Emotion Dysregulation in Young Children with and without Attention-Deficit/Hyperactivity Disorder: The Role of Comorbid Conduct Problems

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BACKGROUND

- Children with Attention-Deficit/Hyperactivity Disorder (ADHD) have deficits across self-regulation skills, including emotion regulation (Shaw et al., 2014)

- Emotion dysregulation (ED) occurs when an individual has difficulty exercising any or all aspects of the regulation process to such a degree that it results in the individual functioning below their baseline and failing to meet situational goals (Bunford et al., 2015)

- A recent meta-analysis identified four domains of emotion dysregulation (ED) impaired in youth with attention-deficit/hyperactivity disorder (ADHD; Graziano & Garcia, 2016): emotion recognition/understanding (**ERU**), emotional reactivity/lability (**EREL**), emotion regulation (**EREG**) and callous-unemotional (**CU**) behaviors/traits

- Although there is ample evidence suggesting school-age children with ADHD have higher levels of ED compared to their TD peers (Sjowall et al., 2015; Stringaris et al., 2015; Waller et al., 2014), less is known about ED in younger children with ADHD

- Considering a large percentage of young children with ADHD also exhibit comorbid conduct problems (CP; Barkley, 2006; Biederman, 2005), it is crucial to understand not just the association between ED and ADHD, but also between ED and CP

- Within a diverse sample, we sought to explore the clinical utility of specific domains of ED in differentiating diagnostic groups: typically developing, ADHD Only, and ADHD + CP

RESEACH QUESTIONS

1) How do diagnostic groups (TD, ADHD, or ADHD+CP) differ across four domains of ED (ERU, EREG, EREL, and CU)?

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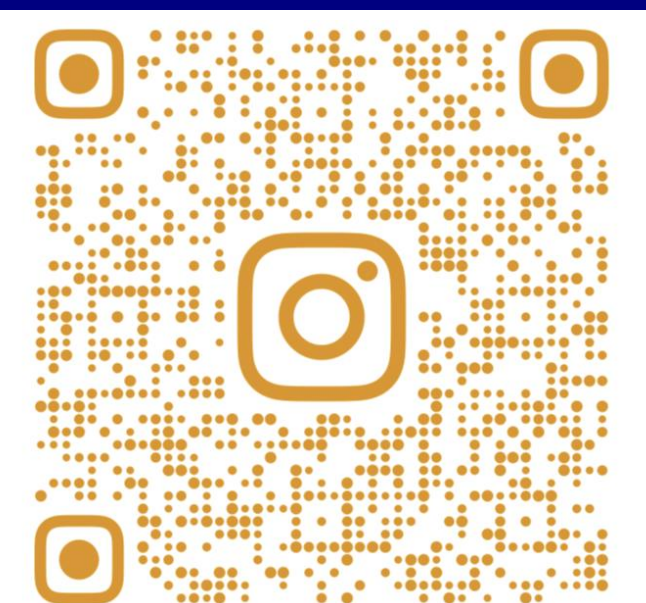
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METHOD

Participants

- 323 children (68.7% boys; Mean age = 5.47 yrs. *SD* = 0.77 yrs.)
- **Race/Ethnicity:**
  - 91.3% White, 9.9% Black, 5.3% Biracial
  - 81.4% Hispanic/Latino
- **Diagnostic Groups:**
  - Typically developing (n = 148)
  - ADHD Only (n = 46)
  - ADHD + CP (n = 129)

Measures

Emotion Recognition/Understanding (ERU)
- Emotion Knowledge Task (EK; Denham, 1986)
  - Expressively and receptively identify 8 different emotions; sad, happy, angry, afraid, surprised, disgusted, embarrassed, and guilty.

Emotion Regulation (EREG)
- Behavioral Rating Inventory of Executive Function/Preschool version (BRIEF; Gioia, 2002; BRIEF-P; Gioia, Espy, & Isquith, 2003)
  - The highest Emotional Control age and gender normed t-score between parent/teacher (P/T) report was used, with higher scores indicating poorer emotional control skills (α = .93 to .96, respectively) .
- Behavioral coding during the I'm not Sharing Task and Impossibly Perfect Circle (Goldsmith & Rothbart, 1996)
  - Global regulation was coded on a scale from **0** (dysregulated) to **4** (well-regulated). The most severe rating of dysregulation between the two tasks was used.

