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## **A Pilot Study of the Effects of Mindfulness-Based Stress Reduction on Post-traumatic Stress Disorder Symptoms and Brain Response to Traumatic Reminders of Combat in Operation Enduring Freedom/Operation Iraqi Freedom Combat Veterans with Post-traumatic Stress Disorder.**

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Abstract:

Brain imaging studies in patients with post-traumatic stress disorder (PTSD) have implicated a circuitry of brain regions including the medial prefrontal cortex, amygdala, hippocampus, parietal cortex, and insula. Pharmacological treatment studies have shown a reversal of medial prefrontal deficits in response to traumatic reminders. Mindfulness-based stress reduction (MBSR) is a promising non-pharmacologic approach to the treatment of anxiety and pain disorders. The purpose of this study was to assess the effects of MBSR on PTSD symptoms and brain response to traumatic reminders measured with positron-emission tomography (PET) in Operation Enduring Freedom/ Operation Iraqi Freedom (OEF/OIF) combat veterans with PTSD. We hypothesized that MBSR would show increased prefrontal response to stress and improved PTSD symptoms in veterans with PTSD.

Results:

Post-traumatic stress disorder patients treated with MBSR (but not present-centered group therapy [PCGT]) had an improvement in PTSD symptoms measured with the Clinician-Administered PTSD Scale (CAPS) that persisted for 6 months after treatment. MBSR also resulted in an increase in mindfulness measured with the Five Factor Mindfulness Questionnaire (FFMQ). MBSR-treated patients had increased anterior cingulate and inferior parietal lobule and decreased insula and precuneus function in response to traumatic reminders compared to the PCGT group.

CONCLUSION:

This study shows that MBSR is a safe and effective treatment for PTSD. Furthermore, MBSR treatment is associated with changes in brain regions that have been implicated in PTSD and are involved in extinction of fear responses to traumatic memories as well as regulation of the stress response.