Emotion Dysregulation Across Emotion Systems in Attention Deficit/Hyperactivity Disorder.

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Abstract

Children with attention deficit/hyperactivity disorder (ADHD) display alterations in both emotion reactivity and regulation. One mechanism underlying such alternations may be reduced coherence among emotion systems (i.e., autonomic, facial affect). The present study sought to examine this. One hundred children (50 with ADHD combined presentation), 7-11 years of age (62% male, 78% White), completed an emotion induction and suppression task. This task was coded for facial affect behaviour across both negative and positive emotion-eliciting task conditions. Electrocardiogram and impedance cardiography data were acquired throughout the task. The time-linked coherence of facial affect behaviour and autonomic reactivity and regulation were examined during the induction conditions using hierarchical linear modelling. Although ADHD and typically developing children did not differ with respect to rates of facial affect behavior displayed (all Fs < 2.09, ps > .29), the ADHD group exhibited reduced coherence between facial affect behavior and an index of parasympathetic functioning (i.e., respiratory sinus arrhythmia), $\gamma_{10} = -0.03, SE = 0.02, t(138) = -1.96, p = .05$. In contrast, children in the control group displayed a significant, positive, $\gamma_{10} = 0.06, SE = 0.01, t(138) = 4.07, p < .001$, association between facial affect behavior and respiratory sinus arrhythmia. Children with ADHD may receive conflicting emotional signals at the levels of facial affective behaviour and parasympathetic functioning when compared to typically developing youth. Weakened coherence among these emotion systems may be an underlying mechanism of emotion dysregulation in ADHD. Implications for aetiology and treatment are discussed.