

## A National Cohort Study of the Association between the Polytrauma Clinical Triad and Suicide-Related Behavior among US Veterans Who Served in Iraq and Afghanistan

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US veterans, OIF/ OEF, suicide related behavior (SRB), post-traumatic stress disorder (PTSD), traumatic brain injury (TBI), Polytrauma Clinical Triad (PCT)

(ideation: OR = 2.3; 95% CI = 2.0, 2.6; attempt: OR = 2.0; 95% CI = 1.4, 2.9; ideation and attempt: OR = 1.8; 95% CI = 1.2, 2.8). Ideation risk was significantly elevated when PTSD was comorbid with depression (OR = 4.2; 95% CI = 3.6, 4.8) or substance abuse (OR = 4.7; 95% CI = 3.9, 5.6). Although PCT was a moderate SRB predictor, interactions among PCT conditions, particularly PTSD, and depression or substance abuse had larger risk increases.”

## RESEARCH HIGHLIGHTS

- Although suicide has historically been lower among service members than members of the general population, suicide rates among both service members and younger veterans have increased during Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF). Given that previous researchers have found that a mental disorder is associated with increased vulnerability to suicide, this study examines the association of posttraumatic stress disorder (PTSD), traumatic brain injury, and chronic pain—the polytrauma clinical triad (PCT) — with suicide-related behavior (SRB).
- Post-traumatic stress disorder (PTSD) emerged in these findings as a potential risk factor for suicide-related behavior (SRB) among Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) veterans, as did depression and substance abuse. The co-occurrence of PTSD, TBI, and chronic pain did not increase risk above that associated with PTSD, depression, or substance abuse alone. As the number of comorbidities increased, interactions including PTSD, depression, and substance abuse continued to be associated with highest risk.
- Many of the findings in this study differ from previous research findings. Future researchers should examine if women veterans are less likely than male veterans to exhibit suicide ideation, or if they are less likely to report suicide ideation.

## ABSTRACT

“We examined the association of posttraumatic stress disorder (PTSD), traumatic brain injury, and chronic pain—the polytrauma clinical triad (PCT)—independently and with other conditions, with suicide-related behavior (SRB) risk among Operation Enduring Freedom (OEF; Afghanistan) and Operation Iraqi Freedom (OIF) veterans. We used Department of Veterans Affairs (VA) administrative data to identify OEF and OIF veterans receiving VA care in fiscal years 2009–2011; we used International Classification of Diseases, Ninth Revision, Clinical Modification codes to characterize 211 652 cohort members. Descriptive statistics were followed by multinomial logistic regression analyses predicting SRB. Co-occurrence of PCT conditions was associated with significant increase in suicide ideation risk (odds ratio [OR] = 1.9; 95% confidence interval [CI] = 1.5, 2.4) or attempt and ideation (OR = 2.6; 95% CI = 1.5, 4.6), but did not exceed increased risk with PTSD alone

## IMPLICATIONS

### FOR PRACTICE

Veterans should discuss potential symptoms of PTSD, depression and substance abuse, including loneliness and hopelessness, with their doctors or medical provider. During these discussions, medical providers should advise veterans of available programs to help prevent or treat PTSD, depression, substance abuse, and other mental illnesses. Veterans and physicians should devise a plan together to help the veteran address any symptoms or concerns. Since PTSD, depression and substance abuse are risk factors for suicide-related behavior, family, friends, co-workers, and caregivers should monitor their veteran for signs. If persons close to the veteran notice worrisome symptoms, they should consider discussing such signs with their veteran, and referring their veteran to a practitioner. Community organizations that work with veterans should continue initiatives and programs that target PTSD, depression, and substance abuse. Local nonprofits working specifically with veterans should host community-building events to connect veterans with other veterans. Community organizations should host mental health workshops for both veterans and their loved ones.

### FOR POLICY

To prevent underdiagnosing of substance abuse disorders, the VA might revise its screening and treatment systems for veterans who show symptoms of depression and substance abuse to detect milder cases. The VA might develop screening criteria explicitly tailored to address the most important risk factors for OEF/OIF veterans, including depression, substance abuse, and PTSD. The VA might use its vast electronic record system to target veterans for enhanced screening by cohort, age, and/or comorbidity status. Since OEF/OIF veterans between the ages of 18-25 have a heightened risk for SRB, the VA might use a specific OEF/OIF cohort risk assessment template to detect sooner and with greater accuracy any potential heightened risk for SRB. The VA should continue to investigate best practices for connecting at-risk OEF/OIF veterans with the full spectrum of available mental health and rehabilitation services.

### FOR FUTURE RESEARCH

Despite this retrospective cohort study utilizing the VA's OEF/OIF roster file to identify returned OEF/OIF VA patients, the available data did not include information on current treatments for OEF/OIF veterans with mental health disorders. Future researchers should investigate how PTSD, depression and substance abuse treatment are integrated into existing care management for OEF/OIF veterans in primary and specialized health care settings. It would be beneficial to analyze the effectiveness and quality of current treatments prescribed to veterans with a mental health disorder or illness. Researchers should explore how the current dissemination of mental health treatments, including counseling and medication, can be improved to help veterans with a mental health disorder receive necessary treatment more quickly. A limitation of this study is that the data did not include information on the severity of the different risk factors associated with SRB, such as PTSD. Future studies should include severity of risk factors. It might be beneficial to investigate how SRB among the 18-25 year old OEF/OIF veteran population may be affected by severity of mental health conditions. Given that the results in this study differ with results from previous studies that examined suicide attempts, more research is needed on the relationship between suicide risk behavior, attempts, and mental health disorders.

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