Article: EPA-0386
Topic: EPW04 - Child and Adolescent Psychiatry 1

EXECUTION, ACTIVATION AND BLOOD FLOW HEMOENCEPHALOGRAPHY IN CHILDREN WITH AND WITHOUT ADHD: A STRUCTURAL EQUATION MODEL

P. Gonz·lez-Castro[1], C. RodrÌguez[1], M. Cueli[1], J.C. N*Òez[1], J.A. Gonz·lez-Pienda[1]

[1]Psychology, University of Oviedo, Oviedo, Spain

Attention Deficit and Hyperactivity Disorder (ADHD) is one of the problems that most affects academic performance in childhood and adolescence. Current research raises the existence of certain patterns of cortical activation and executive control, which could help to identify more objectively ADHD diagnosis. These studies consist on recording brain activation in central and prefrontal cortex areas through electroencephalographic measures using Q-EEG, and blood flood activity or hemoencephalography with nir-HEG. Moreover, executive control, evaluated with Continuous Performance Tests (CPTs), has been widely used to verify the incidence of brain activation levels on performance.This research aims to analyze the interaction between brain activation (nir-HEG and Q-EEG) and executive control (CPT) variables in a sample of 499 students (174 females and 325 males) aged 8 to 16, 256 (51.3%) with and 243 (48.7%) without ADHD. To accomplish this, a causal modelwas testedusing Structural Equation Modeling (SEM) analyses with AMOS.Results indicated that: a) activation measures influence different types of executive pattern, b) the relation between activation variables (nir-HEG and Q-EEG) depends on which brain areais studied and, c) with a good fit,both models (with and without ADHD), show important differences in variables correlation. These results highlight the utility of cortical activation and executive control measures for the differential diagnosis of ADHD, as well as from the standpoint of intervention, providing useful clues to delineate more adapted treatments.

Keywords: Activation, ADHD, diagnosis, execution.

https://doi.org/10.1016/S0924-9338(14)77809-5 Published online by Cambridge University Press