

# CDP



## Research Update -- December 19, 2019

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<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2757484>

## **A Historical Examination of Military Records of US Army Suicide, 1819 to 2017.**

Smith JA, Doidge M, Hanoa R, Frueh BC

JAMA Network Open

2019; 2(12): e1917448

<https://doi.org/10.1001/jamanetworkopen.2019.17448>

### Key Points

#### Question

How do suicide rates among active-duty US Army service members in the 21st century compare with those in the 20th and 19th centuries?

#### Findings

This cross-sectional study, which includes data on all active-duty personnel in the US Army from 1819 to 2017, documented trends in suicide rates. The findings suggest that suicides historically decreased during wartime, but that pattern seems to have changed during the wars in Vietnam, Iraq, and Afghanistan.

#### Meaning

The results of this study demonstrate the usefulness of increased historical-epidemiological partnerships to better separate long-term causes from more short-term factors and to aid in understanding the current spike in suicides among active-duty personnel in the US Army.

### Abstract

#### Importance

Suicide rates among active-duty personnel in the US military have increased substantially since 2004, and numerous studies have attempted to contextualize and better understand this phenomenon. Placing contemporary examinations of suicides among active-duty personnel in the US Army in historical context provides opportunities for joint historical and epidemiological research to inform health care professionals and policy makers.

#### Objectives

To consolidate data on suicide rates among active-duty personnel in the US Army as far

back as historical records allow and to identify historical trends to separate them from more acute causal factors.

### Design, Setting, and Participants

This cross-sectional study included all active-duty service members in the US Army from 1819 to 2017 as identified and detailed in US government publications, studies, and journal articles. Empirical data were extracted from US government publications and journal articles published from 1819 to 2017. Data collection and analysis were completed between July and August of 2019.

### Exposure

Suicide.

### Main Outcomes and Measures

Suicide rates per 100 000 individuals.

### Results

Starting in 1843, the overall trend in annual suicide rates among active-duty service members in the US Army increased, with a peak rate of 118.3 per 100 000 in 1883. From that historical high point, the rate decreased in 3 successive waves, each corresponding to the end of the following wars: the Spanish-American War (1898), World War I (1914-1918), and World War II (1939-1945). The latter had the historically lowest rate of 5 per 100 000 in 1944 to 1945. During the Cold War (approximately 1945-1991), the rate generally stabilized in the low teens to midteens (ie, 10-15 per 100 000). The rate increased again during the Afghanistan and Iraq Wars, increasing to 29.7 per 100 000 in 2012. From 2008 to present, the annual rate has remained within the range of 20.2 to 29.7 per 100 000.

### Conclusions and Relevance

This study represents the most extensive historical examination of suicides in the US Army to date. By taking a long-term historical approach to suicide among active-duty personnel in the US Army, this study affords future researchers a new analytical tool and an additional perspective from which to better differentiate long-term and historical trends from more short-term and temporary causal factors.

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<https://onlinelibrary.wiley.com/doi/abs/10.1111/sltb.12609>

**A Preliminary Precision Treatment Rule for Remission of Suicide Ideation.**

Kessler, R.C., Chalker, S.A., Luedtke, A.R., Sadikova, E. and Jobes, D.A.

Suicide and Life-Threatening Behavior

First published: 09 December 2019

<https://doi.org/10.1111/sltb.12609>

### Objective

There is growing interest in the development of composite precision treatment rules (PTRs) to guide the selection of the treatments most likely to be helpful for individual patients. We present here the results of an effort to develop a preliminary PTR for Collaborative Assessment and Management of Suicidality (CAMS) relative to enhanced-care as usual based on secondary analysis of the Operation Worth Living (OWL) randomized controlled trial. The outcome of interest is eliminating suicide ideation (SI) within 3 months of initiating treatment.

### Method

A state-of-the-art ensemble machine learning method was used to develop the PTR among the  $n = 148$  U.S. Soldiers (predominately male and White, age range 18–48) OWL patients.

### Results

We estimated that CAMS was the better treatment for 77.8% of patients and that treatment assignment according to the PTR would result in a 13.6% (95% CI: 0.9%–26.3%) increase in 3-month SI remission compared to random treatment assignment.

### Conclusions

Although promising, results are limited by the small sample size, restrictive baseline assessment, and inability to evaluate effects on suicidal behaviors or disaggregate based on history of suicidal behaviors. Replication is needed in larger samples with comprehensive baseline assessments, longer-term follow-ups, and more extensive outcomes.

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<https://www.sciencedirect.com/science/article/abs/pii/S0165178119317305>

**Leader provided purpose: Military leadership behavior and its association with suicidal ideation.**

Benjamin Trachik, Raymond P. Tucker, Michelle L. Ganulin, Julie C. Merrill, ... Michael N. Dretsch

Psychiatry Research

Available online 9 December 2019

<https://doi.org/10.1016/j.psychres.2019.112722>

### Highlights

- This study assessed the relationship between military leadership behavior and SI.
- Leader provided purpose (LPP) was associated with decreased past-year SI.
- This finding operated through thwarted-belongingness and perceived-burdensomeness.
- LPP may also reduce risk for both SI and TB through increases in unit cohesion.
- Continued research may inform novel public health approaches to mitigate suicide.

### Abstract

Suicide in U.S. Army Soldiers is of major concern as it is estimated that over 100 Soldiers die by suicide each year. Examining risk and protective factors is essential to develop both an understanding of Soldier suicide as well as inform systemic interventions to reduce suicide. One potential systemic approach is to embed preventive mechanisms within the structure of the military rather than the typical administration of primary intervention through mandatory training. To examine potential mechanisms of leader-based interventions, several leadership behaviors were assessed in a cross-sectional sample of  $n = 1,096$  active duty Soldiers. Soldiers completed self-report measures of interpersonal predictors of suicide, suicidal ideation (SI), leadership behaviors, and unit cohesion. Logistic regression was used to identify leadership behaviors related to SI. Only the leader behavior attempting to foster a sense of purpose predicted SI. Leader provided purpose (LPP) was then entered into indirect effect analyses to evaluate the mechanisms of this relationship. Analyses revealed that LPP predicted SI through unit cohesion, thwarted belongingness, and perceived burdensomeness. Results demonstrate that specific aspects of military leadership such as fostering Soldier purpose may enhance resilience and reduce risk for SI.

