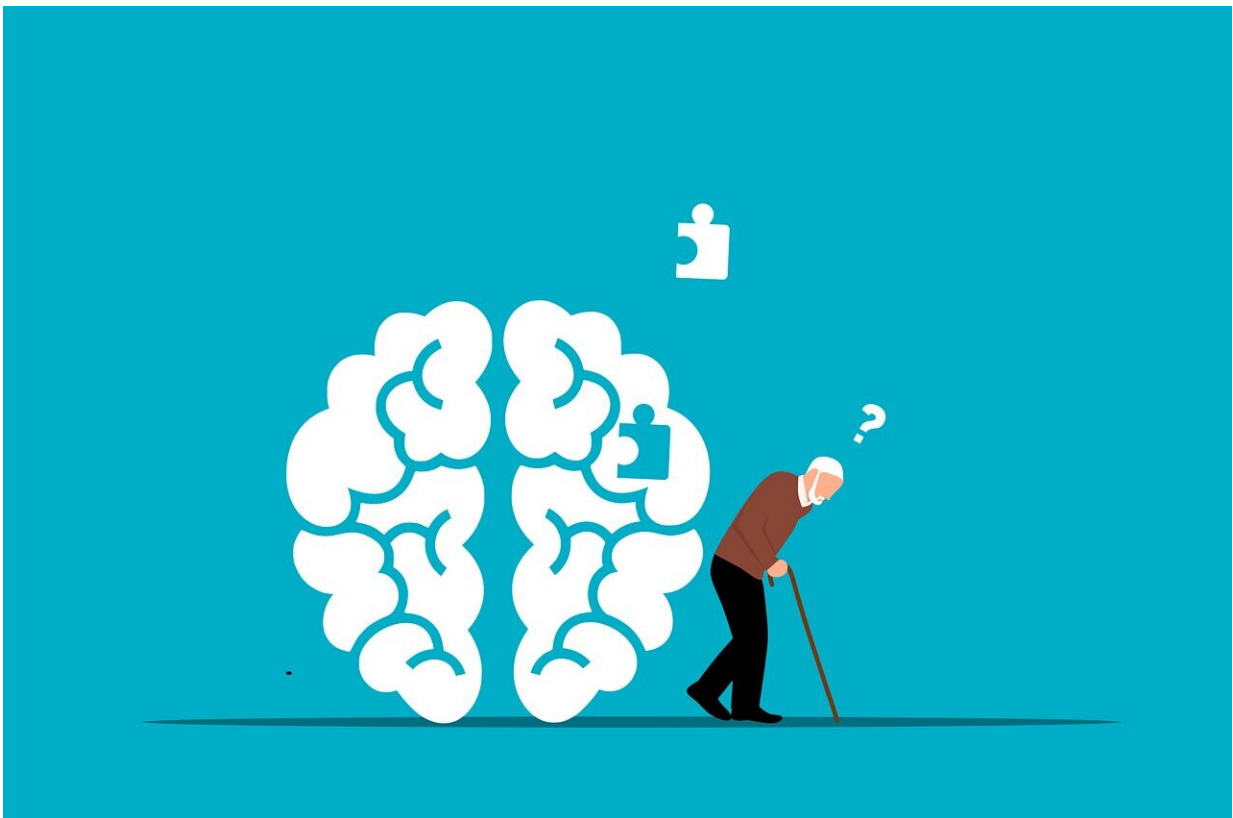


Study reveals that much still not known about cognitive decline

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The authors analyzed data from 7,068 Americans who were part of a larger study that regularly measured their cognitive function from 1996 to 2016. Credit: mohamed_hassan, Pixabay, CC0 (creativecommons.org/publicdomain/zero/1.0/)

The risk factors linked to cognitive decline in older adults explain a surprisingly modest amount about the large variation in mental abilities

between older people, according to a new national study.

Researchers found that the factors most commonly associated with cognitive functioning—including [socioeconomic status](#), education and race—explained only 38% of the variation in functioning among Americans at age 54.

Health behaviors such as avoiding obesity and smoking and participating in vigorous exercise had only very small effects on functioning by the time people reached their mid-50s.

In addition, the factors studied explained only 5.6% of the variation in how quickly cognitive functioning declined in people between age 54 and 85.

"There's still a lot we don't know about why cognitive functioning varies so much between older adults," said Hui Zheng, lead author of the study and professor of sociology at The Ohio State University.

"More research is urgently needed to discover the main causes of how quickly cognitive functioning declines and how we can slow down its progression."

Zheng conducted the study with Kathleen Cagney, professor of sociology at the University of Michigan, and Yoonyoung Choi, a graduate student at Ohio State. Their study was published today (Feb 8, 2023) in the journal *PLOS ONE*.

Data came from 7,068 participants in the 1996-2016 Health and Retirement Study. Participants were born between 1931 and 1941. Researchers measured their cognitive functioning at age 54 and how it declined until they were 85.

The study provides a more robust analysis than prior studies because it used a large, nationally representative sample and followed participants for decades, using a broad range of possible predictors of cognitive functioning, Zheng said.

The most important predictor of cognitive functioning at age 54 was education, which explained about 25% of the difference between people, results showed. That was followed by race, household wealth and income, parental education, occupation and depression.

The contributions of chronic diseases, health behaviors, gender, [marital status](#) and religion were rather small—less than 5%.

The researchers found that the variation in cognitive functioning at age 54 was three times as much as the variation in how quickly the participants declined over the next 30 years.

"We found that the rate of [cognitive decline](#) was much more similar between participants than the baseline of cognitive functioning we found at age 54," Zheng said.

Overall, all the factors examined in this study only explained 5.6% of variation in the decline of cognitive functioning with age.

"From an intervention perspective, that suggests it is much more important to try to improve functioning at the baseline than trying to slow down the rate of decline."

Zheng said one particularly interesting finding was that the number of years of education was not associated with the rate of decline in functioning after the age of 54, but having a college degree did have a small protective effect, which explained 1.7% of the variation in the decline with age.

The value of a [college degree](#) supports the "cognitive reserve" hypothesis that, in some people, their brains have the ability to find alternative ways to solve problems and cope with challenges when they have some type of damage to the brain.

"College may provide an especially rich environment for [cognitive development](#) that may help people develop this cognitive reserve," Zheng said.

One explanation for declines in cognitive functioning that this study could not account for is a genetic factor—the APOE4 gene. That gene has been found to increase the risk of developing dementia, including Alzheimer's disease.

But other studies show that dementia, including Alzheimer's disease, accounts for only 41% of cognitive decline among the elderly.

"Cognitive decline is pervasive in older adults, even those without dementia, which is why it is important to study other predictors of cognitive functioning and decline," Zheng said.

"But still, our study raises more questions than it answers. We have a long way to go to understand the trajectories of [cognitive functioning in older adults](#)."

More information: Predictors of cognitive functioning trajectories among older Americans: A new investigation covering 20 years of age- and non-age-related cognitive change, *PLoS ONE* (2023). [DOI: 10.1371/journal.pone.0281139](https://doi.org/10.1371/journal.pone.0281139)

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