

Study dives into genetic risk of Alzheimer's and dementia for diverse Latinx groups

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Alzheimer's disease and related dementias (ADRD) are degenerative brain diseases that affect over 5.8 million people in the U.S. Rates of ADRD are higher among Black and Latinx individuals compared to non-

Latinx white individuals. APOE- ϵ 4 is the strongest known genetic risk factor for AD/DRD, however this finding is largely based on studies of individuals of European descent. To better understand the association of the APOE gene with cognitive decline in Latinx populations, researchers from Brigham and Women's Hospital and collaborators analyzed metrics of cognitive decline in six diverse Latinx populations: those of Cuban, Central American, Dominican, Mexican, Puerto Rican, and South American backgrounds. They found that the APOE- ϵ 4 genetic variant was associated with risk of cognitive decline in Latinx populations, with the strongest effect among those of Cuban backgrounds. Findings are published in *Alzheimer's and Dementia*.

"Latinx populations suffer more from Alzheimer's and dementia than other populations," said Einat Granot-Hershkovitz, Ph.D., first author on the paper and a research fellow in the Division of Sleep and Circadian Disorders at the Brigham. "Historically, Latinx populations have been underrepresented in research, especially genetic research. But our findings highlight how important it is to look beyond European ancestry and European genetic risk factors to understand in what ways genetics may or may not contribute to their risk."

The six Latinx subgroups differ based on what proportion of their genes trace back to African, European, and Amerindian (indigenous American) ancestries. Cuban individuals, for example, have the lowest proportion of Amerindian ancestry among the six groups studied and a relatively higher proportion of European ancestry. When the researchers looked at whether the effect of APOE- ϵ 4 is modified by genetic ancestry proportions, they observed that increased proportion of genetic Amerindian ancestry protects from the risk conferred by APOE- ϵ 4 on [cognitive decline](#).

"We think proportion of ancestry is a crude measure of genetics, but there are probably specific genetic factors that may be specific to

Amerindian [ancestry](#) that drive this difference in the effect of APOE," said Tamar Sofer, Ph.D., director of the biostatistics core in the Division of Sleep and Circadian Disorders at the Brigham and principal investigator of the paper. She acknowledged that non-genetic factors—like nutrition, sleep, physical activity, or exposure to toxins—could also play a role.

The researchers based their findings on 4,183 Latinx individuals participating in the Hispanic Community Health Study/Study of Latinos and the ancillary Study of Latinos-Investigation of Neurocognitive Aging. On average, cognitive tests were administered to the participants seven years apart. Since many of the participants are still too young to have developed ADRD, the researchers looked at associated conditions like significant cognitive decline and mild cognitive impairment, which often precede more serious states of dementia.

"Ideally there will be another study so we can see what happens long-term as the [population](#) becomes older," Sofer said. "We can verify whether the pattern we see is related to Alzheimer's or a different type of dementia or cognitive decline. We still want to verify the long-term patterns before we communicate risks to people in clinic."

Still, the study is important as a large-scale investigation into an under-researched topic.

"Latinx populations should know that they are represented in this area of [genetic research](#) now," Granot-Hershkovitz said. "It's not easy to participate in a research study, but there are revelatory findings from this amazing dataset, and hopefully there will be more in the future. This brings us a step further in addressing Latinx health disparities."

More information: Einat Granot-Hershkovitz et al, APOE alleles' association with cognitive function differs across Hispanic/Latino groups

and genetic ancestry in the study of Latinos-investigation of neurocognitive aging (HCHS/SOL), *Alzheimer's & Dementia* (2020).
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