

## **Abstract**

With an prevalence of approximately 5%, attention-deficit/hyperactivity disorder (ADHD) negatively impacts a significant portion of the world in daily activities that require inhibition and prolonged attention. In the context of pubertal development, the presence of an ADHD diagnosis correlates with brain structural differences as well as behavioral changes. Brain structure and cognitive differences may contribute to the behaviors which accompany several comorbid disorders, such as conduct disorder, depression, schizophrenia, and substance use disorder (SUD). Due to these similar behaviors, our study examines the role of SUD in a primary or secondary family member in conjunction with a diagnosis of ADHD to determine if an additive effect on rewarded behavior is found with the presence of a co-occurring disorder. Participants were administered a Go-No Go (GNG) task, measuring the accuracy of responses with and without a reward present. Self-reported measures of inhibition and activation via the BIS/BAS panel were also compared with dual diagnoses of ADHD and Familial SUD. Although GNG and inhibitory system self-reports displayed no significant correlation with either diagnosis, the activation system report produces a trend with a diagnosis of ADHD alone. Familial SUD was not found to impact rewarded behavior or self-reported measures of inhibition and activation.