

## **NEUROPHYSIOLOGICAL RESPONSES TO STRESS, INTERACTIONS WITH RECENT STRESS, AND ASSOCIATED EXTERNALIZING BEHAVIOR IN EMERGING ADULTS WITH BIPOLAR DISORDER.**

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### **Abstract (250/250 word max)**

**Background:** Differences in neural systems that underlie stress response are reported in bipolar disorder. Stress-sensitization models in bipolar disorder are proposed and support increased reactivity to stress may contribute to symptoms and disease course. However, there is a paucity of study investigating these processes. This study investigated neural responses to a psychosocial stressor, interactions with recent perceived stress, and associations with externalizing behavior.

**Methods:** 42 emerging adults (45% with bipolar disorder, 73% female, mean age  $\pm$  SD= 21 $\pm$ 2 years, age range=18-26 years) completed the Perceived Stress Scale, the Daily Drinking Questionnaire modified for heaviest drinking week, the Barrett Impulsivity Scale, and a modified version of the Montreal Imaging Stress functional MRI Task (MIST). Stress-related changes in heart rate and neural activity during the MIST was calculated for each subject and interactions with perceived stress was modeled. Relations with impulsivity and recent alcohol use was investigated.

**Results:** Within emerging adults with bipolar disorder, but not typically developing controls, perceived stress over the past week was associated with increased stress-related activity in insular, rostral, and dorsolateral prefrontal cortices ( $p < 0.005$ ). In bipolar disorder, greater perceived stress and related dorsolateral prefrontal activity was associated with increased impulsivity ( $p < 0.005$ ). Greater insula activity to stress was related to greater recent alcohol use in bipolar disorder ( $p < 0.005$ ).

**Conclusions:** Results from this preliminary study suggest perceived recent stress contributes to differences in neurophysiological responses to stress in emerging adults with bipolar disorder, compared to typically developing emerging adults, with greater perceived stress and neurophysiological responses associated with impulsivity and alcohol use.

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