Researchers find intriguing connections between Alzheimer's disease and other common conditions

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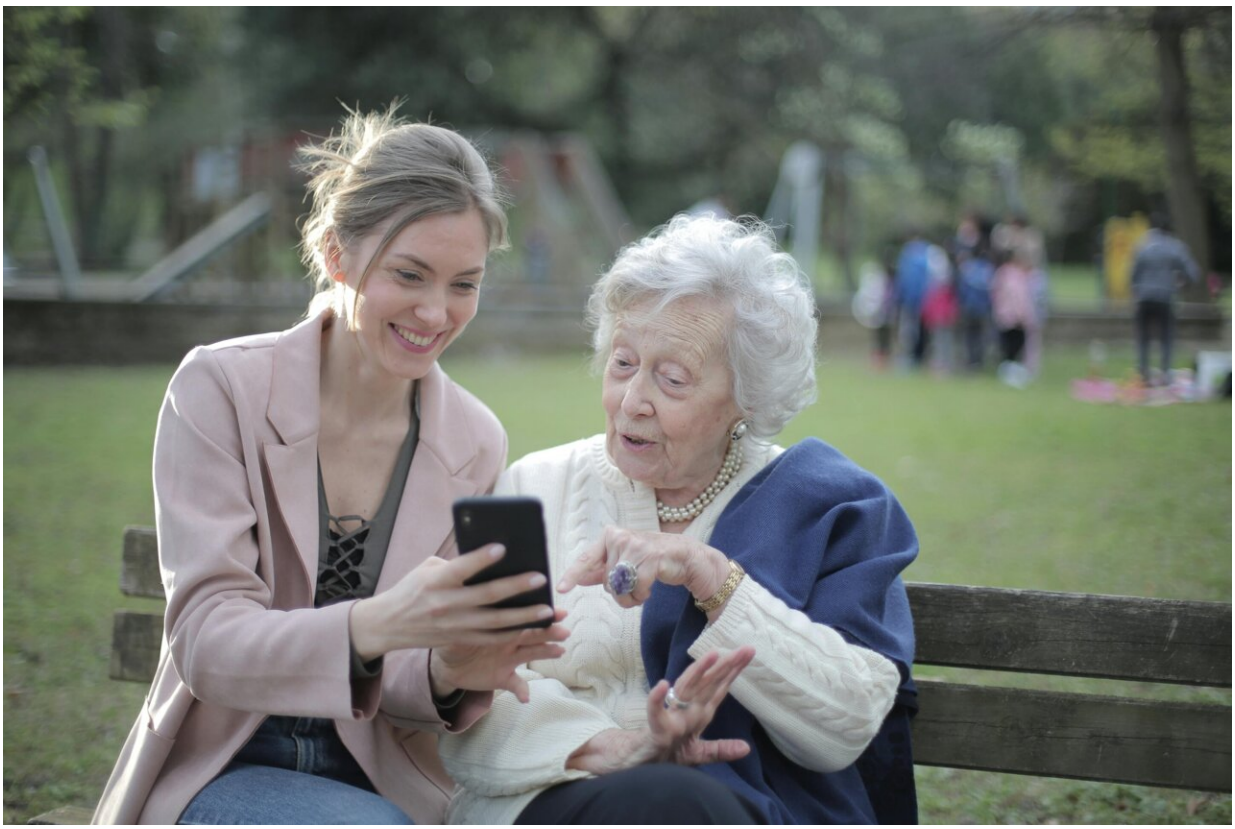

Credit: Andrea Piacquadio from Pexels

A study has found that while some medical conditions appear to increase our likelihood of developing Alzheimer's disease, others appear to

decrease the odds.

The study, led by Dr. Yijun (Nicholas) Pan and Dr. Liang Jin, analyzed data from 2,443 older Australians living in Melbourne or Perth who are part of the Australian Imaging, Biomarker and Lifestyle (AIBL) study, an internationally recognized cohort for dementia research.

"We found anxiety and other neurological disorders are associated with increased likelihood of Alzheimer's disease," Dr. Pan said.

"People with anxiety and neurological disorders are 1.5 and 2.5 times more likely to have Alzheimer's disease. For people with anxiety, males have higher odds than females of developing Alzheimer's disease."

The study, published in *Alzheimer's & Dementia: Diagnosis, Assessment & Disease Monitoring*, found several medical conditions are linked to lower odds of Alzheimer's disease, such as arthritis, cancer, gastric complaints, and high cholesterol. The reasons for the connections were complex, Dr. Pan said.

Dr. Pan said the protein p53, which has been shown by others to regulate amyloid-beta mediated neuron death seen in Alzheimer's disease, is also known to lose its function with cancer, providing a possible explanation for the connection between the two conditions.

"We need further research to understand whether these diseases interfere with the evolution of Alzheimer's or whether there might be other reasons. The medications or treatments used for these diseases may possibly contribute to this observation," he said.

The AIBL study reported no significant association was observed between depression, falls or stroke and Alzheimer's disease.

Dr. Pan said the research provided a useful insight into the complex interconnections between the many conditions at play for most people with Alzheimer's disease.

"This is the first study to assess 20 comorbidity associations with cognitive impairment using a single Australian dataset, which allowed us to fully consider how these conditions affect the likelihood of developing Alzheimer's disease.

"We also studied whether age, gender, smoking, education, alcohol consumption, and the APOE gene—believed to be connected to Alzheimer's—affect these associations. Our study indicates a new opportunity for biologists to study the links between these 20 conditions with Alzheimer's disease.

"This work also provides valuable epidemiological evidence to clinicians, which may help them to evaluate one's risk of developing Alzheimer's disease," Dr. Pan said.

More information: Catherine Quynh Nhu Nguyen et al, Exploring the link between comorbidities and Alzheimer's dementia in the Australian Imaging, Biomarker & Lifestyle (AIBL) study, *Alzheimer's & Dementia: Diagnosis, Assessment & Disease Monitoring* (2024). DOI: 10.1002/dad2.12593

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