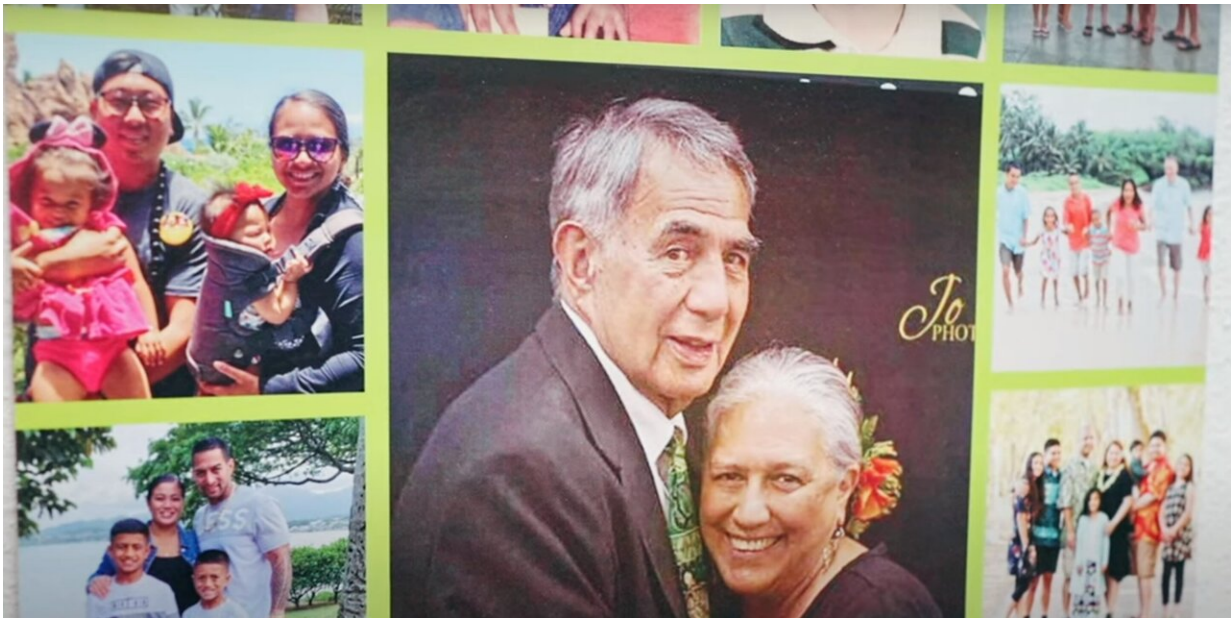


# Research team finds rates of Alzheimer's gene is four times higher in Pacific Islanders

July 18 2023, by Christie Allen

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Credit: Brigham Young University

Native Hawaiians and Pacific Islanders are vastly underrepresented in genetic research on dementia. Of the 45,000 participants in U.S. Alzheimer's Disease Research Centers, for example, just 17 are from this cohort.

Partnered with the Natives Engaged in Alzheimer's Research project, a \$14.6-million endeavor to expand research and treatment on Alzheimer's

and dementia, BYU researchers are filling that gap. So far, they've collected more than 700 DNA samples from Native Hawaiians and Pacific Islanders and examined them for the APOE  $\epsilon$ 4 gene, which is known to increase the risk of developing Alzheimer's in Caucasians.

They found that 25% of their sample had the APOE  $\epsilon$ 4 allele, a far higher rate than any other group. For comparison, the frequency among African Americans is about 12% and among European Americans, 6%. The team presented their findings this week at the [Alzheimer's Association International Conference](#) in Amsterdam.

"We don't know for sure what the implications of this finding will be—[genetic risk factors](#) can have different effects in different populations," said project co-leader John "Keoni" Kauwe, a BYU professor of biology and the president of BYU–Hawaii. "There's potential that these increased rates come from a genetic factor that might teach us something important about the disease."

Studying the unique genetic risk factors for dementia in each population is critical for equitably treating the disease.

"A genetic marker may provide insights into the physiology, what's actually happening in the body," said BYU biology professor Perry Ridge. "When a [drug company](#) develops a treatment, they're saying, 'Can we change this effect that we see caused by this mutation?' So when we only use data from Caucasians to develop treatments, there's a real possibility that those treatments won't be effective in other populations."

The researchers' work is just beginning: they have thousands of DNA samples still to collect and analyze. In addition to further investigating APOE  $\epsilon$ 4 and other genes, the team is implementing programs to better diagnose dementia among Native Hawaiians and Pacific Islanders and to educate the community about the disease.

Previously, there were no clinical tools to diagnose Alzheimer's in Samoan and Tongan languages, leaving these groups relatively neglected in dementia care, despite anecdotally high rates of the disease among the population. As part of the initiative, BYU Ph.D. student Justina Tavana—who, like Kauwe, is from the communities the researchers are studying—translated and developed culturally appropriate exams for use in these groups.

Tavana recruited BYU and BYU–Hawaii students from the native communities to assist at their "brain health fairs," at which they've screened individuals for [dementia](#), taught hundreds of people about the disease and collected additional DNA samples for future research.

"When the participants see all of these native scientists there who can speak their language and who are from their communities, it's opened a lot of doors," Tavana said.

"These communities are excited to see someone care about them, to see somebody try to make Alzheimer's diagnosis and information accessible to them," Kauwe added. "We've felt a lot of love and warmth, brotherhood and sisterhood as we've done this work."

Provided by Brigham Young University

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