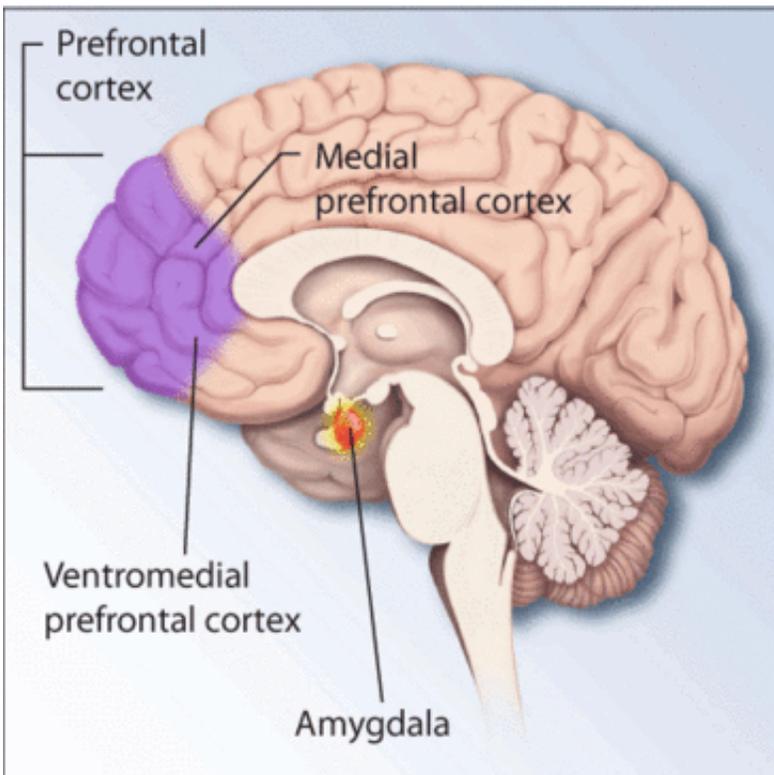


Anti-stress brain chemical is related to PTSD resilience after trauma

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Regions of the brain associated with stress and posttraumatic stress disorder.
Credit: National Institutes of Health

Fewer receptors for the anti-stress brain chemical nociceptin is associated with less severe posttraumatic stress disorder (PTSD) symptoms in college women who have experienced sexual violence, according to a study in *Biological Psychiatry*, published by Elsevier. The

relationship between nociceptin receptor density and PTSD severity was present in women with recent PTSD symptoms but not those with past symptoms, suggesting a role for the receptors in recovery after sexual violence.

Although studies in animal models of PTSD have shown that nociceptin promotes resilience, the receptors had never been studied in people with the disorder. Using positron emission tomography brain imaging, researchers from University of Pittsburgh, Pennsylvania, showed that PTSD symptom severity is associated with fewer receptors in the midbrain and cerebellum—regions involved in the brain's threat alarm system and that process subconscious triggers of PTSD related to the trauma.

"These results suggest that decreased nociceptin receptor density is a marker of resilience and recovery following trauma. If future studies confirm these results, nociceptin receptor density may become an important resilience biomarker in the evaluation of PTSD," said lead author Rajesh Narendran, MD.

The primary characteristics of PTSD include intrusive memories of the traumatic event and avoidance of anything that reminds one of the trauma. In women with recent PTSD, these primary symptoms were strongly associated with nociception receptor density.

"Alterations in nociceptin receptor regulation in PTSD could point to specific treatments that might target this receptor to treat symptoms of PTSD," said John Krystal, Editor of *Biological Psychiatry*.

This would be an important advance for the disorder, as currently available medications for PTSD treat secondary symptoms of the disorder, such as negative mood, but do not treat the primary symptoms associated with receptor measures in this study.

This means that the relationship between PTSD [symptom](#) severity and nociceptin [receptors](#) in the brain of women who have experienced [sexual violence](#) not only provides critical insight for understanding the biology of resilience and recovery after trauma, but also opens potential avenues for improving PTSD treatment and prevention.

More information: Rajesh Narendran et al, Decreased Nociceptin Receptors Are Related to Resilience and Recovery in College Women Who Have Experienced Sexual Violence: Therapeutic Implications for Posttraumatic Stress Disorder, *Biological Psychiatry* (2019). [DOI: 10.1016/j.biopsych.2019.02.017](#)

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