Callous-unemotional traits moderate executive function in children with ASD and ADHD: a pilot event-related potential study


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Abstract

Attention deficit hyperactivity disorder (ADHD) and autism spectrum disorder (ASD) are associated with varied executive function (EF) difficulties. Callous-unemotional (CU) traits, a proposed antecedent of adult psychopathy, are often associated with intact or enhanced EF. Here we test whether CU traits may, therefore, modulate EF in ASD and ADHD, in which EF is typically impaired. We collected CU traits and measured event-related potentials (ERPs) that index EF during a cued-continuous performance test (CPT-OX) in boys with ASD, ADHD, comorbid ASD + ADHD and typical controls. We examined attentional orienting at cues (Cue-P3), inhibitory processing at non-targets (NoGo-P3) and conflict monitoring between the target and non-target trials (Go-N2 vs. NoGo-N2). In children with ASD, higher CU traits were associated with an enhanced increase in N2 amplitude in NoGo trials compared to Go trials, which suggests relatively superior conflict monitoring and a potential cognitive strength associated with CU traits. The results emphasize the importance of considering the effects of co-occurring traits in the assessment of heterogeneity of EF profiles in neurodevelopmental disorders.