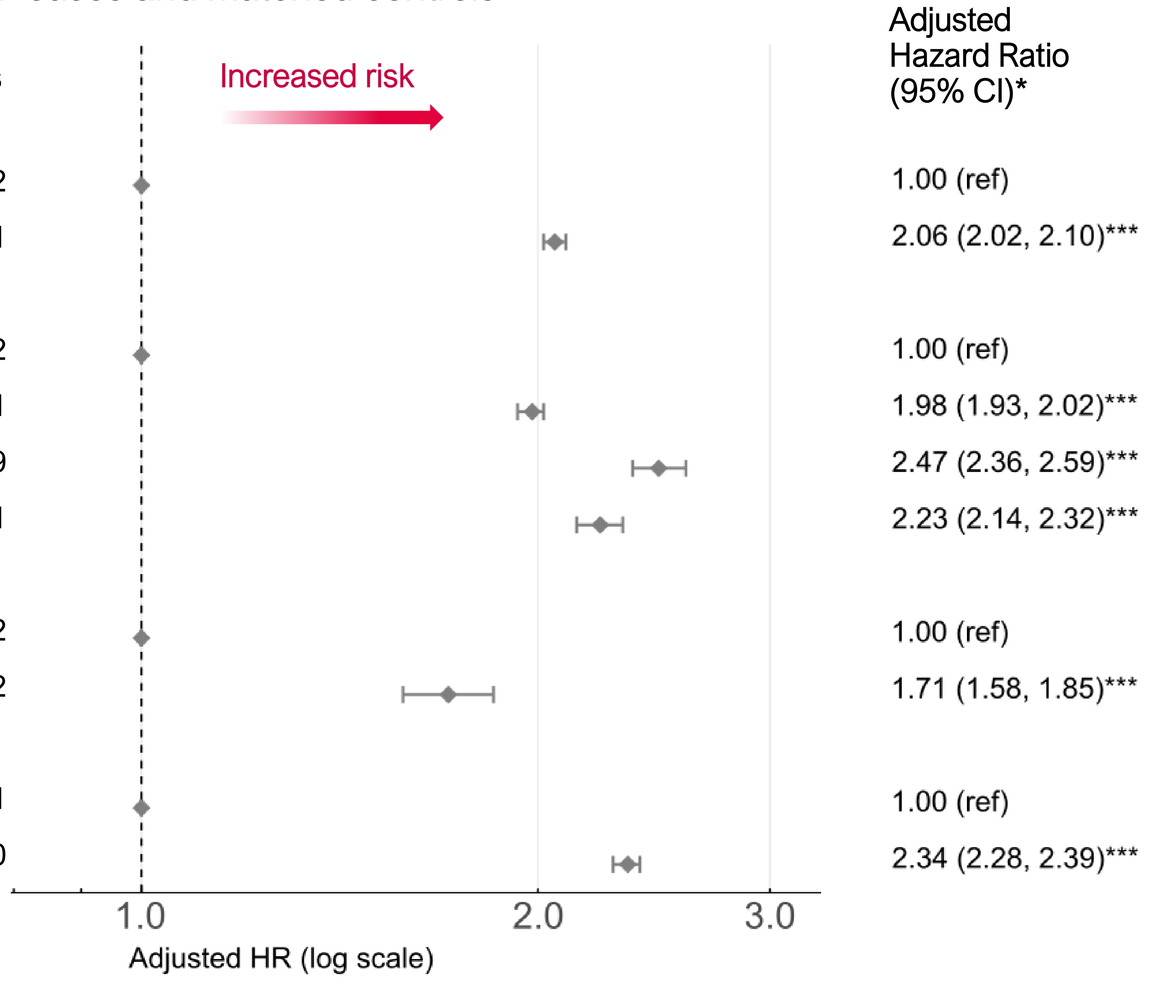
63 %
2 - 4 years

25 %
5 - 11 years

13 %
12 - 17 years

Risks of sleep disturbance between active AD cases and matched controls

	N	Events	Adjusted Hazard Ratio (95% CI)*
Overall			
Controls	2,546,802	24,242	1.00 (ref)
Active AD	643,012	17,011	2.06 (2.02, 2.10)***
AD severity			
Controls	2,546,802	24,242	1.00 (ref)
Mild AD	591,672	11,991	1.98 (1.93, 2.02)***
Moderate AD	50,486	1,919	2.47 (2.36, 2.59)***
Severe AD	77,488	3,101	2.23 (2.14, 2.32)***
Cohort with asthma			
Controls	20,508	1,072	1.00 (ref)
Active AD	17,136	1,552	1.71 (1.58, 1.85)***
Cohort without asthma			
Controls	2,225,472	16,451	1.00 (ref)
Active AD	582,557	10,760	2.34 (2.28, 2.39)***



*Adjusted for sex, age, ethnicity, deprivation, AD severity, atopic comorbidity (allergic rhinitis, asthma, urticaria, food allergy), inflammatory bowel disease (Crohn's disease and ulcerative colitis), rheumatoid conditions (systemic juvenile idiopathic arthritis, systemic sclerosis and psoriatic arthritis), and family history of atopy. ***p<0.001 **p<0.01 *p<0.05

Conclusions

A **substantial number of children and adolescents with active AD experience sleep disturbance**, with **rates twice as high** as those in unaffected controls. AD related sleep disturbances were **greater in those with moderate and severe AD**. It is important that clinicians are aware of how common sleep disturbance is in young people with AD and recognise those groups at the greatest risk.

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