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<https://academic.oup.com/painmedicine/advance-article-abstract/doi/10.1093/pm/pnz235/5670777>

## **Morning Bright Light Treatment for Chronic Low Back Pain: Potential Impact on the Volatility of Pain, Mood, Function, and Sleep.**

John W Burns, James Gerhart, Muneer Rizvydeen, Momoko Kimura, Helen J Burgess

Pain Medicine,

Published: 09 December 2019

<https://doi.org/10.1093/pm/pnz235>

### Objectives

Most treatment outcome studies for people with chronic low back pain (CLBP) have based analyses on and reported only the mean levels of these factors. However, high levels of pain, mood, function, and sleep volatility may represent unique factors contributing to diminished quality of life. Our goal was to determine whether bright light treatment affected both mean levels of pain, mood, function, and sleep and reduced volatility in these outcomes.

### Methods

US military veterans with CLBP (N = 22) underwent an open trial with a seven-day baseline, followed by 13 days of a one-hour morning bright light treatment self-administered at their home and a 30-day follow-up. Participants completed daily diary measures at 12 PM and 6 PM every day during the three study epochs.

### Results

Using location scale modeling, results suggested that, in addition to being associated with changes in mean levels of pain intensity, pain interference, negative affect, and sleep quality, bright light treatment was also related to reductions in the volatility of pain intensity and negative affect, reductions that were largely maintained during follow-up.

### Conclusions

Changes in mean levels and volatility were independent factors, suggesting that bright light treatment was related to participants experiencing fewer “pain flares.” These findings underscore the potential importance of volatility as a future treatment target.

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## **Adverse Childhood Experience, Genes, and PTSD Risk in Soldiers: A Methylation Study.**

Michael R Hossack, MD, USAF, MC, Matthew W Reid, PhD, James K Aden, PhD, Thomas Gibbons, PhD, GS-14, DAF MT, ASCP, MS CLS, Jody C Noe, MT (ASCP), PhD, Adam M Willis, MD, PhD, MC, FS, USAF

Military Medicine

Published: 09 December 2019

<https://doi.org/10.1093/milmed/usz292>

### Introduction

Epigenetics can serve as a marker of susceptibility to many known psychiatric diseases. DNA methylation patterns of multiple genes have been studied in both civilian populations and military personnel with post-traumatic stress disorder (PTSD). Many of these genes serve various functions that span the hypothalamic-pituitary-adrenal axis, immune system, and central nervous system (CNS) growth factors and neurotransmission. It is thought that the methylation levels of such genes may be able to identify individuals who are at higher risk of developing PTSD. Our study seeks to establish whether previously reported PTSD genes possess a particular methylation pattern that is predictive of PTSD in active duty military members with combat exposure.

### Materials and Methods

This is an institutional review board (IRB)-approved, cross-sectional, case control, gene-environment interaction study. About 170 active military members with and without PTSD were recruited. Patients with a history of structural brain damage, traumatic brain injury (TBI) resulting in loss of consciousness, predeployment diagnosis of PTSD or anxiety disorder, and predeployment prescription of an antidepressant or psychoactive medication were excluded. Validated measures of childhood trauma and adversity (adverse childhood experience [ACE] score), PTSD symptoms (PTSD check-list military version [PCL-M]), and combat exposure scales (CES) were measured via validated questionnaires for all subjects. After extracting DNA from peripheral blood provided by the 170 subjects, we determined methylation percentages, via pyrosequencing assays, for nine target areas within the following seven genes: BDNF, NR3C1, MAN2C1, TLR8, SLC6A4, IL-18, and SKA2. These genes are commonly reported in the literature as being highly correlated with PTSD and early-life traumatic experiences.



Methylation levels were measured as a percentage at specific sites within the previously mentioned genes. Data were examined with SPSS v 22.0 Statistics and JMP v13.1 software using a general linear model for methylation × trauma (CES scores) split by diagnosis of PTSD or not, methylation versus childhood trauma (ACE scores), and methylation versus PTSD severity (PCL-M score). Two-way ANOVA was performed to control for antidepressant use. A two-tailed Student t-test was performed for PTSD analyses and was correlated with PTSD diagnosis, demographic information as well as ACE score, PCL-M score, and CES scores.

## Results

Differentially methylated sites that were highly associated with PTSD diagnosis were found in three of seven candidate genes: BDNF, NR3C1, and MAN2C1. When compared to controls, patients with PTSD diagnosis had significantly lower levels of methylation, even after controlling for antidepressant use. PCL-M, ACE, and CES scores were significantly associated with PTSD diagnosis.

## Conclusion

Our study suggests that methylation of key genes involved in synaptic plasticity and the hypothalamic-pituitary-adrenal axis is associated with lower levels of methylation in military PTSD subjects exposed to combat when compared to their non-PTSD counterparts. Strengths of this study include controlling for antidepressant use and excluding TBI patients. Similar studies in an active duty population of this size are scarce. What is not clear is whether methylation changes are driving PTSD symptomology or whether they are merely a marker of disease. Future areas of research include prospective studies that measure methylation pre- and postcombat exposure in the same individual.

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<https://jamanetwork.com/journals/jama/article-abstract/2757430>

## **Mild Traumatic Brain Injury in 2019-2020.**

Silverberg ND, Duhaime A, Iaccarino MA

JAMA

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<https://doi.org/10.1001/jama.2019.18134>

Traumatic brain injuries (TBIs) range in severity, including transient symptoms and fatal hemorrhages. Mild TBI (mTBI) is the most common type of TBI, resulting in approximately 2.5 million emergency department visits per year in the United States.<sup>1</sup> The highest rates of mTBI are observed in adults older than 75 years (2232/100 000 population), children younger than 5 years (1592/100 000 population), and adolescents/young adults aged 15 to 24 years (1081/100 000 population), with an 18% to 19% higher age-adjusted rate in men than in women.<sup>1</sup> Definitions of mTBI vary; the World Health Organization Neurotrauma Task Force defines mTBI as a blow to or jolting of the head causing an acute disruption of brain function, manifested by a brief loss of consciousness (<30 minutes), confusion, or posttraumatic amnesia (<24 hours) not accounted for by factors such as psychological trauma or alcohol/drug intoxication.<sup>2</sup> mTBI typically results in physical, cognitive, and/or emotional symptoms that can worsen transiently with mental or physical exertion (Figure). Previously thought of as a benign and self-limiting injury, it is now well established that mTBI can result in symptoms and disability persisting for more than 1 year.<sup>3</sup> Therefore, current practice consists of monitoring symptom resolution by a health care professional, counseling on return to activity, and timely specialty referral (Figure).

