Children's Hospital Colorado

Affiliated with
University of Colorado
Anschutz Medical Campus

Identifying Patterns of Emotion Regulation in Children with Down Syndrome

Eleanor Bold, PhD[1,2]; Rebecca Bernstein, BA[1]; Tiffany Mai[1]; Kristine Wolter-Warmerdam, PhD ABD, MA[1];
Nicole Baumer, MD, MEd[1,2]; Allison Meyer, PhD[1,2]

Anna and John J. Sie Center for Down Syndrome, Children's Hospital Colorado, Aurora CO[1]
Department of Pediatrics, University of Colorado School of Medicine, Aurora CO[2]

MAGNET RECOGNIZED
AMERICAN NURSES CREDENTIALING CENTER

Background

- Children with Down syndrome (DS) are known to experience difficulties with emotion regulation (ER), which has been shown to strongly relate to social and behavioral functioning, independent of cognition, in neurodivergent (e.g., autism) populations.
- Previous research in neurodivergent populations has shown that:
  - ER improves with age.
  - Females demonstrate higher levels of ER as young children but lower levels as adolescents when compared to males.
- It is unknown if children with DS experience similar patterns of ER compared to other neurodivergent populations or whether age and gender impact ER in this population.

Objectives

- To identify any existing patterns of emotion regulation in children with DS as they relate to age and gender.
- To inform clinical practice in treating children with DS and their families.

Methods

- *Population*: Children with DS seen in a pediatric multidisciplinary consultation clinic. See Table 1 for more detail.
- *Measures*: Caregiver reported assessments:
  - Strengths and Difficulties Questionnaire (SDQ)
  - Emotion Dysregulation Inventory (EDI)
  - Emotion Dysregulation Inventory for Young Children (EDI-YC)
- *Analyses*: Independent samples t-tests were conducted to identify gender and age differences in EDI scores. Pearson correlations evaluated the relationship between the SDQ subscales with the EDI-YC Reactivity subscale T-scores.

