

# Emotion Regulation in Children with Autism and Children with Fetal Alcohol Spectrum Disorders

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## INTRODUCTION

Although emotion dysregulation is not included in the core diagnostic criteria, children with autism spectrum disorder (ASD) and children with fetal alcohol spectrum disorder (FASD) both exhibit notable difficulties regulating their arousal (Mazefsky & White, 2014; Walthal et al., 2008). These challenges can significantly interfere with daily functioning and impede learning in these populations. The few studies investigating emotion regulation in children with ASD through observation (Jahromi et al., 2012) or parent report (Samson et al., 2014), suggest significant challenge in this population, and virtually nothing is known about emotion regulation in FASD (see O'Connor et al., 1993, for a related discussion).

The evaluation of emotion regulation typically involves complex observational coding systems and brief, highly controlled laboratory tasks (Cole et al., 2004). Samson and colleagues (2014) derived an Emotion Dysregulation Index (EDI) from a commonly used parent-report measure in order to study this construct in children with ASD. This measure is comprised of 18 items from the Child Behavior Checklist (CBCL age 6 to 18) based upon expert ratings of the items as they pertain to emotion regulation.

The current study examined emotion dysregulation in children with ASD and children with FASD and evaluated measures for observing the construct through direct observation and parent-report measures.

## RESEARCH AIMS

### 1. To investigate possible group differences in emotion dysregulation between children with ASD and children with FASD.

- This analysis was exploratory as little is known about emotion regulation in these two populations and, to our knowledge, no direct comparisons have previously been made.

### 2. To evaluate methods of measuring the construct of emotion dysregulation.

- Observational codes and the parent-report measure of emotion dysregulation were expected to correlate highly within each diagnostic group and across the sample as a whole.

## METHOD

### Participants

- 50 culturally diverse, 4 to 11-year-olds ( $M = 6.54$ ,  $SD = 1.66$ ) diagnosed with ASD (30 children) and FASD (20 children)
- 76% male, mean IQ 83 (range 47 to 127)
- Annual household income,  $M = \$50,000$  to  $\$70,000$
- The groups did not differ significantly in terms of child age, gender, IQ, or family income

### Procedures

- The children participated in a structured laboratory visit that included a five-minute, child-alone frustration task in which a desired toy was placed in a clear, acrylic box and was then secured with a padlock. The children were given a set of 15 highly similar keys that did not match the lock and were asked to try to find a key that would unlock the lock so they could open the box and get the toy (Jahromi et al., 2012). Parents were asked to complete a variety of questionnaires including the Child Behavior Checklist.

### Measures

- Child Global Emotion Dysregulation** was coded during the frustration task using the Emotion Dysregulation Rating Scales (EDRS; Baker et al., 2007). Ratings were assigned on a 0 (*no dysregulation*) to 4 (*high dysregulation*) scale based upon the frequency, intensity, and appropriateness of emotional and behavioral displays. Behaviors were evaluated on the extent to which they interfered with the child's ability to accomplish the goal or persist with the task. Inter-rater reliability was  $ICC = .78$ . Validity of this system has been established in several studies of children with and without developmental difficulties (e.g., with social skills, Baker et al., 2007; with maternal depression, Hoffman et al., 2008). These codes have demonstrated validity in the present sample through significant associations with inhibitory control and rule violation in FASD (Baker et al., 2013), and psychological arousal and ASD symptomatology in ASD (Fenning et al., 2015).
- Emotion Dysregulation Index** (EDI; Samson et al., 2014) scores are comprised of 18 items from the Child Behavior Checklist for ages 6-18 (Achenbach, 2009). The items were drawn from multiple subscales of the CBCL and represent various problematic behaviors (e.g. arguing, crying a lot, getting into fights, being nervous, high-strung, or tense, suicidal or self injurious behavior). This scale showed high internal consistency within our sample,  $\alpha = .87$ .
- Child IQ** was indexed using the Abbreviated IQ Battery of the Stanford-Binet 5 (Roid, 2003) which is based on the nonverbal fluid reasoning and verbal knowledge subtests.

