Objective Level of Alertness and Inhibitory Control Predict Highway Driving Impairment in Adults With ADHD

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Journal of Attention Disorders (March, 2016)
doi: 10.1177/1087054716633751

Abstract

Objective:
It remains unclear whether daytime impairments in ADHD patients are better explained by an altered level of alertness and/or by cognitive deficits. The aim of this study was to determine the respective contribution of these factors on driving performance in ADHD adults.

Method:
ADHD adults (n = 39) and healthy controls (n = 18) underwent a nocturnal polysomnography (PSG) followed by a Maintenance of Wakefulness Test (MWT), a simulated driving task, and a neuropsychological evaluation.

Results:
ADHD patients had shorter mean sleep latency on the MWT and worse driving performance than controls. They also made more errors on attention and executive functioning tests. Logistic regression analyses showed that inhibition deficits and objective daytime sleepiness predicted highway driving performance in ADHD.

Conclusion:
Our study shows that not only inhibitory control deficits but also pathological level of alertness independently contribute to highway driving impairment in ADHD patients, providing a better understanding of the pathophysiological mechanisms involved in ADHD.