Using Neuropsychometric Measurements in the Differential Diagnosis of Specific Learning Disability.

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Abstract

INTRODUCTION:
The aim of this study was to develop a neuropsychometric battery for the differential diagnosis of specific learning disability (SLD), with specific respect to attention deficit hyperactivity disorder (ADHD), and to help resolve the conflicting results in the literature by an integrative utilization of scores on both the Bannatyne categories and neuropsychological tests.

METHODS:
The sample included 168 primary school boys who were assigned to SLD (n=21), ADHD (n=45), SLD and ADHD (n=57), and control groups (n=45). The exclusion criteria were a neurological or psychiatric comorbidity other than ADHD, a level of anxiety and/or depression above the cutoff score, medication affecting cognitive processes, visual and/or auditory disorders, and an intelligence level outside the IQ range of 85-129. Psychometric scores were obtained from the SLD Battery and Wechsler Intelligence Scale for Children-Revised in the form of Bannatyne category scores. Neuropsychological scores were from the Visual-Aural Digit Span Test-Form B, Serial Digit Learning Test, Judgment of Line Orientation, and Mangina Test. The battery was called the Integrative Battery of SLD.

RESULTS:
The correctness of estimation for classifying cases into the diagnostic dyads (SLD/ADHD, SLD/SLD+ADHD, and SLD+ADHD/ADHD) by an integrative utilization of both the Bannatyne category scores (n=4) and scores from the four neuropsychological tests (n=10) was 92.4%, 81.4%, and 71.8%, respectively. These proportions were generally higher than those obtained using the Bannatyne category scores alone (86.4%, 75.5%, and 73.1%, respectively). The same trend was seen in the classification of children into diagnostic and control groups. However, the proportion of the correctness of estimation was higher than that obtained for the diagnostic dyads.

CONCLUSION:
When conducted using appropriately chosen research designs and statistical techniques and if confounding variables are sufficiently controlled, a neuropsychometric battery that includes capacities that relate to intelligence (Bannatyne categories) and those that relate to neurocognitive processes (neuropsychological tests) can be useful in the differential diagnosis of SLD.