Mathematical learning disabilities and attention deficit and/or hyperactivity disorder: A study of the cognitive processes involved in arithmetic problem solving

Valentín Iglesias-Sarmiento, Manuel Deaño, Sonia Alfonso, Ángeles Conde

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Abstract

Background
The purpose of this study was to examine the contribution of cognitive functioning to arithmetic problem solving and to explore the cognitive profiles of children with attention deficit and/or hyperactivity disorder (ADHD) and with mathematical learning disabilities (MLD).

Methods
The sample was made up of a total of 90 students of 4th, 5th, and 6th grade organized in three: ADHD (n = 30), MLD (n = 30) and typically achieving control (TA; n = 30) group. Assessment was conducted in two sessions in which the PASS processes and arithmetic problem solving were evaluated.

Results
The ADHD group’s performance in planning and attention was worse than that of the control group. Children with MLD obtained poorer results than the control group in planning and simultaneous and successive processing. Executive processes predicted arithmetic problem solving in the ADHD group whereas simultaneous processing was the unique predictor in the MLD sample.

Conclusions
Children with ADHD and with MLD showed characteristic cognitive profiles. Groups’ problem-solving performance can be predicted from their cognitive functioning.