

Understanding Others, Regulating Emotions

Executive Function, Theory of Mind, and ADHD

THIS RESEARCH UPDATE focuses on how executive functioning relates to how youth with ADHD understand others and regulate emotions. There may be a link between executive function deficits and theory-of-mind challenges in children with ADHD. Theory of mind refers to the ability to infer other people's emotions, intentions, desires, and beliefs. This research is important because it may lead us to a better understanding of how to help build better emotional regulation in youth with ADHD.

How does ADHD impact children's ability to understand the feelings and behaviors of others?

The first paper is a systematic review of studies on youth executive function and theory of mind. Executive functions include abilities like planning, impulse control, working memory, and flexibility to adapt thinking. Deficits in executive functioning are described as a key component of ADHD. Theory of mind refers to the ability to infer other people's emotions, intentions, desires, and beliefs. After searching electronic databases and applying systematic inclusion/exclusion criteria, the authors selected fifteen articles, eight of which analyzed the relationship between executive functioning and theory of mind specifically in children (ages 6-11) with ADHD.

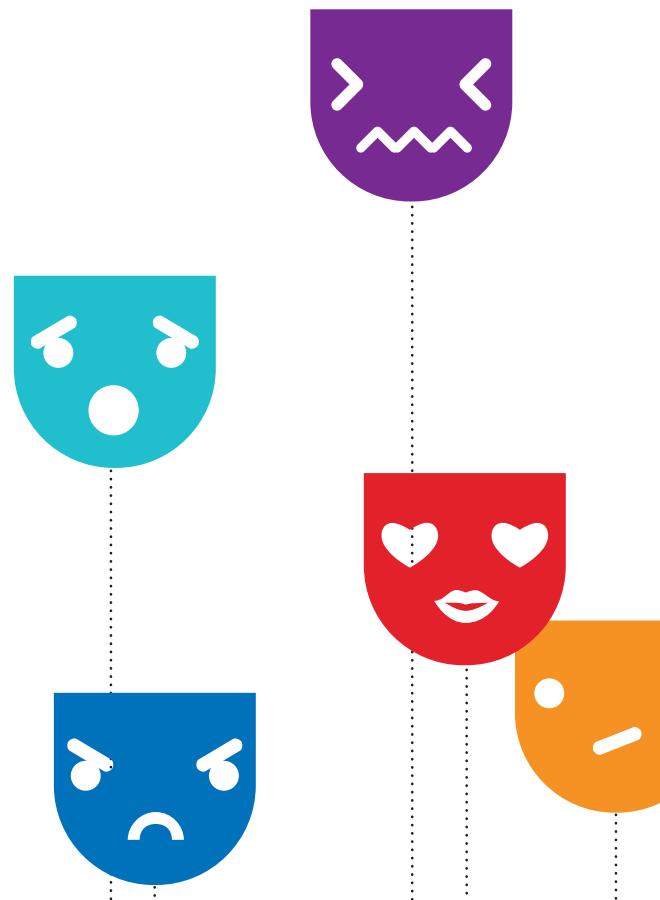
The findings support an association between theory of mind and executive functioning in youth with ADHD, with impulse control difficulties being most related with theory of mind difficulties. Attention, working memory, and flexible thinking showed more mixed associations with theory of mind. The authors explain that the executive function of impulse control is necessary to manage cognitive, emotional, and physical responses; thus, difficulty in this area may interfere with the ability to perceive others' point of view and express feelings appropriately.

Limitations of this review include a general lack of studies that compare these two concepts, as well as a narrow range of how available studies assess theory of mind, hindering the ability to compare theory of mind to other concepts. Further, available studies feature a narrow range of designs, which limits the ability to make broad expla-

nations. Due to these limitations, the authors ask that we interpret the findings with caution. Limitations could be addressed in future research by increasing study sample size, as well as diversifying both theory of mind assessments and study design.

The authors encourage more research in this area to help understand the connection between executive functions and theory of mind in children who have difficulty with attention and hyperactivity, as well as how this connection may impact social and emotional challenges.

Pineda-Alhucema W, Aristizabal E, Escudero-Cabarcas J, Acosta-López JE, & Vélez JI. (2018). Executive function and theory of mind in children with ADHD: A systematic review. *Neuropsychology Review*, 28(3), 341-358.



Is difficulty understanding others' feelings and behaviors related to emotional dysregulation in adolescents with ADHD?

Continuing our exploration of how theory of mind relates to ADHD, the second paper examined the interaction of theory of mind with emotion regulation difficulties in adolescents (ages 11-17) with and without ADHD.

The 200 study participants were recruited from an outpatient clinic in Turkey; 100 adolescents met criteria for ADHD, and 100 healthy control adolescents matched according to gender and age were recruited through families of the staff. The adolescents completed a self-report questionnaire of emotion dysregulation and three theory of mind assessments with research study staff.

The results revealed that adolescents with ADHD reported higher levels of emotion dysregulation and theory of mind deficits compared to adolescents without ADHD; in addition, emotion dysregulation related to more theory of mind difficulty and more severe ADHD symptoms for adolescents with ADHD. Interestingly, theory of mind deficits predicted and accounted for a substantial amount of variance in emotion dysregulation, but only for those with ADHD.

The authors note that some limitations of their study include a relatively small sample size, a lack of comprehensive measures of emotion regulation skills, and a lack of consideration of executive functioning. They also recommend that ADHD presentation be incorporated in the analysis of future research. Despite limitations, the authors posit that results support the potential benefit of teaching youth with ADHD strategies for understanding others' emotions in order to improve their ability to regulate their emotions and behave in a way they would like to when upset. 

Özbaran B, Kalyoncu T, & Köse S. (2018). Theory of mind and emotion regulation difficulties in children with ADHD. *Psychiatry Research*, 270, 117-122.

Lauren Haack, PhD, is an assistant professor and attending psychologist in the department of psychiatry at the University of California San Francisco. Her research program and clinical practice focus on accessible and culturally attuned evidence-based services for vulnerable youth and families, with a particular specialty in ADHD services for children in Spanish-speaking, Latinx families.

Sarah Gries, MS, is an advanced doctoral candidate with PGSP-Stanford PsyD Consortium at Palo Alto University. Her dissertation focuses on impulsivity in children with ADHD. She hopes to continue to work with neurodiverse youth throughout her career.

