

Prevalence and Severity of ADHD Among Children With Second-Hand Smoke Exposure – A US Population-Based Study

Abstract

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Objectives: We aimed to evaluate the prevalence and odds of ADHD and its severity among children with second-hand smoke (SHS) exposure.

Methods: We performed a retrospective analysis of the National Survey of Children's Health (NSCH) 2020-2021 data. Children (ages 3-17) with ADHD and SHS exposure within the household were identified using the survey questionnaire. Univariate and multivariable survey logistic regression analyses were conducted to determine the prevalence, odds, and severity of ADHD among children with SHS exposure. We used a complex survey analysis method and applied weights for national estimates.

Results: The study included a population of 61,714,478 children. Among them, 9.5% currently suffered from ADHD, and 0.8% had a past diagnosis of ADHD. Mild symptoms were present in 3.9% of the children, while 5.5% had moderate to severe symptoms. Compared to children with no SHS exposure, the prevalence of current ADHD was significantly higher among children with SHS exposure (14.4% vs. 8.7%; $p < 0.0001$). Additionally, a higher percentage of children in the SHS exposure group had moderate to severe ADHD symptoms compared to children without SHS exposure (9.2% vs. 5.0%; $p < 0.0001$). In the regression analysis, after adjusting for age, sex, race, financial status, and health insurance status, children with SHS exposure had higher odds of having current ADHD (aOR: 1.7; 95%CI: 1.5-1.9; $p < 0.0001$) than children without SHS exposure. Furthermore, children with SHS exposure had higher odds of experiencing moderate to severe ADHD symptoms (aOR: 1.8; 95%CI: 1.5-2.1; $p < 0.0001$).

Conclusions: Our analysis of nationally representative US pediatric population data revealed a higher prevalence and odds of current ADHD in children with SHS exposure. Children with SHS exposure were at higher odds of having moderate to severe ADHD symptoms. Further research is needed to establish causality. Given the known deleterious effects of cigarette smoking, our study further highlights the need for parental education efforts to improve children's health.

Keywords: ADHD, Smoking, Secondhand, children, severity

Human/animal subject protection: This study utilized publicly available survey data with minimal/no risk to human subjects.