

11 Adaptation of the Children's Cognitive Screening Instrument (CCoSI) for use with Video Conferencing

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Objective: The CCoSI is a brief screening instrument that is designed to detect cognitive impairment in children aged 5y0m-16y11m shortly after acquired brain injury (ABI) by evaluating language, fluency, attention, memory, and visuospatial domains. Each domain translates to a CCoSI index and is composed of a series of brief subtests. This study assessed the feasibility of modifying the Children's Cognitive Screening Instrument (CCoSI) into an electronic version (eCCoSI) and administering it using video conferencing (VTC).

Participants and Methods: Tasks and stimuli were modified for online administration. Typically developing children aged 5y0m-16y11m were tested using the modified eCCoSI via VTC. The eCCoSI was administered using Skype for Business and Microsoft Teams.

Participants attended one 25-minute video assessment session over either platform. Results of VTC-assessed healthy controls were compared to age-matched peers ([25] Female: [19] Male; mean age = [11.54], SD = [3.01], age range =5.00-15.75) who had been previously tested face-to-face (FTF) with the original CCoSI at the Bristol Royal Hospital for Children (BRHC).

Age-related trends in performance were also examined across FTF and VTC for comparability.

Results: 44 typically developing children were virtually assessed ([25] Female: [19] Male; mean age = [11.79], SD = [3.03], age range =5.05-16.92). Results from a 2x2 ANOVA with age-group and modality as independent factors showed no significant difference in performance between participants tested FTF and VTC over the CCoSI Attention, Fluency, Language, Memory, and Visuospatial indices. No significant result of interaction between age and modality

was found; however, there was a significant result of age-group.

Conclusions: VTC assessment is a feasible alternative to FTF administration of the CCoSI within healthy controls. Results from the present study are promising for the use of the eCCoSI in clinical practice. Further research should attempt to replicate these results within clinical populations.

Categories:

Assessment/Psychometrics/Methods (Child)

Keyword 1: brain injury

Keyword 2: teleneuropsychology

Keyword 3: pediatric neuropsychology

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12 Measuring effort on a continuum provides improved insight into concussion baseline cognitive assessments

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Objective: Baseline assessment of cognitive performance is common practice under many concussion management protocols and is required for collegiate athletes by the NCAA. The purpose of baseline cognitive assessment is to understand an athlete's individual uninjured cognitive performance, as opposed to using population normative data. This baseline can then serve as a reference point for recovery after concussion and can inform return-to-play decisions. However, multiple factors, including lack of effort, can contribute to misrepresentation of baseline results which raises concern for reliability during return-to-play

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