

Snoring Tots More Likely to Turn into Troubled Kids

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Published: March 05, 2012

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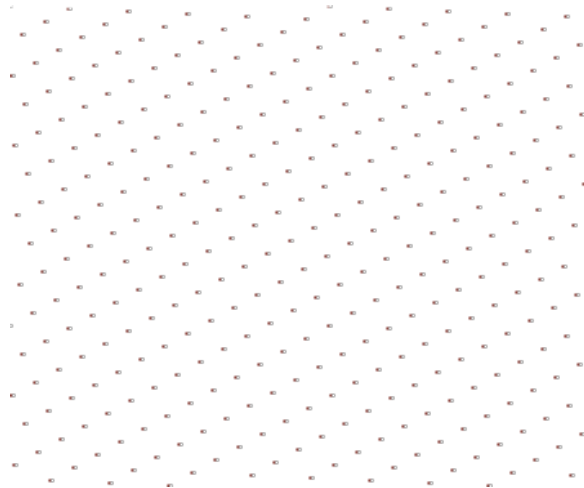
Snoring, mouth breathing, or apnea early in life may predict later behavioral and emotional problems, researchers found.

Signs of sleep-disordered breathing in children, ages 6 to 69 months, predicted a 60% higher risk of behavioral problems, such as hyperactivity, at age 7, Karen Bonuck, PhD, of Albert Einstein College of Medicine in New York City, and colleagues reported.

The children with the worst symptoms that persisted the longest were most likely to develop hyperactivity, conduct, and social problems in the longitudinal study in the April issue of *Pediatrics*.

But even the kids whose symptoms resolved after peaking at around 18 months faced a 40% to 50% elevated risk of behavioral problems at age 7 compared with those who never had symptoms.

Sleep-disordered breathing also correlated with anxiety and depression across all the symptomatic groups, with 32% to 65% elevated odds at age 7 (all $P < 0.01$ or $P < 0.05$).



Action Points

Explain that snoring, mouth breathing, or apnea early in life may predict later behavioral and emotional problems.

Point out that even the kids whose symptoms resolved after peaking at around 18 months faced a 40% to 50% elevated risk of behavioral problems at age 7 compared with those who never had symptoms.

These "findings suggest that sleep-disordered breathing symptoms may require attention as early as the first year of life," the researchers wrote.

That may mean monitoring and treatment such as surgery for the enlarged tonsils and adenoids that typically lead to abnormal breathing during sleep in children, Bonuck explained to *MedPage Today*.

"There's no reason for parents to be alarmed," she said. "Our evidence appears to provide the strongest evidence to date that [sleep disorders] do play a causal role and therefore reducing these symptoms particularly early in life is likely to have some benefit in reducing future problems."

For clinicians, simply asking, "How is your child sleeping?" isn't enough, Bonuck argued.

They "need to ask more and better questions about children's sleep when parents take children in for well visits," she told *MedPage Today*, noting that one recent study found that about half of parents see snoring as a sign that their child is sleeping well.

The findings came as little surprise to the pediatricians contacted by ABC News in collaboration with *MedPage Today*.

Stephen Lauer, MD, PhD, of the University of Kansas Medical Center in Kansas City, said he sees problems related to sleep-disordered breathing every day in clinic.

"It used to be that I would ask if I child snored if I saw large tonsils," he noted. "It has now become a standard part of the well-child check. And when there are issues of behavioral problems, school performance, and especially attention deficit hyperactivity disorder concerns, the first question I ask has to do with sleep and snoring."

Sleep problems are quite common in such cases, but treatment helps, agreed Rajiv Naik, MD, a pediatrician with the Gundersen Lutheran Health System in La Crosse, Wis.

"Many children have been cured of their behavioral problems with appropriate treatment of their sleep disturbance," he wrote in an e-mail.

Longitudinal [observational data](#) supports that conclusion, but only multicenter, randomized controlled trials, like the ongoing National Institutes of Health–funded Childhood Adenotonsillectomy study, can prove the cause-and-effect relationships, Bonuck's group noted.

Their study included more than 9,000 children in the Avon Longitudinal Study of Parents and Children, a birth cohort study of children in a region of southwest U.K.

Based on parent reports of children's snoring, mouth breathing, and witnessed apnea for ages 6 to 69 months, the children were broken into five "clusters" for presence and duration of sleep-disordered breathing. Early clusters were defined as:

Cluster 1: Symptoms peaked at 6 months and then abated

Cluster 2: Symptoms peaked at 18 months and then abated

Cluster 3: Symptoms peaked at 30 months and then persisted ("worst case")

Cluster 4: Symptoms emerged at 42 months and then persisted ("late symptom")

Cluster 5: "Normals" who were asymptomatic throughout

Five comparable later clusters demonstrated similar patterns to the early clusters, except in a "late symptom" cluster where snoring and mouth breathing peaked together at lower levels at 57 months with no marked apnea. Also, the peak at 6 month apnea levels was nearly double those of the early clusters.

Compared with the 45% of kids with no symptoms, all the other groups showed significantly elevated risk of being in the worst 10% for behavioral screening score on the Strengths and Difficulties Questionnaire (all $P < 0.01$ or $P < 0.05$).

The 8% of "worst case" kids (cluster 3) had 49% elevated risk of being in the top 10% for total behavioral problem score at age 4 and up to two-fold excess risk at age 7.

Hyperactivity was the outcome most consistently associated with symptomatic sleep-disordered breathing across the groups.

Significant odds ratios for hyperactivity at age 4 ranged from 1.19 for the 20% in cluster 1, whose symptoms abated after peaking at 6 months, to 1.56 for the "worst case" group (cluster 3).

For hyperactivity at age 7, the odds ranged from 1.48 for cluster 1 to 1.88 for the 20% of kids with symptoms in cluster 2.

Conduct problems, such as aggressiveness and rule breaking, showed associations similar to those with emotional problems.

Being in the top 10% for problems getting along with other kids was 33% to 48% more likely for the worst case group at age 4 and 7 but wasn't consistently elevated in the other groups.

These risks appeared to be independent of 15 potential confounding factors, such as socioeconomic factors, exposures during gestation, breastfeeding, birth weight, and gender.

But the results are likely conservative, the researchers suggested.

They noted limitations from using parental reports of sleep-disordered breathing rather than objective testing and difficulty of distinguishing observed apnea from central apnea in infancy.

The study was supported by grants from the National Heart, Lung, and Blood Institute.

The researchers reported having no conflicts of interest.

This article was developed in collaboration with ABC News.



Primary source: Pediatrics

Source reference:

Bonuck K, et al. "Sleep-disordered breathing in a population-based cohort: Behavioral outcomes at 4 and 7 years" *Pediatrics* 2012; 129: 1-9.

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