



Research Week 2020

Sex differences in effects of BMI on ADHD symptoms.

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Keywords

Neuroscience, Psychiatry, ADHD, BMI

Abstract

Introduction

Recent research suggests that higher Body Mass Index (BMI) may be associated with ADHD diagnosis and greater ADHD symptom severity, but results have been inconsistent. Emerging research indicates that failure to account for age, sex, and medication status may contribute to discrepant results. In addition, the relationships to specific symptom domains (inattention, hyperactivity-impulsivity) require further examination. The current study uses a large, well-characterized cohort of individuals with and without ADHD to characterize the relationship between ADHD symptoms and BMI in both males and females.

Methods

395 children ages 7-11 years old underwent a comprehensive diagnostic evaluation, including parent and teacher standardized rating scales of ADHD and other comorbid diagnoses, parent clinical interview, and child cognitive testing. BMI was measured using the Tanita scale, a body fat analyzer.

Results

Children with and without ADHD were not significantly different on BMI, $t=1.03$, $p=.30$ overall; however, those on stimulant medication had lower BMI than those not taking medication. Within the ADHD group, there was a significant interaction between sex and BMI on inattention symptoms, $F(2, 388)=3.32$, $p=.037$. Females with high BMI had more inattention symptoms than their high BMI male counterparts, however, females with low-BMI have fewer inattention symptoms than low-BMI males. When stimulant medication was added to the model, the results were similar. There were no significant effects for hyperactivity-impulsivity symptoms, all $ps > .10$.

Conclusion

Females with ADHD and high BMI showed worse inattention symptoms than their male counterparts. Future research is needed to understand whether this is a biologically-

driven effect or whether this relationship may be due to other social factors, such as an increased BMI eliciting negative body image, low self-esteem, or other mood and anxiety problems that exacerbate inattention symptoms.