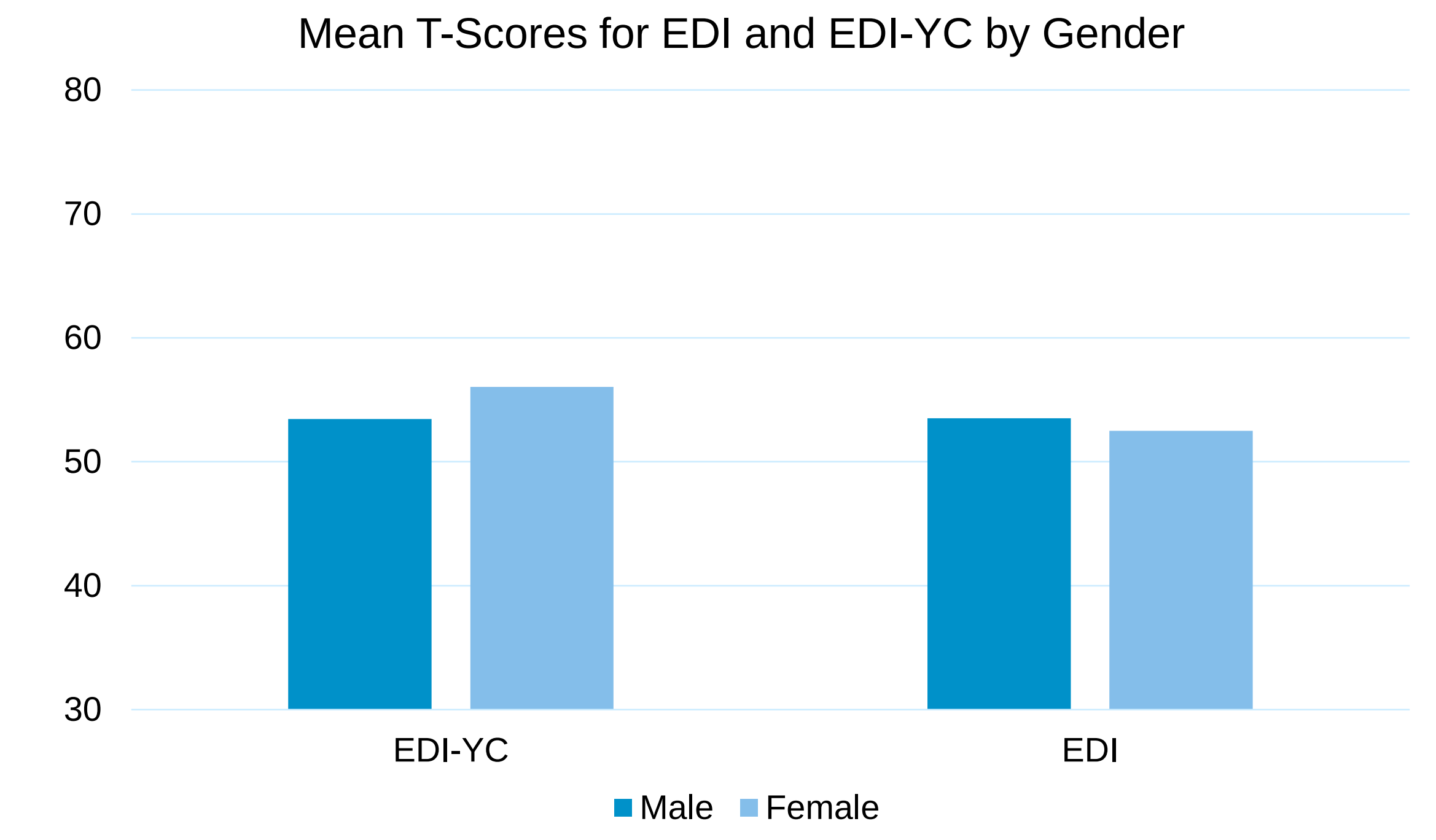
Results

Table 1: Participant Demographics

	Total Sample (n=100)	Young Child (n=33)	Child and Adolescent (n=67)
Age (in years)	9.03 (SD: 4.55)	4.24 (SD: .97)	11.40 (SD: 3.67)
Race (% White)	81	84.8	79.1
Hispanic or Latinx (%)	23	27.3	20.9
Non-Hispanic or Latinx (%)	76	72.7	77.6
Unknown/Ethnicity Not Reported (%)	1	0	1.5
Gender (% Male)	57	57.6	56.7