#### Emotional Reactivity/Lability (EREL)
- Behavioral coding during the I'm not Sharing Task and Impossibly Perfect Circle (Goldsmith & Rothbart, 1996)
  - Global Affect lability was coded on a scale from **0** (stable affect throughout the task) to **4** (unstable affect changing affect many times throughout the task from positive to negative states). The most severe rating of affect lability between the two tasks was used.
- Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997)
  - A 24-item questionnaire that uses a 4-point Likert scale ranging from 1 (almost always) to 4 (never). The highest P/T reported Negative Emotion lability (α = .86 and .90, respectively) and Positive Emotion lability (α = .89 and .90, respectively) mean scores were used, with higher scores indicating greater levels of lability

Callous-unemotional Behaviors (CU)
- Inventory of Callous-Unemotional Traits (ICU; Frick, 2004)
  - Items were rated on a four-point Likert scale ranging from 0 (not at all) to 3 (very much), and a CU composite was created by averaging these 12 items. The highest mean score among P/T reports was used (α = .83 and .92, respectively).

RESULTS

Figure 1. Differences Between Diagnostic Groups on Emotion Dysregulation Measures via Observation
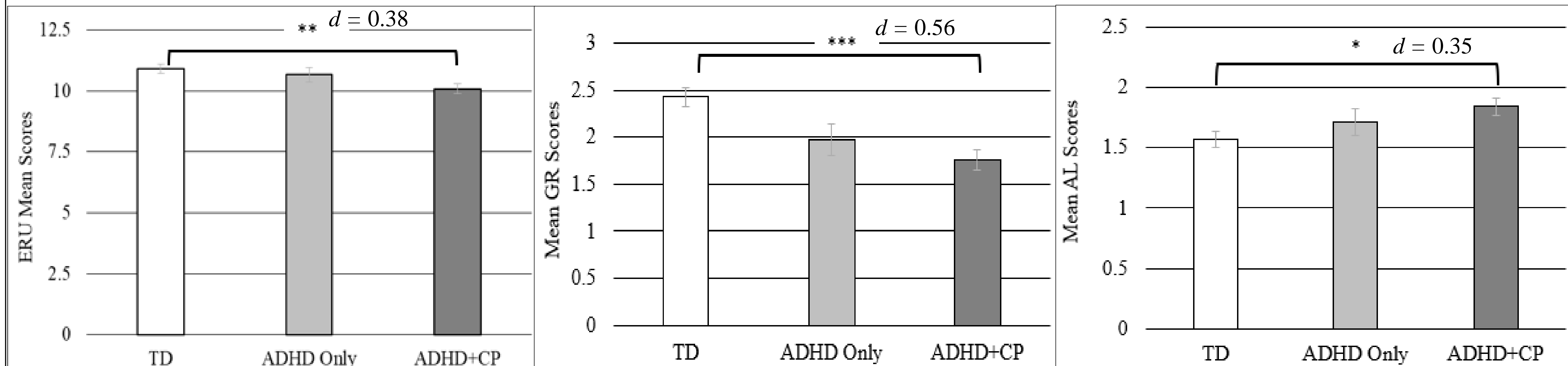
Note. *p < .05, ** p < .01, *** p < .001. All analyses controlled for sex, age, and IQ. *d* = Cohen's *d* effect size. ADHD = Attention-deficit/hyperactivity disorder, TD = typically developing, CP = Conduct problems, ERU = Emotion Understanding, GR = Global Regulation, AL = Affect Lability.

