

Kirsch D.E., Tretyak V., Le V., Strakowski S.M., and Lippard E.T.C.

Perceived Stress and Salience Network Functioning during Emotional Processing in Young Adults with Bipolar Disorder

Background: Stress negatively influences the clinical course of bipolar disorder. Stress-related mechanisms are suggested to increase disease risk, trigger mood episodes, and contribute to symptom severity. Despite this, our understanding of how stress affects brain function in bipolar disorder remains unclear. We hypothesize that greater perceived stress in bipolar disorder is associated with altered function of regions in the salience network, regions which are responsible for recruiting prefrontal modulation of emotional control.

Methods: 50 young adults (22 with bipolar disorder and 28 typically developing controls, 72% female, $age_{mean \pm stdev} = 21.6 \pm 2$ years) completed the Perceived Stress Scale (PSS) and Negative Life Events Inventory (NLEI), along with a Continuous Performance fMRI Task with Emotional and Neutral Distractors. This preliminary analysis investigated the relations between total PSS scores and salience network regional activity to emotional distractors.

Results: Young adults with bipolar disorder had greater past month PSS and NLEI scores than did typically developing controls ($p's < 0.001$). Controlling for negative life events, we observed a diagnostic group by PSS interaction on insular, anterior cingulate, and ventrolateral prefrontal cortices activity in response to emotional distractors ($p < 0.005$, ≥ 20 voxels). Stratifying by diagnostic group revealed higher PSS related to greater regional activity in typically developing controls ($p's < 0.01$) while higher perceived stress related to lower regional activity in young adults with bipolar disorder ($p's < 0.01$).

Conclusions: Results from this preliminary study suggest a relation between greater perceived stress and decreased salience network regional activation in response to emotional distractors in young adults with bipolar disorder.