

The Baakalaaxdeete (To have good memory) Study of Risk and Protective Factors for ADRD among American Indians Across the Life Spa

SPECIFIC AIMS

More than 6 million individuals in the U.S. live with Alzheimer's Disease and Related Dementia (ADRD) and this number is projected to increase to over 15 million by 2060.¹ Approximately 35% of American Indian/Alaska Natives (AI/AN) and 30% of Whites over the age of 65 are predicted to be diagnosed with ADRD over the next 25 years.^{2,3} AI/AN's have a high prevalence of mid-life modifiable risk factors such as diabetes, hearing loss, traumatic brain injury, hypertension, alcohol, obesity, smoking, and depression.⁴ Despite the high incidence (21%) of early cognitive decline - a precursor to dementia in AI/AN older adults, more than one-third of AI/AN (35%) have reported a low concern about developing dementia. Concomitantly, research on the association between early and mid-life conditions and cognition at an older age in the AI/AN population is not well established. Understanding the extent to which early and mid-life conditions influence cognitive aging through mid-life health behavior and modifiable risk factors is essential to improving the early detection of ADRD in the AI/AN population.

Several risk predictions models and indices for dementia have been developed and validated in White or non-AI/AN populations and used in clinical practice for early detection to start early intervention. However, those existing risk prediction models have not been designed or validated specifically for AI/AN older adults. Additionally, past dementia risk prediction models have been criticized for not capturing protective factors such as cultural values, spirituality, and family cohesion and certain behavioral practices pertinent to AI/AN due to over-reliance on quantitative data and poor internal and external validations in the AI/AN population. Therefore, the clinical utility of these prediction models in the AI/AN adults is significantly limited. We propose to mitigate both conditions by developing a culturally sensitive AI/AN risk prediction model.

We will conduct a longitudinal analysis of data from the National Health and Aging Trends Study (NHATS) linked with Medicare enrollment data to develop an American Indian Dementia index (AIDi). That index will be supplemented and culturally validated using the RARE (Rapid Assessment, Response and Evaluation) methodology to identify protective and risk factors, cultural attributes, and community-based perceptions of ADRD that impact early intervention efforts. The long-term goal of this study is to improve early detection of dementia in AI/AN, an important step towards enhancing preventive care in a vulnerable population.

Our Specific Aims are to:

Aim 1: Develop and validate AIDi for American Indians aged 65 and older, using the NHATS and Medicare linked data from 2011-2020.

Aim 2: Determine the community perceptions of the unique protective and risk factors, needs, assets, and resources of tribal community members regarding ADRD and healthy brain initiatives using the RARE approach to culturally validate the AIDi, and to provide community engaged cultural models for later program development.

The proposed study will generate empirical evidence presenting the magnitude of the effects of mid-life modifiable risk factors on later-life cognitive functioning and develop a model to predict dementia in the AI/AN population. We deliberately chose an expanded age-range segmentation for AIM 2 to extend the risk perception information from AIM 1 (65+) to younger age cohorts (caregivers) to identify early onset risk factors and prevention program considerations. The development of AIDi could be used to identify AI/AN older adults who are potentially at high risk for developing dementia. Additionally, RARE methodology will complement the AIDi as a culturally sensitive approach, which can educate AI/AN adults about risk factors for developing dementia, the importance of adopting positive health behaviors, and identifying individuals for early public health interventions. The **long-term goal** of this study is to develop culture-based, multi-system healthy brain initiatives for AI/AN adults and families that recognize the unique needs and assets of these populations.

This project will address several priorities of the NIA or NIMHD by 1) advancing the scientific understanding of early indicators of cognitive decline and cultural attributes in highly vulnerable indigenous populations and 2) developing a culturally appropriate dementia screening tool which can be administered quickly by clinicians in healthcare settings. The combined experience and expertise of this interdisciplinary team of investigators, as well as our partnership with the Crow Tribe, well-positions the proposed study for success. Achieving the study aims will stimulate additional activity and progress in ADRD research by providing preliminary data on the

risks, protective factors, priorities, and resources of AI/AN community members of one Native nation, which will guide our future SHERC-supported and NIA or NIMHD-funded R01 intervention studies focused on healthy brain initiatives.