Figure 2. Differences Between Diagnostic Groups on Emotion Dysregulation Measures via Combined Parent/Teacher Report
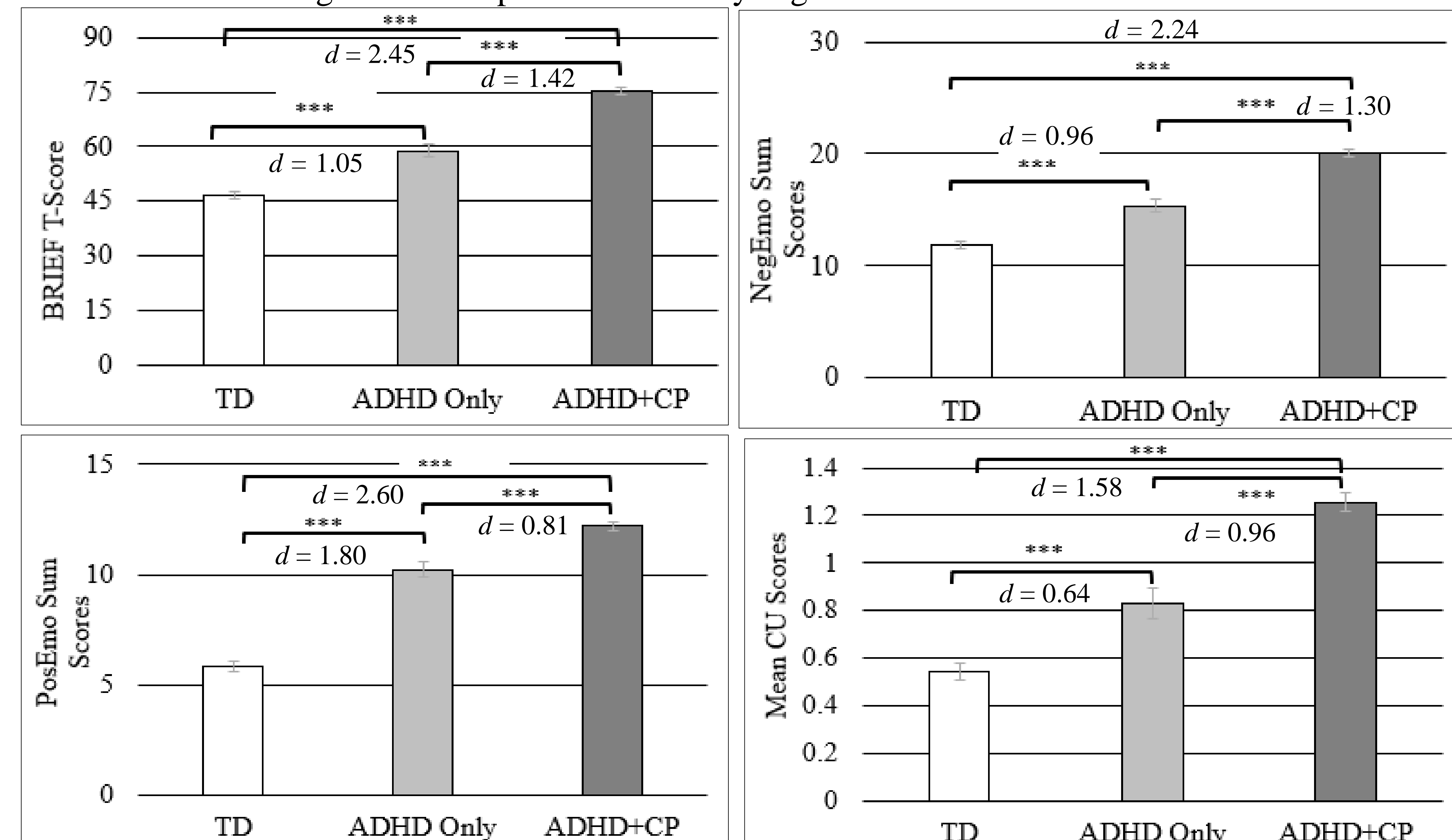
Note. *** p < .001. *d* = Cohen's *d* effect size. ADHD = Attention-deficit/hyperactivity disorder, TD = typically developing, CP = Conduct problems, BRIEF = Behavior Rating Inventory of Executive Functioning, NegEmo = negative emotionality subscale, PosEmo = positive emotionality, CU= Callous-unemotional behaviors.

DISCUSSION & IMPLICATIONS

- Across P/T ratings of EREG, EREL, and CU (Figure 2), children in the ADHD+CP group were significantly worse than ADHD Only, which subsequently were significantly worse than the TD group. However, when examining observational measures of ED, only significant differences emerged between the ADHD+CP and TD groups (Figure 1).
- While P/T ratings capture a general trend and/or pattern of "every day" behaviors, observational measures may represent a child's "best performance" at any given point, therefore capturing only the most severe behavioral problems.
- Future studies should assess the diagnostic utility of each ED domain and identify which has the best predictive value in correctly classifying children in their respective diagnostic groups, above and beyond other domains of ED.