Effect of trait anxiety on cognitive test performance in adolescents with and without attention-deficit/hyperactivity disorder.

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Abstract

INTRODUCTION:
Attention-deficit/hyperactivity disorder (ADHD) and anxiety are frequently comorbid disorders associated with different types of abnormal performance on neuropsychological tests. Although some studies have shown that comorbid anxiety alters ADHD test performance, results inconsistently show both improvements and worsening of different abilities, with failures to replicate across different anxiety disorders. Alternatively, trait anxiety may reflect a more stable influence on ADHD test performance than various diagnosable anxiety disorders.

METHOD:
To better understand the possible enhancing or deleterious effects of anxiety on ADHD cognitive impairments, this study examined the effect of individual differences in trait anxiety measured by the Multidimensional Anxiety Scale for Children (MASC) on a battery of computerized, rapid-performance tests measuring attention and impulsivity-related performance in 98 Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition (DSM-IV) Combined-Subtype ADHD adolescents and 123 healthy controls. It was hypothesized that trait anxiety would attenuate response inhibition and attention deficits in ADHD.

RESULTS:
ADHD-diagnosed adolescents with higher trait anxiety performed better on indices of sustained attention, reaction time, and motor variability, and had altered overall test-performance strategy, while response inhibition was affected in both ADHD and non-ADHD.

CONCLUSIONS:
This study provides the first evidence that pathological levels of anxiety are not needed to see differences in ADHD neuropsychological test performance. Instead, mildly elevated trait anxiety confers a protective influence by reducing the degree of impairment seen in ADHD. These findings suggest that better performing ADHD adolescents might have optimized levels of cortical arousal, and raise new questions about how best to identify the neurobiological substrates responsible for the beneficial effects.