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TAP-COG: Preliminary validation of a tablet-based neuropsychological battery

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Background

As digital health technologies advance, neuropsychological assessment is undergoing a shift toward more standardized, efficient, and accessible formats. Tablet-based solutions enable automated testing, precise response tracking, and remote delivery—expanding opportunities for early cognitive screening. In this context, we developed TAP-COG, a digital battery for cognitive assessment, and present here its preliminary validation.

Methods

The TAP-COG battery, designed for tablet-based use as a progressive web application, was administered to 80 healthy adults (age, 40.75±17.72; education, 15.23±3.2, 58.75% female). The battery includes five subtests: Reaction Time (RT), Go/No-Go, Visual Recognition Test (VRT), Simon Test, and Interference Test. Usability was assessed using the System Usability Scale. Non-parametric analyses were performed to examine construct validity by comparing performances between computerized and paper-based tests and associations with demographic variables.

Results

Correlation analyses revealed moderate positive correlations between RT and Trail Making Test-A (rs=.40, p<.001); Go/No-Go and Stroop (rs=.35, p<.001); VRT accuracy and Immediate Visual Memory test (rs=.57, p<.001). Age was associated with slower reaction times in RT and Go/No-Go (p<.001), and with lower VRT accuracy (p=.009). Education correlated with faster Go/No-Go reaction times (p=.008) and higher VRT accuracy (p=.012). A sex effect was observed only in Go/No-Go (p=.016). Usability was rated from good to excellent by 80% of participants, regardless of age, education, and cognitive efficiency.

Conclusions

This study suggests high perceived acceptability of the TAP-COG battery and provides preliminary support for its construct validity. Further research with larger samples and the establishment of normative data is needed to confirm its clinical applicability.

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