

REPLY

The effect of different SARS-CoV-2 variants: Reply

In Reply to Hsu et al.: We appreciate the thoughtful letter by Hsu et al. regarding our study.¹ Our study showed that among fully vaccinated older adults, patients with dementia were at increased risk for COVID-19 breakthrough infection compared to propensity score-matched patients without dementia between December 2020 and August 2021. During the study period, several SARS-CoV-2 variants dominated in the United States, including the Alpha and the Delta variants. In our investigation, the study population was divided into two cohorts: dementia cohort and non-dementia cohort. The index event in both cohorts was the full vaccination (receipt of second dose of mRNA-1273 or BNT162b2). The outcome breakthrough SARS-CoV-2 infection was then followed by the index event in both cohorts for the same length of time. While our study did not explicitly control for virus variants, both dementia and non-dementia cohort were followed for the same time period between December 2020 and August 2021. Future studies are needed to further examine how the risks for breakthrough infections and associated clinical outcomes in patients with dementia evolve. It will be important to: (1) examine how the risks and outcomes in fully vaccinated individuals with dementia differ based on different SARS-CoV-2 virus variants or COVID-19 waves; (2) how the risks and outcomes differ based on vaccine types and boosters over time; (3) how COVID-19 therapeutics including remdesivir, paxlovid, and molnupiravir affect outcomes in vaccinated patients with dementia; (4) characterize and identify specific populations of patients with dementia who are more vulnerable to COVID-19 breakthrough infections and outcomes; (5) understand long-term effects of COVID-19 infection including breakthrough infections on patients with dementia; and (6) validate the findings in other countries as the susceptibility of the population, vaccine types, as well as pandemic preventive and control measures are different among countries.

CONFLICTS OF INTEREST

The authors have nothing to disclose. [Author disclosures](#) are available in the supporting information.

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REFERENCE

1. Wang L, Davis PB, Kaelber DC, Xu R. COVID-19 breakthrough infections and hospitalizations among vaccinated patients with dementia in the United States between December 2020 and August 2021. *Alzheimers Dement.* 2022;13. <https://doi.org/10.1002/alz.12669>. Epub ahead of print.

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.