Empathy and Facial Expression Recognition in Children with and Without Attention-Deficit/Hyperactivity Disorder: Effects of Stimulant Medication on Empathic Skills in Children with Attention-Deficit/Hyperactivity Disorder

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ABSTRACT

Objective:
The aim of this study was to compare children and adolescents with attention-deficit/hyperactivity disorder (ADHD) in healthy children and adolescents in terms of state and trait empathy and emotion expression recognition skills. The goal was also to determine whether there is changes in emotion recognition and empathy measures in children with ADHD after methylphenidate (MPH) treatment.

Methods:
The research sample consisted of outpatient drug-naive children and adolescents between the age of 8 and 14 years (n = 65) with ADHD according to the Diagnostic and Statistical Manual of Mental Disorders, 4th ed. criteria, and healthy children and adolescents of the same age (n = 61). Scores of the oppositional problems (OPs) and conduct problems (CPs) were obtained to evaluate their impact on children's empathy skills with the Child Behavior Checklist. Self-reported (Bryant Index of Empathy, BEI) and parent-reported (Griffith Empathy Measurement-Parent Rating, GEM-PR) scales were used to evaluate trait empathy. The Empathy Response Task (ERT) was used to evaluate state empathy, and the Diagnostic Analysis of Nonverbal Accuracy-2 (DANVA-2) was used to evaluate facial expression recognition skills. The scales and tests were repeated after 12 weeks of MPH treatment in the ADHD group.

Results:
There were no significant statistical differences in trait empathy skills evaluated by parent-reported and self-reported measures, ERT, and DANVA-2 scores. In self-reported measures, the girls had higher scores than boys. From the results of the regression analysis, it was concluded that OPs were not associated with the measures. However, CPs were associated with the scores of the BEI, GEM-PR, and the match scores of the ERT. The average dosage of MPH in the group with ADHD was 0.83 ± 0.21 mg/(kg·d). While there was no change in the BEI and GEM-PR scores after 12 weeks of treatment, there was a significant increase in the ERT interpretation subscore and a significant decrease in the recognition error of anger and sadness expressions in the DANVA-2.

Conclusions:
The findings of our study suggest that children with ADHD have similar levels of trait and state empathy skills and facial expressions as healthy controls and CPs negatively affect their empathy skills. MPH treatment does not change trait empathy skills, yet there are some improvements in state empathy skills.