

# Americans with a college education live longer without dementia and Alzheimer's

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Education gives people an edge in their later years, helping them to keep dementia at bay and their memories intact, [a new USC-led study](#) has found.

"This association between the increase in college attainment and the decline in [dementia](#) prevalence is good news for people who have completed some higher education or earned a degree, but what does it mean for people who are less educated?" said [Eileen M. Crimmins](#), the study's lead author and a University Professor at the [USC Leonard Davis School of Gerontology](#). "They are more likely to develop dementia, and live longer with it."

The study is one of two by USC researchers published on April 16 in a special, dementia-focused supplement of [The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences](#).

[The second USC study](#) appearing in the

supplement, led by Julie Zissimopoulos of the USC Schaeffer Center for Health Policy and Economics, explored how dementia would be impacted if other chronic diseases associated with increased risk of dementia were addressed; for example, if the onset of diabetes or hypertension after age 50 was reduced by half.

Such a feat would extend people's lives by a year and improve their overall health, Zissimopoulos, Crimmins and their co-authors found. However, those improvements would come with a significant tradeoff: more people aged 65 and over would live with dementia and for a longer period of time.

"Reducing onset of hypertension and diabetes at middle and older ages improved the health of these adults but also extended their lives. That in turn increased their overall risk of dementia and ultimately increased the number of individuals living with dementia at older ages," said Zissimopoulos, an associate professor and vice dean at the USC Price School of Public Policy.

The journal's special supplement stems from a May 2017 workshop that was funded by the National Institute on Aging to increase understanding of dementia trends.

## Educational differences with dementia onset

The study examining the association between educational attainment and dementia utilized data on cognitive ability for Americans 65 years and older from the 2000 and 2010 Health and Retirement Study.

The analysis was based on a sample of 10,374 participants in 2000 and 9,995 in 2010 who were 65 and older. The average age of the sample was about 75 years old. The nationally representative survey checks cognitive status through a series of questions and interviewer observations. Mortality data were from the U.S. National Vital Statistics.

The sample was divided into four categories for educational attainment: those who did not complete high school, those with a high school degree, those with some college, and those who completed a college degree or more.

Life expectancy with healthy cognition increased for people with more education between 2000 and 2010. The lifespan with good cognition of men and women 65 and over who had graduated from college increased by an average of 1.51 years and 1.79 years respectively. The increase in lifespan with good cognition was much smaller among those with the least education—0.66 years for men and 0.27 years for women.

Healthy cognition characterized most of the people with at least a college education into their late 80s, the study found. People who did not complete high school had good cognition up until their 70s.

"Higher education status appears to provide lifelong cognitive benefits from both its effect on cognitive functioning and its effect on longer life," the researchers wrote.

### **Focus efforts on delaying dementia**

Scientists and pharmaceutical companies for many years have been working on treatments for Alzheimer's disease and dementia, but so far, there is no cure. They are now turning their focus to these questions: Can you delay the onset of dementia? Can you do so indirectly, by targeting a chronic age-related disease?

For this study, Zissimopoulos and a team of researchers utilized seven waves of data from years 2000 to 2012 on a sample of 27,734 people 51 and older from the national Health and Retirement Survey, which assesses health status and disease over the lifecycle. The data were utilized to model how health evolves at middle and older ages accounting for the interdependent associations of risk factors for dementia and the impact of these risk factors on both morbidity and mortality.

The researchers employed a dynamic microsimulation model, the Future Elderly Model,

developed by the Roybal Center for Health Policy Simulation at the USC Schaeffer Center, and analyzed how a series of scenarios would affect the health, longevity and healthy cognitive lifespan of a cohort of people aged 51 and 52 over their lifecycle. The scenarios included the status quo of no health improvements, reducing incidence of hypertension by half, eliminating hypertension after age 50, zeroing out hypertension before age 50, reducing incidence of diabetes by half. They compared these health improvement scenarios to a scenario with a hypothetical new treatment that delays dementia by two years. Many researchers and institutions are working to develop such a treatment.

They found that while reductions in hypertension and diabetes would improve health and longevity, they would increase the number of years living with dementia. The simulation revealed, for instance, that curing hypertension would increase the average number of years of living with dementia assuming survival to age 65, to 3.37 years, compared to the status quo of 2.94 years.

"We found that only treatments that delay dementia onset both increase life expectancy and reduce the number of years living with dementia," Zissimopoulos said.

An innovation in treatment that delays dementia onset would, across the entire cohort, reduce the number of years living with dementia compared to the status quo by about one-half a year.

Zissimopoulos and Crimmins are among more than 70 researchers at USC focusing their research on Alzheimer's disease and dementia, which affect an estimated 5 million Americans. Alzheimer's disease alone costs an estimated \$236 billion a year in health care services.

USC researchers across a range of disciplines are examining the health and economic effects and implications of the disease. Many of them are working to develop the foundation of a future treatment.

In the past decade, the National Institute on Aging has nearly doubled its investment in USC research.

The investments include an Alzheimer Disease Research Center.

**More information:** Eileen M Crimmins et al, Educational Differences in the Prevalence of Dementia and Life Expectancy with Dementia: Changes from 2000 to 2010, *The Journals of Gerontology: Series B* (2017). DOI: [10.1093/geronb/gbx135](https://doi.org/10.1093/geronb/gbx135)

Julie M Zissimopoulos et al. The Impact of Changes in Population Health and Mortality on Future Prevalence of Alzheimer's Disease and Other Dementias in the United States, *The Journals of Gerontology: Series B* (2017). DOI: [10.1093/geronb/gbx147](https://doi.org/10.1093/geronb/gbx147)

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