

Dementia and cognitive impairment more prevalent in rural than urban seniors

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Americans who live in urban areas tend to be healthier than individuals living in rural settings. While this healthcare disparity has been examined for more than a decade, researchers present the first nationally representative study to find that dementia and cognitive impairment have consistently been more prevalent among rural dwelling seniors than urban dwelling seniors. Their findings, published in the *American Journal of Preventive Medicine*, further suggest that while lagging behind their urban counterparts, the cognitive health of seniors living in rural areas has benefited from early twentieth century investments in secondary education that led to rapid increases in high school graduation rates in rural communities.

"The incidence of [dementia](#) is expected to double by 2050 largely because of the aging cohort of Baby Boomers. While many studies to date have focused on individual-level sources of disparity (e.g. racial and ethnic origins), this is the first study to report a rural-urban differential that behooves the scientific and clinical community to address the attendant factors that confer higher risk for dementia in rural seniors," explained senior investigator Regina Shih, PhD, of the RAND Corporation, Santa Monica, CA.

Using a nationally representative sample of U.S. community-dwelling older adults, more than 16,000 adults aged 55 years or older were evaluated in 2000 and in 2010. Cognitive function was assessed by a 27-point Telephone Interview for Cognitive Status, using multiple validated tests. A score of 6 or less indicated dementia, 7 to 11 indicated

[cognitive impairment](#) without dementia (CIND), and a score of 12 or more was considered normal cognitive function. Data were gathered by proxy from 8.6% of respondents with significant cognitive impairment in 2000 and 4.8% in 2010.

The respondents' residence was determined by their census tract and was classified as urban (100% urban), rural (0% urban), mixed urban (75.1% to 99% urban) and mixed rural (0.1% to 75% urban). Individual sociodemographic characteristics were measured, including: age, gender, race, ethnicity, total number of children, marital status, highest educational attainment, and net total assets in 2000. Health conditions including high blood pressure, cancer, diabetes, lung cancer, heart disease, stroke, or psychiatric conditions were taken into account.

Data from 2000 show that cognitive impairment was more prevalent in rural vs. [urban areas](#) (7.1% rural vs. 5.4% urban for dementia, and 19.8% rural vs. 15.9% urban for CIND). However, ten years later there were no significant differences in the rates, which had both declined, with a greater decrease in rural than urban areas (5.1% vs. 4.4% and 16.5% vs. 14.9%, respectively).

Concurrent changes in [sociodemographic characteristics](#) of rural and urban older adults had also occurred. Racial and ethnic minorities comprised an even larger relative proportion of urban dwellers in 2010, while the proportion of [older adults](#) with less than 12 years of education dropped by about half in [rural areas](#) between 2000 and 2010. Once these and other changes were accounted for, the fully adjusted relative risk ratio (RRR) was 60% higher for dementia and 44% higher for CIND in rural areas compared to urban areas in 2000. In 2010, similarly high rural-urban differentials were found: RRRs for dementia and CIND were about 80% and 40% higher, respectively, in rural compared to urban areas.

Above and beyond age, race/ethnicity, wealth, and health conditions, the most important factor in reducing the rural-urban disparities over a decades' time was educational attainment. The researchers found that education was protective against dementia and CIND, yielding between 83% and 89% lower RRR for individuals with more than 12 years of education.

"Our findings linking rural adults' recent gains in cognitive functioning with the improved rates of high school graduation provides a new example of how public investment in education can narrow population health disparities," commented lead investigator Margaret M. Weden, PhD, also of the RAND Corporation, Santa Monica, CA. "The absence of any prior evidence about the rates and disparities in dementia and cognitive impairment by rural residence that comes from a large, nationally representative study has certainly hampered the ability of these communities to advocate for continued investment in rural healthcare and long-term care services."

Dr. Shih added, ""We were heartened to observe that the rural-urban disparities in dementia have narrowed somewhat over time, however there is still a disadvantage that persists among rural seniors. Rural communities are aging more rapidly than urban communities. Given that those communities experience more healthcare and long-term care system challenges, we hope this research sheds light on the need to intervene on the factors that place rural seniors at greater risk for dementia."

More information: "Secular Trends in Dementia and Cognitive Impairment of U.S. Rural and Urban Older Adults," *American Journal of Preventive Medicine* (2017). [DOI: 10.1016/j.amepre.2017.10.021](https://doi.org/10.1016/j.amepre.2017.10.021)

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