Implication of Visuospatial and Phonological Working Memory in the Clinical Heterogeneity of Attention-Deficit/Hyperactivity Disorder (ADHD)

Ana Gallego Martínez, Javier Fenollar Cortés, Julia García Sevilla


Abstract

Introduction:
The interest in studying the neuropsychological deficits that lie behind ADHD, among which the Working Memory (WM) stands out in its visuospatial and phonological dimensions, has been on increase. The aim of the current study was to explore the performance differences concerning the short-term memory and the visuospatial and phonological working memory among control and clinical groups acknowledging the clinical heterogeneity of the disorder.

Method:
A group of 76 children with a prior diagnosis of ADHD was divided by the clinical subtype of the disorder: ADHD predominantly inattentive (n = 26, age M = 10.9, SD = 1.8; 66% male), and combined ADHD (n = 50, age M = 10.8, DT = 1.9; 61.5% male). Additionally, a control group of typically developing children was formed (n = 40, age M = 10.2, SD = 1.9; 57.5% male). Both groups completed a task battery to aimed to measure the short-term memory, as well as the visuospatial and phonological working memory.

Results:
The ADHD group showed a decreased performance at visuospatial (Corsi Block Task), as well as phonological (WISC Letter-Number Sequencing) working memory tasks. The decreased performance was consistent among the clinical subtypes. The dimensions of ADHD and the performance output in the neuropsychological tasks used in the study were not related.

Discussion:
This study offers empirical evidence to the hypothesis that suggests that children with ADHD show a poor performance than controls at Working Memory tasks, including both visuospatial and phonological WM. In addition, the results of the study suggested that there is no correlation between the dimensions of the ADHD and the performance output in the Working Memory tasks.