**Title:** Stability and Validity of Parent-Child Engagement in Infants and Toddlers at High Risk of Autism Spectrum Disorder

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**Introduction:** Infant siblings of children who are diagnosed with autism spectrum disorder (ASD) are at heightened risk (HR) for ASD and other communication impairments. Past work in our laboratory has shown that early differences in sensory responsiveness are useful for predicting future communication outcomes in this at-risk population. Sensory responsiveness refers to behavioral patterns of responding to sensory stimuli in the environment. These patterns can include hyporesponsiveness (reduced or absent responding to sensory stimuli), hyperresponsiveness (exaggerated responding to sensory stimuli), or sensory seeking (behaviors that appear to serve to extend or intensify some aspect of a sensory experience, such as visual sighting, as well as rubbing or hard pressing, licking, or smelling of objects). We hypothesize that early differences in sensory responsiveness may influence communication development by impacting the extent to which infants can effectively engage with their adult communication partners. In order to test this hypothesis, we must have a stable measure of parent-child engagement. The present study explores the stability of metrics of parent-child engagement derived from repeated measures of parent-child free play samples collected in infants who are at HR and relatively lower, general population level risk (LR) for ASD.

**Method:** Ten infants between 6 and 18 months of age at either HR for ASD (i.e., infants with at least one older sibling diagnosed with ASD) or LR for ASD (i.e., infants with typically developing older sibling/s) and their primary caregivers were recruited from a larger longitudinal study of sensory responsiveness for this measurement study. Two 15 minute parent-child free play (PCFP) procedures around a standard set of toys were collected for each parent-infant dyad within a two week timeframe. PCFP samples were videotaped and coded for parent child engagement with a previously established coding system (Bottema-Beutel, 2014) by two coders who were blind to the infants’ risk status. Two metrics of engagement hypothesized to potentially mediate relations between sensory responsiveness and future communication skill in the early stages of development were derived: total time spent in higher order supported joint engagement (HSJE; wherein the caregiver influences child play, and the child acknowledges the caregiver by engaging in reciprocal play) and total time spent in lower order supported joint engagement (LSJE; wherein the caregiver appears to influence child play, but the child does not actively acknowledge the caregiver by engaging in reciprocal play) across each PCFP. Generalizability (G) and Decision (D) studies (Sandbank & Yoder, 2014) were carried out to evaluate the stability of metrics for LSJE and HSJE. The a priori threshold set for acceptable stability was $g > .6$.

**Results:** Preliminary analyses were carried out using data from 8 infants for whom two administrations of the PCFP have been coded to date. These analyses indicate that HSJE is acceptably stable with a single sample and single coder ($g_{abs} = 0.64$), but that LSJE is not ($g_{abs} = 0.34$). Three samples and two coders or four samples and a single coder would be required to achieve acceptable stability for this lower level engagement state ($g_{abs} = .61$ or .64, respectively). Final analyses will be presented at Gatlinburg.

**Discussion:** Findings from this study suggest that we can derive acceptably stable estimates of parent-child engagement in infants, though the feasibility of doing so depends on the specific engagement state of interest. These results provide much-needed information regarding how we can minimize measurement error in deriving engagement metrics for our ongoing longitudinal study. Broader implications and future directions for research will also be discussed.

**References/Citations:**