Diversity, Equity and Inclusion Research Across the ADRD Continuum: A Call to Action for the ADRC Network

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Fall ADRC Meeting  
Theme and Goals  

Overarching Meeting theme:  
Diversity, Equity and Inclusion  

NIA’s Goal in Health Disparities Research  
“NIA seeks to understand the environmental, sociocultural, behavioral, and biological drivers of health inequities and disparities related to aging and diseases such as Alzheimer’s disease and related dementias”  

• DEI theme permeates through nearly all the sessions during this 2-day meeting  
• Collectively, the ADRC network has conducted breakthrough research in ADRD  
• Goal of this meeting is to build upon the scientific advances in ADRD and identify new areas for innovative health disparities research
DEI Research: Why is it Important for ADRD Disparities?

• Ensure research studies are more representative of the US population and results more generalizable

• Enhance the understanding of ethnoracial differences across the full spectrum of ADRD research—neurobiology, clinical phenotype, biomarkers, diagnosis, and treatment and prevention

• Gain the trust and commitment of minoritized communities, thereby improving recruitment and retention in ADRD studies and clinical trials

• Reduce health disparities and health care discrimination, and improve access to high quality care
Dr. Martin Luther King Jr. Statement, March 1966

“Of all forms of discrimination and inequalities, injustice in health is the most shocking and inhuman”
Health Disparities & ADRD Research: Nomenclature & Definition

- **Race** refers to the concept of dividing people into groups based on sets of physical characteristics.
  - It has no biological basis
  - Is the result of systemic and structural racism
  - Racial inequities lead to adverse socioeconomic and health consequences
  - The term “racialization” reflects categorizing or marginalizing a group of people; it has no inherent biological basis

The OMB defined racial categories include:
- American Indian or Alaska Native
- Asian
- Black or African American
- Native Hawaiian or Other Pacific Islander
- White

- **Ethnicity** relates to shared cultural characteristics such as language, ancestry, religion, beliefs, diet, etc. The OMB defined ethnic categories include
  - Hispanic, or non-Hispanic
  - Ethnic categories apply to all races
Health Disparities and ADRD Research: Incidence & Prevalence

Native Americans, Alaskans, and African Americans have increased odds of developing Late Onset Alzheimer’s disease dementia

Mayeda et al, 12(3);216-224, March 2016
AD and MCI Prevalence in Racialized Groups

<table>
<thead>
<tr>
<th></th>
<th>Clinical AD prevalence, cases per 100 (95% CI)</th>
<th>MCI prevalence, cases per 100 (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All participants</td>
<td>10.0 (9.6–10.4)</td>
<td>21.1 (20.8–21.5)</td>
</tr>
<tr>
<td>Non-Hispanic White</td>
<td>14.0 (12.0–16.1)</td>
<td>25.9 (24.5–27.3)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>18.6 (18.0–19.1)</td>
<td>32.0 (31.7–32.4)</td>
</tr>
<tr>
<td>Black</td>
<td>11.3 (10.7–11.9)</td>
<td>22.7 (22.3–23.2)</td>
</tr>
</tbody>
</table>

1.5-1.8 x higher prevalence for Black individuals compared to whites

TABLE 2 2020 US Census–adjusted prevalence, cases per 100 persons, (95% CI) of clinical AD and MCI, by age and race/ethnicity using 10,342 participants from the Chicago Health and Aging Population Sample

• Global population is ethnically and racially diverse, thus need for more inclusive research worldwide

• Developing countries will experience significant increase in the number of people with ADRD and related disparities

• Limited information on the impact of race and ethnicity on the neurobiology, biomarkers, clinical phenotype, and treatment and prevention of ADRD

• Genetics plays a smaller role in ethnoracial differences in ADRD prevalence

• Social and environmental disparities are major reasons for racial and ethnic differences in ADRD incidence and prevalence

