



NIGHT SWEATS IN CHILDREN

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DEFINITION

- ▶ Night sweats(NS): sweating that occurs only or mainly at night.
- ▶ In a cross-sectional study (2267 adults): 23% defined “sweating at night even when it isn’t excessively hot in your bedroom within the past 4 weeks”

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- ▶ Objective: examine the prevalence and factors associated with night sweats in primary school children.
 - ▶ Study design: cross sectional design
 - ▶ Study population: 6381 children (median age 9,2(7,7-10,7) years) from 13/76 primary schools in 2 districts were randomly chosen.

QUESTIONNAIRE

- 1) Age, gender, sleep duration (average of 7 days) and presence of any chronic medical conditions rated by parents as 'yes' or 'no'
- 2) History of respiratory diseases in the past 12 months including allergic rhinitis, nasosinusitis, tonsillitis and laryngopharyngitis
- 3) Daytime behaviour including hyperactivity and frequent temper outbursts, nocturnal and daytime OSA-related symptoms
- 4) Family information (parental education level, parental age and home living area



NS and 20 sleep-related symptoms were rated on a 5-point scale (0–4):

- 0: ‘never’;
 - 1: ‘rarely’ for 0–1 night per month;
 - 2: ‘sometimes’ for 1–2 nights per month;
 - 3: ‘often’ for 1–2 nights per week;
 - 4: ‘frequently’ for 3 nights or more per week.
 - NS was assessed by the question ‘Did your child have night sweats in the past 12 months’
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Table 1 Characteristics of children with and without night sweats (NS)*

	All (n=6381)	No NS (n=5634)	NS (n=747)	p Value [†]
Age (year)	9.2 (7.7–10.7)	9.3 (7.9–10.8)	8.3 (7.1–9.7)	<0.0001
Chronic medical conditions				
Eye diseases (%)	1.5	1.3	2.9	<0.0001
Eczema (%)	4.7	4.4	7.2	<0.0001
Behaviour				
Hyperactivity (%)	15.1	13.9	23.7	<0.0001
Frequent temper outbursts (%)	22.7	21.2	33.5	<0.0001
History of respiratory diseases				
Allergic rhinitis (%)	41.7	39.5	58.4	<0.0001
Nasosinusitis (%)	2.0	1.7	4.1	<0.0001
Asthma (%)	4.4	3.7	9.2	<0.0001
Tonsillitis (%)	9.7	8.7	17.7	<0.0001
Laryngopharyngitis (%)	49.0	46.4	67.7	<0.0001

*Categorical data were presented as percentages; continuous data were presented as median values (IQR).

[†]NS versus no NS.

RESULTS

- ▶ Table 1 shows significantly different characteristics for children with and without NS:
 - ❖ Never: 63.5%
 - ❖ <1 night per month: 15.6%
 - ❖ 1–2 nights per month: 9.2%
 - ❖ 1–2 nights per week: 5.0%
 - ❖ ≥ 3 nights per week: 6.7%

Table 3 Association between independent variables and night sweats in ordinal regression model*

	OR	Estimate	SE	Wald	p Value	95% CI for OR (lower to upper)
Age (year)	0.868	-0.142	0.012	131.608	<0.0001	0.847 to 0.889
Sleep-related symptoms						
Anxiety/insomniac symptoms	1.473	0.387	0.018	447.271	<0.0001	1.421 to 1.527
Morning symptoms	1.251	0.224	0.019	134.608	<0.0001	1.205 to 1.300
Nocturnal OSA symptoms	1.394	0.332	0.020	265.512	<0.0001	1.339 to 1.450
Breathing symptoms	1.222	0.201	0.018	127.877	<0.0001	1.181 to 1.266
Parasomniac symptoms	1.114	0.108	0.018	37.462	<0.0001	1.076 to 1.153
Sex						
Boys	1.474	0.388	0.043	81.066	<0.0001	1.355 to 1.604
Girls	Reference	Reference				
Allergic rhinitis						
Yes	1.204	0.186	0.044	17.616	<0.0001	1.104 to 1.313
No	Reference	Reference				
Tonsillitis						
Yes	1.285	0.251	0.061	16.826	<0.0001	1.140 to 1.449
No	Reference	Reference				

The model was adjusted for habitual snoring, sleep duration, chronic medical condition (eye disease, heart disease and eczema), behaviour (hyperactivity and frequent temper outbursts), history of respiratory diseases (nasosinusitis, laryngopharyngitis and asthma) and family information (parental education level, parental age and home living area).

*Link function: negative log-log.

OSA, obstructive sleep apnoea.

DISCUSSION

- ▶ A significant proportion of children aged 6–13 years had NS as reported by their parents, and the prevalence varied from 6.7% to 36.5% depending on the frequency criteria
- ▶ NS was found to be significantly associated with male gender, younger age symptoms of OSA and atopic and respiratory diseases.
- ▶ NS was found to be significantly associated with both daytime and nocturnal OSA symptoms

LIMITATIONS

- ▶ Only **association** rather than **causation** of NS in children could be established because of the cross-sectional nature of the study design
- ▶ The reliability of the parents' response might be questionable as they may not have slept with their child- **questionnaires**
- ▶ A lack of clinical confirmation with objective or quantified data on NS
- ▶ The effect of climate

CONCLUSION

- ▶ NS is common among Hong Kong Chinese children, as nearly one out of eight children (11.5%) were reported to have weekly NS.
- ▶ NS was significantly associated with symptoms suggestive of inflammatory diseases of the upper respiratory tract, anxiety, insomnia and other sleep-related symptoms.

ACCORDING

‘Night sweats in children: prevalence and associated factors ‘

Hung K So, Albert M Li, Chun T Au, Jihui Zhang, Joseph Lau, Tai F Fok, Yun K Wing

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Thank for your attention

