



## U.S. Department of Veterans Affairs

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Veterans Health Administration  
*Office of Research & Development*

### Selected highlights of VA research: August — September 2021

#### **Recently published studies**

**Heart rate variability as a biomarker of PTSD treatment response**—Heart rate variability could be a useful predictor of how patients with PTSD will respond to transcranial magnetic stimulation, according to a study by VA Providence researchers. PTSD is linked to problems with autonomic functions, such as elevated heart rate and reduced heart rate variability. Intermittent theta-burst stimulation (iTBS) is a form of transcranial magnetic stimulation, in which a magnetic field is applied to the head to affect brain signals. Researchers examined how well Veterans with PTSD responded to this treatment. Those with less of a reduction in heart rate variability had greater PTSD symptom improvements from iTBS. Measuring abnormalities such as heart rate variability could be a useful way to gauge how patients will react to iTBS, say the researchers. ([Neuromodulation](#), Sept. 27, 2021)

**Cough medicine may reduce flu hospitalizations**—The drug dextromethorphan may reduce hospitalization from the flu, found a Columbia VA study. Dextromethorphan is an over-the-counter cough suppressant. It is sold as Robitussin, Delsym, and several other brands. Researchers looked at data on more than 18,000 Veterans with confirmed flu cases, nearly 3,000 of whom were given dextromethorphan. Those treated with the drug had a 34% reduced risk of being hospitalized. The chances of being hospitalized for a respiratory problem were even lower for treated patients, compared with patients not given the drug. The results suggest that dextromethorphan could be repurposed as a treatment for the flu, say the researchers. ([Pharmacotherapy](#), Aug. 24, 2021)

**Primary care employment support helps Veterans with psychiatric disorders**—Offering employment support in primary care helps Veterans with psychiatric disorders find meaningful employment, found a Tuscaloosa VA Medical Center study. Individual placement and support (IPS) is a program that helps Veterans with disabilities find personally matched work. But many find it stigmatizing to receive this service through mental health care. Some Veterans fear that they will not be able to find employment if their psychiatric needs are disclosed. Researchers studied the effectiveness of IPS integrated with VA primary care. Nearly twice as many IPS participants achieved steady work, compared with controls receiving standard vocational

rehabilitation. IPS participants worked significantly more weeks and earned more income from competitive jobs. The results show that integrating IPS with primary care is feasible and effective, say the researchers. ([Psychiatric Services](#), Sept. 15, 2021)

**Gulf War chemical exposure could cause cell dysfunction**—A combination of toxins can cause cell dysfunction related to Gulf War illness, according to a study by VA New Jersey researchers. Previous studies have suggested that GWI is related to exposure to various toxins during service. Researchers exposed human cells in the lab to three chemicals: a pesticide, an insect repellent, and a nerve gas antitoxin. Service members were commonly exposed to these chemicals during the Gulf War. Exposure to all three together caused mitochondrial dysfunction in the cells. Problems with cell function could cause GWI symptoms such as fatigue, forgetfulness, and muscle pain, according to the researchers. Combined exposure to all three toxins should be examined as a possible cause of GWI, they say. ([Journal of Biochemical and Molecular Toxicology](#), Sept. 15, 2021)

**High altitude may negatively affect brain chemistry**—Living at a higher altitude could negatively affect brain chemistry, found a study by VA Salt Lake City researchers and colleagues. Epidemiological studies have suggested that living at high altitude may be a risk factor for mood disorders, substance abuse, and suicide. The researchers used brain imaging to compare metabolite levels in the brains of patients living in Utah, Massachusetts, and South Carolina. Metabolites are molecules that the brain needs to function properly. Patients in Utah, which is at a higher elevation, had lower levels of several brain metabolites, compared with patients in the two other locations closer to sea level. Larger studies are needed to examine how altitude affects brain chemistry and mental health conditions, according to the researchers. ([Psychiatry Research: Neuroimaging](#), Aug. 30, 2021)

**COVID-19 pandemic has not increased suicide risk in Veterans**—The COVID-19 pandemic has not increased suicidal behavior among Veterans, according to a VA National Center for PTSD study. Many scholars warned that hardships and isolation caused by the pandemic could create a “perfect storm” of suicide risk among vulnerable populations. Researchers surveyed more than 3,000 Veterans in November 2019, and again in November 2020. They found that rates of suicidal thoughts actually decreased by nearly a third during the pandemic, from 10.6% of Veterans surveyed to 7.8%. The number of suicide attempts did not increase during the study period. However, Veterans who contracted COVID-19 were more than twice as likely to report suicidal thoughts than they were before infection. The results suggest that the resiliency of Veterans and increased social support may be protective against suicide risk during a health crisis, according to the researchers. More research is needed into how the physical and social effects of COVID-19 infection may affect suicide, they say. ([JAMA Psychiatry](#), Aug. 25, 2021)

