

Keyword 1: aging (normal)

Keyword 2: cross-cultural issues

Keyword 3: cognitive functioning

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6 Racial Discrimination and White Matter Integrity Among Black Older Adults

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Objective: Non-Hispanic Black older adults experience a disproportionate burden of Alzheimer's Disease and related dementias (ADRD) risk compared to non-Hispanic White older adults. It is necessary to identify mechanisms that may be contributing to inequities in cognitive aging. Psychosocial stressors that disproportionately affect Black adults (e.g., discrimination) have the potential to impact brain health through stress pathways. The brain's white matter, which appears to be particularly important for ADRD risk among Black older adults, may be uniquely vulnerable to stress-related physiological dysfunction. To further understand whether and how discrimination can affect ADRD risk, this study aimed to examine associations between multiple forms of racial discrimination and white matter integrity, operationalized through diffusion tensor imaging.

Participants and Methods: Cross-sectional data were obtained from 190 non-Hispanic Black residents aged 65+ without dementia in northern Manhattan. Racial discrimination was self-reported using the Everyday Discrimination and Major Experiences of Lifetime Discrimination scales. Example items from the Everyday Discrimination Scale include: "You are treated with less respect than other people"; "You are called names or insulted." Example items from the Major Experiences of Lifetime Discrimination Scale include: "At any time in your life, have you ever been unfairly fired from a job?"; "Have you ever been unfairly denied a bank loan?" Racial discrimination was operationalized as experiences attributed to "race" or "skin color." White matter integrity was assessed using

fractional anisotropy (FA) via diffusion tensor imaging. Multivariable regression models evaluated the unique effects of everyday and major experiences of lifetime racial discrimination on mean FA in the whole brain and specific regions. Initial models controlled for age, sex/gender, intracranial volume, and white matter hyperintensities. Subsequent models additionally controlled for socioeconomic and health factors to consider potential confounders or mediators of the relationship between discrimination and white matter integrity.

Results: Major experiences of lifetime discrimination were negatively associated with mean FA within the left cingulum cingulate gyrus and the right inferior fronto-occipital fasciculus. These associations persisted when controlling for additional covariates (i.e., education, depression, and cardiovascular diseases). In contrast, major experiences of lifetime discrimination were positively associated with mean FA within the right superior longitudinal fasciculus (temporal part). This association was attenuated when controlling for additional covariates. Everyday racial discrimination was not associated with mean FA in any regions.

Conclusions: These results extend prior work linking racial discrimination to brain health and provide evidence for both risk and resilience among Black older adults. Major experiences of lifetime racial discrimination, a proxy for institutional racism, may have a stronger effect on white matter integrity than everyday racial discrimination, a proxy for interpersonal racism. Educational opportunities and cardiovascular risk factors may represent mediators between racial discrimination and white matter integrity. White matter integrity within specific brain regions may be a mechanism through which racially patterned social stressors contribute to racial disparities in ADRD. Future research should characterize within-group heterogeneity in order to identify factors that promote resilience among Black older adults.

Categories: Dementia (Alzheimer's Disease)

Keyword 1: neuroimaging: structural connectivity

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Paper Session 18: Lifestyle and interventions in Neuropsychology

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Moderated by: Anita Hamilton

1 Neuropsychological Outcome After Cardiac Arrest: Results from a Sub-study of the Targeted Hypothermia Versus Targeted Normothermia After Out-of-hospital Cardiac Arrest (TTM2) Trial

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Objective: To describe cognitive impairment in out-of-hospital cardiac arrest (OHCA) survivors, with the hypothesis that OHCA survivors would perform significantly worse on neuropsychological tests of cognition than controls with acute myocardial infarction (MI). Another aim was to investigate the relationship between cognitive performance and the associated factors of emotional problems, fatigue, insomnia, and cardiovascular risk factors following OHCA.

Participants and Methods: This was a prospective case control sub-study of The Targeted Hypothermia versus Targeted Normothermia after Out-of-Hospital Cardiac Arrest (TTM2) trial. Eight of 61 TTM2-sites in Sweden, Denmark, and the United Kingdom included adults with OHCA of presumed cardiac or unknown cause. A matched non-arrest control group with acute MI was recruited. We administered an extensive neuropsychological assessment at approximately 7 months post-cardiac event, including a neuropsychological test battery and questionnaires on anxiety, depression, fatigue, and insomnia, and collected information on the cardiovascular risk factors hypertension and diabetes. Z-scores of individual tests were converted to neuropsychological composite scores per cognitive domain (verbal, visual/constructive, working memory, episodic memory, processing speed, executive functions). Between-group differences on the neuropsychological composite scores were investigated with linear regression. Associations between anxiety, depression, fatigue, insomnia, hypertension, diabetes, and the neuropsychological composite scores among OHCA survivors were calculated with Spearman's rho.

Results: Of 184 eligible OHCA survivors, 108 were included (mean age = 62, 88% male), with 92 MI controls enrolled (mean age = 64, 89% male). Amongst OHCA survivors, 29% performed $z \leq -1$ indicating at least borderline–mild impairment in ≥ 2 cognitive domains, and