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<https://onlinelibrary.wiley.com/doi/abs/10.1002/jts.22462>

**Posttraumatic Stress Disorder Severity and Insomnia-Related Sleep Disturbances: Longitudinal Associations in a Large, Gender-Balanced Cohort of Combat-Exposed Veterans.**

Journal of Traumatic Stress

First published: 04 December 2019

<https://doi.org/10.1002/jts.22462>

Few studies have investigated the range and severity of insomnia-related sleep complaints among veterans with posttraumatic stress disorder (PTSD), and the temporal association between insomnia and PTSD severity has yet to be examined. To examine these associations, a large, gender-balanced cohort of veterans (N = 1,649) of the Iraq and Afghanistan conflicts participated in longitudinal assessments of PTSD and insomnia-related symptoms over a period of 2.5 years following enrollment (range: 2–4 years). Data were obtained from multiple sources, including interviews, self-report assessments, and electronic medical record data. Three-fourths (74.0%) of veterans with PTSD diagnoses at Time 1 (T1) reported insomnia-related sleep difficulties on at least half the nights during the past 30 days, and one-third of participants had received

a prescription for a sedative-hypnotic drug in the past year. Veterans without PTSD had fewer sleep problems overall, although the prevalence of sleep problems was high among all study participants. In longitudinal, cross-lagged panel models, the frequency of sleep problems at T1 independently predicted increases in PTSD severity at Time 2 (T2),  $B = 0.27$ ,  $p < .001$ , after controlling for gender and relevant comorbidities. Conversely, T1 PTSD severity was associated with increasing sleep complaints at T2 but to a lesser degree,  $B = 0.04$ ,  $p < .001$ . Moderately high rates of sedative-hypnotic use were seen in veterans with PTSD, with more frequent use in women compared to men (40.4% vs. 35.0%). Sleep complaints were highly prevalent overall and highlight the need for increased clinical focus on this area.

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<https://onlinelibrary.wiley.com/doi/abs/10.1002/jts.22454>

### **ICD-11 Posttraumatic Stress Disorder and Complex Posttraumatic Stress Disorder in the United States: A Population-Based Study.**

Cloitre, M., Hyland, P., Bisson, J.I., Brewin, C.R., Roberts, N.P., Karatzias, T. and Shevlin, M.

Journal of Traumatic Stress

First published: 04 December 2019

<https://doi.org/10.1002/jts.22454>

The primary aim of this study was to provide an assessment of the current prevalence rates of International Classification of Diseases (11th rev.) posttraumatic stress disorder (PTSD) and complex PTSD (CPTSD) among the adult population of the United States and to identify characteristics and correlates associated with each disorder. A total of 7.2% of the sample met criteria for either PTSD or CPTSD, and the prevalence rates were 3.4% for PTSD and 3.8% for CPTSD. Women were more likely than men to meet criteria for both PTSD and CPTSD. Cumulative adulthood trauma was associated with both PTSD and CPTSD; however, cumulative childhood trauma was more strongly associated with CPTSD than PTSD. Among traumatic stressors occurring in childhood, sexual and physical abuse by caregivers were identified as events associated with risk for CPTSD, whereas sexual assault by noncaregivers and abduction were risk factors for PTSD. Adverse childhood events were associated with both PTSD and CPTSD, and equally so. Individuals with CPTSD reported substantially higher psychiatric burden and lower levels of psychological well-being compared to those with PTSD and those with neither diagnosis.

See also: [Complex Posttraumatic Stress Disorder: Still Going Strong After All These Years.](#) (Commentary)

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<https://www.ncbi.nlm.nih.gov/pubmed/31804109>

Psychol Trauma. 2019 Dec 5. doi: 10.1037/tra0000535. [Epub ahead of print]

**Direct and indirect effects of mindfulness, PTSD, and depression on self-stigma of mental illness in OEF/OIF veterans.**

Barr N, Davis JP, Diguseppi G, Keeling M, Castro C

**OBJECTIVE:**

Two of the most common and costly mental health diagnoses among military veterans who served in the post-9/11 conflicts in Afghanistan and Iraq are posttraumatic stress disorder (PTSD) and depression, but over half of veterans who screen positive for these problems do not seek treatment. A key barrier is self-stigma of mental illness. Mindfulness has shown promise as an explanatory variable in the context of mental health symptoms and self-stigma, but these associations are underexplored in the veterans' literature. This study examines direct and indirect effects among mindfulness, PTSD and depression, and self-stigma in post-9/11-era military veterans.

**METHOD:**

A sample of 577 veterans from 3 large American cities completed surveys capturing mindfulness, symptoms of PTSD and depression, and self-stigma. A structural equation modeling approach was used to examine direct and indirect effects among study variables.

**RESULTS:**

Mindfulness was associated with less PTSD and depression and indirectly with less self-stigma through the PTSD pathway. PTSD was associated with more depression and self-stigma, and depression was not significantly associated with self-stigma.

**CONCLUSION:**

PTSD is strongly associated with self-stigma in military veterans, many of whom do not seek mental health treatment. Findings show that mindfulness is a promising intervention target for reducing symptoms of PTSD directly and reducing associated

self-stigma of mental illness indirectly. Additional investigation of links between mindfulness, PTSD and depressive symptoms, and self-stigma in military veterans is warranted. (PsycINFO Database Record (c) 2019 APA, all rights reserved).

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<https://www.sciencedirect.com/science/article/abs/pii/S037687161930571X>

## **Prescription Opioid Misuse among Heterosexual versus Lesbian, Gay, and Bisexual Military Veterans: Evidence from the 2015-2017 National Survey of Drug Use and Health.**

Kaston D. Anderson-Carpenter, Jaleah D. Rutledge, Koi Mitchell

Drug and Alcohol Dependence

Available online 10 December 2019

<https://doi.org/10.1016/j.drugalcdep.2019.107794>

### Highlights

- Bisexual veterans have elevated risks of prescription opioid misuse.
- Bisexual women veterans are especially at risk for opioid misuse.
- Older veterans endorse lower odds of lifetime but not past 12-month opioid misuse.

### Abstract

#### Background

Little research examines risks of opioid misuse among military veterans, particularly among minority military veterans. The present study examines lifetime and past 12-month prescription opioid misuse among heterosexual versus non-heterosexual military veterans in the United States.