**PTSD treatment improves sleep**—PTSD treatments improve sleep difficulties, according to a review that included a VA Greater Los Angeles researcher. Patients with PTSD often have difficulties with sleep. Researchers reviewed 89 studies on various PTSD treatments. They found that treatments that improved PTSD symptoms also improved sleep. Different types of treatment all led to better sleep. Interventions that specifically targeted sleep were more effective at improving sleep outcomes than other PTSD treatments. The results show that treatments that target sleep improvement may be helpful for patients with PTSD, say the researchers. ([Sleep Medicine](#), Aug. 19, 2021)

**New tool to predict suicide risk**—Durham VA researchers and colleagues created an accurate tool for predicting future suicide attempts. The researchers gathered data from a nationwide study and two smaller Veteran studies, for a total of over 35,000 participants. They developed a tool, the Durham Risk Score, based on psychiatric, social, economic, and health risk factors. The score proved to be a strong predictor of future suicide attempts. It performed well among multiple subgroups, including people of different ethnicities, Veterans, low-income people, and LGBTQ people. The results suggest that the Durham Risk Score represents a significant advancement in suicide risk prediction, say the researchers. ([PLoS Medicine](#), Aug. 5, 2021)

**Gulf War illness symptoms persist 25 years later**—A survey of Gulf War Veterans by Durham VA researchers found evidence of sustained, multi-symptom illness decades after deployment. Researchers surveyed more than 1,000 Veterans of the Gulf War era for Gulf War illness symptoms. Using the Centers for Disease Control and Prevention (CDC) definition of Gulf War illness, 84% of Veterans surveyed had the condition. Under the Kansas criteria, a different measure of the condition, 40% had the condition. Veterans who were deployed had higher odds of having symptoms related to Gulf War illness, compared with non-deployed Veterans. Symptom differences between deployed and non-deployed Veterans have diminished since initial reports. This suggests that definitions of Gulf War illness need to be updated to take into account age-related conditions, say the researchers. ([Life Science](#), Aug. 1, 2021)

### **Ongoing projects**

**VA doctors seek to harness artificial intelligence to target care for sicker Veterans**—VA researchers are using artificial intelligence to identify Veterans at high risk of hospitalization or death. This approach can help ensure these Veterans get the best care possible. One potential approach was described in a [recent article](#) in the journal *PLOS ONE*. The research pinpointed subgroups of high-risk Veterans. The idea was to match patients with the right types of care. The investigators say “this knowledge can support the development of improved VA care programs and strategies to target Veterans’ individual needs.” (09/21/2021)

**[VA grants first diversity, equity, and inclusion research awards](#)**—In July 2021, VA’s Office of Research and Development funded 10 Diversity, Equity and Inclusion (DEI) Research Supplement awards. The awards pair early-career investigators from underrepresented backgrounds with established VA researchers. Among the research topics that were funded: virtual reality to help Veterans with mild cognitive impairment; repurposing existing drugs to treat substance use disorder; and assessing the effects of the X chromosome on autoimmune diseases. “There was a high level of interest,” says ORD’s Dr. Carol Fowler. “We received 20 applications for the first round of DEI Research Supplement awards. Most applications were ranked good-to-excellent and covered a diverse range of topics that are highly relevant to Veterans’ health care needs.” (09/10/2021)

**[MVP study shows effectiveness of genetic screening tool for breast cancer risk](#)**—A study by VA’s Million Veteran Program found that a genetic risk model that has shown promise in other populations of women could accurately predict breast cancer in women Veterans, who may face unique risk factors due to their military service. The tool assesses patients’ DNA for many different genetic variations that, when added together, can elevate a woman’s lifetime risk of breast cancer. Doctors can then tailor screening and preventive care accordingly. The [results](#) appeared in *JCO Precision Oncology*. The researchers now want to learn more about breast cancer risk specifically in minority women Veterans: They aim to use MVP’s large sample of Black Veterans to see which specific locations on the genome are associated with higher risk for Black women. (08/26/2021)

**[VA researcher exploring meditation as a therapy for PTSD](#)**—Dr. Ariel Lang is exploring the use of meditation for PTSD. She directs the [Center of Excellence for Stress and Mental Health](#) at the VA San Diego Healthcare System. Meditation has been linked to a number of benefits, including decreased anxiety and [lower cardiovascular risk](#). But research on the potential benefits of meditation for patients with PTSD has been inconclusive. For some patients, meditation appears to provide strong benefits. But others may not notice a change. Veterans who are interested in meditation, Lang says, should try different types to see which one is most helpful. (08/25/2021)

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