



**Both reactive and proactive control are deficient in children  
with ADHD and predictive of clinical symptoms**

WANG Xiaodi (Dea)

Department of Psychology, The Chinese University of Hong Kong

Cognitive control deficits are a hallmark of attention deficit hyperactivity disorder (ADHD) in children. Theoretical models posit that cognitive control involves reactive and proactive control processes but their distinct roles and inter-relations in ADHD are not known, and the contributions of proactive control remain vastly understudied. Here, we investigate the dynamic dual cognitive control mechanisms associated with both proactive and reactive control in 50 children with ADHD (16F/34M) and 30 typically developing (TD) children (14F/16M) aged 9 – 12 years across two different cognitive controls tasks using a within-subject design. We found that while TD children were capable of proactively adapting their response strategies, children with ADHD demonstrated significant deficits in implementing proactive control strategies associated with error monitoring and trial history. Children with ADHD also showed weaker reactive control than TD children, and this finding was replicated across tasks. Furthermore, while proactive and reactive control functions were correlated in TD children, such coordination between the cognitive control mechanisms was not present in children with ADHD. Finally, both reactive and proactive control functions were associated with behavioral problems in ADHD, and multi-dimensional features derived from the dynamic dual cognitive control framework predicted inattention and hyperactivity/impulsivity clinical symptoms. Our findings demonstrate that ADHD in children is characterized by deficits in both proactive and reactive control, and suggest that multi-componential cognitive control measures can serve as robust predictors of clinical symptoms.

**About the speaker**



I'm an undergraduate student studying at The Chinese University of Hong Kong majoring in Psychology. I have a great interest in Clinical Psychology. I am curious about the different causes, symptoms and treatments of mental disorders. I hope I could help people with mental health issues in the future.