



Does Adult ADHD Increase the Risk of

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THE QUICK ANSWER IS “PROBABLY, IF UNTREATED.”

A recent article in *JAMA Open* reported a study of this question from Israel. The investigators studied 109,218 members of a health maintenance organization who were born between 1933 and 1952, beginning the follow-up in 2003 when they averaged about fifty-six years old and ending in 2020.

During that seventeen years, 730 had an adult diagnosis of ADHD and 7,726 developed dementia (Alzheimer’s disease, for example). The rate of dementia was 13.2% for those with adult ADHD and 7.0% for those without adult ADHD. After adjusting for possible confounds (sources of error), the hazard ratio was 2.77, indicating almost triple the rate of dementia for the adults with ADHD.

Further analyses practically ruled out the possibility of reverse causation—that dementia caused ADHD syndrome.

The silver lining is that those who took psychostimulants showed little to no increased risk. This suggests a possible preventive strategy. Although this finding needs to be replicated, it is consistent with other recent research indicating a beneficial effect of stimulants on apathy and cognitive function in adults with Alzheimer’s disease (Kishi et al, 2020).

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As enlightening and useful as this study is, it has some severe limitations that warn against complete premature acceptance. For one thing, the ADHD characteristic was defined as adult diagnosis after average age of fifty-six, with no consideration of childhood/adolescent or even young adult diagnosis. It is not clear whether an “outgrown” childhood diagnosis with adult recovery also increases dementia risk.

Further, it is not clear how the ADHD diagnoses were done. Given the vagaries of diagnosing early dementia and late-onset ADHD, the authors might not have been able to distinguish inattention, cognitive deficit, or executive function problems arising from early dementia from the same traits arising from late-onset ADHD. What is needed is a study of the outcome of children with well-diagnosed ADHD who are followed into old age.

Another important consideration is that this Israeli cohort, with the older end born as early as 1933, may include a considerable number of refugees from the Holocaust who endured horrific childhood experiences. We do not know how such experiences may influence the risk of later dementia (or ADHD).

The study needs repeating in other countries with other experiences. It would also be interesting to investigate the pathophysiological mediators of this finding—for example, does it result from prefrontal dysfunction common to both disorders?

Nevertheless, this study adds to accumulating evidence that untreated ADHD increases health risk, both physical and mental. For example, Barkley (2018) has shown that ADHD shortens estimated life expectancy by eight to twelve years, due to higher rates of accidents, substance use, eating disorders/obesity, cardiovascular disease, diabetes, and other health conditions. Some of the latter were also incidentally documented to be associated with dementia in the study summarized here.

These considerations emphasize the importance of ADHD treatment not only for immediate problems, but also as prevention of other health problems—both physical and mental—and premature death. In this regard not only stimulants and behavioral treatment have some encouraging reports, but also lifestyle treatments, which can augment the established medical and psychological treatments. Important lifestyle treatments include: adequate sleep (sleep deficit can aggravate and even mimic ADHD), adequate exercise, and nutrition, both healthful diet, especially vegetables (Robinette, 2022), and multivitamin/mineral supplements (John-

stone, 2022). These support both physical and mental health, with a reasonable expectation of preventing or delaying dementia. 🗨



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REFERENCES AND ADDITIONAL READING

- Levine SZ, Rotstein A, Kodesh A, et al. Adult attention-deficit/hyperactivity disorder and the risk of dementia. *JAMA Network Open* 2023;6(10):e2038088. <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2810766>
- Barkley RA & Fischer M. (2018, Dec 10). Hyperactive Child Syndrome and Estimated Life Expectancy at Young Adult Follow-Up: The Role of ADHD Persistence and Other Potential Predictors. *Journal of Attention Disorders*, 1087054718816164. <https://journals.sagepub.com/doi/10.1177/1087054718816164>
- Robinette LM, Hatsu I, Johnstone JM, Tost G, Bruton AM, Eiterman LP, Leung BMY, Odie JB, Orchard T, Gracious BL, Arnold LE. Fruit and Vegetable Intake is Inversely Associated with Severity of Inattention in a Pediatric Population with ADHD Symptoms: The MADDY Study. *Nutritional Neuroscience*. 2022 May 10:1-10. <https://pubmed.ncbi.nlm.nih.gov/35535573/>
- Johnstone JM, Hatsu I, Tost G, Srikanth P, Eiterman L, Bruton A, Ast H, Robinette L, Stern M, Millington E, Gracious B, Hughes A, Leung B MY, Arnold LE. Micronutrients for Attention-Deficit/Hyperactivity Disorder in Youth: A Placebo-Controlled Randomized Clinical Trial. *Journal of the American Academy of Child and Adolescent Psychiatry*. [https://www.jaacap.org/article/S0890-8567\(21\)00473-1/fulltext](https://www.jaacap.org/article/S0890-8567(21)00473-1/fulltext)
- Kishi T, Sakuma K, & Iwata, N. (2020, Apr). Efficacy and Safety of Psychostimulants for Alzheimer’s Disease: A Systematic Review and Meta-Analysis. *Pharmacopsychiatry*, 53(3), 109-114. <https://doi.org/10.1055/a-1076-8228>

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