Racial disparities in dementia determined by social factors rather than genetic ancestry, finds study

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Merita (center) smiles at her great-granddaughter while her brother, Pablo, relaxes behind her. The family belongs to the Negritos community of Tumbes, a city in northern Peru. A study conducted in Peru and three other Latin American countries by researchers at Washington University School of Medicine in St. Louis reveals that racial disparities in brain health are due to social factors, with genetic ancestry playing no role. Credit: Alex Kornhuber, Global Atlantic Fellow
Racial disparities in dementia are due to social determinants of health, with genetic ancestry playing no role, according to a new study led by researchers at Washington University School of Medicine in St. Louis.

The study, which was based on a long-running population-based survey in four Latin American countries, helps explain why people of predominantly Native American or African ancestry have a higher prevalence of dementia: Study participants were more likely to experience social contexts and health conditions that raised their risk of cognitive decline, such as lower education levels, rural residency and high blood pressure. Once such factors were accounted for, ancestry added no additional risk.

"Marginalized racial and ethnic groups have higher rates of dementia in many countries, and disentangling the biological from the social contributors has been challenging," said corresponding author Jorge Llibre-Guerra, MD, an assistant professor of neurology.

"Latin America provides a unique framework to separate the two. It is the region with the largest mixture of genetic ancestries, plus it has profound social inequalities. This study clearly shows that poor cognitive health is part of the legacy of the racial caste system. It's not family ancestry that is putting people at risk. In a way, the findings are reassuring, because social determinants of health are modifiable."

The study is published in the journal Alzheimer's & Dementia.

Once thought to be a natural and inevitable part of aging, cognitive decline and dementia increasingly have been recognized as products of a
complex web of risk factors more likely to ensnare members of marginalized groups. In the U.S., for example, dementia is about twice as common in Black communities and 1½ times as common in Hispanic communities, compared with white populations.

What remains unclear is how much of the increased rate of dementia is due to modifiable risk factors linked to marginalization, such as education level and high blood pressure, and how much is due to genetic susceptibility associated with ancestry.

The first step in disentangling the roles of biological and social factors is to replace the complicated issue of racial and ethnic identity with the simpler matter of genetic ancestry. Race and ethnicity are not biological categories; they are defined by the cultures and societies in which people live, and the definitions vary by time and place. Genetic ancestry, on the other hand, is an objective measure of the proportion of an individual's DNA that can be traced back to one or more large areas of the globe—in this case, Africa, Europe or the Americas.

Llibre-Guerra and colleagues analyzed the relationship between genetic ancestry, social determinants of health, and cognitive function using survey data obtained by the 10/66 Dementia Research Group in Cuba, the Dominican Republic, Mexico and Peru.

The 10/66 group was established in 1998 to study the prevalence and impact of dementia in low- and middle-income countries by using population-based surveys that are internationally validated and standardized. The current study utilized data from the 10/66 group's first survey wave, conducted from 2004 to 2006. The first wave marks the beginning of systematic data collection across diverse settings and provides a critical benchmark for all subsequent analyses. The 10/66 group has since conducted two follow-up surveys and plans to continue expanding these assessments moving forward.
Eligible participants were found by trained surveyors who knocked on all doors in designated areas, a strategy designed to generate representative samples for each country. Each participant underwent an interview, physical examination, cognitive assessment and blood draw. In addition, surveyors interviewed a close relative or friend of each participant.

For the current study, the researchers analyzed deidentified data on 3,808 people ages 65 or older across the four countries. Individuals were categorized as predominantly of African, Native American or European ancestry if 70% or more of their DNA could be traced to the respective continent.

Each country had a unique mixture of ancestries. In Mexico and Peru, the greatest number of people were primarily of Native American heritage, followed by European and then African. In Cuba, most were of European ancestry, followed by African, with less than 3% Native American. In the Dominican Republic, most people were of African heritage, followed by European, with about 10% of Native American heritage.

The survey revealed that cognitive impairment was more common among older people of Native American or African ancestry than of European ancestry. While 47.8% of seniors of European heritage exhibited some degree of cognitive impairment, 52.7% of those with Native American ancestry and 54.9% of those with African ancestry showed such impairments. Once social and health factors such as education level, socio-economic status and cardiovascular health were taken into account, the association between genetic ancestry and cognitive performance disappeared.

"Our findings suggest that cognitive performance is largely influenced by upstream societal risk factors," the authors wrote in the study. "We found substantial disparities in social determinants of health among
different ancestry groups in Latin America, stemming from enduring disadvantages and structural racism rooted in the colonial period."

The study findings echo what has been observed in the U.S., with marginalized groups experiencing higher rates of dementia and similar social inequities such as lower education attainment and reduced access to health care. "If we want to improve cognitive health for all people," Llibre-Guerra said, "we need to start by addressing these factors."


Provided by Washington University School of Medicine


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