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44 Cognitive Intraindividual Variability as a Predictor of Functional Outcomes in a Sample of Precariously Housed Individuals

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Objective: Precariously housed individuals are exposed to multiple adverse factors negatively impacting neurocognitive functioning. Additionally, this population is subjected to poor life outcomes, such as impaired psychosocial functioning. Neurocognitive functioning plays an important role in psychosocial functioning and may be especially critical for precariously housed individuals who face numerous barriers in their daily lives. However, few studies have explicitly examined the cognitive determinants of functional outcomes in this population. Cognitive intraindividual variability (IIV) involves the study of within-person differences in neurocognitive functioning and has been used as marker of frontal system pathology. Increased IIV has been associated with worse cognitive performance, cognitive decline, and poorer everyday functioning. Hence, IIV may add to the predictive utility of commonly used neuropsychological measures and may serve as an emergent predictor of poor outcomes in at-risk populations. The objective of the current study was to examine IIV as a unique index of the neurocognitive contributions to functional outcomes within a large sample of precariously housed individuals. It was hypothesized that greater IIV would be associated with poorer current (i.e., baseline) and long-term (i.e., up to 12 years) psychosocial functioning.

Participants and Methods: Four hundred and thirty-seven adults were recruited from single-room occupancy hotels located in the Downtown Eastside of Vancouver, Canada (M_{age} = 44 years, 78% male) between November 2008 and November 2021. Baseline neurocognitive functioning was assessed at study enrolment. Scores from the Social and Occupational Functioning Assessment Scale (SOFAS), the Role Functioning Scale (RFS), the physical component score (PCS) and the mental component score (MCS) of the 36-Item Short Form Survey Instrument were obtained at participants' baseline assessments and at their last available follow-up assessment to represent baseline and long-term psychosocial functioning, respectively. Using an established formula, an index of IIV was derived using a battery of standardized tests that broadly assessed verbal learning and memory, sustained attention, mental flexibility, and cognitive control.
A series of multiple linear regressions were conducted to predict baseline and long-term social and role functioning (average across SOFAS and RFS scores), and PCS and MCS scores from IIV. In each of the models, we also included common predictors of functioning, including a global cognitive composite score, age, and years of education.

Results: The IIV index and the global composite score did not explain a significant proportion of the variance in baseline and long-term social and role functioning (p > .05). However, IIV was a significant predictor of baseline (B = -3.84, p = .021) and long-term (B = -3.58, p = .037) PCS scores, but not MCS scores (p > .05). The global composite score did not predict baseline or long-term PCS scores.

Conclusions: IIV significantly predicted baseline and long-term physical functioning, but not mental functioning or social and role functioning, suggesting that IIV may be a sensitive marker for limitations in everyday functioning due to physical health problems in precariously housed individuals. Critically, the present study is the first to show that IIV may be a useful index for predicting poor long-term health-related outcomes in this population compared to traditional neuropsychological measures.

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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.

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46 Comparison of Anxiety Measures in a Memory Clinic Sample

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