#### Method

Participants comprised 9,729 U.S. military veterans aged 18 and older who completed the 2015-2017 National Survey on Drug Use and Health (NSDUH). Sample weights were applied to yield nationally representative estimates in the target population. Design-based multivariable logistic regression analysis was used to examine associations between sociodemographic characteristics and risk of prescription opioid misuse.

## Results

Bisexual veterans reported greater lifetime odds of having misused prescription opioids in their lives compared to their heterosexual peers (AOR: 4.04, 95% CI: 1.72-5.38). However, only bisexual women veterans reported elevated risk past 12-month misuse (AOR: 3.47, 95% CI: 1.28, 9.41). Although veterans aged 50 and older reported lower risk of lifetime prescription opioid misuse relative to 18-34 year olds (AOR: 0.33, 95% CI: 0.25-0.44), older veterans showed greater risk of past 12-month misuse (AOR: 1.23, 95% CI: 1.02-1.49)

## Discussion

To our knowledge, this study is the first to systematically examine differential risk factors of prescription opioid misuse between heterosexual and non-heterosexual military veterans. Results from this study suggest a critical need for greater investigations into the specific risks of opioid-related substance use for military veterans. This study highlights areas of research and practice that can improve health outcomes for military veterans and their communities.

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<https://academic.oup.com/milmed/advance-article/doi/10.1093/milmed/usz423/5673072>

## **A Cross-Sectional Examination of the Association Between Social Media Use and Sleep Among a Sample of U.S. Army Soldiers.**

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Military Medicine

Published: 10 December 2019

<https://doi.org/10.1093/milmed/usz423>

## Introduction:

In the United States (U.S.), approximately 35% of adults sleep less than 7 hours per night. The relationship between social media use and insufficient sleep has not thoroughly been examined among adults. The purpose of this study was to determine if social media use is associated with insufficient sleep among a sample of U.S. Army Soldiers.

#### Methods:

This study surveyed 9,052 U.S. Soldiers in 2018 via a self-administered online questionnaire. Using multivariable logistic regression, we examined the association between social media use (<38 hours vs. ≥38 hours per week) and insufficient sleep, controlling for demographic and behavioral covariates.

#### Results:

Overall, 54.9% of Soldiers reported insufficient sleep. There was no significant relationship between excessive social media use and insufficient sleep in the multivariable logistic regression (OR: 1.03; CI: 0.87–1.23). The covariates of sex, race/ethnicity, rank, hazardous alcohol consumption, anxiety, and depression were significantly associated with insufficient sleep. Soldiers who reported symptoms of anxiety were more than twice as likely (OR: 2.11; CI: 1.65–2.70) to report insufficient sleep than Soldiers without signs of anxiety. Additionally, Soldiers who reported depressive symptoms were 85% (OR: 1.85; CI: 1.44–2.37) more likely to experience insufficient sleep than Soldiers without signs of depression.

#### Conclusion:

Sufficient sleep is essential to ensuring mission readiness and preventing accidental morbidity and mortality among Soldiers. The findings of this analysis do not suggest a link between extended social media use and insufficient sleep. However, though previously uninvestigated, Soldiers reporting symptoms of anxiety and depression were more likely to experience insufficient sleep compared to unafflicted Soldiers. Therefore developing a culture that encourages Soldiers to seek necessary behavioral health screening and care could be a key primary strategy to promote adequate sleep.

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<https://onlinelibrary.wiley.com/doi/abs/10.1002/jcop.22294>

#### **Family Readiness Groups: Helping deployed Army National Guard soldiers and their families.**

James Griffith

Journal of Community Psychology  
First published: 09 December 2019  
<https://doi.org/10.1002/jcop.22294>



Many have espoused the benefits of Family Readiness Groups (FRGs) for families of deployed soldiers. These include fostering family well-being (main effect) and buffering the family against the negative effects of stressful life events (moderating effect). Yet, few published studies have tested these hypothesized relationships. Survey responses gathered from returning deployed Army National Guard soldiers (N = 4,568 soldiers in 50 company-sized units) gave the opportunity to test hypothesized benefits of FRGs, both main and buffering effects. Half the sample of soldiers reported their families as having used FRGs. Two-thirds of the soldiers reported FRGs as being helpful to their families. On the whole, results supported hypotheses: More effective coping among family members was associated with FRG use (main effect), and FRGs appeared most beneficial to spouses who experienced more stressful events (buffering effect). FRG use and its associations with helpfulness to family and with family coping suggest FRGs are important resources for families of deployed soldiers, in particular, for families of reservists. Future directions for research and practice are proposed.

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<https://link.springer.com/article/10.1134/S1819712419030127>

### **The Possible Mechanism of the Appearance of Nightmares in Post-Traumatic Stress Disorder and Approaches to Their Prevention.**

I. G. Silkis

Neurochemical Journal

October 2019, Volume 13, Issue 4, pp 320–334

<https://doi.org/10.1134/S1819712419030127>

It is hypothesized that the basis of nightmares in post-traumatic stress disorder (PTSD) is modification of synaptic transmission in neural circuits that contain one of the following structures: the visual cortex, prefrontal cortex (PFC), basolateral amygdala (BLA), hippocampus, connected with them nuclei of the thalamus and basal ganglia (BG). The emergence of dreams is promoted by the induction of long-term potentiation of excitatory inputs to the striatonigral cells and the long-term depression of the inputs to the striatopallidal cells that are connected with the visual cortex, and give rise, respectively, to a direct and indirect path way through the BG. This leads to synergistic disinhibition of certain groups of neurons in the thalamus by the output BG nuclei and the formation of activity patterns that reflect dream content in the areas of the visual cortex and hippocampus, which are connected with thalamus. The occurrence of emotionally negative episodes in dreams is a consequence of an increase in BLA



activity during PTSD, whose signals are summed with the signals from the hippocampus and PFC on the neurons of the ventral striatum. This mechanism suggests that, in order to prevent nightmares, it is necessary to induce long-term depression of the excitatory inputs to the neurons of the limbic structures and to the striatonigral cells. It is undesirable to act on the receptors on the striatopallidal cells because it may simultaneously induce long-term potentiation of the excitatory inputs to the neurons of PFC, BLA, and hippocampus, which have receptors of the same types. Given the data on the types of receptors on striatal neurons, it follows from the modulation rules we earlier formulated that nightmares may be prevented by antagonists of dopamine D1 receptor and alpha1 adrenoceptor and agonists of glucocorticoid, serotonin 5-HT1B, and cannabinoid CB1 receptors. The use of mineralocorticoid and serotonin 5-HT2A receptor agonists, as well as antagonists of alpha2 adrenoreceptors and dopamine D2 receptors (which are part of some antidepressants and antipsychotics) is undesirable in order to avoid side effects. The treatment should be short-term and used only at bedtime, to avoid impairments of physical activity and sensory perception in the awake state. The consequences of the proposed mechanism are consistent with the known results of clinical studies.

