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Title: Stress-induced changes in functional brain connectivity vary with violence exposure and psychophysiological stress responses

Authors: H.E. Dark, N.G. Harnett, A.M. Goodman, S. Mrug, M.A. Schuster, M.N. Elliott, S. Tortolero, D.C. Knight

Objectives/Goals: The following study sought to examine how psychophysiological stress responses and resting state functional brain connectivity (rsFC) vary as a function of prior life violence exposure.

Methods/Study Population: Participants (18-23 years) completed two resting state functional magnetic resonance imaging (rs-fMRI) scans prior to (pre-stress) and after (post-stress) completing a psychosocial stress task. Skin conductance level (SCL) and heart rate (HR) were assessed during each rs-fMRI scan. Violence exposure (VE) was previously assessed at 4 time points. The amygdala and hippocampus were used as seed regions for connectivity analyses. Two linear mixed effects analyses were conducted to determine whether 1) SCL and 2) HR differed pre- to post-stress as a function of stress-induced changes in amygdala and hippocampus rsFC and VE. A family-wise error correction (pFWE=.05) was applied to fMRI results.

Results/Anticipated Results: Hippocampus-posterior cingulate cortex (PCC), -insula, and amygdala-PCC rsFC varied pre- to post -stress with SCL (pFWE=.05). Specifically, SCL varied positively pre-stress with hippocampus-PCC, hippocampus-insula, and amygdala-PCC rsFC. For those with high violence exposure, heart rate varied negatively with post-stress amygdala-bilateral inferior parietal lobule (IPL) rsFC (pFWE=.05).

Discussion/Significance of Impact: Findings elucidate the relationships between psychophysiological stress responses, violence exposure, and individual variability in the neural networks that mediate emotion regulation processes.

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