



The association between junk foods consumption and attention deficit hyperactivity disorder in children and adolescents: a systematic review and meta-analysis of observational studies

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Abstract

The adverse effects of junk foods on the risk of attention deficit hyperactivity disorder (ADHD) symptoms were reported in several studies. In this meta-analysis, the association between junk food consumption and the risk of ADHD was investigated in children and adolescents. A comprehensive systematic search was conducted to find all relevant literature via four databases, including PubMed, Web of Science, Scopus, and Google scholar, up to September 2022. Two independent authors screened all documents based on inclusion criteria. The overall effect sizes and related 95% confidence interval (CI) were pooled with the random effect approach. Subgroup analysis was done to measure potential sources of heterogeneity between studies. The quality of the included studies was evaluated with The Newcastle–Ottawa scale (NOS). Nine observational studies with 58,296 children /adolescents were eligible to be include in the meta-analysis. According to the random effect model, there was a positive relation between the consumption of junk foods and ADHD symptoms (odds ratio (OR): 1.24, 95%CI 1.15–1.34, $P < 0.001$, I^2 : 37.4%, $P = 0.085$). A similar significant positive association was shown in the subgroups analysis by different junk foods (sweetened beverages/soft drinks, sweets/candies, and other types of junk foods). This meta-analysis finding demonstrated that consuming junk foods, especially sweetened beverages/soft drinks, and sweets/candies is associated with ADHD symptoms.

Keywords ADHD · Hyperactivity · Junk food · Sweetened beverages · Sweets

Introduction

Attention deficit hyperactivity disorder (ADHD) is one of the prevalent and most studied neurodevelopmental disorders affecting children and adolescents that sometimes

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