Snoring in Preschool Children: prevalence, severity and risk factors

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The Leicester Cohorts

Introduction

Snoring indicates the presence of increased upper airway resistance and constitutes the cardinal symptom of sleep-disordered breathing. Even in the absence of intermittent hypoxia, so-called primary snoring, it has been associated with poor behavioural and academic outcomes, possibly due to increased sleep fragmentation.

Despite its clinical importance and high prevalence, the literature on snoring in preschool children is sparse, with very few studies determining prevalence, severity, risk factors and prognosis in representative (population based) samples of children.

Aims

A) Prevalence and severity of snoring

B) Risk factors associated with habitual snoring

Methods – Leicestershire cohort

A postal questionnaire was sent to the parents of 6100 white and 2600 South Asian children aged 1.0 to 4.9 years randomly sampled from the population of Leicestershire, UK.

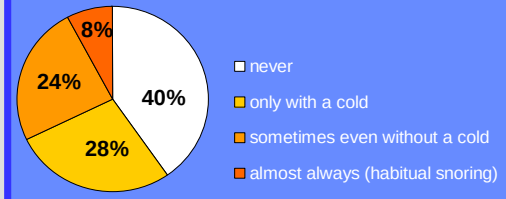
The following questions were used:

1. **Over the past 12 month, has your child snored at night?** (yes/no)
2. **If yes, how often?** (only with a cold, sometimes even without a cold, almost always) (latter termed as "habitual snoring")
1. **Did the snoring disturb your child's sleep?** (not at all, a little, a lot)

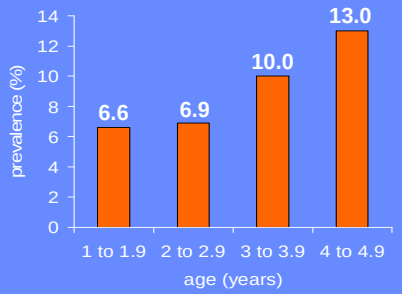
Response rate : 80% (4229 children were aged 1, and 822, 876 and 884 were aged 2, 3 and 4 years respectively).

Contact: Claudia Kuehni, Email: kuehni@ispm.unibe.ch

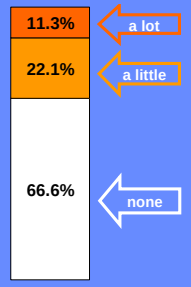
A) Prevalence and severity of snoring (last 12 months)



Prevalence and severity of snoring



Habitual snoring by age



Sleep disturbance (habitual snorers)

B) Environmental and socioeconomic risk factors for habitual snoring (last 12 months)

Exposures	Odds ratio	95 CI	p
Male sex	1.4	1.10 - 1.70	0.002
Age > 1yr	2.0	1.50 – 2.20	<0.001
Road traffic	1.23	1.00 - 1.50	0.048
1 smoking parent	1.46	1.17 - 1.83	<0.001
2 smoking parents	2.09	1.53 - 2.84	<0.001
Single parent	1.60	1.16 - 2.22	0.004
High deprivation, in whites*	2.03	1.51- 2.73	<0.001
High deprivation, in Asians*	0.73	0.42 - 1.29	0.502

Multivariable analysis adjusted for all factors listed in both tables
*Townsend score (upper tertile)

B) Clinical features associated with habitual snoring (last 12 months)

Features	Odds ratio	95 CI	p
Chronic night cough	1.79	1.43 - 2.26	<0.001
Frequent colds (> 7/ yr)	1.94	1.44 - 2.61	0.001
Frequent wheeze (>10/ yr)	2.61	1.45 - 4.70	0.001
Eczema ever	1.25	1.01 - 1.54	0.039
Maternal wheeze or asthma	1.33	1.03 - 1.71	0.027
Chronic rhinitis	1.73	1.39 - 2.15	<0.001
Otitis media	1.69	1.29 - 2.20	<0.001
Severe posseting in infancy	1.65	1.19 - 2.30	0.005

Multivariable analysis adjusted for all factors listed in both tables

Conclusions / Discussion

- **60% of preschool children** snored during the past year, **8% were habitual snorers** (every night) and **1% had habitual snoring with severe sleep disturbance.**
- Important risk factors for snoring included (avoidable) exposures to air pollutants and social deprivation (in white children).
- Snoring was also independently associated with features of atopic disease, signs of increased vulnerability to respiratory infections, and gastro-oesophageal reflux in infancy.
- If habitual snoring with sleep disturbance is shown at follow-up to have significant health and educational impact, then the 1% of the preschool population with this disorder represents a major health problem.