Greater delay discounting among girls, but not boys, with ADHD correlates with cognitive control.

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Abstract

Cognitive neuroscience models suggest both reward valuation and cognitive control contribute to reward-based decision-making. The current study examined the relationship between cognitive control and delay discounting (i.e., choosing smaller, immediate over larger, delayed rewards) in a large sample of boys and girls diagnosed with attention-deficit/hyperactivity disorder (ADHD; N = 95) and typically developing control children (TD; N = 59). Specifically, we examined performance on multiple measures of cognitive control (i.e., Go/No-Go task, Stop Signal task, and Spatial Span task) and delay discounting (i.e., Classic Delay Discounting and Real-Time Delay Discounting tasks), as well as the relationship between these measures. Results indicated that sex moderated the effects of group on task performance. Specifically, girls with ADHD, but not boys with the disorder, exhibited atypical delay discounting of real-time rewards. Results from correlational analyses indicated that delay discounting and cognitive control were not significantly correlated in the overall sample. Multiple regression analyses demonstrated that among girls with ADHD poorer spatial working memory and inhibitory control predicted greater real-time discounting. Collectively, findings provide support for distinct patterns of cognitive control and delay discounting among school-aged girls and boys with ADHD. Additionally, findings suggest that among girls with ADHD, those who exhibit relatively poor working memory and inhibitory control might be a particularly vulnerable subgroup with the greatest propensity to exhibit maladaptive decision-making.