# Epidemiology of Alzheimers Disease and Cognition: Innovative Approaches to Global Harmonization

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USA

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Epidemiology of Alzheimers Disease and Cognition: Innovative Approaches to Global Harmonization

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1

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Alzheimer's disease & other dementias

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Behavioral and Social Science... Brain Disorders... Clinical Research... Clinical Research - Extramural... Dementia... Epidemiology And Longitudinal Studies... Health Disparities for IC Use... Neurodegenerative... Neurosciences... Women's Health for IC Use

**Research Abstract**
Developing sensitive and valid indicators of Alzheimer's Disease (AD), dementia and cognitive function in low literacy and low income countries is challenging and requires creative approaches to complement standard neuropsychological batteries. In this proposal, we aim to incorporate an innovative approach to assessing cognition and to validate it against standard cognitive batteries, medical and informant assessments, brain function assessed from MRI's and genetic analyses of APOE in 3 HRS sister countries: South Africa (HAALSI), United States (HRS/COG), and Ireland (TILDA). South Africa has a low literacy rate in older people, varying degrees of use of written language and different cultural cues compared to Western industrialized countries. In order to assess cognition in this setting, we assess cognitive function leveraging non-verbal and minimally numeric assessments for a range of cognitive domains. Through administration via tablets, responses are recorded and scored immediately. The tablet-based assessments will be validated in relation to the Harmonized Cognitive Assessment Protocol (HCAP) developed by HRS across HAALSI, TILDA and HRS/COG (Aim 1). Additional information from MRI's and genetic analyses increase validity. Clinical and informant interviews are added to develop an AD and dementia risk score (Aim 2). We conduct the validations and harmonization in age and education stratified samples of 300 men and women 50 -79 years old in each of the three cohorts (n=900). Novel `next generation' instruments are being developed and we now need information regarding their validity compared to standard cognitive assessments. Additional psychometric evaluation in collaboration with PITCH (R01AG051170, Jones PI) will aid in refining these measures. Developing cross-walks between these measures and other commonly used indices is of special importance in the set of sister studies related to the Health and Retirement Study where the explicit goals are to permit comparisons across countries, especially with regard to AD and dementia. TILDA and HAALSI offer specific advantages in calibration because they have had rich additional neuropsychological and health data from earlier waves across an educationally diverse older population. We have two aims in our proposal: Aim 1. To assess the validity of the Oxford based language controlled cognitive measures in relation to the HCAP measures using identical platforms for HRS/COG, TILDA and HAALSI 1.a. to evaluate content, criterion and construct validity of Oxford assessments against 1.b. to develop a refined battery of items based on the psychometric analyses 1.c. to develop a shorter and harmonized set of items that have good psychometric properties Aim 2. To develop a common dementia risk score in each country based on the additional information gathered from proxy/informants and a clinical evaluation. This risk score will be harmonized and validated.

**Lay Summary**
Developing sensitive and valid indicators of dementia and cognitive function in low literacy and low income countries is challenging and requires creative approaches to complement standard neuropsychological batteries. We use an innovative language controlled tablet based approach to assessing cognition and validate it against standard cognitive batteries, clinical assessments, brain function based on MRI's, and informant assessments in 3 HRS sister countries: South Africa (HAALSI), United States (HRS/COG), and Ireland (TILDA). We evaluate novel approaches to reduce cultural or educational bias in cognitive assessments. By using a tablet assessment with tasks that are visually-oriented and use simple language, we will be better able to disentangle the causal pathways from socioeconomic conditions to cognition. We aim to

increase our ability to understand if cross-country comparisons reflect genuine differences in risk and prevalence that will give us important etiologic clues regarding Alzheimer’s disease and relate dementias.

**Further information available at:**

**Types:**
Investments > €500k

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