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<https://link.springer.com/article/10.1007/s12144-019-00478-5>

### **Mechanisms of change in psychological interventions for posttraumatic stress symptoms: A systematic review with recommendations.**

Samuli Kangaslampi, Kirsi Peltonen

Current Psychology

First Online: 10 December 2019

<https://doi.org/10.1007/s12144-019-00478-5>

Psychological interventions can alleviate posttraumatic stress symptoms (PTSS). However, further development of treatment approaches calls for understanding the mechanisms of change through which diverse interventions affect PTSS. We systematically searched the literature for controlled studies of mechanisms of change in psychological interventions for PTSS. We aimed to detect all empirically studied mechanisms and evaluate the level of evidence for their role in the alleviation of PTSS. We identified 34 studies, of which nine were among children. We found evidence for improvements in maladaptive posttraumatic cognitions as a general mechanism of change involved in diverse interventions, among both adults and children. We also

found some preliminary evidence for increases in mindfulness as a mechanism of change in mindfulness- and spiritually-oriented interventions among adults. We found scant, mixed empirical evidence for other mechanisms of change. Notably, studies on changes in traumatic memories as a mechanism of change were lacking, despite clinical emphasis on their importance. A major limitation across reviewed studies was that most could not establish temporal order of changes in mechanisms and PTSS. Including thorough analyses of mechanisms of change beyond cognitions in all future trials and improving the reporting of findings would aid the development and implementation of even more effective interventions.

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<https://link.springer.com/article/10.1186/s12888-019-2375-1>

### **Longitudinal trajectories of comorbid PTSD and depression symptoms among U.S. service members and veterans.**

Richard F. Armenta, Kristen H. Walter, Toni Rose Geronimo-Hara, Ben Porter, Valerie A. Stander, Cynthia A. LeardMann for the Millennium Cohort Study Team

BMC Psychiatry

December 2019, 19:396

<https://doi.org/10.1186/s12888-019-2375-1>

#### Background

Posttraumatic stress disorder (PTSD) often co-occurs with other psychiatric disorders, particularly major depressive disorder (MDD). The current study examined longitudinal trajectories of PTSD and MDD symptoms among service members and veterans with comorbid PTSD/MDD.

#### Methods

Eligible participants (n = 1704) for the Millennium Cohort Study included those who screened positive at baseline for both PTSD (PTSD Checklist–Civilian Version) and MDD (Patient Health Questionnaire). Between 2001 and 2016, participants completed a baseline assessment and up to 4 follow-up assessments approximately every 3 years. Mixture modeling simultaneously determined trajectories of comorbid PTSD and MDD symptoms. Multinomial regression determined factors associated with latent class membership.

## Results

Four distinct classes (chronic, relapse, gradual recovery, and rapid recovery) described symptom trajectories of PTSD/MDD. Membership in the chronic class was associated with older age, service branch, deployment with combat, anxiety, physical assault, disabling injury/illness, bodily pain, high levels of somatic symptoms, and less social support.

## Conclusions

Comorbid PTSD/MDD symptoms tend to move in tandem, and, although the largest class remitted symptoms, almost 25% of participants reported chronic comorbid symptoms across all time points. Results highlight the need to assess comorbid conditions in the context of PTSD. Future research should further evaluate the chronicity of comorbid symptoms over time.

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<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2757371>

## **Health Outcomes Among Long-term Opioid Users With Testosterone Prescription in the Veterans Health Administration.**

Jasuja GK, Ameli O, Reisman JI, et al.

JAMA Netw Open

2019; 2(12):e1917141

<https://doi.org/10.1001/jamanetworkopen.2019.17141>

## Key Points

### Question

What are the health outcomes among long-term opioid users who receive testosterone treatment compared with opioid users who do not?

### Findings

In this cohort study of 21 272 male long-term opioid users with testosterone deficiency, those who received opioids plus testosterone therapy had significantly lower all-cause mortality and lower incidence of major adverse cardiovascular events, anemia, and femoral or hip fractures than their counterparts who received opioids only in covariate-adjusted and propensity score–matched models.

## Meaning

This study's findings suggest that receiving opioids plus testosterone treatment is associated with lower all-cause mortality and a lower incidence of other adverse health outcomes among men with opioid-induced androgen deficiency.

## Abstract

### Importance

Androgen deficiency is common among male opioid users, and opioid use has emerged as a common antecedent of testosterone treatment. The long-term health outcomes associated with testosterone therapy remain unknown, however.

### Objective

To compare health outcomes between long-term opioid users with testosterone deficiency who filled testosterone prescriptions and those with the same condition but who did not receive testosterone treatment.

### Design, Setting, and Participants

This cohort study focused on men in the care of the Veterans Health Administration (VHA) facilities throughout the United States from October 1, 2008, to September 30, 2014. It included male veterans who were long-term opioid users, had low testosterone levels (<300 ng/dL), and received either a testosterone prescription or any other prescription. It excluded male patients with HIV infection, gender dysphoria, or prostate cancer and those who received testosterone in fiscal year 2008. Data were analyzed from April 1, 2017, to April 30, 2019.

### Exposure

Prescription for testosterone.

### Main Outcomes and Measures

All-cause mortality and incidence of major adverse cardiovascular events (MACE), vertebral or femoral fractures, and anemia during the 6-year follow-up through September 30, 2015.

