

CHILDHOOD MALTREATMENT AND ASSOCIATED PREFRONTAL-PARALIMBIC GRAY MATTER VOLUME AND ALCOHOL USE IN YOUNG ADULTS WITH FAMILIAL RISK FOR BIPOLAR DISORDER

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Purpose: Childhood maltreatment increases risk for bipolar disorder, alcohol use disorders, and their comorbidity. Neuroanatomical differences following childhood maltreatment that may mediate risk for these outcomes remain unclear. Studies report greater structural abnormalities following childhood maltreatment within prefrontal-paralimbic systems in bipolar disorder, compared to typically developing adults. This could suggest increased vulnerability to childhood trauma in bipolar disorder. Mechanisms that may increase vulnerability are unknown. As bipolar disorder is highly heritable, familial factors may be one mechanism contributing to structural abnormalities and outcomes.

Methods: This study investigates prefrontal-paralimbic gray matter volume (GMV) and associations with childhood maltreatment and recent alcohol use in typically developing young adults and those with familial risk for bipolar disorder.

Data: 39 young adults (19 with familial risk for bipolar disorder, 77% female, $age_{mean \pm SD} = 21 \pm 2$ years) completed structural magnetic resonance imaging and the Childhood Trauma Questionnaire (CTQ). This preliminary analysis investigated the relationship between total CTQ scores and prefrontal-paralimbic GMV across all young adults, covarying group and sex, and when stratified by group. Relations between GMV and recent alcohol use, assessed with a modified version of the Daily Drinking Questionnaire for heaviest week (DDQ-H), was investigated.

Results: There were no significant between group differences in alcohol use from the DDQ-H ($p > 0.2$). Greater total CTQ score was associated with lower insula and dorsomedial prefrontal GMV when investigating across all participants ($p < 0.005$). The relationship between CTQ and lower GMV was most robust in individuals with familial risk. Lower ventral prefrontal GMV was also observed in the familial risk group, but not the comparison group, when repeating the analysis stratified by group ($p < 0.005$). Lower insula GMV was associated with greater total number of drinks consumed during the heaviest drinking week over the last month ($r = -0.4$, $p < 0.05$). Preliminary results suggest the relationship between insula GMV and number of drinks consumed may be more robust in individuals with familial risk, with a significant group by left insula GMV interaction observed for number of drinks consumed during the heaviest drinking week ($p < 0.05$).

Conclusions: Preliminary results from this ongoing study suggest lower prefrontal-paralimbic GMV following childhood maltreatment may contribute to risky alcohol use in individuals with familial risk for bipolar disorder.