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Independent Component Analysis of Self-Referential Processing in Women with Posttraumatic Stress Disorder

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ABSTRACT

Posttraumatic stress disorder (PTSD) is a condition that can develop after exposure, or repeated exposure, to a traumatic event. Recent changes to the diagnostic criteria for PTSD as well as new treatment implications reflect a shift of emphasis from fear to an emphasis on the dysregulation of emotions related to self-referential emotions. Emotions of self-referential can be measured using salience stimuli that relates to the participant's concept of self. These paradigms are related to self-referential processing tasks. The current study used data from functional magnetic resonance imaging (fMRI) to investigate the activations of brain areas related to the self-referential processing of women. Activation patterns were divided into four categories: fearful and other referential stimuli. The results showed a shift from fear to an emphasis on the dysregulation of emotions related to self-referential emotions.

PROCEDURE

All procedures were approved by the Health Sciences Research Ethics Board of Western University in London, Ontario, Canada. Participants were divided into four groups: control and PTSD groups in the Self-referential paradigm and in the other-referential paradigm. The PTSD group was further divided into two subgroups: women with PTSD and women without PTSD.

ANALYSIS

A GLM toolbox for use with MATLAB software was used to identify independent components (ICs) of self-referential processing. Spatial maps from Functional Imaging in Neurocognitive Disorders Lab (FINDB Lab) [18] were used to test for correlations between significant components and network under investigation.

RESULTS

• The right hemisphere (RH) was more active than the left hemisphere (LH) in the PTSD group compared to the control group.
• The dorsal default mode network (DMN) was more active in the PTSD group compared to the control group.
• The amygdala volume changes in PTSD were significant in both groups.

DISCUSSION

Dys-regulation of the cerebellum in observing and reacting to other's negative emotional stimuli. The cerebellum plays a role in determining the emotional response to other's negative emotional stimuli. The cerebellum is also involved in the emotional response to other's negative emotional stimuli. The cerebellum is also involved in the emotional response to other's negative emotional stimuli.

REFERENCES


Participating in a self-referential processing paradigm: A functional magnetic resonance imaging study. Cerebral Cortex, 21(11), 2840-2848.