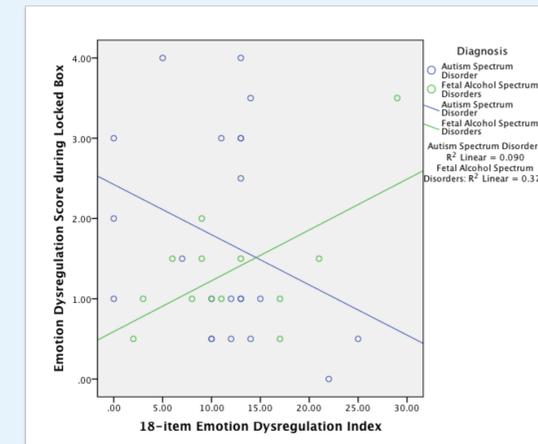
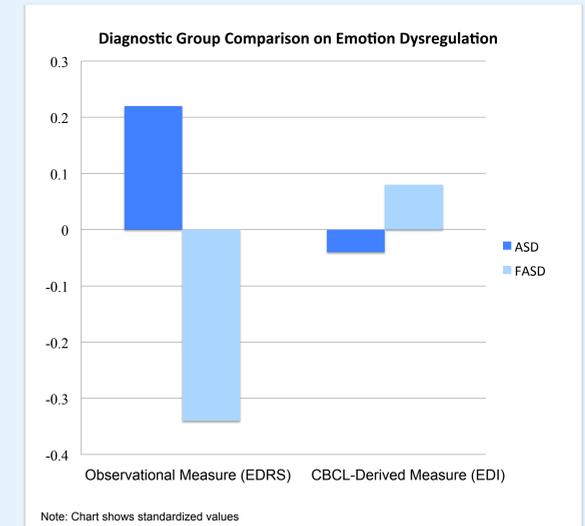
## RESULTS

### Demographic Considerations

- Child IQ, gender, and family income were unrelated to self-regulation in a way that would confound these findings. Thus, they were not further investigated as covariates.

### Group Comparisons and Reliability of Measurement

- Using the observational codes during the locked box frustration task, children with ASD in this sample exhibited greater dysregulation ( $M = 1.92$ ) than did children with FASD in this sample ( $M = 1.28$ ),  $t = 2.54$ ,  $p < .05$ ,  $d = .61$ .
- The groups did not differ in terms of emotion dysregulation based on the parent-reported EDI measure for the older children (22 ASD, 13 FASD),  $t = -.34$ ,  $ns$ ,  $d = -.11$ .
- The observational measure of emotion dysregulation (EDRS) and the parent-reported EDI scores were unrelated for the sample as a whole,  $r = -.12$ ,  $ns$ . After normalizing the EDRS scores, the observational EDRS scores and parent-reported EDI scores were significantly related in the group of children with FASD,  $r = .56$ ,  $p < .05$ . These scores were not significantly related, and even negatively related for children with ASD,  $r = -.39$ ,  $ns$ .



- For exploratory purposes, we create a parallel version of the EDI for younger children using the 14 identical items present on the younger version of the CBCL from the original 18-item EDI. The 14-item and 18-item scales for the older children were very highly correlated,  $r = .99$ ,  $p < .001$ . The findings remained unchanged, except that the EDI and EDRS measures were no longer significantly related for the group of children with FASD. The 14-item EDI appeared unrelated to observational scores of emotion dysregulation (EDRS scores) for both groups and for the sample as a whole.

## CONCLUSIONS

- Findings suggest that children with ASD may exhibit more emotion dysregulation than children with FASD when observed alone in a frustration context.
- Results suggest that the EDI and EDRS measures may be tapping in to different aspects of emotion dysregulation. The EDI measure focuses on problem behaviors often associated with difficulties in regulation as they occur over a range of situations, while the EDRS observational system allows direct evaluation of children's dysregulation during a frustrating or emotion-laden experience.
- The EDI measure did not perform as expected in this investigation. Further study may be required to understand the utility of the EDI as a parent-report measure of emotion dysregulation.
- Replication with a larger sample and consideration of other contexts for and measures of dysregulation will enhance our ability to draw upon and extend these findings.