Executive Functioning in Subtypes of Attention Deficit Hyperactivity Disorder

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ABSTRACT

Introduction:
This study aims to evaluate executive functions (EF), such as inhibition, planning, working memory, and set shifting, in children with attention deficit hyperactivity disorder (ADHD) by comparing three ADHD subtype groups (ADHD-Inattentive, ADHD-Combined, and ADHD-Comorbid) and a normal control group.

Methods:
Participants included 147 children. In total, 111 children were assigned to the ADHD groups of the study. Each child was matched according to the WISC-R Full-Scale IQ-score, sex, and age and was grouped as follows: ADHD-Inattentive group (ADHD-I; n=37), ADHDCombined (ADHD-C; n=37), ADHD-Comorbid group (ADHDComorbid with oppositional defiant disorder and/or conduct disorder; n=37), and control group (n=36). The tests used to assess the children were Conners’ Parent and Teacher Rating Scales; Wechsler Intelligence Scale-Revised; Tower of London test; Wisconsin Card Sorting Test; Stroop Color-Word Test, and verbal fluency test. The data were analyzed by one-way ANOVA between subjects for all dependent variables.

Results:
Children in the ADHD-I group had significantly better performances in verbal working memory and verbal category shifting than children in the ADHD-C group. There was no significant difference between the ADHD-I and ADHD-C groups in terms of inhibition, set shifting, verbal fluency, cognitive flexibility, and planning. The ADHDComorbid group displayed more severe impairments in EF measures than the ADHD-C group; however, the severity was not statistically significant. EF performances of children in the control group were similar to children in the ADHD-I group but better than children in the ADHD-C and ADHD-Comorbid groups.

Conclusion:
The outcome of the study indicated that subjects in the ADHD-Comorbid and ADHD-C groups had more severe EF deficits than subjects in the ADHD-I and control groups.