

Lifelong cognitive reserve helps maintain late-life cognitive health, 15-year follow-up study suggests

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The brain's flexibility and ability to cope with loss of neurons or other lesions in the brain is called cognitive reserve. In a 15-year follow-up study, researchers at the division of Aging Research Center (ARC), Karolinska Institutet, suggest that lifelong cognitive reserve helps maintain late-life cognitive health by delaying cognitive transition in the preclinical stages of dementia. The results of their findings were recently [published](#) in *Alzheimers & Dementia*.

"We found evidence that lifelong greater cognitive reserve was linked with reduced risks of late-life transitions from normal cognition to [mild cognitive impairment](#) and death, but not with the transition from mild cognitive impairment to dementia," says Chengxuan Qiu, Senior lecturer, and senior author of the study.

Impact of lifelong cognitive reserve

Most previous studies have examined the association of individual indicators for cognitive reserve (e.g., education and leisure activities) with static cognitive conditions such as mild cognitive impairment and dementia.

"Our study suggests that great cognitive reserve could help maintain cognitive health, especially in the preclinical phase of dementia and that cognitive reserve could also benefit survival in older people with cognitive impairment," says Qiu.

These findings could help develop [preventive interventions](#) to promote cognitive health and healthy longevity in old age.

The study included 2,631 older residents who were free from dementia and living in central Stockholm. At the beginning of the study, the

researchers collected data on various indicators for cognitive reserve (e.g., early-life education, midlife work complexity, and late-life [leisure activities](#)).

The participants were then regularly examined over 15 years to determine their cognitive states (e.g., normal function, mild cognitive impairment, and dementia) and survival.

"We used multistate models to investigate the composite measure of cognitive reserve in association with the risk of transitions across different cognitive states and death while considering impact of other factors," explains Serhiy Dekhtyar, Associate Professor, and co-author.

Next steps

"We plan to assess the impact of cognitive reserve-enhancing measures on maintaining cognitive function within the [randomized controlled trials](#)," says Qiu. "We can do this study by using data from our ongoing randomized controlled intervention studies within the Worldwide FINGERS Network (e.g., FINGER and MIND-China trials), a global network for risk reduction and prevention of dementia."

In these intervention studies, [social activity](#), [physical activity](#), and cognitive training, which could enhance cognitive reserve, are part of the intervention measures and cognitive function and dementia are the primary outcomes. In addition, the researchers would like to further explore the mechanisms linking [cognitive reserve](#) with cognitive transitions by using blood and imaging biomarkers for brain lesions in their projects.

More information: Yuanjing Li et al, Association of cognitive reserve with transitions across cognitive states and death in older adults: A 15-year follow-up study, *Alzheimer's & Dementia* (2024). [DOI](#):

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