Beydoun et al, Alz Dementia;2022
Health Disparities and ADRD

- Lack of longitudinal studies evaluating the effects of **lifelong** social, environmental, & behavioral exposures in racialized groups

- **Poor quality health care and related discrimination** are major contributors to ADRD-related morbidity and mortality in marginalized populations

- Diagnosis and treatment of ADRD is **delayed in minoritized populations** due to limited access to health care, lack of insurance, and poor health literacy

Bryant et al, Alz Dementia, 2022:1-8
Alz Dementia,15(2);292-312, Feb 2019
Integrating NIA and AT(N) Research Framework

Gleason & Zuelssdorf et al, Alz and Dementia; 18:1545-1564, 2022
Key Observations for ADRD Research:

- Older US racialized populations suffer from **premature illnesses over life course**. These illnesses affect environmental-biological interactions and activate molecular mechanisms underlying ADRD.

- Sociocultural and environmental factors likely act more **upstream of molecular processes** mediating ADRD.

- Health disparities research should **prioritize mechanistic research** that could provide biological underpinnings for health disparities.

Hill et al, Ethnicity & Disease:25(3);245-254, Summer 2015
Effects of Race and Ethnicity on ADRD:

• Race and ethnic differences in education quality, health behavior, and sociocultural factors could reduce **cognitive resilience** and increase ADRD prevalence.

• African Americans (AA) have lower levels of cognitive test performance, likely due to **testing bias**, but progress slowly.

• **Lack of reliable cognitive testing norms** may over diagnose ADRD in underrepresented groups.

• **Distinct risk factors** for ADRD in underrepresented groups include midlife obesity, physical inactivity and low education.

Alz dementia, 15(2):292-312; February 2019
LL Barnes, Nature;18:56-62, Jan 2022
JJ Manly et al, J Geriatric Psychiatry & Neurol;18(4):213-217, 2005
Health Disparities and ADRD Research

Effects of Race and Ethnicity on ADRD Biomarkers:

• **Absolute cut off points** for fluid AD biomarkers are not available for minoritized populations

• Cut off points in non-Hispanic Whites may not be relevant for racialized groups

• CSF levels of t-tau, p-tau 181 are reportedly lower in AA compared to non-Hispanic Whites

• Plasma AD biomarkers vary significantly in association with medical comorbidities and ethnicities

Alz Dementia, 15(2);292-312, Feb 2019
Gleason et al, Alz Dementia;18:1545-1564, 2022
O’Bryant et al, Alz Dementia;1-8, 2022
Health Disparities and ADRD Research

Race, Ethnicity, and Treatment Trials – An NIA Priority:

• **Less than 5%** of clinical trial participants are from URGs

• Treatment trial outcomes are rarely **reported by racial/ethnic group** and often covaried by race

• Attrition rates for URGs are generally not reported in treatment trials; thereby preventing assessment of “attrition bias”

• Treatment trial results are **not generalizable** due to “selection bias” - clinic versus community-based recruitment
Advancing ADRD Disparities Research: Select Alzheimer’s Association ISAART Recommendations

• Identify strategies to increase enrollment and retention of diverse populations in ADRD studies

• Examine the potential effects of lifelong exposure to social, environmental, and behavioral factors on ADRD disparities in diverse populations

• Develop and validate norms for cognitive tests and cut off points for imaging and fluid biomarkers for minoritized populations

• Utilize the existing NIA-funded longitudinal cohorts with diverse populations to address gaps in ADRD disparities research

• Develop and validate models of risk and protective factors for racial/ethnic subgroups

• Employ precision medicine approaches to translate findings from ADRD disparities research

Alz dementia, 15(2);292-312, February 2019
1993 NIH Revitalization Act
- Federal legislative mandate that NIH-funded research would allow for “valid analysis of whether the variables being studied in the trial affect...members of minority groups.”
- NIH established policies
  - Women and minoritized individuals must be included in all NIH-funded clinical research
  - Must address the inclusion of groups in proposal

**Call to action**