NEURAL CORRELATES OF DRINKING MOTIVES IN TYPICALLY DEVELOPING YOUNG ADULTS

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PURPOSE: Drinking motives have been shown to predict heavy drinking in young adulthood. There is a paucity of studies investigating variation in prefrontal neural systems that may contribute to differences in drinking motives. Studies in individuals with a history of alcohol use disorders suggest that drinking motives are associated with altered structure and function in prefrontal neural systems. Whether these associations predate the development of an alcohol use disorder and may contribute to risk and development of problematic drinking, remains unknown.

METHODS: This preliminary study investigated variations in brain structure, measured as gray matter volume, in prefrontal systems and relations with drinking motives in typically developing young adult social drinkers with no history of a moderate or severe alcohol use disorder, controlling sex and age of alcohol initiation. Relations between recent alcohol consumption and regional structural differences showing relations with drinking motives were modeled.

DATA: To date, 21 healthy young adult social drinkers (76% female, $mean_{age}\pm SD$=21+2 years) underwent structural magnetic resonance imaging and completed the Drinking Motives Questionnaire and Daily Drinking Questionnaire modified for heaviest drinking week. Participants also reported the maximum number of drinks they consumed within a 24-hour period over the past three months.

RESULTS: Greater coping drinking motives were associated with lower gray matter volume in bilateral amygdala and ventromedial prefrontal cortex, greater social drinking motives were associated with lower gray matter volume in the orbitofrontal and anterior cingulate cortices, and greater conformity motives were associated with lower gray matter volume in the dorsomedial prefrontal cortex ($p<.001$, >20 voxels). Lower gray matter volume in the dorsomedial prefrontal

cortex was also associated with greater self-reported maximum drinks consumed in 24-hours over the past three months ($p<.05$).

CONCLUSIONS: Preliminary results from this ongoing study indicate structural variation in brain regions implicated in emotion processing, impulse control and decision-making, that have been previously associated with the development of problematic drinking, may contribute to differences in drinking motives in college-aged youth prior to the development of problematic drinking. Longitudinal studies are needed to investigate how differences in neural structure in these brain regions and their relations with drinking motives may prospectively translate into future risk for alcohol use disorders.