Parasympathetic nervous system responses and cardiovascular traits predict PTSD symptoms

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Posttraumatic stress disorder (PTSD) is a heterogeneous disorder that is defined by three major symptom clusters: intrusive, avoidance, and hyper-arousal symptoms. Individual patients can vary in the degree to which they present with the different symptoms. The purpose of this study was to examine the relationship between physiological responses and specific PTSD symptoms to gain insight into biological markers of PTSD. We measured psychophysiological responding during a fear conditioning discrimination task. This paradigm, termed AX+/BX-, independently assesses responses to danger (CS+) and safety (CS-) cues. We compared resting heart-rate (HR) and HR variability (HRV) as a measure of sympathetic and parasympathetic tone. We used these measures to predict ratings on individual items on the Modified PTSD symptom scale (PSS), and the DES-T (Dissociative Experiences Scale – Short Version) using linear regression analyses. The study sample (n=76) was recruited from a highly traumatized civilian population seeking treatment at Grady Memorial Hospital in Atlanta, GA. Results show that PTSD subjects had higher HRV than controls, and high-frequency HRV in the presence of safety cues predicted severity of avoidance and hyper-arousal PTSD symptoms significantly in males (F(1,29)=3.67, p=0.065) and in females (F(1,42)=4.86, p=0.033.) Resting heart-rate was not associated with symptoms; however, resting blood pressure was negatively associated with PTSD.

![Figure 2](image1)

![Figure 3](image2)