

# Link between ADHD and dementia across generations

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A large study at Karolinska Institutet in Sweden has found a link between ADHD and dementia across generations. The study, published in *Alzheimer's & Dementia: The Journal of the Alzheimer's Association*,

shows that parents and grandparents of individuals with ADHD were at higher risk of dementia than those with children and grandchildren without ADHD.

"The findings suggest that there are common genetic and/or environmental contributions to the association between ADHD and [dementia](#). Now we need further studies to understand the underlying mechanisms," says the study's first author Le Zhang, Ph.D. student at the Department of Medical Epidemiology and Biostatistics at Karolinska Institutet.

ADHD (attention-deficit/[hyperactivity disorder](#)) is a neurodevelopmental disorder characterized by inattention, impulsiveness and hyperactivity. It affects an estimated 3 percent of adults worldwide.

## **Increased number of ADHD diagnoses**

The number of new ADHD diagnoses has increased dramatically in the last decades amid increasing awareness and knowledge about the disorder. However, since the diagnosis is still relatively new, there has only been a limited number of small studies on the development of dementia in people with ADHD, often with conflicting results.

In the current study, the researchers wanted to overcome this by examining to what extent older generations to individuals with ADHD were diagnosed with dementia. The study looked at more than two million people born in Sweden between 1980 and 2001, of whom around 3.2 percent were diagnosed with ADHD. Using national registries, the researchers linked these persons to over five million biological relatives, including [parents](#), grandparents and uncles and aunts, and investigated to what extent these relatives developed dementia.

The researchers found that parents of individuals with ADHD had 34

percent higher risk of dementia than parents of individuals without ADHD. The risk of Alzheimer's disease, the most common type of dementia, was 55 percent higher in parents of individuals with ADHD. Individuals with ADHD were more likely to have parents with early-onset dementia than late-onset.

The researchers note that the absolute risk of dementia was low for the parent cohort; only 0.17 percent of the parents were diagnosed with dementia during the follow-up period.

## **Lower association for second-degree relatives**

The association was lower for second-degree relatives of individuals with ADHD, i.e. grandparents and uncles and aunts. For example, grandparents of individuals with ADHD had 10 percent increased risk of dementia compared to grandparents of individuals without ADHD.

While the study is unable to determine a cause-and-effect relationship, the researchers present several potential explanations that can be explored in future research.

"One could imagine that there are undiscovered genetic variants that contribute to both traits, or family-wide environmental risk factors, such as [socioeconomic status](#), that may have an impact on the association," says Zheng Chang, researcher at the Department of Medical Epidemiology and Biostatistics at Karolinska Institutet, and the study's last author. "Another possible explanation is that ADHD increases the risk of physical health conditions, which in turn leads to increased risk of dementia."

**More information:** Le Zhang et al, Attention-deficit/hyperactivity disorder and Alzheimer's disease and any dementia: A multi-generation cohort study in Sweden, *Alzheimer's & Dementia* (2021). [DOI](#):

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