

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

Alexandria Bartlett¹, Hannah R Bogoian¹,
Caterina Rosano², Vonetta M Dotson¹

¹Georgia State University, Atlanta, GA, USA.

²University of Pittsburgh, Pittsburgh, PA, USA

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.

Categories: Cross Cultural Neuropsychology/
Clinical Cultural Neuroscience

Keyword 1: aging (normal)

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Keyword 3: neuroimaging: structural

Correspondence: Alexandria Bartlett, Georgia State University, abartlett14@student.gsu.edu

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

Luis D Medina^{1,2}, Andrea Ochoa Lopez¹, Joshua M Garcia¹

¹University of Houston, Houston, TX, USA.

²Baylor College of Medicine, Houston, TX, USA

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

developed the Perceived Identity & Ethnicity Scales (PIES), a brief rating scale system to quickly (<2 minutes) capture an individual's perceived acculturative identity across several domains. In the current study, we sought to (1) provide initial psychometric support of the PIES and (2) examine how it relates to cognition in a culturally and linguistically diverse sample.

Participants and Methods: We recruited 242 individuals from both university and community samples (age=23.7±7.6, range 18-72; <12 Years of Education=4%; 78% Female; 58% Hispanic/Latin American; 69% middle SES; 22% educated outside the USA). In addition to demographic questionnaires, participants completed the PIES; an established measure of acculturation (the Bicultural Involvement Questionnaire, BIQ) and bilingualism (Bilingual Language Profile, BLP); measures of mood (the Depression, Anxiety, Stress Scales, DASS; Apathy Evaluation Scale, AES); and of self-reported cognitive functioning (Everyday Cognition, ECog). A subsample of Spanish speakers (n=86) also completed a cognitive battery validated for use in this population (the Spanish English Neuropsychological Assessment Scales, SENAS). For the first aim, we examined the reliability, validity, and dimensionality of the PIES in the full sample. In the Spanish-speaking subsample, we examined the relationship between the tool and both subjective and objective cognition using linear regression controlling for age, education, sex/gender, and premorbid intellectual functioning.

Results: Measures of internal consistency and dimensionality supported a bidimensional model of acculturation; identification with culture of family origin (PIES-O) was not related to identification with US American culture (PIES-U; $r=0.036$, $p>0.05$). Cultural preference scores from the BIQ were associated with PIES-O ($r=-0.322$) and PIES-U ($r=0.277$; both $ps<0.001$) in the expected directions. PIES-O ($r=0.350$) and PIES-U ($r=-0.432$) were associated with the ability to speak a language other than English on the BLP (both $ps<0.001$). PIES-U, but not PIES-O, was also strongly associated with other BIQ and BLP scores as well as with receiving education outside of the USA at medium to large effect sizes ($rs=0.3$ to 0.6 ; all $ps<0.001$). In the subsample, PIES-O and PIES-U were not associated with subjective cognition as measured by the ECog ($\Delta R^2=0.016$, $p>0.05$); global cognition as measured by the Montreal Cognitive Assessment (MoCA; $\Delta R^2=0.046$,

$p>0.05$); or SENAS cognitive composite scores ($\Delta R^2=0.016$, $p>0.05$) after controlling for covariates.

Conclusions: Findings provide strong initial psychometric support for the utility of the PIES in the assessment of acculturation. Moreover, these results further support the bidimensional model of acculturation. Acculturation as measured by the PIES was not associated with cognitive abilities in this highly educated and mainly female cross-sectional sample. Longitudinal research accounting for acculturation is needed to elucidate these relationships.

Categories: Cross Cultural Neuropsychology/
Clinical Cultural Neuroscience

Keyword 1: acculturation

Keyword 2: assessment

Keyword 3: cross-cultural issues

Correspondence: Luis D. Medina PhD,
University of Houston, LD Medina2@uh.edu

5 Normative Data Collection for the Multicultural Neuropsychological Scale (MUNS)

Autumn Wild¹, Saleena Wilson¹, Kara Eversole², Gabriel Jáuregui³, Bernice Marcopulos¹, Alberto Fernández^{3,4}, David Hardy⁵

¹James Madison University, Harrisonburg, VA, USA. ²University of Florida, Gainesville, FL, USA. ³Universidad Católica de Córdoba, Córdoba, Argentina. ⁴Universidad Nacional de Córdoba, Córdoba, Argentina. ⁵Loyola Marymount University, Los Angeles, CA, USA

Objective: Despite the array of neuropsychological tests available, these assessments are largely made and developed for use in WEIRD (western, educated, industrialized, rich, democratic) societies (Fernandez, 2019; Ponsford, 2017). The Multicultural Neuropsychological Scale (MUNS) was developed with underrepresented groups in mind as a universally valid neuropsychological assessment which can be used across cultures and adapted to different languages. To assist with the validation of the MUNS as a cross-cultural instrument, investigators administered the MUNS to a cognitively 'healthy' college-aged population in the United States as a means of