

3 Mediating Role of White Matter Hyperintensities on the Relationship between Depressive Symptoms and Processing Speed in Black and White Older Adults

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Objective: Several studies have noted associations of higher white matter hyperintensities (WMHs) with cognitive slowing and elevated depressive symptoms in older adults. Depression is also directly associated with cognitive slowing in later life. However, the influence of WMHs on the relationship between depressive symptoms and processing speed is unclear. This interrelationship between depression, processing speed, and WMH may differ between racial groups given the well-documented evidence of racial disparities in vascular disease, WMHs, and cognitive performance, however the literature is sparse. The goal of this current study, therefore, was to investigate whether WMHs mediate the relationship between depressive symptoms and processing speed, and if this relationship differs between Black and White older adults.

Participants and Methods: A total of 171 non-Hispanic White and 111 non-Hispanic Black older adults (total sample mean age = 82.71 ± 2.74; 42.91% male) from the Healthy Brain Project (a substudy of the Health, Aging, and Body Composition Study) underwent MRI as well as a neuropsychological evaluation. Total WMH volume was quantified for each participant using an automated procedure and normalized to total brain volume. Depressive symptoms were assessed using the Center for Epidemiologic Studies Depression Scale (CES-D) and the Digit Symbol Substitution Test (DSST) served as a measure of processing speed. Causal mediation analyses were performed between CES-D and DSST scores across the total sample as well as within racial groups (Black and White), with total WMH volume as the mediator.

Results: The direct effect of the CES-D on DSST was significant ($p = 0.012$) for the total sample, reflecting slower processing speed at higher levels of depressive symptoms, but the indirect effect was not ($p = 0.207$). When analyses were stratified by racial group, the

indirect effect was significant for Black ($p = 0.054$; 37.17% mediated) but not White participants ($p = 0.207$): For Black participants, the inverse relationship between depressive symptoms and processing speed was mediated by a positive relationship between depressive symptoms and WMHs.

Conclusions: While these data support previous findings relating depressive symptoms to slower processing speed across racial groups, our findings also demonstrate a greater impact of WMHs on this relationship in Black older adults compared to their White counterparts. This suggests that WMHs may serve as an important risk factor for cognitive slowing in older Black adults with higher depressive symptoms. Future studies are needed to further investigate the role of WMHs on depression-related deficits in processing speed and other cognitive domains in racially diverse groups.

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Clinical Cultural Neuroscience

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4 A Novel Brief Measure of Acculturation and its Association with Subjective and Objective Cognition

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Objective: There is equivocal evidence that acculturation is associated with cognition. Various factors may contribute to ambiguous findings in the neuropsychology setting, including psychometric limitations of tools available for assessing acculturation as well as the frequent conflation of bilingualism with acculturation. Additionally, neuropsychological research on acculturation and cognition has largely failed to account for bidimensional models of acculturation, which have greater empirical support over unidimensional models. In response to these limitations and the theoretical literature on acculturation, we