

## Automatic Processing of Trauma-Related Visual Stimuli in Female Patients Suffering From Post-Traumatic Stress Disorder after Interpersonal Traumatization

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**Abstract :** A characteristic feature of post-traumatic stress disorder (PTSD) is the automatic processing of disorder-specific stimuli that expresses itself in intrusive symptoms such as intense physical and psychological reactions to trauma-associated stimuli. That automatic processing plays an essential role in the development and maintenance of symptoms. The aim of our study was, therefore, to investigate the behavioral and neural correlates of automatic processing of trauma-related stimuli in PTSD. Although interpersonal traumatization is a form of traumatization that often occurs, it has not yet been sufficiently studied. That is why, in our study, we focused on patients suffering from interpersonal traumatization. While previous imaging studies on PTSD mainly used faces, words, or generally negative visual stimuli, our study presented complex trauma-related and neutral visual scenes. We examined 19 female subjects suffering from PTSD and examined 19 healthy women as a control group. All subjects did a geometric comparison task while lying in a functional-magnetic-resonance-imaging (fMRI) scanner. Trauma-related scenes and neutral visual scenes that were not relevant to the task were presented while the subjects were doing the task. Regarding the behavioral level, there were not any significant differences between the task performance of the two groups. Regarding the neural level, the PTSD patients showed significant hyperactivation of the hippocampus for task-irrelevant trauma-related stimuli versus neutral stimuli when compared with healthy control subjects. Connectivity analyses revealed altered connectivity between the hippocampus and other anxiety-related areas in PTSD patients, too. Overall, those findings suggest that fear-related areas are involved in PTSD patients' processing of trauma-related stimuli even if the stimuli that were used in the study were task-irrelevant.

**Keywords :** post-traumatic stress disorder, automatic processing, hippocampus, functional magnetic resonance imaging

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