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Objective: Health disparities among African Americans (AAs) in the United States are evident, especially among older adults and people living with HIV (PLWH). These health disparities include worse cognitive functioning among AAs than White counterparts. Though disparities in health literacy among AAs impact health outcomes across clinical populations, less is known on the mechanistic role health literacy may play in explaining racial differences in cognitive functioning among older PLWH. The current study investigated the association between health literacy and global cognitive functioning among middle-aged and older AA and White adults with and without HIV in the Deep South.

Participants and Methods: Two hundred and seventy-three people (170 PLWH: 146 AA, 24 White; 103 HIV-negative: 67 AA, 36 White) were enrolled in an observational study and completed measures of sociodemographic characteristics, as well as the reading subtest of the Wide Range Achievement Test-3rd Edition to assess verbal IQ. A composite score of socioeconomic status (SES) was created using total years of education and annual household income. Neurocognitive functioning was assessed using a comprehensive cognitive battery (i.e., verbal, attention/working memory, executive function, learning, recall, speed of processing, and motor), from which a sample-based global Z-score composite was created. Health literacy was measured using a sample-based composite Z-score derived from the Rapid Estimate of Adult Literacy in Medicine, Test of Functional Health Literacy in Adults Reading Comprehension, Newest Vital Sign, and Expanded Numeracy Scale. First, multivariable linear regression analyses were performed within both PLWH and HIV-negative samples examining the association between race, SES, verbal IQ, and health literacy with cognitive functioning. These results informed two bootstrap confidence interval mediation analyses to determine whether health literacy mediated the association between race and global cognitive functioning.

Results: In both PLWH and HIV-negative individuals, linear regressions showed that Whites had better global cognitive functioning, health literacy, and verbal IQ than AAs. Linear

regressions showed that health literacy had an independent association with cognitive function when accounting for verbal IQ and SES. Mediations showed that health literacy significantly mediated the association between race and global cognitive functioning in both samples, independent of verbal IQ (PLWH: $b = .07$, 95% CI [0.0096, 0.2149]; HIV-negative: $b = .15$, 95% CI [0.0518, 0.2877]), indicating that Whites were expected to obtain higher global cognitive Z-scores than AAs in both PLWH and HIV-negative samples, through the mediating effect of better health literacy.

Conclusions: Health literacy significantly mediated the association between race and global cognitive functioning among middle-aged and older adults with and without HIV, underscoring the importance of health literacy in explaining racial disparities in cognitive outcomes among AAs in the Deep South. Findings have implications for guiding clinicians and healthcare providers in developing interventions that promote health literacy in these underserved populations, which may have downstream impacts on cognitive functioning. Future work is needed to examine mechanisms whereby health literacy impacts neurocognition among AA PLWH.

Categories: Infectious Disease (HIV/COVID/Hepatitis/Viruses)

Keyword 1: HIV/AIDS

Keyword 2: cognitive functioning

Keyword 3: aging (normal)

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56 Cognitive Intra-Individual Variability Profiles of a Spanish Speaking Population Living with HIV and Injection Drug Use

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Objective: Individuals living with HIV may experience cognitive difficulties or marked declines known as HIV-Associated Neurocognitive Disorder (HAND). Cognitive difficulties have been associated with worse outcomes for people living with HIV, therefore, accurate cognitive screening and identification is critical. One potentially sensitive marker of cognitive impairment which has been underutilized, is intra-individual variability (IIV). Cognitive IIV is the dispersion of scores across tasks in neuropsychological assessment. In individuals living with HIV, greater cognitive IIV has been associated with cortical atrophy, poorer cognitive functioning, with more rapid declines, and greater difficulties in daily functioning. Studies examining the use of IIV in clinical neuropsychological testing are limited, and few have examined IIV in the context of a single neuropsychological battery designed for culturally diverse or at-risk populations. To address these gaps, this study aimed to examine IIV profiles of individuals living with HIV and who inject drugs, utilizing the Neuropsi, a standardized neuropsychological instrument for Spanish speaking populations.

Participants and Methods: Spanish speaking adults residing in Puerto Rico (n=90) who are HIV positive and who inject drugs (HIV+I), HIV negative and who inject drugs (HIV-I), HIV positive who do not inject drugs (HIV+), or healthy controls (HC) completed the Neuropsi battery as part of a larger research protocol. The Neuropsi produces 3 index scores representing cognitive domains of memory, attention/memory, and attention/executive functioning. Total battery and within index IIV were calculated by dividing the standard deviation of T-scores by mean performance, resulting in a coefficient of variance (CoV). Group differences on overall test battery mean CoV (OTBMCoV) were investigated. To examine unique profiles of index specific IIV, a cluster analysis was performed for each group.

Results: Results of a one-way ANOVA indicated significant between group differences on OTBMCoV ($F[3,86]=6.54, p<.001$). Post-hoc analyses revealed that HIV+I ($M=.55, SE=.07, p=.003$), HIV-I ($M=.50, SE=.03, p=.001$), and

HIV+ ($M=.48, SE=.02, p=.002$) had greater OTBMCoV than the HC group ($M=.30, SE=.02$). To better understand sources of IIV within each group, cluster analysis of index specific IIV was conducted. For the HIV+ group, 3 distinct clusters were extracted: 1. High IIV in attention/memory and attention/executive functioning (n=3, 8%); 2. Elevated memory IIV (n=21, 52%); 3. Low IIV across all indices (n=16, 40%). For the HIV-I group, 2 distinct clusters were extracted: 1. High IIV across all 3 indices (n=7, 24%) and 2. Low IIV across all 3 indices (n=22, 76%). For the HC group, 3 distinct clusters were extracted: 1. Very low IIV across all 3 indices (n=5, 36%); 2. Elevated memory IIV (n=6, 43%); 3. Elevated attention/executive functioning IIV with very low attention/memory and memory IIV (n=3, 21%). Sample size of the HIV+I group was insufficient to extract clusters.

Conclusions: Current findings support IIV in the Neuropsi test battery as clinically sensitive marker for cognitive impairment in Spanish speaking individuals living with HIV or who inject drugs. Furthermore, the distinct IIV cluster types identified between groups can help to better understand specific sources of variability. Implications for clinical assessment in prognosis and etiological considerations are discussed.

Categories: Infectious Disease (HIV/COVID/Hepatitis/Viruses)

Keyword 1: HIV/AIDS

Keyword 2: injection drug use

Keyword 3: assessment

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57 CSF Markers of AD-Related Pathology Relate to aMCI among People with HIV

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Objective: Older people with HIV (PWH) are at-risk for Alzheimer's disease (AD) and its precursor, amnesic mild cognitive impairment (aMCI). Identifying aMCI among PWH is challenging because memory impairment is also