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The Role of Impulsivity on Emotion Regulation and Visual Attention: An Eye-Tracking Study

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Summary of Study

Attentional deployment is a type of emotion regulation strategy where individuals direct their attention to change their emotional experience (Gross, 2013). This research used eye-tracking technology, in two separate studies, as a measure of attentional deployment during the presentation of emotionally-charged video stimuli. The stimuli were either realistic video clips of people or of moving shapes often interpreted as a negative interaction. Attentional deployment has been hypothesized to relate to other emotion regulation strategies like cognitive reappraisal, but findings have been equivocal (Bebko et al., 2011; van Reekum et al., 2007). The relationship between attentional deployment and other emotion regulation strategies was examined. Measuring attentional deployment may be complicated if an individual has Attention Deficit Hyperactivity Disorder (ADHD), a disorder characterized by challenges with inattention and/or hyperactivity and impulsivity (APA, 2013). This area was also investigated.

Participants in both studies were undergraduate students at a medium-sized, ethnically diverse, university in southwestern Ontario. In Study 1 (N=92), participants were shown five randomized clips from the motion picture, “The Perks of Being a Wallflower” (Halfon, Smith, Malkovich, & Chbosky, 2012) and rated each clip as evoking a positive or negative emotion. In Study 2 (N=98), participants viewed the Heider and Simmel (1944) short film of moving shapes, often anthropomorphized and interpreted as a negative interaction (Klin, 2000).

Results from Study 1 showed greater use of attentional deployment and differences in pupil diameter when viewing video clips evoking negative emotions than clips evoking positive. In Study 1, individuals with higher self-reported ADHD symptoms and higher self-reported impulsivity reported less use of cognitive reappraisal when compared to individuals who reported lower levels of ADHD symptoms and impulsivity. As well, there was no difference

between the individuals with higher ADHD symptoms/impulsivity than the individuals with lower ADHD symptoms/impulsivity for expressive suppression nor attentional deployment. In both studies and contrary to expectation, attentional deployment was not predictive of cognitive reappraisal nor expressive suppression.

When comparing attentional deployment in Study 1 and 2, participants used less attentional deployment when viewing videos clips of people that evoked positive emotions than when viewing the video of moving shapes, often perceived as negative. No significant difference was found when comparing average attentional deployment when viewing video clips of people that evoked negative emotions than attentional deployment during the video of moving shapes. Findings highlight the potential for using eye-tracking as a direct measure of attentional deployment, as a standardized research tool and as a tool for clinical applications. The results also suggest that different mechanisms may underlie the processes of attentional deployment, cognitive reappraisal, and expressive suppression. As well, greater attentional deployment occurred when viewing video clips that evoked a negative emotion rather than a positive emotion and this was demonstrated for both video clips of people and the video of geometric shapes, highlighting the importance of participants' emotional appraisal of events for the process of emotion regulation.