

Kirsch D.E., Tretyak V., Radpour S., Weber W.A., Strakowski S.M., and Lippard E.T.C.

Childhood Maltreatment and Associated Prefrontal-Paralimbic Activity during Emotional and Cognitive Processing in Adolescents/Young Adults with Familial Risk for Bipolar Disorder

Background: Previous studies have established childhood maltreatment increases risk for bipolar disorder, alcohol use disorders, and their comorbidity. Yet, few studies have investigated neurofunctional consequences following childhood maltreatment that may mediate increased risk for these outcomes. Greater structural and functional abnormalities within prefrontal-paralimbic systems in bipolar disorder following childhood maltreatment are suggested. The mechanisms that contribute to prefrontal-paralimbic abnormalities remain unclear. As bipolar disorder is highly heritable, familial factors may be one mechanism contributing to abnormalities and outcomes.

Methods: To date, 39 adolescents/young adults (19 with familial risk for bipolar disorder, 20 healthy comparison participants, 77% female, $age_{mean \pm stdev} = 20 \pm 9$ years) completed a Continuous Performance fMRI Task with Emotional and Neutral Distractors, the Childhood Trauma Questionnaire (CTQ), and a battery of drinking-related measures. This preliminary analysis investigated the relationship between total CTQ scores and prefrontal-paralimbic activity while viewing targets and emotional distractors.

Results: A negative association was observed between total CTQ score and ventral prefrontal and anterior cingulate activity in individuals with familial risk for bipolar disorder. Specifically, greater total CTQ was associated with lower ventral prefrontal and anterior cingulate responses to targets and lower ventral prefrontal responses to emotional distractors ($p < 0.005$, ≥ 20 voxels). These negative associations were not observed in the healthy comparison group, with a significant group by total CTQ interaction observed for ventral prefrontal responses ($p < 0.05$).

Conclusions: Preliminary results from this ongoing study suggest familial risk factors may contribute to altered prefrontal-paralimbic activity following childhood maltreatment. Longitudinal study examining mood-related and drinking outcomes is needed.