### Results

After exclusions, 21 272 long-term opioid users (mean [SD] age, 53 [10] years; n = 16 689 [78.5%] white) with low total or free testosterone levels were included for analysis, of whom 14 121 (66.4%) received testosterone and 7151 (33.6%) did not. At baseline, compared with opioid users who did not receive testosterone, long-term opioid users who received testosterone treatment were more likely to have obesity (43.7% vs 49.0%;  $P < .001$ ), hyperlipidemia (43.0% vs 48.8%;  $P < .001$ ), and hypertension (53.9% vs

55.2%;  $P = .07$ ) but had lower prevalence of coronary artery disease (15.9% vs 12.9%;  $P < .001$ ) and stroke (2.4% vs 1.3%;  $P < .001$ ). After adjusting for covariates, opioid users who received testosterone had significantly lower all-cause mortality (hazard ratio [HR] = 0.51; 95% CI, 0.42-0.61) and lower incidence of MACE (HR = 0.58; 95% CI, 0.51-0.67), femoral or hip fractures (HR = 0.68; 95% CI, 0.48-0.96), and anemia (HR = 0.73; 95% CI, 0.68-0.79) during the follow-up period of up to 6 years, compared with their counterparts without a testosterone prescription. In covariate-adjusted models, men who received opioids plus testosterone were more likely to have resolved anemia compared with those who received opioids only during the 6-year follow-up (HR = 1.16; 95% CI, 1.02-1.31). Similar results were obtained in propensity score–matched models and when analyses were restricted to opioid users with noncancer pain or those who did not receive glucocorticoids.

### Conclusions and Relevance

This study found that, in the VHA system, male long-term opioid users with testosterone deficiency who were treated with opioid and testosterone medications had significantly lower all-cause mortality and significantly lower incidence of MACE, femoral or hip fractures, and anemia after a multiyear follow-up. These results warrant confirmation through a randomized clinical trial to ascertain the efficacy of testosterone in improving health outcomes for opioid users with androgen deficiency.

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[https://journals.lww.com/jonmd/Abstract/2020/01000/Childhood\\_Trauma\\_and\\_Childhood\\_Mental\\_Disorder\\_in.3.aspx](https://journals.lww.com/jonmd/Abstract/2020/01000/Childhood_Trauma_and_Childhood_Mental_Disorder_in.3.aspx)

### **Childhood Trauma and Childhood Mental Disorder in Military and Employed Civilian Men.**

Syed Sheriff, Rebecca; Van Hooff, Miranda; Malhi, Gin; Grace, Blair; McFarlane, Alexander

The Journal of Nervous and Mental Disease  
January 2020 - Volume 208 - Issue 1 - p 13–20  
<https://doi.org/10.1097/NMD.0000000000001072>

We aimed to retrospectively investigate childhood trauma and childhood mental disorder in military and employed civilian men aged 18 to 54 years. Data, derived from the 2010 Australian Defence Force (ADF) Mental Health Prevalence and Wellbeing Study and the 2007 Australian Bureau of Statistics National Survey of Mental Health

and Wellbeing Study, were analyzed and compared using direct age standardization and logistic regression. A greater proportion of ADF reported childhood trauma, multiple trauma types, trauma onset below 12 years of age, and interpersonal trauma than civilian employed men. A greater proportion of ADF reported childhood noninterpersonal trauma, such as accidents, than civilian employed men, with a marked difference in those aged 45 to 54 years. In both populations, childhood disorder was associated with childhood trauma; however, childhood depression was not associated with childhood noninterpersonal trauma in either population. A deeper understanding of the longer-term risk and resilience conferred by different childhood trauma profiles is needed.

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[https://journals.lww.com/ionmd/Abstract/2020/01000/Examining\\_the\\_Overlap\\_Between\\_Moral\\_Injury\\_and.2.aspx](https://journals.lww.com/ionmd/Abstract/2020/01000/Examining_the_Overlap_Between_Moral_Injury_and.2.aspx)

### **Examining the Overlap Between Moral Injury and PTSD in US Veterans and Active Duty Military.**

Koenig, Harold G.; Youssef, Nagy A.; Ames, Donna; Teng, Ellen J.; Hill, Terrence D.

The Journal of Nervous and Mental Disease

208(1):7-12, January 2020

<https://doi.org/10.1097/NMD.0000000000001077>

Moral injury (MI) is a syndrome thought to be separate from posttraumatic stress disorder (PTSD), yet having some overlap. To determine the overlap, we examined the relationship between MI and the four DSM-5 PTSD symptom clusters (B, C, D, E) in US veterans and active duty military (ADM). The 45-item Moral Injury Symptom Scale (MISS-M) was administered to 591 veterans and ADM who had served in a combat theater and had PTSD symptoms. PTSD symptoms were measured with the PTSD Symptom Checklist-5, which assesses the four PTSD symptom clusters. Total MISS-M scores were more strongly associated with PTSD symptom cluster D (negative cognitions and emotions) in both bivariate and multivariate analyses. Findings for a 10-item version of the MISS-M (MISS-M-SF) closely followed those of the MISS-M. Although the overlap between MI and PTSD occurs to some extent across all PTSD symptoms clusters, the largest overlap tends to be with the negative cognitions and emotions cluster.

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<https://www.ncbi.nlm.nih.gov/pubmed/31770093>

J Clin Sleep Med. 2019 Nov 26. pii: jc-19-00300. [Epub ahead of print]

**A pilot randomized controlled trial of cognitive behavioral treatment for trauma-related nightmares in active duty military personnel.**

Pruiksma KE, Taylor DJ, Mintz J, Nicholson KL, Rodgers M, Young-McCaughan S, Hall-Clark BN, Fina BA, Dondanville KA, Cobos B, Wardle-Pinkston S, Litz BT, Roache JD, Peterson AL; STRONG STAR Consortium.

**STUDY OBJECTIVES:**

The aim of this study was to obtain preliminary data on the efficacy, credibility, and acceptability of Exposure, relaxation, and rescripting therapy for military service members and veterans (ERRT-M) in active duty military personnel with trauma-related nightmares.

**METHODS:**

Forty participants were randomized to either 5 sessions of ERRT-M or 5 weeks of minimal contact control (MCC) followed by ERRT-M. Assessments were completed at baseline, posttreatment/postcontrol, and 1-month follow-up.

**RESULTS:**

Differences between ERRT-M and control were generally medium in size for nightmare frequency (Cohen  $d = -0.53$ ), nights with nightmares ( $d = -0.38$ ), nightmare severity ( $d = -0.60$ ), fear of sleep ( $d = -0.44$ ), and symptoms of insomnia ( $d = -0.52$ ), and depression ( $d = -0.51$ ). In the 38 participants who received ERRT-M, there were statistically significant, medium-sized decreases in nightmare frequency ( $d = -0.52$ ), nights with nightmares ( $d = -0.50$ ), nightmare severity ( $d = -0.55$ ), fear of sleep ( $d = -0.48$ ), and symptoms of insomnia ( $d = -0.59$ ), posttraumatic stress disorder (PTSD) ( $d = -0.58$ ) and depression ( $d = -0.59$ ) from baseline to 1-month follow-up. Participants generally endorsed medium to high ratings of treatment credibility and expectancy. The treatment dropout rate (17.5%) was comparable to rates observed for similar treatments in civilians.

