



ABSTRACT

The effects of probiotics supplementation on children with ADHD : A systematic review

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Background : ADHD (Attention deficit hyperactivity disorder) is a common neurodevelopmental disorder characterised by inattention, impulsivity and hyperactivity. Studies suggest that gut microbiota is an important player in neurological disorders including ADHD through the microbiome-gut-brain axis. The gut inflammation can negatively impact brain structures, and these inflammatory markers could influence pathogenesis of ADHD. Probiotics may be able to help the inflammation associated with increased intestinal permeability. However, clinical implementation of probiotics with ADHD is still unclear. This review examined available clinical trials related to probiotics supplementation on children with ADHD.

Methods : PubMed, Scopus, and Google Scholar were researched for trials on children diagnosed with ADHD and probiotics supplementation as an intervention, and published papers from January 2015 to June 2023.

Results : We identify 6 studies that meet the inclusion criteria, including randomised control trials and single-arm trials. These studies examined the effect of various probiotics supplementation on children with ADHD. The effects being examined include clinical symptoms, quality of life, comorbid symptoms, Body Mass Index, metabolites, inflammatory cytokines. Majority of the studies reported improvement of ADHD clinical symptoms, which is suggested to be caused by improvement of anti-inflammatory cytokines and specific metabolites as reported in several of the studies. However, one study of Synbiotic 2000 supplementation found no significant effect on ADHD clinical symptoms.

Conclusion : Probiotics supplementation might help improve symptoms and metabolites in children with ADHD, which suggests that probiotics might be beneficial as an adjuvant therapy. Further research is clearly warranted due to limited high-quality of existing research.

Keywords: Probiotic, ADHD, Children

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