
MTA Neuroimaging Group, Impact of ADHD and Cannabis Use on Executive Functioning in Young Adults

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Background

Attention-deficit/hyperactivity disorder (ADHD) and cannabis use are each associated with specific cognitive deficits. Few studies have investigated the neurocognitive profile of individuals with both an ADHD history and regular cannabis use. The greatest cognitive impairment is expected among ADHD Cannabis Users compared to those with ADHD-only, Cannabis use-only, or neither.

Methods

Young adults (24.2 ± 1.2 years) with a childhood ADHD diagnosis who did ($n = 42$) and did not ($n = 45$) report past year \geq monthly cannabis use were compared on neuropsychological measures to a local normative comparison group (LNCG) who did ($n = 20$) and did not ($n = 21$) report past year regular cannabis use. Age, gender, IQ, socioeconomic status, and past year alcohol and smoking were statistical covariates.

Results

The ADHD group performed worse than LNCG on verbal memory, processing speed, cognitive interference, decision-making, working memory, and response inhibition. No significant effects for cannabis use emerged. Interactions between ADHD and cannabis were non-significant.

Exploratory analyses revealed that individuals who began using cannabis regularly before age 16 ($n = 27$) may have poorer executive functioning (i.e., decision-making, working memory, and response inhibition), than users who began later ($n = 32$); replication is warranted with a larger sample.

Conclusions

A childhood diagnosis of ADHD, but not cannabis use in adulthood, was associated with executive dysfunction. Earlier initiation of cannabis use may be linked to poor cognitive outcomes and a significantly greater proportion of the ADHD group began using cannabis before age 16. Regular

cannabis use starting after age 16 may not be sufficient to aggravate longstanding cognitive deficits characteristic of ADHD.