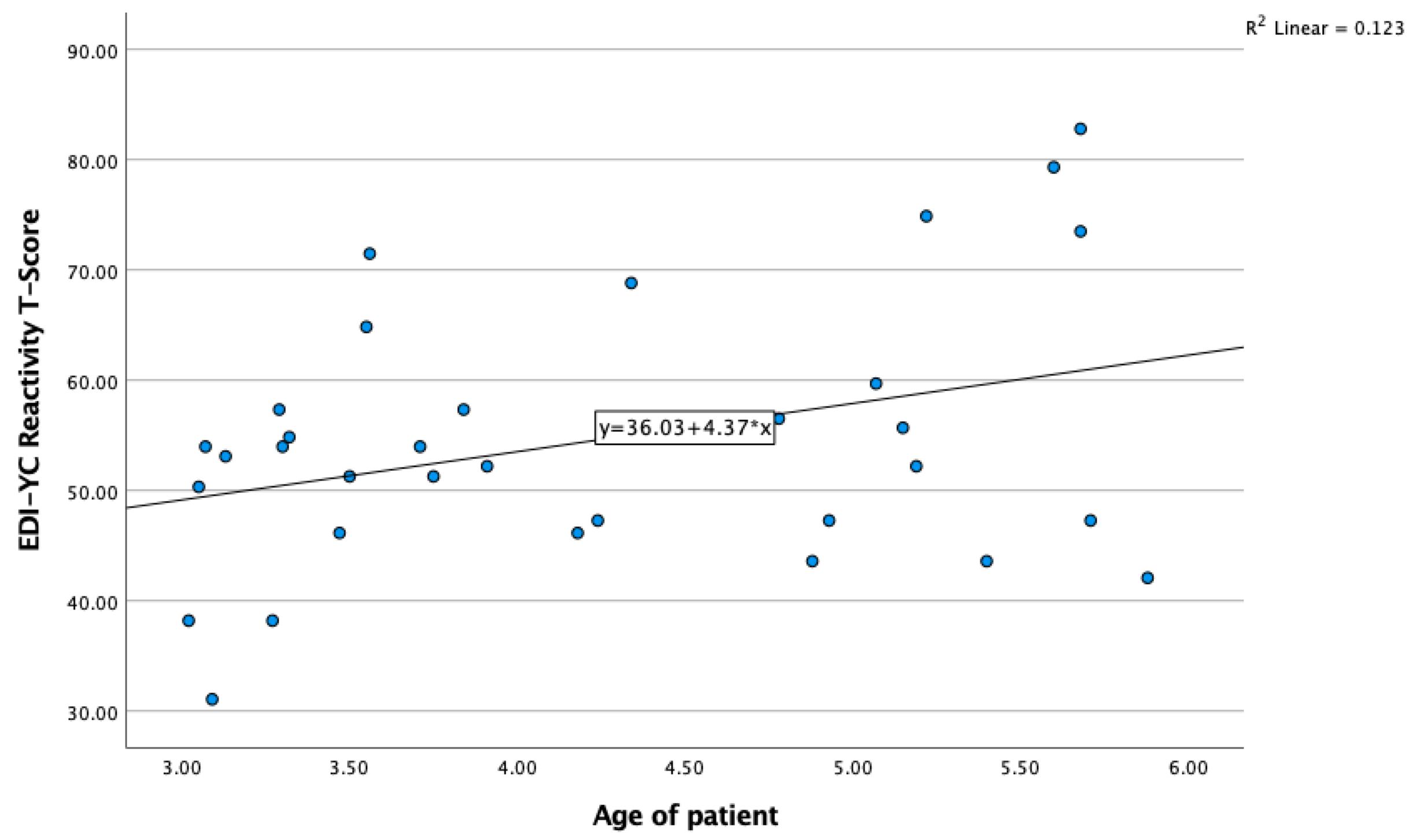
Gender Differences in EDI Reactivity Scores

There was **no significant difference** in EDI Reactivity between males and females in the young child group, *t*(31) = -.60, *p* = 0.55, nor in the child/adolescent group, t(65) = .39, *p* = .70.



Age Differences in EDI Reactivity Scores

There was **a significant positive correlation** between age and EDI Reactivity in the young child sample only (EDI YC, r = 0.35, p = 0.05; EDI Child/Adolescent r=.08, p=.54).



Correlations Between EDI Reactivity and SDQ Subscales by Age Group

There was a **significant positive correlation** between EDI Reactivity and SDQ Emotional Problems. Young children that had higher scores in the Emotional problems, Conduct problems, Hyperactivity, and Peer Problems also scored higher on the EDI Reactivity subscale.

	EDI-YC Reactivity	EDI Reactivity (Child/Adol)
SDQ Emotional Problems	0.58**	0.16
SDQ Conduct Problems	0.56**	0.66**
SDQ Hyperactivity	0.44*	0.61*
SDQ Peer Problems	0.45**	0.35**
SDQ Prosocial Skills	-0.13	-0.48**

*: p<.05
**: p<.001

Conclusions & Implications

- Children with DS experience clinically observable symptoms of ER, which can in turn negatively impact social relationships, behavior, and emotional functioning.
- Children with DS experience unique patterns of ER in that they do not differ significantly based on gender, as observed in other neurodivergent populations.
- Children with DS begin to show significant differences in ER based on age in early childhood, which is not maintained as children get older, indicating a need to address ER in younger patient populations.
- Psychoeducation and anticipatory guidance for families of children with DS may support increased teaching of ER through skills-based coaching and modeling of self-regulation in early childhood.

Limitations & Future Directions

- This was a single-center study with a small sample size.
- The ER measures utilized have not yet been widely validated for clinical use with individuals with DS.
- Future directions include:
  - Integrated self-report with parent-report measures of ER
  - Increase the population size and diversity to support generalizability of these measures
  - Consider differences with regarding language, cognitive, and health-related status

Disclosures: The authors declare that they have no conflict of interest with respect to the research and authorship of this poster. The authors received no financial support for the research, authorship, and/or publication of this poster.