Sex-specific Association Between High Traumatic Stress Exposure and Social Cognitive Functioning in Youths

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BACKGROUND: Traumatic stressful events (TSEs) during childhood and adolescence are associated with increased risk for psychopathology and cognitive impairment. Aberrations in social cognition may contribute to the psychopathology risk. We examined performance differences on social cognitive measures between youths with high TSE exposure and no TSE exposure and how these effects vary in female and male individuals. METHODS: The Philadelphia Neurodevelopmental Cohort investigates clinical and cognitive phenotypes in a U.S. youth (aged 8-21 years) community population. Here we compared performance in social cognition tasks between youths with high exposure (≥3 TSEs, n = 830) and youths with no exposure (n = 5202). Three social cognition tasks were analyzed: 1) age differentiation, 2) emotion identification (happy, sad, angry, fearful, or neutral), and 3) emotion intensity differentiation (happy, sad, angry, and fearful). RESULTS: A significant TSE group by sex interaction was observed in all social cognitive tasks. In the emotion identification task, male subjects with high traumatic stress exposure outperformed nonexposed male subjects; exposure did not affect performance in female subjects. In the emotion intensity differentiation task, female subjects with high traumatic stress exposure performed worse than nonexposed female subjects, with no difference in male subjects between exposure groups. Exploratory analyses revealed that sex differences were driven by improved identification of angry expressions in stress-exposed male subjects and poorer performance in differentiating intensity of happy expressions in stress-exposed female subjects. CONCLUSIONS: Exposure to high levels of early life traumatic stress was associated with sex-specific differences in social cognition. These findings might be related to the sex-specific patterns of psychopathology emerging during adolescence.

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