

decision-making. Measuring effort across a continuum, rather than as a dichotomous variable (good versus poor effort) may provide informative insight related to cognitive performance at baseline.

Participants and Methods: Collegiate athletes (n = 231) completed the Immediate Post-Concussion Assessment and Cognitive Test (ImPACT) as part of their baseline pre-participation concussion evaluation. ImPACT creates composite scores of Verbal Memory, Visual Memory, Visual-Motor Speed, and Reaction Time. Baseline self-reported symptoms and total hours of sleep the night prior to testing are also collected through ImPACT. ImPACT has one embedded indicator within the program to assess effort, and research has identified an additional three embedded indicators. Athletes were also administered one stand-alone performance validity test, either the Medical Symptom Validity Test (n = 130) or the Rey Dot Counting Test (n = 101), to independently measure effort. Effort was estimated across a continuum (zero, one, two, or three or more failed effort indicators) with both stand-alone and embedded effort indicators. We evaluated the relationship between effort, symptoms, self-reported sleep, Reaction Time composite score and Visual-Motor Speed composite score using a linear regression model.

Results: We found that 121 athletes passed all effort indicators, while 39 athletes failed only one effort indicator, 40 athletes failed two effort indicators, and 31 athletes failed three or four (three+) effort indicators. Self-reported symptoms and total hours of sleep were not related to effort, but Reaction Time and Visual-Motor Speed composites were. Specifically, performance on the Visual-Motor Speed composite was significantly worse for athletes who failed two or three+ effort indicators compared to athletes who did not fail any, and performance on the Reaction Time composite was significantly worse only for athletes who failed three+ effort indicators. Additionally, athletes who failed one or more effort indicators and reported less sleep performed worse on both the Visual-Motor Speed and Reaction Time composites, compared to those who reported less sleep and did not fail any effort indicators.

Conclusions: Athletes who failed one effort indicator did not perform significantly worse on Reaction Time and Visual-Motor Speed composites compared to those who passed all effort indicators. However, 31% of athletes failed two or more effort indicators and these athletes

performed worse on cognitive tests, likely due to factors impacting their ability to put forth good effort. These results suggest that effort is more complex than a previously used dichotomous variable and highlights the importance of using several indicators of effort throughout baseline assessments. In addition, the importance of sleep should be emphasized during baseline assessments, especially when effort is questionable.

Categories:

Assessment/Psychometrics/Methods (Adult)

Keyword 1: validity (performance or symptom)

Keyword 2: effort testing

Keyword 3: sports-related neuropsychology

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13 Investigating the Influence of Educational Attainment and Crystallized Verbal Skills on Verbal Fluency Performance Among Patients from a Community-Based Outpatient Neurology Clinic

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Objective: Neuropsychological measures of verbal fluency help detect cognitive decline and neuropathology. The discrepancy between semantic verbal fluency and phonemic verbal fluency is commonly utilized to differentiate between cortical and subcortical processes. Understanding how other factors influence a patient's verbal fluency scores is vital in informing clinical interpretation of neuropsychological test data. This study aimed to investigate how educational attainment and crystallized verbal skills (i.e., word reading and vocabulary) influence verbal fluency performance among a clinical sample of patients seen for neuropsychological evaluation services

at a community-based outpatient neurology clinic.

Participants and Methods: We utilized data from N=26 patients [mean age = 50.5 (SD = 22.0), 31% female, mean education = 13.5 (SD = 2.3)] who completed neuropsychological evaluations as part of their clinical care at an outpatient neurology clinic. Participants were included in this study if they had complete data for all variables of interest. We used Pearson correlation analyses to investigate associations between each predictor variable of interest (years of education, WRAT-5 Reading, WASI-2 Vocabulary) and age-norm corrected D-KEFS Verbal Fluency scores. Prior to analysis, all variables were converted to z-scores.

Results: We found that years of education ($r = 0.49$, $p = 0.01$) and vocabulary ($r = 0.41$, $p = 0.04$) were significantly positively correlated with category fluency performance. Reading was also positively correlated with category fluency at trend level, but this association was not statistically significant ($r = 0.36$, $p = 0.07$). We found that vocabulary ($r = 0.47$, $p = 0.02$) and reading ($r = 0.51$, $p = 0.007$) were significantly positively correlated with phonemic fluency performance, while the association between education and phonemic verbal fluency performance was not significant ($r = 0.27$, $p = 0.18$).

Conclusions: Our results suggest that educational attainment and crystallized verbal skills are positively associated with verbal fluency performance, though the degree of influence of these individual factors may differ for category fluency vs phonemic fluency performance. Our results have implications for the clinical practice of neuropsychology. Namely, appreciating a patient's educational attainment and crystallized verbal skills can help guide clinical interpretation of whether or not a patient's verbal fluency test scores reflect a decline from their baseline. This may be particularly important to consider among patients with high educational attainment or high premorbid verbal skills, as a subtle decline in their verbal fluency abilities may not be appreciated if relying only on age-based norms for interpretation. This is clinically relevant including when assessing for the early stages of neurodegenerative disorders (e.g., Alzheimer's disease, Primary Progressive Aphasia) or for subtle changes associated with stroke or brain injury.

Categories:

Assessment/Psychometrics/Methods (Adult)

Keyword 1: academic achievement

Keyword 2: assessment

Keyword 3: language

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14 A Potential Behavioral Sign for Detection of Mild HIV-Related Neuropsychological Impairment

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Objective: Even though the severity of HIV-associated neurocognitive disorders (HAND) has decreased with the introduction of combination antiretroviral therapy, mild forms of HAND remain prevalent. Many HIV-infected individuals live alone, so mild cognitive impairments are easily missed. It is important to check their neurocognitive and everyday functions during hospital visits; however, it is challenging for Japanese clinicians because many hospitals do not have enough clinical psychologists or neuropsychologists. Additionally, neuropsychological (NP) test results may not detect those mild cognitive impairments. A micro error has been given more attention as a new behavioral sign of the early stages of cognitive decline, especially among people with Mild Cognitive Impairment (MCI). The current study aimed to 1) develop a touch-panel HAND screening battery and 2) evaluate if the micro errors could differentiate individuals with HAND from their counterpart healthy individuals.

Participants and Methods: Forty HIV-infected men (age: 49.0±8.51 years old, education: 18.5±2.17 years) and 44 healthy men (age: