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**First theme choice:** Clinical/Behavioral/Intervention

***Investigating relation between behavioral responses to social evaluative threat in adolescents with and without ASD***

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**Introduction:** A key characteristic of autism spectrum disorder (ASD) is difficulty with social interactions. This struggle can contribute to physiological and behavioral stress during social interactions manifested as displacement behaviors. The current study investigated potential behavioral differences during the Trier Social Stress Test (TSST) between youth with ASD and typical development (TD).

**Methods:** Adolescent and pre-adolescent youth between 10-to-13 years of age with ASD (n=118) and TD (n=90) had their behaviors videotaped and coded during the TSST portion from their first year of a four year-long longitudinal study examining pubertal development. A series of independent t-tests were conducted between diagnostic group (ASD/TD) for each displacement behavior (lip press/bite, face contact, grooming, fidgeting, and fumbling) and each section (speech and math) of the TSST as well as for verbal engagement (on-topic and silent) in the task.

**Results:** For the speech portion, between-group comparisons of the diagnostic groups showed that the ASD group had a significantly reduced lip press/bite frequency ( $p=0.017$ ) and significantly higher face contact frequency ( $p=0.029$ ). For the math section, the ASD group had a significantly higher face contact frequency ( $p=0.003$ ). All other displacement behaviors for both the speech and math sections had no significant differences between diagnostic group ( $p>0.05$ ). Meanwhile, the percentages of time spent silent and on-topic were significantly different between diagnostic groups for both the speech and math sections of the TSST (all  $p<0.05$ ).

**Discussion:** Our results show that there are specific differences in frequency of certain stress behaviors during social evaluation in ASD youth. There are also significant differences in task participation during the TSST regarding the amount of speech and on-topic engagement. The findings are somewhat consistent with previous studies examining behavioral response to social stressors in ASD youth measuring displacement behaviors between diagnostic groups. Future research should examine the effect of pubertal stage on stress behavior frequency and stress behaviors exhibited during non-stressful social situations in ASD youth. In addition, future research should investigate the relationship between verbal IQ and task participation to determine if there is an association between language ability and task participation in the TSST.

**Keywords:**

Autism spectrum disorders, Stress, Behavior