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Language Production Deficits as a Function of the Level of Diagnosis for ADHD

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Introduction

Language production is a cognitive ability highly correlated with attention capacity. However, common treatment programs for adults with ADHD are not successful in treating all speech deficits associated with the disorder. The current study examines production among college students treated for ADHD, self-diagnosed college students and controls. The findings substantiate a cost-benefit tradeoff between the speed and accuracy of production in those with ADHD.

Research has established that people diagnosed with ADHD perform slower on verbal fluency tasks when compared to controls (Hurks et al., 2004). As such, one might assume that treatment for this disorder leads to improved verbal fluency. Interestingly, the effects of treatment on verbal fluency are rarely assessed. Treatment most often focuses on improving the most problematic symptoms, which include lack of attention, over activity, problems with visual motor skills, and aggression. This treatment approach may be sufficient for children with ADHD. However ADHD, once thought to be a “childhood” disorder, continues to affect approximately 40-70% of people during their adult years (Quinn, 1995). During adulthood there are changes in cognitive demands, such as increasing dependence on language production for verbal and oral communication. These changes must be considered when assessing the effectiveness of treatment for ADHD among the adult population.

High school graduates that have been treated for ADHD are more likely than ever to pursue a post-secondary education, as successful treatment programs alleviate symptoms of the disorder that can prohibit academic success. However, the demands of a post-secondary education do not bode well for those who need more time for cognitive processing. The current experiments investigate verbal fluency among college students who have been treated for ADHD, self-diagnosed students, and controls.

Methods & Results

This study examined variation in verbal fluency measured by the rate of word production in a picture naming task (Experiment 1), the speed of initiation and noun phrase duration in a sentence production task (Experiment 2), and accuracy of production (Experiments 1 & 2). The results suggest that the treatment and self-diagnosed groups perform comparably on verbal fluency tasks, and that both

of these groups are less fluent than controls. The treatment and self-diagnosed groups took longer to name pictures, initiate sentences, and produce phrases. However, all groups had statistically equivalent accuracy rates. These results are consistent with Hurks et al. (2004) who suggest that those diagnosed with ADHD are able to perform comparably on verbal fluency tasks (as measured by accuracy) if given sufficient time to do the tasks.

Discussion

There appears to be a cost-benefit tradeoff for accuracy and production speed in those with ADHD. Accurate production comes with the cost of dedicating extra time to the execution of a production plan. The results suggest that people with ADHD may have underlying neurological deficits in brain regions associated with language fluency. Although no single neurological structure has been associated with all of the symptoms of ADHD, it is believed that the frontal lobes and the prefrontal cortex (Quinn, 1995) and nonfrontal regions, such as the temporal cortical areas and the cerebellum (Jensen & Cooper, 2002), are involved. Interestingly, the temporal and frontal lobe areas, and the cerebellum, are also linked to language production (Levelt & Indefrey, 2000).

While problems with language production fluency may go unnoticed among college-students receiving academic support and accommodations to meet the demands of coursework, the question that remains is how will these students function in an environment where there are time constraints?

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