

Health

Could some ADHD be a type of sleep disorder? That would fundamentally change how we treat it.

By Ariana Eunjung Cha

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Over the past [two decades](#), U.S. parents and teachers have reported epidemic levels of children with trouble focusing, impulsive behavior and so much energy that they are bouncing off walls. Educators, policymakers and scientists have referred to [attention-deficit/hyperactivity disorder, or ADHD](#), as a [national crisis](#) and have spent billions of dollars looking into its cause.

They've looked at [genetics](#), [brain development](#), [exposure to lead](#), [the push for early academics](#), and many other factors. But what if the answer to at least some cases of ADHD is more obvious?

What if, as a growing number of researchers are proposing, many kids today simply aren't getting the sleep they need, leading to challenging behaviors that mimic ADHD?

That provocative and controversial theory has been gaining momentum in recent years, with several studies suggesting strong links between ADHD and the length, timing and quality of sleep. In an era in which even toddlers know the words Netflix and Hulu, when demands for perfectionism extend to squirmy preschoolers and many elementary-age students juggle multiple extracurricular activities each day, one question is whether some kids are so stimulated or stressed that they are unable to sleep as much or as well as they should.

Growing evidence suggests that a segment of children with ADHD are misdiagnosed and actually suffer from insufficient sleep, insomnia, obstructed breathing or another known sleep disorder. But the most paradigm-challenging idea may be that ADHD may itself be a sleep disorder. If correct, this idea could fundamentally change the way ADHD is studied and treated.

The latest data on this topic, presented this month at the [European College of Neuropsychopharmacology Conference](#) in Paris, looked at people's circadian rhythms — the natural cycle of how they sleep and wake. It showed that study subjects with ADHD had levels of the hormone melatonin that rose 1.5 hours later in the night than those without

ADHD. As a result, they fell asleep later and got less sleep overall, with consequences for other body processes.

When the day and night rhythm is disturbed, explained researcher Sandra Kooij of the Vrije Universiteit Medical Centre in Amsterdam, so are temperature, movement and the timing of meals. Each change can lead to inattentiveness and challenging behavior.

"[I]t looks more and more like ADHD and sleeplessness are two sides of the same physiological and mental coin," Kooij said in her presentation.

Sleep problems fall into three categories: insufficient sleep, insomnia and disordered breathing. All are common among young children. Some studies estimate that their prevalence might be as high as 20 to 40 percent in young children.

Karen Bonuck, a professor of family and social medicine at Albert Einstein College of Medicine in New York, is known for her work on a 2012 study of 11,000 children published in the journal [Pediatrics](#). It found that those with snoring, mouth breathing or apnea (in which a person's breathing is interrupted during sleep) were 40 percent to 100 percent more likely than those without the sleep issues to have behaviors resembling ADHD by age 7.

"There's a lot of evidence that sleep is a big factor in behavior in children," Bonuck said in a recent interview.

Previous studies have shown that about 75 percent of people with ADHD have sleep disturbances and that the less sleep they get the more severe the symptoms. In one paper, scientists showed that a group of children with nighttime breathing issues who were diagnosed with ADHD no longer met the diagnostic criteria for the disorder after they had their adenoids or tonsils removed to treat the sleep problem.

Bonuck's recent work, funded by the National Institutes of Health, involved an education campaign targeted at teachers, parents and children that used teddy bears and the classic book "Good Night, Moon" to encourage more sleep. When researchers were collecting baseline data before any interventions, she said, she was shocked to find that a number of preschool children were going to sleep at 11 p.m. or later but had to be up before 8 a.m. to go to school. They were getting less than nine hours of sleep, markedly less than the 10 to 13 hours the American Academy of Pediatrics recommends for children ages 3 to 5.

"I thought there was an error," Bonuck recalled. "Challenging behavior is a huge problem in the classrooms on a national level, and the symptoms of lack of sleep can look a lot like the symptoms of ADHD."

William E. Pelham, a longtime ADHD specialist who directs the Center for Children and Families at Florida International University, agrees that some children are misdiagnosed as having ADHD when they actually have a sleep problem. Yet he said he has seen this only in a “handful” of cases out of thousands.

The link, he contends, is overstated and ADHD is a very real and potentially very serious diagnosis. According to the most recent survey by the Centers for Disease Control and Prevention, about [6.4 million](#) children, or one out of every 10 children ages 4 to 17 in the country, have been diagnosed with ADHD, and he believes that the diagnosis is correct in most cases.

“Sleep is an issue for anything where you are trying to measure attention. But I don't believe [it] ... accounts for the vast majority of ADHD in the United States,” he said.

Still, Pelham has noticed an increasing number of children with ADHD and sleep issues in recent years. That has less to do with the nature of ADHD than with changes driven by the pharmaceutical industry, he said.

In the 1980s and 1990s, the most popular treatments were stimulants that acted only for four to six hours. Most kids now are taking ones that last 12 hours, he said.

“If you have kids who are sensitive to the medications, they might not be tired until midnight. So you have an increase in kids staying up later as a result of a societal shift of using the longest-acting medication,” he explained. Then, to counteract that in the evening, more children are taking yet another drug — “an antidepressant, melatonin or, God forbid, an antipsychotic,” he said.

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