Keyword 3: neurocognition
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45 Differential Clinical Utility of Forward, Backward and Sequencing Components of Digit Span

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Objective: Digit Span has been a core Working Memory task, with extensive research conducted on the Forward and Backward components. The latest revision of the WAIS-IV introduced the Sequencing component, designed to increase the working memory and mental manipulation demands. However, relatively little research has been done to understand how Sequencing can be interpreted in clinical settings, as compared to Forward and Backward. The purpose of this study was to investigate how effectively individual components of the Digit Span task predict performance on four independent neuropsychological measures with high working memory demands.
Participants and Methods: Subjects included 148 adults (Age: M= 39.22, SD= 13.61; Handedness= 130 right, 10 left and 8 mixed; Males = 88) with refractory epilepsy. Two subjects had primary generalized seizures while 146 subjects had complex partial seizures (EEG Localization: 44 right temporal; 60 left temporal; 24 independent bitemporal; 1 left extratemporal; 17 indeterminant). Dependent variables included the 2.4 second ISI trial of the Paced Auditory Serial Addition Task (PASAT); the sum of correct responses on Trial 1 and List B of the California Verbal Learning Test (CVLT); the DKEFS Tower Test raw score; and completion time on Part B of the Trail Making Test. The independent variables included the individual raw scores for the Forward, Backward and Sequencing components of the WAIS-IV. Hierarchical linear regression was conducted to determine the variance accounted for by each component of the Digit Span and if that variance was redundant or unique. The four dependent variables were analyzed separately with Digits Forward, Backward and Sequencing entered in a single block.
Results: PASAT: The overall model was significant, R^2= 0.36. When examining the individual components, Sequencing was the only significant predictor (β = 0.422, p < 0.001). CVLT: The overall model was significant, R^2 = 0.203. When examining the individual components, Sequencing was the only significant predictor (β = 0.410, p < 0.001). Tower Test: The overall model was significant, R^2 = 0.176. When examining the individual components, Sequencing was the only significant predictor (β = 0.373, p = 0.004). Trail Making: The overall model was significant R^2 = 0.315. When examining the individual components both Forward (β = -0.287, p =0.005) and Sequencing (β= -0.364, p < 0.001) accounted for a significant amount of the variance.
Conclusions: The combined model for Digit Span accounted for significant amounts of variance in performance on all dependent measures, ranging from 17.6% to 36%. Sequencing accounted for substantially more variance across all examined tasks. On the PASAT, CVLT and Tower Test, the variance accounted for by the components of Digit Span appears to be redundant. However, on Trail Making, both Forward and Sequencing accounted for significant amounts of variance that appear to be independent of one another. What specific task requirement(s) of the Trail Making Test versus the other measures analyzed are accounted for by Forward span is not clear. But this suggests that the individual components of the Digit Span test may measure different things across different tasks.

Categories:
Assessment/Psychometrics/Methods (Adult)
Keyword 1: working memory
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Keyword 3: cognitive functioning
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46 Comparison of Anxiety Measures in a Memory Clinic Sample

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Objective: As the presentation of anxiety may differ between younger and older adults, it is important to select measures that accurately capture anxiety symptoms for the intended population. The 21-item Beck Anxiety Inventory (BAI) is widely used; however, its high reliance on somatic symptoms may result in artificial inflation of anxiety ratings among older adults, particularly those with medical conditions. The 30-item Geriatric Anxiety Scale (GAS) was specifically developed for older adults and has shown strong psychometric properties in community-dwelling and long-term care samples. The reliability and validity of the GAS in a memory clinic setting is unknown. The present study aimed to compare the psychometric properties of the GAS and the BAI in a memory disorder clinic sample.
Participants and Methods: Participants included 35 older adults (age=73.3±5.0 years; edu=15.3±2.8 years; 42% female; 89% non-Hispanic white) referred for a neuropsychological evaluation in a memory disorders clinic. In addition to the GAS and BAI, the Geriatric Depression Scale (GDS) and Montreal Cognitive Assessment (MoCA) were included. Cutoffs for clinically significant anxiety were based on published data for each measure. A dichotomous anxiety rating (yes/no) was created to examine inter-measure agreement; minimal anxiety was classified as “no” and mild, moderate and severe anxiety were classified as “yes.” Internal scale reliability was examined using Cronbach’s alpha. Convergent and discriminant validity were examined using Spearman rank correlation coefficients. Frequency distributions determined the proportion of yes/no anxiety ratings, and a McNemar test compared the proportion of anxiety classifications between the two measures.
Results: Both measures had excellent internal consistency (BAI: α=.88; GAS: α=.94). The BAI and GAS were highly correlated with each other (r=.79, p<.001) and positively correlated with a depression measure (BAI-GDS: r=.51, p=.002; GAS-GDS: r=.53, p=.001). Discriminant validity was supported by lower correlations between the anxiety measures and cognition (BAI-MoCA: r=.38, p=.061; GAS-MoCA: r=.34, p=.098). The BAI classified 14 participants as having anxiety (40%) and 21 participants as not having anxiety (60%), whereas the GAS classified 21 participants as having anxiety (60%) and 14 participants as not having anxiety (40%). The proportion of anxiety classifications were significantly different between the two measures (p =.016). For 28 participants (80%), there was agreement between the anxiety ratings. Seven participants (20%) were classified as having anxiety by the GAS, but not by the BAI; GAS items related to worry about being judged or embarrassed may contribute to discrepancies, as they were frequently endorsed by these participants and are unique to the GAS.
Conclusions: Results support that both anxiety measures have adequate psychometric properties in a clinical sample of older adult patients with memory concerns. It was expected that the BAI would result in higher classification of anxiety due to reliance on somatic symptoms; however, the GAS rated more participants as having anxiety. The GAS may be more sensitive to detecting anxiety in our sample, but formal anxiety diagnoses were not available in the current dataset. Future research should examine the diagnostic accuracy of the GAS in this population. Overall, preliminary results support consideration of the GAS in memory disorder evaluations.

Categories:
Assessment/Psychometrics/Methods (Adult)
Keyword 1: anxiety
Keyword 2: aging (normal)
Keyword 3: psychometrics
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47 Premorbid Intellectual Functioning and Not Education Predicts Memory Performance Virtual Environment Grocery Store

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