

# Race, Meaning & Purpose in Life, and Markers of Brain Health for Alzheimer's Disease

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Greater meaning and purpose in life (M&P) is associated with better global cognition among Black, but not White, participants

## INTRODUCTION

- AD risk and protective factors are related to biomarkers of Alzheimer's Disease (AD; amyloid, tau, neurodegeneration (AT(N)))
- There are known racial disparities in AD which may be related to differences in distribution of risk and protective factors
- Meaning and Purpose in Life
  - Linked to positive health outcomes (better cognition, decreased AD risk)
  - Limited studies evaluating biological AD markers in racially diverse samples

## METHODS

- Pittsburgh Human Connectome Project
- Inclusion Criteria: Magnetic resonance eligible, generally neurologically healthy other than Mild Cognitive Impairment or AD
- M&P from the NIH Toolbox
- 3 models (linear regression)
  - MRI (cortical thickness), PiB-PET (amyloid), MoCA (cognition)
  - *Confounding*: age, sex, years of education
  - Effect modification analyses
  - Race stratified analysis
  - Sensitivity analyses: cognitively normal only

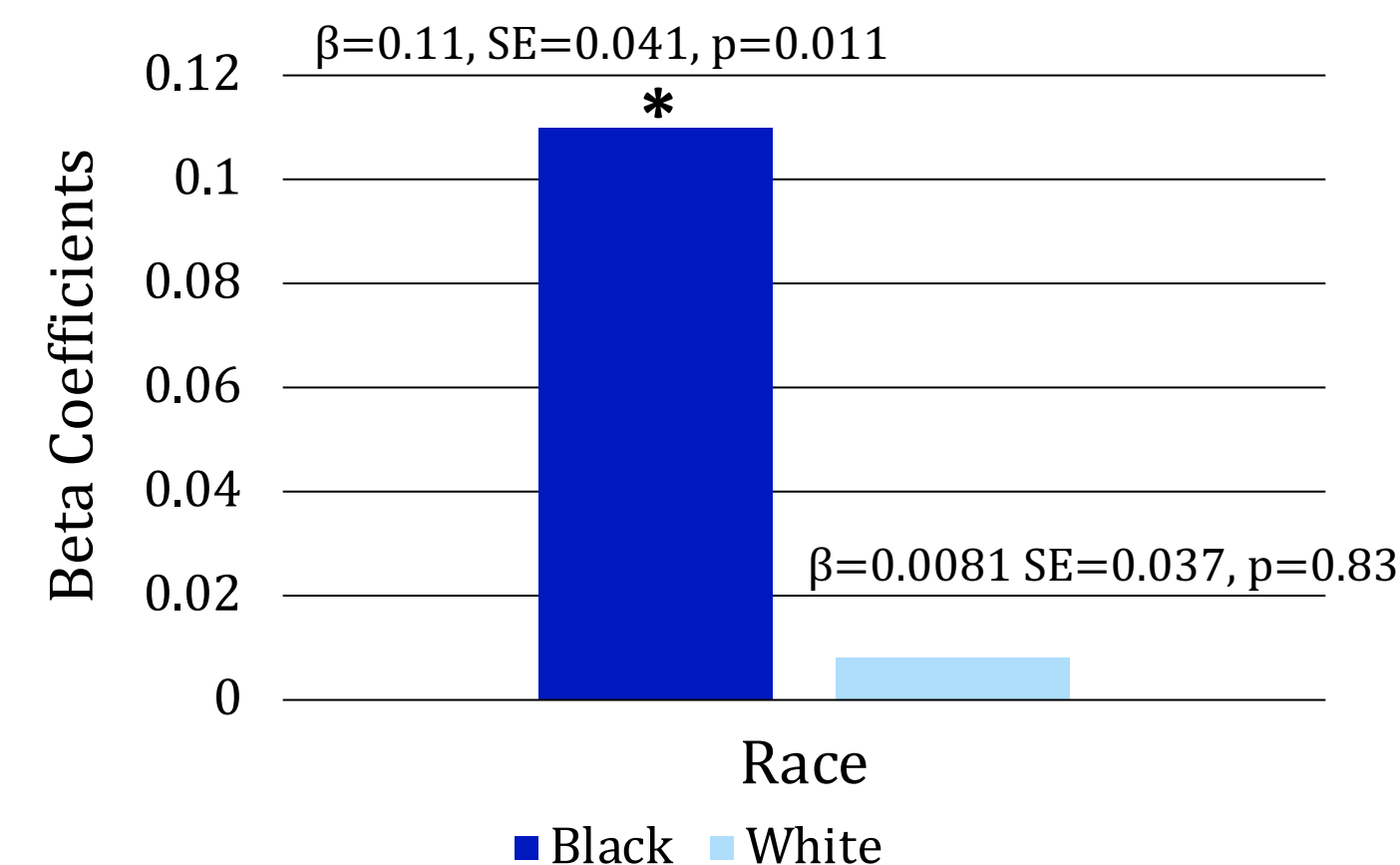
## RESULTS

### Relation of M&P with Brain Health

	M&P		
	Amyloid	Cortical Thickness	Global Cognition
$\beta$	0.00001	0.00063	0.061
SE	0.0021	0.00098	0.028
p-value	>0.99	0.52	0.031*

↑ M&P ↑ Global Cognition  
Interaction with race (p=0.073)

### Association of M&P with Global Cognition, Stratified by Race



- Higher M&P is associated with better global cognition for Black participants
- Effect modification was attenuated when restricted to cognitively normal sample

## DISCUSSION

### Conclusions

1. Higher M&P is associated with better global cognition
2. Findings not present for amyloid or cortical thickness
3. There is significant effect modification by race- findings are only present for Black participants and not for White
4. Attenuated findings when sample restricted to cognitively normal
  - M&P acts as a stronger buffering factor to Black people compared to White, perhaps due to greater social risks
  - M&P may impact cognition through cognitive reserve, not dementia pathology

### Limitations

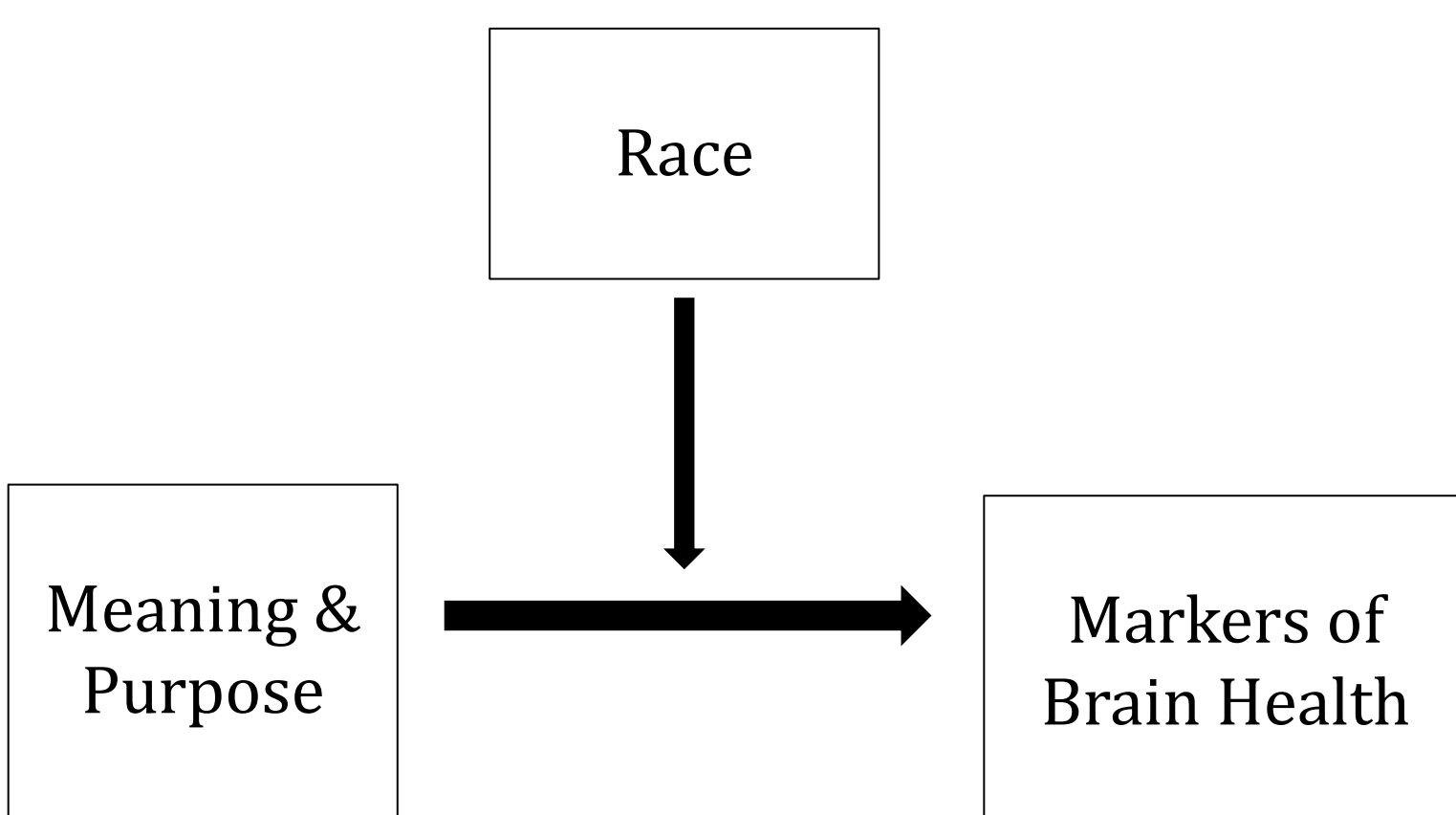
- Incomplete data (Amyloid & Cortical Thickness: 179 / 206)
- Cross-sectional data

### Future Directions

- Other markers of brain health such as cerebrovascular and tau markers
- Structural racism and M&P
- Other vulnerable populations

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National Institute on Aging of the US National Institutes of Health (grant numbers U01AG051197 and R01AG072641)



**Note-- Race:** social construct of how an individual is perceived, exposing certain groups to racism. There is no biological basis to this term.

	Total (N=206)	Black / African American (N=102, 49.5%)	White (N=104, 50.5%)
	M(SD) or N(%)	M(SD) or N(%)	M(SD) or N(%)
Age (years)	64.5 (8.8)	61.0 (7.7)	67.9 (8.6)
Education (years)	15.0 (3.1)	14.2 (2.5)	15.8 (3.4)
Female	136 (66.0%)	73 (71.6%)	63 (60.6%)
Sadness	50.3 (9.8)	49.9 (11.0)	50.6 (8.4)
M&P	50.8 (8.9)	51.1 (9.4)	50.5 (8.5)
MoCA	24.7 (3.8)	23.6 (4.0)	25.8 (3.2)
Amyloid SUVR	1.2 (0.3)	1.1 (0.2)	1.3 (0.3)
Cortical Thickness (mm)	2.7 (0.1)	2.7 (0.1)	2.7 (0.1)
Normal Control	96 (46.8%)	38 (37.6%)	58 (55.8%)