

Team finds that people with dementia at higher risk for COVID-19

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A study led by Case Western Reserve University researchers found that patients with dementia were at a significantly increased risk for COVID-19—and the risk was higher still for African Americans with dementia.

Reviewing [electronic health records](#) of 61.9 million adults in the United States, researchers found the risk of contracting COVID-19 was twice as high for patients with [dementia](#) than for those without it—while among those with dementia, African Americans had close to three times the risk of being infected with COVID-19 as Caucasians did.

In addition, patients with dementia who contracted COVID-19 had significantly worse outcomes in terms of hospitalizations and deaths than those who had COVID-19 but not dementia.

The study was published Feb. 9 by the peer-reviewed *Alzheimer's & Dementia: The Journal of the Alzheimer's Association* and highlights the need to protect people with dementia—particularly African Americans—as part of the strategy to control the pandemic.

An estimated 5.8 million Americans age 65 and older and 50 million people worldwide are living with Alzheimer's and other dementias, according to the Alzheimer's Association.

"Our results emphasize how important it is to protect those with dementia from acquiring SARS-CoV2, for they are at higher risk for severe disease than those without dementia," said study co-author Pamela Davis, dean emerita of the Case Western Reserve School of Medicine. "These patients may constitute another vulnerable category. However, more work is required to understand the mechanism by which this occurs."

The study's authors also include two other members of the School of Medicine: Rong Xu, principal investigator on the research and a professor of biomedical informatics and director of the Center for Artificial Intelligence in Drug Discovery, and QuanQiu Wang, a specialist in artificial intelligence. Co-author Mark Gurney is founder and CEO of Tetra Therapeutics, a drug development company focused on [brain disorders](#) and injuries based in Grand Rapids, Michigan, and a wholly owned subsidiary of Shionogi & Co., Ltd.

They hypothesized the risk of COVID-19 would be greater for patients with dementia for several reasons, including: People with dementia may be more susceptible to contracting COVID-19 because of blood-brain barrier damage that can allow certain viruses and bacteria to reach the brain more easily.

In addition, dementia may interfere with a person's ability to wear a mask, physically distance from others or frequently clean their hands. Moreover, conditions such as cardiovascular diseases, diabetes, obesity and hypertension are [risk factors](#) for both dementia and COVID-19 and are associated with worse outcomes.

"On behalf of the millions of people living with Alzheimer's and other dementia that we represent,

these preliminary findings suggest a frightening reality of the vulnerabilities associated with dementia," said Maria Carrillo, Ph.D., Alzheimer's Association chief science officer. "It is critical we develop and implement strategies that strike a balance between keeping people, especially long-term care residents, safe from COVID-19 but also protecting them from health-related harms associated with social isolation."

Researchers examined electronic health records (stripped of identifying information) from 360 hospitals and 317,000 providers nationally, representing 20% of the U.S. population. Of the 61.9 million adults in the study population, more than one million had dementia, 15,770 had COVID-19 and 810 had both.

"The availability of such a large de-identified database of patient electronic health records analyzed by modern informatics techniques gave our study great power to detect vulnerabilities in patient disease groupings," Xu said.

The researchers also adjusted the data to account for factors including age, gender, race, other health conditions and whether individuals lived in a nursing home. They used an adjusted odds ratio to determine risk.

Their findings:

- While overall the odds of contracting COVID-19 were twice as high for patients with dementia compared to those without dementia, the risk varied by condition. Patients with vascular dementia had the highest risk—with odds more than three times higher— followed by patients with presenile dementia, senile dementia, Alzheimer's disease and post-traumatic dementia.
- The odds of African Americans with dementia contracting COVID-19 were almost three times higher than for Caucasians with dementia. Generally, gender had no additional effects on the risk of COVID-19 in patients with dementia, while age had no additional effects in patients with dementia in general and

Alzheimer's specifically.

- The overall hospitalization risk during the six months for adults with COVID-19 was 25.17%. But among patients with COVID-19 and dementia, 59.26% were hospitalized, and the percentage was even higher—73.08%— among African American patients, compared to 53.85% of Caucasians with both conditions.
- The overall mortality risk for patients with COVID-19 was 5.64%. But among those who also had dementia, 20.99% died, with the percentage higher for African Americans (23.08%) than for Caucasians (19.23%).

Provided by Case Western Reserve University

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