

Impulsivity is a central clinical feature of Attention Deficit/Hyperactivity Disorder (ADHD), schizophrenia and impulse control disorders (i.e. pathological gambling, kleptomania). Cyders et al. (2007) broke impulsivity into five different factors including Positive and Negative Urgency (tendency to experience strong impulses due to positive and negative affect). As negative affect promotes problematic behaviors (Billieux et al, 2010), understanding the neurobiology of impulsivity is critical for developing behavioral interventions. The neural underpinnings of response inhibition have been well defined and involve the inferior frontal cortex and secondary motor area (Robbins 2007). However the impact of emotional content on impulsive responding is less understood. Sagaspe et al (2011) found fearful stimuli presented during a Stop Signal Task (SST) increased amygdala (emotional content) and lateral orbitofrontal cortex (response inhibition) activity, but suppressed the supplementary motor area (motor initiation). However, Albert et al. (2010) suggest that positive affect preferentially facilitates activation of inhibitory circuitry. Therefore, we hypothesized that positive and negative emotions would affect impulsive behavior through varied circuits during a SST where subjects select gender of faces expressing task-irrelevant emotions: angry, calm and happy. Behaviorally there were no significant differences in probability or speed of response inhibition related to emotion. However, differential neural activity was found during go and stop components of this task due to the presence of negative or positive emotional content, respectively. This is important because it validates the separation of urgency based on emotional type and suggests that groups varying on these factors may require differential treatment for maladaptive behaviors.