

2021 Gatlinburg Conference Poster Submission

Title: The Relationship Between Cognitive Flexibility and Emotion Dysregulation in Children with Autism

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Introduction: Individuals with autism spectrum disorder (ASD) often experience impairments in cognitive flexibility, including difficulties coping with changes in the environment, switching between different thoughts or behaviors, adapting to and incorporating new information as required for successful outcomes, and taking other's perspectives (Strang et al., 2017). Deficits in these areas can manifest through rigidity and repetitive and restricted behaviors, and often lead to emotional outbursts and increased behavioral difficulties, which are often a sign of emotion dysregulation. Cognitive flexibility is a critical component of managing and regulating emotions. For example, when attempting to regulate emotions, one must both inhibit previously preferred, maladaptive coping behaviors and thoughts and switching to more adaptive coping strategies and thought processes. One measure specifically designed to examine cognitive flexibility in individuals with ASD is the Flexibility Scale (Strang et al., 2017), a multi-dimensional caregiver rated measure that assesses the cognitive aspects of flexibility in daily life, routines/rituals, transitions/changes, special interests, social flexibility, and generativity. The Flexibility Scale is valuable because it enables clinicians to quickly evaluate flexibility limitations, and is unique in that it assesses cognitive flexibility in different types of real-world scenarios and it contains the novel construct of social flexibility. However, there is minimal literature on the validation of test/re-test reliability or sensitivity to change for the Flexibility Scale beyond the initial development of the measure. Additionally, the only construct that has been examined in relation to the Flexibility Scale is executive functioning (Bertollo et al., 2020). Due to the overlap between the mechanisms for emotion regulation and the features of cognitive flexibility we predicted that scores on the Flexibility Scale would be correlated with emotion regulation difficulties as measured by the Emotion Dysregulation Inventory (EDI) and the Aberrant Behavior Checklist (ABC).

Method: In this study, we assessed a group of children with ASD and emotion regulation difficulties (N=34 aged 8-18) who were enrolled in an intervention study aiming to improve emotion regulation, *Regulating Together*. Participants were brought in at five time points during the course of the study which included Screening/Baseline (Week 1), Baseline/Treatment Start (Week 5), Treatment End (Week 10), and Follow Up (Week 20). Caregivers completed the Flexibility Scale, the Emotion Dysregulation Inventory (EDI), and Aberrant Behavior Checklist (ABC) at each visit. We assessed the Flexibility Scale for test/re-test reliability by comparing scores from the waitlist control period of the study (Week 1 vs Week 5), and for sensitivity to change by comparing baseline scores to Treatment End and Follow-up.. Additionally, we examined convergent validity of the Flexibility scale at baseline (Week 1) with scores on EDI Reactivity and Dysphoria subscales and the ABC Irritability subscale at the same time point.

Results: Test-retest reliability was good, with no significant changes at baseline ($p=0.62$). The Flexibility Scale Total score demonstrated sensitivity to change as indicated an overall change by time ($F(4, 120.8)=5.76, p=0.0003$), with significant improvement post treatment ($p=0.0001, d=0.67$), and at follow up ($p=0.0002, d=0.81$). As predicted, the Flexibility Scale demonstrated good convergent validity with positive correlation on all subscales of the EDI (Reactivity $r(46) = -.52, p < .001$; Dysphoria $r(46) = -.47, p = .001$) and with the Irritability subscale of the ABC ($r(46) = -.55, p < .001$).

Discussion: Our study suggests that the Flexibility Scale is a reliable measure of cognitive flexibility, and that it may be an appropriate outcome measure of response to psycho-social treatment, particularly those targeting emotion dysregulation. The consistency in scores during baseline period demonstrates test retest reliability while the improvement at post treatment time points demonstrates sensitivity to change. It was also demonstrated that cognitive flexibility difficulties and emotion dysregulation are closely related to one another, specifically in ASD populations. This link could help inform future avenues of treatment for individuals with ASD who struggle with emotion dysregulation.

References:

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