**CONCLUSIONS:**

ERRT-M produced medium effect-size reductions in nightmares and several secondary outcomes including PTSD, depression, and insomnia. Participants considered ERRT-M to be credible. An adequately powered randomized clinical trial is needed to confirm findings and to compare ERRT-M to an active treatment control.



CLINICAL TRIAL REGISTRATION:

Registry: ClinicalTrials.gov; Title: A Pilot Randomized Controlled Trial of Treatment for Trauma-Related Nightmares In Active Duty Military Personnel; Identifier: NCT02506595; URL: <https://clinicaltrials.gov/ct2/show/NCT02506595>.

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<https://www.sciencedirect.com/science/article/abs/pii/S1087079219302163>

**Comparative efficacy of imagery rehearsal therapy and prazosin in the treatment of trauma-related nightmares in adults: A meta-analysis of randomized controlled trials.**

Dilan E. Yücel, Arnold A.P. van Emmerik, Camille Souama, Jaap Lancee

Sleep Medicine Reviews

Volume 50, April 2020

<https://doi.org/10.1016/j.smr.2019.101248>

Pharmacological treatment with prazosin and psychological treatment with imagery rehearsal therapy (IRT) are the two main treatments of posttraumatic nightmares. The American Academy of Sleep Medicine task force recently listed IRT as the recommended treatment for trauma-related nightmares and changed the recommendation of prazosin to 'may be used'. This new recommendation was based on a single prazosin trial and not on a meta-analytic review of all available trials. The current meta-analysis aims to fill this gap in the literature. Eight studies on IRT and seven studies on prazosin (N = 1.078) were analyzed based on the random effects model. Relative to control groups, prazosin had a moderate to large effect on nightmare frequency (g = 0.61), posttraumatic stress symptoms (g = 0.81), and sleep quality (g = 0.85). IRT showed small to moderate effects on nightmare frequency (g = 0.51), posttraumatic symptoms (g = 0.31), and sleep quality (g = 0.51). No significant differences in effect were observed between prazosin and IRT on any of these outcomes (all p's > 0.10). It is concluded that downgrading the recommendation of prazosin may be a premature decision and that the aggregated results in this meta-analysis clearly show efficacy of both treatments.

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## **Intensive, Multi-Couple Group Therapy for PTSD: A Nonrandomized Pilot Study With Military and Veteran Dyads.**

Steffany J. Fredman, Alexandra Macdonald, Candice M. Monson, Katherine A. Dondanville, ... Alan L. Peterson

Behavior Therapy

Available online 27 November 2019

<https://doi.org/10.1016/j.beth.2019.10.003>

### Highlights

- Brief, intensive couple therapy for PTSD was piloted in a group format.
- Active-duty and veteran couples with PTSD were treated over a weekend.
- All couples completed treatment.
- Patients' PTSD, depression, anxiety, and anger significantly improved.
- Partners' mental health and relationship satisfaction significantly improved.

### Abstract

Cognitive-behavioral conjoint therapy for posttraumatic stress disorder (CBCT for PTSD; Monson & Fredman, 2012) is efficacious in improving PTSD symptoms and relationship adjustment among couples with PTSD. However, there is a need for more efficient delivery formats to maximize engagement and retention and to achieve faster outcomes in multiple domains. This nonrandomized trial was designed to pilot an abbreviated, intensive, multi-couple group version of CBCT for PTSD (AIM-CBCT for PTSD) delivered over a single weekend for 24 couples that included an active-duty service member or veteran with PTSD who had deployed in support of combat operations following September 11, 2001. All couples completed treatment. Assessments conducted by clinical evaluators 1 and 3 months after the intervention revealed significant reductions in clinician-rated PTSD symptoms ( $d_s = -0.77$  and  $-0.98$ , respectively) and in patients' self-reported symptoms of PTSD ( $d_s = -0.73$  and  $-1.17$ , respectively), depression ( $d_s = -0.60$  and  $-0.75$ , respectively), anxiety ( $d_s = -0.63$  to  $-0.73$ , respectively), and anger ( $d_s = -0.45$  and  $-0.60$ , respectively), relative to baseline. By 3-month follow-up, partners reported significant reductions in patients' PTSD symptoms ( $d = -0.56$ ), as well as significant improvements in their own depressive symptoms ( $d = -0.47$ ), anxiety ( $d = -0.60$ ), and relationship satisfaction ( $d = 0.53$ ), relative to baseline. Delivering CBCT for PTSD through an abbreviated, intensive multi-couple group format may be an efficient strategy for improving patient, partner, and relational well-being in military and veteran couples with PTSD.

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<https://link.springer.com/article/10.1007/s11916-019-0828-3>

## **The Interaction Between Chronic Pain and PTSD.**

Shelley Kind, John D. Otis

Current Pain and Headache Reports

December 2019, 23:91

<https://doi.org/10.1007/s11916-019-0828-3>

### Purpose of Review

Post-traumatic stress disorder (PTSD) and chronic pain often co-occur. Understanding the shared mechanisms, signs to identify PTSD, and treatment options is integral in allowing providers to better serve their patients.

### Recent Findings

Individuals with comorbid PTSD and chronic pain report greater PTSD symptoms, pain, anxiety, depression, disability, and opioid use than those with only one of these conditions. There are several empirically supported therapies for chronic pain, and for PTSD, as well as pilot data for a treatment of comorbid pain and PTSD.

### Summary

The purpose of this paper is to review and synthesize current literature investigating the interaction between chronic pain and PTSD, and provide treatment recommendations for providers treating patients with chronic pain and PTSD.

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<https://www.sciencedirect.com/science/article/abs/pii/S0306460319306999>

## **Risk and protective effects of social networks on alcohol use problems among Army Reserve and National Guard soldiers.**

Erin M. Anderson Goodell, Renee M. Johnson, Carl A. Latkin, D. Lynn Homish, Gregory G. Homish

### Highlights

- Drinking buddies and heavy-drinkers are risk factors for soldiers' alcohol problems.
- Frequent drinking with ties a risk factor for soldiers' alcohol problems.
- Military social ties protective against deployed soldiers' alcohol problems.

### Abstract

#### Background

Military personnel engage in alcohol-related behaviors for a variety of reasons, some of which may be socially-motivated. Although civilian-based research has established that peers' drinking behaviors are correlated with individuals' own drinking behaviors, military work has not yet examined the influence of social network characteristics on soldier drinking behaviors. This study describes characteristics of soldiers' social networks in association with soldier alcohol use problems.

