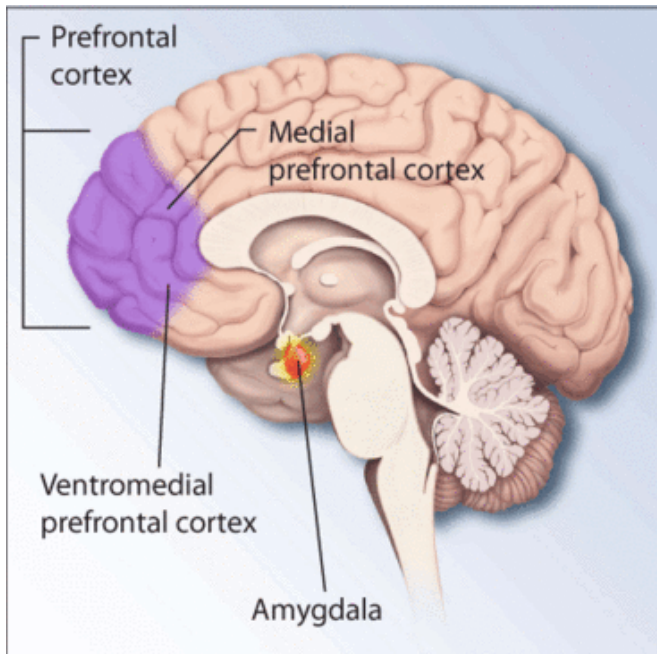


Researchers identify potential subtype of PTSD

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

A major obstacle in understanding and treating posttraumatic stress disorder (PTSD) is its clinical and neurobiological heterogeneity. In order to better treat the condition and address this barrier, the field has become increasingly interested in identifying subtypes of PTSD based on dysfunction in neural networks alongside cognitive impairments that may underlie the development and maintenance of symptoms.

VA and BU researchers have now found a marker of PTSD in [brain](#) regions associated with emotional regulation. "This marker was strongest in those with clinically impaired executive function or the ability to engage in complex goal-directed behavior," explained corresponding author Audreyana Jagger-Rickels, Ph.D., a post-doctoral

scientist in the Boston Attention and Learning Lab (BALLAB) at the VA Boston Healthcare System.

The study included 271 Veterans participants in the Translational Research Center for TBI and Stress Disorders (TRACTS) at VA Boston, who had been deployed to post-9/11 conflicts and completed a functional MRI scan that measures the communication between [brain regions](#). The Veterans also completed tests that measured PTSD and cognitive (neuropsychological) functioning, including executive functioning.

The researchers found that Veterans with greater PTSD severity had an increased disruption between their cognitive control [network](#) (frontal parietal control network) and their emotional processing network (limbic network). Upon further investigation, they found that those with clinically impaired executive function had the greatest disruption to this brain marker of PTSD.

"This study provides preliminary evidence for a 'neurocognitive' subtype of PTSD, specifically that a combination of cognitive and brain signatures may identify a subset of people with PTSD that could be unique," said senior author Michael Esterman, Ph.D., principal investigator, National Center for PTSD at VA Boston Healthcare System and associate professor of psychiatry at Boston University School of Medicine.

According to the researchers these findings suggest that if someone presents with PTSD and impaired executive function, that they may also have a unique brain marker related to emotional regulation. "These individuals may respond best to specific treatment strategies but may also have difficulty engaging in treatments that require high levels of emotional regulation and executive functioning," added Jagger-Rickels.

The researchers hope this study will help identify those who will benefit from specific treatments for

PTSD and may lead to new innovative treatments that target cognitive and brain functioning. "Ultimately, diagnosing and treating individuals based on their own unique clinical and biological profile, rather than simply based a broad diagnosis, would be the goal," said Esterman.

More information: Audreyana Jagger-Rickels et al. Impaired executive function exacerbates neural markers of posttraumatic stress disorder, *Psychological Medicine* (2021). DOI: [10.1017/S0033291721000842](https://doi.org/10.1017/S0033291721000842)

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