

A phenotypic and polygenic model of ADHD that explains how social skills deficits in these children arise

Background

Attention-deficit/hyperactivity disorder (ADHD) is a childhood psychiatric disorder characterized by abnormal patterns of inattention, hyperactivity, and impulsivity. ADHD impairs several aspects of everyday life, including academic performance, family and peer-to-peer interactions. Specifically, studies have shown the negative effect of ADHD on social skills and interactions in children. However, the mechanism for this association is largely unknown. In this study, we will explore two potential pathways that could explain the link between childhood ADHD and social skills deficits: 1) the child's temperament (i.e., negative affect) and 2) negative parenting behaviors. Although child negative affect and negative parenting have been independently associated with ADHD in previous studies, few have examined both of these dimensions in tandem, given the likelihood of interactions with one another. Furthermore, no study has tested these associations using a genetically informed model. This study investigates whether a prospective association between child ADHD (measured both phenotypically and polygenically) and social skills is mediated by the effects of child negative affect and negative parenting.

Method

We recruited 210 children (with and without ADHD) and their parents at Time 1 and 114 have returned for follow-up thus far (Time 2; data collection is still ongoing). We measured child ADHD with parent reports and polygenic scores (PGS) at Time 1 and child social skills at Time 2. We also assessed negative affect and negative parenting with self-report surveys at Time 1. We propose a *phenotypic* mediation model of ADHD (where ADHD is measured via parent reports at Time 1) and social skills at Time 2 that is mediated by negative affect and negative parenting at Time 1. This model will be replicated in a *polygenic* mediation model, in which ADHD is instead characterized as a genome-wide PGS.

Expected Results

We expect to find a significant positive association between child ADHD at Time 1 and impaired social skills at Time 2 in both phenotypic and polygenic models for child ADHD. Furthermore, we expect to observe a significant indirect effect of child ADHD and social skills functioning via negative affect and negative parenting.

Implications

This study hypothesizes that the negative effects of ADHD on a child's social skills are explained by their own temperament (i.e., negative affect) and experience of negative parenting. This study can be of clinical importance. For example, treatments for children with ADHD can revolve around teaching the child emotion regulation skills in addition to existing parenting interventions.