#### Methods

This study includes data on 353 U.S. Reserve and National Guard (R/NG) soldiers and their 2154 past-year social ties. Descriptive analyses examined social tie characteristics (e.g., military affiliation, substance misuse, and drinking influence). Negative binomial regression models examined relationships between social network characteristics and soldier alcohol use problems.

#### Results

On average, 14% of a R/NG soldier's social network was comprised of military-affiliated ties. Further, an average of 14% of ties in a soldier's network were considered drinking buddies, and 8% of ties were heavy-drinkers. More drinking buddies and heavy-drinking ties in a soldier's social network and greater average number of past-month days drinking with ties were associated with increases in soldier alcohol problems. For deployed soldiers, larger military-affiliated social networks were protective against alcohol problems.

#### Conclusions

Drinking-related social network characteristics are associated with increased alcohol problems among soldiers, while military-affiliated ties are protective specifically for deployed soldiers. Interventions to reduce alcohol use problems may focus on

enhancing social connections between R/NG soldiers and providing opportunities to connect deployed R/NG soldiers with one another during and after reintegration.

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<https://www.tandfonline.com/doi/abs/10.1080/08995605.2019.1691406>

**Trauma exposure, mental health, and quality of life among injured service members: Moderating effects of perceived support from friends and family.**

Cameron T. McCabe, Jessica R. Watrous & Michael R. Galarneau

Military Psychology

Published online: 03 Dec 2019

<https://doi.org/10.1080/08995605.2019.1691406>

Poor mental health and quality of life (QOL) are common among service members exposed to trauma and may be more pronounced among those injured on combat deployment. It is vital to identify factors that attenuate these issues. This study examined whether perceived support from friends and family buffer associations between level of trauma exposure, mental health symptoms (i.e., posttraumatic stress disorder [PTSD], depression), and QOL. Military health care records and cross-sectional web-assessment data were collected for 1,643 individuals who were participating in a large-scale surveillance project of patient-reported outcomes of Service members injured on combat deployment. General linear models revealed perceived support from family and friends were independently related to lower depression and PTSD symptoms, and higher QOL. Perceived support from friends buffered associations between trauma exposure and depression symptoms and QOL, but not PTSD symptoms. In contrast, individuals with high family support reported the lowest levels for both PTSD and depression symptoms at low levels of trauma exposure. At high levels of trauma exposure, however, symptoms were similar across levels of family support. A similar trend was observed for QOL. Such evidence reinforces the importance of interpersonal relationships and support for injured service members, and highlights the need to address these topics in existing treatment and rehabilitation programs.

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## Links of Interest

“Not everyone who lost his life in Vietnam died there.”

<https://www.thedickinsonpress.com/obituaries/obits/4825048-William-Ebeltoft>

How this \$121 million may jump-start fixes to military child care needs

<https://www.militarytimes.com/pay-benefits/2019/12/11/how-this-121-million-may-jump-start-fixes-to-military-child-care-needs/>

Congress Wants More Diversity in the Ranks of Military Generals

<https://www.military.com/daily-news/2019/12/11/congress-wants-more-diversity-ranks-military-generals.html>

Could mild brain injuries be affecting good order and discipline? The Pentagon wants to find out

<https://www.militarytimes.com/news/your-military/2019/12/12/could-mild-brain-injuries-be-affecting-good-order-and-discipline-the-pentagon-wants-to-find-out/>

Historic data on military suicide shows no clear link with combat operations

<https://www.militarytimes.com/news/pentagon-congress/2019/12/13/historic-data-on-military-suicide-shows-no-clear-link-with-combat-operations/>

'Bad Paper' Discharges Would Get Final Pentagon Review in Defense Bill

<https://www.military.com/daily-news/2019/12/16/bad-paper-discharges-would-get-final-pentagon-review-defense-bill.html>

Our veterans deserve the well-being that medical cannabis can provide

<https://www.militarytimes.com/opinion/commentary/2019/12/17/our-veterans-deserve-the-well-being-that-medical-cannabis-can-provide/>

Plan to ban tobacco sales to anyone under 21 will hit the military, too

<https://www.militarytimes.com/news/pentagon-congress/2019/12/17/plan-to-ban-tobacco-sales-to-anyone-under-21-will-hit-the-military-too/>

Program aims to keep military veterans from returning to Hillsborough jail

<https://www.tampabay.com/news/hillsborough/2019/12/18/program-aims-to-keep-military-veterans-from-returning-to-hillsborough-jail/>

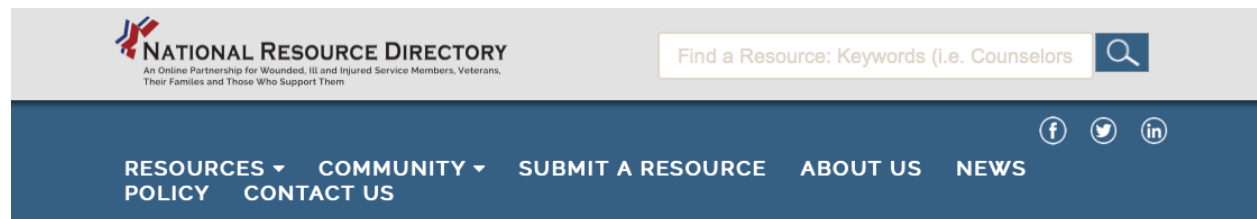
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**Resource of the Week -- [National Resource Directory: An Online Partnership for Wounded, Ill, and Injured Service Members, Veterans, Their Families, and Those Who Support Them](#)**

The National Resource Directory (NRD) is a resource website that connects wounded warriors, Service Members, Veterans, their families, and caregivers to programs and services that support them. The NRD is hosted, managed, maintained, sustained and developed by the Defense Health Agency's Recovery Coordination Program.

It provides access to services and resources at the national, state and local levels to support recovery, rehabilitation and community reintegration. Visitors can find information on a variety of topics that supply an abundance of vetted resources. For help finding resources on the site, visit the How to Use this Site section of the NRD. Please see below for some of our major categories.

The directory currently contains more than 14,000 vetted resources.



**NRD HIGHLIGHTED PROGRAMS FOR OUR MILITARY, VETERANS AND FAMILIES**

The National Resource Directory is a searchable database of resources vetted for the use of service members, veterans, family members and caregivers.



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