

# Risk of dementia increased among female veterans with TBI, PTSD, depression

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Female military veterans who have traumatic brain injury, post-traumatic stress disorder or depression long after their service may be more likely to later develop dementia than female veterans without those conditions, according to a study published in the December 12, 2018, online issue of *Neurology*, the medical journal of the American Academy of Neurology.

"Previous studies have shown that male veterans with these conditions may be at higher risk of [dementia](#), but few studies have included female veterans," said study author Kristine Yaffe, MD, of the University of California, San Francisco and a member of the American Academy of Neurology. "Understanding how these conditions affect women is critical as more women join the military, more women take on combat roles and since women may be at greater risk for some of these conditions. It's estimated that almost one in three veterans deployed for Operations Enduring Freedom and Iraqi Freedom have one of these conditions."

The study involved 109,140 female veterans with

an average age of 69 who received care at a Veterans Health Administration medical center and had at least one follow-up visit. Participants' medical records were reviewed to determine who had a diagnosis of [traumatic brain injury](#) (TBI), [post-traumatic stress disorder](#) (PTSD) or depression at the start of the study.

A total of 81,135 women had none of the conditions; 20,410 had depression only; 1,363 had PTSD only; 488 had TBI only; and 5,044 had more than one condition.

None of the participants had dementia at the start of the study. During the average of four years of follow-up, 4,125 of the women, or 4 percent, developed dementia.

The study found that women with PTSD were about 80 percent more likely to develop dementia than women who did not have PTSD. Women with depression were about 70 percent more likely to develop dementia than women who did not have depression.

Women with traumatic brain injury were about 50 percent more likely to develop dementia than women who did not have traumatic brain injury. The risk of dementia was doubled for women with more than one of these conditions, compared to women who did not have any of the conditions.

These results were calculated after researchers adjusted for other factors that could affect the risk of dementia, such as high blood pressure, diabetes, and alcohol abuse. The results were similar to what previous studies have found in male veterans.

Of the women with none of the conditions, 3.4 percent developed dementia, compared to 5.2 percent of the women with depression, 3.9 percent of the women with PTSD, 5.7 percent of the women with TBI and 3.9 percent of the women with more than one condition.

"These [results](#) highlight the need for increased screening for TBI, PTSD and depression, particularly among [female veterans](#), as well as the potential role for treatment of these conditions to reduce dementia risk," Yaffe said.

Yaffe noted that the study does not determine that these [conditions](#) cause an increase in dementia; it shows an association.

A limitation of the study is that researchers used medical diagnoses codes to determine who had [depression](#), post-traumatic stress disorder, traumatic brain disorder and dementia, and it is possible that [women](#) with less severe symptoms of these disorders did not receive diagnoses and were not counted.

Provided by American Academy of Neurology

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