Healthy lifestyle linked to better cognition for oldest adults—regardless of genetic risk

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A new analysis of adults aged 80 years and older shows that a healthier lifestyle is associated with a lower risk of cognitive impairment, and that this link does not depend on whether a person carries a particular form of the gene APOE. Xurui Jin of Duke Kunshan University in Jiangsu, China, and colleagues present these findings in the open-access journal *PLOS Medicine*.

The APOE gene comes in several different forms, and people with a form known as APOE ε4 have an increased risk of cognitive impairment and Alzheimer's disease. Previous research has also linked cognitive function to lifestyle factors, such as smoking, exercise, and diet. However, it has been unclear whether the benefits of a healthy lifestyle are affected by APOE ε4, particularly for adults over 80 years of age.

To clarify the relationship between APOE ε4 and lifestyle, Jin and colleagues examined data from 6,160 adults aged 80 or older who had participated in a larger, ongoing study known as the Chinese Longitudinal Healthy Longevity Survey. The researchers statistically analyzed the data to investigate links between APOE ε4, lifestyle, and cognition. They also accounted for sociodemographics and other factors that could impact cognition.

The analysis confirmed that participants with healthy lifestyles or intermediately healthy lifestyles were significantly less likely to have cognitive impairment than those with an unhealthy lifestyle, by 55 and 28 percent, respectively. In addition, participants with APOE ε4 were 17 percent more likely to have cognitive impairment than those with other forms of APOE.

A previous study suggested that in individuals at low and intermediate genetic risk, favorable lifestyle profiles are related to a lower risk of dementia compared to unfavorable profiles. But these protective associations were not found in those at high genetic risk. However, the investigation showed the link between lifestyle and cognitive impairment did not vary significantly based on APOE ε4 status which represented the genetic dementia risk. This suggests that maintaining a healthier lifestyle could be important for maintaining cognitive function in adults over 80 years of age, regardless of genetic risk.

This cross-sectional study emphasized the importance of a healthy

lifestyle on cognitive health. While further research will be needed to validate these findings among different population, this study could help inform efforts to boost cognitive function for the oldest of adults.

In the next step, the team will explore this association using the AD polygenetic risk score (AD-PRS) and explore the interactive relationship between AD-PRS and lifestyle on cognition with the longitudinal data.

More information: Xurui Jin et al, Association of APOE ε4 genotype and lifestyle with cognitive function among Chinese adults aged 80 years and older: A cross-sectional study, *PLOS Medicine* (2021). DOI: 10.1371/journal.pmed.1003597

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