

# Traumatic events may exacerbate the effects of poor sleep on children's heart health

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Traumatic events experienced during childhood may magnify the negative health effects of too much or too little sleep on children's cardiovascular health, according to preliminary research to be presented

at the American Heart Association's [Scientific Sessions 2023](#), held Nov. 11–13, in Philadelphia.

The analysis of more than 100,000 children in the U.S. found that more than one third of them did not get the amount of daily sleep recommended by the [American Heart Association's Life's Essential 8](#), which is 10–16 hours of sleep per 24 hours including naps for children ages five and younger; 9–12 hours each day for children ages six to 12; and 8–10 hours for children ages 13 to 18.

According to Life's Essential 8, insufficient or excessive sleep is a key risk factor for suboptimal cardiovascular health. This study is among the first to examine the prevalence of insufficient or excessive sleep duration among youth using the Life's Essential 8 health assessment tool.

Previous research has also found that adverse childhood experiences are associated with an increased risk of cardiovascular disease, type 2 diabetes and/or stroke later in life.

Adverse childhood experiences are potentially [traumatic events](#) that could impact health and well-being. In this study, traumatic events included parents' divorce; a parent's death or imprisonment; experiencing violence; living with a person with alcohol or drug dependencies or mental health conditions; physical, emotional or [sexual abuse](#); or unfair treatment because of their race, ethnicity, sexual orientation and/or gender identity.

Researchers examined data from the 2018–2019 and 2020–2021 [National Survey of Children's Health](#) to investigate the association of sleep duration with the number of reported adverse childhood experiences among U.S. children.

The surveys included demographic questions about the children and

wide-ranging questions about their health and behavior as well as their household. Parents or guardians responded yes or no as to whether or not their child had ever experienced any of the traumatic events on the list, if the household had experienced financial hardship since the child was born and how many hours their child slept on most weeknights.

"Gaining more insights into the sleep quality of children and adolescents may provide valuable understanding regarding the connection between adverse childhood experiences and sleep," said study lead author MinKyoung Song, Ph.D., R.N., F.N.P., FAHA, an associate professor at the Oregon Health & Sciences University School of Nursing.

"Children who are getting too little or too much sleep are likely to continue not having the right [amount of sleep](#) in adulthood, and early intervention may be necessary to combat the progressive negative effects that suboptimal sleep may have on cardiovascular and other metabolic processes."

The analysis found:

- More than one-third of the 101,105 children did not meet recommended sleep standards—by either not getting enough sleep or by sleeping too much.
- Children with more reported adverse childhood experiences were more likely to have too much or too [little sleep](#).
- Each additional traumatic event increased by 8% the likelihood that a child was sleeping 1–2 hours less or 1+ hours more than recommended; or increased by 26% the likelihood that a child was sleeping 2+ hours less than recommended.

"These findings suggest that traumatic events experienced during childhood could amplify the adverse effects of insufficient or excessive sleep on heart health," Song said. She emphasized these results

underscore the importance of health care professionals understanding and integrating trauma-informed care into their clinical practice, as well as for future research on the development of resilience, [emotional support](#) and positive relationships, particularly for children who have experienced traumatic events.

"Similarly, parents and caregivers should be aware that inadequate sleep is linked to negative cardiovascular health outcomes," she added.

Study background and details:

- The study included a total of 101,105 children in the U.S., ages six to 17 years.
- The parents or guardians of 42,141 children answered survey questions about their children for the 2018-2019 National Survey of Children's Health. 58.22% of the children were 6-12 years old and 41.78% were 13–17 years old. 50.89% were identified as male, and 49.11% were female. The children's races and ethnicities that parents reported included: 50.3% as white, non-Hispanic; 25.71% selected Hispanic, 13.55% identified as Black, non-Hispanic; and 10.44% selected multi-racial or other, non-Hispanic.
- The parents or guardians of 58,964 children answered survey questions about their children for the 2020–2021 National Survey of Children's Health. 51.04% of the children were identified as male and 48.96% were female. The children's races and ethnicities that parents reported included: 50.21% chose white, non-Hispanic; 26.05% identified as Hispanic; 13.34% selected Black, non-Hispanic; and 10.4% identified as multi-racial or other, non-Hispanic.
- In this study, children were categorized into three subgroups: 1) those meeting age-appropriate, or optimal, sleep duration; 2) those who reported about 1–2 less or 1+ hours more sleep than

recommended each night; and 3) those who reported two or more hours less than recommended each night. Both groups 2 and 3 were considered to have suboptimal sleep duration.

- In the NSCH surveys, the question about household [financial hardship](#) had four response options—never, rarely, somewhat often or very often—but for this analysis these were combined into two categories—somewhat often/very often or never/rarely adverse.

The study had several limitations. It relied on survey questionnaires completed by [parents](#) or guardians, the results of which may not be as accurate due to recall bias—errors that occur when participants do not remember or misremember previous events—and possible under-reporting or over-reporting of information since it is their opinions and perspective of the child vs. the child's own perspective.

Additionally, because the data only includes information from only one point in time, meaning these findings cannot confirm a causal relationship between [adverse childhood experiences](#) and sleep duration.

"The study found that traumatic events exacerbate the effects of poor sleep on children's health, and I'm not surprised by those findings. So much of what we experience every day impacts the quality and the duration of our sleep," said Carissa Baker-Smith, M.D., M.P.H., M.S., FAHA, director of pediatric preventive cardiology at the Nemours Children's Hospital in Wilmington, Delaware, and a co-author of the Association's 2023 scientific statement on [Pediatric Primary Hypertension](#).

"Parents need to understand that our mental health plays an extremely important role in how we sleep and on the quality and the duration of our sleep. If [children](#) are experiencing changes in mental [health](#), like depression or anxiety, those are important things to discuss,

to address and to work towards solving."

Provided by American Heart Association

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