
Neguț A, Jurma AM, David D.


Abstract

Virtual-reality-based assessment may be a good alternative to classical or computerized neuropsychological assessment due to increased ecological validity. ClinicaVR: Classroom-CPT (VC) is a neuropsychological test embedded in virtual reality that is designed to assess attention deficits in children with attention deficit hyperactivity disorder (ADHD) or other conditions associated with impaired attention. The present study aimed to (1) investigate the diagnostic validity of VC in comparison to a traditional continuous performance test (CPT), (2) explore the task difficulty of VC, (3) address the effect of distractors on the performance of ADHD participants and typically-developing (TD) controls, and (4) compare the two measures on cognitive absorption. A total of 33 children diagnosed with ADHD and 42 TD children, aged between 7 and 13 years, participated in the study and were tested with a traditional CPT or with VC, along with several cognitive measures and an adapted version of the Cognitive Absorption Scale. A mixed multivariate analysis of covariance (MANCOVA) revealed that the children with ADHD performed worse on correct responses had more commissions and omissions errors than the TD children, as well as slower target reaction times. The results showed significant differences between performance in the virtual environment and the traditional computerized one, with longer reaction times in virtual reality. The data analysis highlighted the negative influence of auditory distractors on attention performance in the case of the children with ADHD, but not for the TD children. Finally, the two measures did not differ on the cognitive absorption perceived by the children.