



14. POST-TRAUMATIC STRESS DISORDER AND ITS INFLUENCE ON DIFFERENT BRAIN STRUCTURES

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Introduction. Post-Traumatic Stress Disorder (PTSD) is a mental health condition that can develop after experiencing or witnessing a traumatic event. Trauma varies widely and can include combat, sexual assault, accidents, or any life-threatening situation. Individuals with PTSD face challenges in coping with traumatic experiences, often triggered by factors unique to each person. Triggers can cause symptoms like anxiety, panic attacks, nightmares, or flashbacks, transporting individuals back to the traumatic moment. It was supposed that there are some parts of the brain affected by PTSD, like- Hippocampus, amygdala and prefrontal cortex.

Aim of study. Our purpose was to study through meta-analysis the neuroanatomy of the brain in patients with Post-Traumatic-Stress-Disorder.

Methods and materials. We started our investigation on specialized medical platforms, such as: National Library of Medicine, Research Gate, Science Direct; and identified above 10 articles which described the changes of different brain structures according to mental health conditions characterized in this abstract (PTSD). We've chosen key discoveries spanning a diverse array of PTSD literature to explore how psychological trauma influences neurobiological systems, especially neuroanatomic systems.

Results. The hippocampus plays a significant role in the development and manifestation of Post-Traumatic Stress Disorder (PTSD). We have discovered such changes as: reduced volume (early studies utilizing magnetic resonance imaging (MRI) revealed reduced hippocampal volumes in both Vietnam Veterans diagnosed with PTSD and individuals experiencing abuse-related PTSD when compared to control groups), impaired functioning, hypersensitivity to cortisol (N-acetyl aspartate- a marker of neuronal integrity was correlated with cortisol levels). Changes in amygdala function, particularly hyperactivity, contribute to exaggerated fear responses in PTSD. Disruptions in inhibitory control from the prefrontal cortex may intensify amygdala hyperactivity. The prefrontal cortex is essential for processing and contextualizing emotional memories, emphasizing the intricate neural aspects of PTSD. In PTSD, there may be difficulties in the way traumatic memories are processed, leading to their persistence and intrusive nature.

Conclusion. In summary, understanding the affected structures of the brain in people with PTSD is essential for advancing our knowledge of the disorder, improving treatment outcomes, reducing stigma, and developing more effective and personalized interventions.