**Title:** Social and Non-Social Sensory Responsivity Profiles in Toddlers at Risk for Autism Spectrum Disorder

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**Introduction:** Evidence regarding the importance of sensory-related symptoms in ASD has increased over the years and even contributed to the addition of unusual sensory responsivity or sensory interests as diagnostic criteria in the most recent edition of the DSM (APA, 2013). However, empirical evidence of sensory responsivity in young children who later develop ASD remains relatively limited, and it is unclear whether specific profiles or aspects of sensory responsivity underlay the emergence of the disorder. To date, there are few and inconsistent findings in the literature regarding whether contextual factors may be important for understanding patterns of sensory responsivity in individuals with ASD. The primary goal of this study was to examine whether social versus non-social context impacted the expression of sensory response patterns in infants at high risk for ASD and to examine if responsivity in social or non-social contexts were associated with severity of ASD symptoms.

**Method:** Participants were from the Infant Brain Imaging Study, an ongoing longitudinal study of infants at high and low familial risk for ASD. Our sample included 391 infants (156 females, 235 males) at high-risk for ASD. The Sensory Experiences Questionnaire 2.1 (SEQ; Baranek et al., 2006) was collected for all participants at 12 and 24 months of age. The present study focused on SEQ response pattern scores for social and non-social domains. Linear mixed-effects models were used to examine SEQ scores across 12 and 24 months of age for infants who did and did not develop ASD. Correlations were examined to identify the strength of association between SEQ social and non-social scores and the Autism Diagnostic Observation Schedule severity scores (ADOS; Lord et al., 2000), Mullen early learning scales composite scores (MSEL-ELC; Mullen, 1995) and Vineland adaptive behavior scales-II composite scores (Vineland-II ABC; Sparrow, Balla, & Cicchetti, 2005).

**Results:** Significant differences in sensory responsivity in both social and non-social contexts, as captured by the SEQ, were found for high risk ASD infants relative to high risk ASD negative infants by 12 months of age. There was a significant main effect for Group for both social (F = 44.19, p < .001) and non-social contexts (F = 24.05, P < .001). For the interaction of Group by Time, social SEQ scores significantly increased from 12 to 24 months of age for the HR-ASD group while remaining relatively flat for HR-Neg (F = 16.68, p < .001). For nonsocial scores, there was a significant interaction of Group by Time (F = 6.83, p = .01) characterized by increasing scores for HR-ASD and decreasing scores for HR-Neg from ages 12 to 24 months. At age 24 months, a small positive association with ADOS severity scores for both the social (r = .16, p=.006) and non-social contexts (r=.19, p=.001) was identified for the ASD group. The MSEL-ELC at 24 months was not significantly associated with social (r = -.05, p=.72) or non-social contexts (r=-.07, p=.621). The Vineland-ABC at 24 months was significantly associated with both social (r = -.48, p<.001) and non-social contexts (r = -.45, p<.001).

**Discussion:** High-risk infants who later meet diagnostic criteria for ASD showed elevated sensory responsiveness in both social and non-social contexts at 12 months of age. Differences between groups widened over the second year of life. Higher responsivity in both contexts for individuals with ASD indicates that there are generalized effects in sensory processing and/or registration that is not necessarily particular to socially salient information or social contexts. In addition, associations related to ASD severity and adaptive functioning were comparable between both social and non-social contextual scores, adding to the evidence that social versus non-social context is not particularly meaningful in the expression of sensory responsivity in ASD.
References:


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