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Virtual Reality & Veterans' Mental Health

SoldierStrong
ACCESS

Introduction

Men and women who serve in the U.S. military can be exposed to jarring, gruesome, and life-threatening situations. Such incidents may have mental health implications. Some veterans, for example, develop post-traumatic stress disorder (PTSD), which can trigger serious, even debilitating, symptoms that may not surface until years after their deployments have ended.

PTSD can be difficult to treat, but a new therapeutic approach using virtual reality technologies shows tremendous promise. Treatments such as Bravemind, an interactive, virtual reality-based exposure therapy tool used in a clinical setting, are now being used to treat PTSD. Tools like these can curb the painful rise in veteran suicides and help men and women with PTSD resume healthy, productive lives.

Continued research and improved access to virtual reality-based tools like Bravemind can go a long way toward addressing the mental health crisis facing the nation's veterans.

Military Service & Mental Health Challenges

Millions of American men and women in uniform have been deployed across the globe over the last several decades:

- Over 2.7 million Americans served in Vietnam, for instance, and 855,000 of them were still alive as of 2016.[1]

- Almost 700,000 U.S. troops participated in the Gulf War.[2]

- And, following the terrorist attacks of September 11, 2001 until September of 2015, 2.77 million service members undertook more than 5.4 million deployments.[3]

Serving across all branches of the armed forces, they defended American freedom and protected U.S. interests and allies. But many brought back with them the mental health scars of military service. In particular, veteran suicide has unfolded as an alarming national trend. As of 2016, the rate of suicide was 1.8 times higher for female veterans than non-veterans and 1.4 times higher for males. The suicide rate among 18- to 34-year-old veterans continues to increase, with 20 current or former service members dying by their own hand each day.[4]

Meanwhile, significant numbers of veterans suffer from military trauma-related PTSD, a serious condition with mental health consequences that can be distressing, disabling, and persistent without timely interventions. Known in past eras as "Shell Shock" or "Battle Fatigue," PTSD can cause veterans to either relive, or struggle to avoid thoughts of, a traumatic event. Symptoms can be triggered by thoughts of the event itself, or by people, places, or other stimuli associated with it.[5]

Veterans suffering from PTSD can undergo changes in how they see the world and themselves. They may become hypervigilant, irritable, and have trouble concentrating or sleeping. PTSD is often associated with suicide, substance abuse, functional impairment, impulsive behavior, and violence, as well as increased use of medical care.

In 2017, the VA announced that the number of disability cases related to PTSD had nearly tripled since 2008, from 345,000 to 940,000.[6]

Yearly disability cases related to PTSD

2008 — 345,000

2017 — 940,000
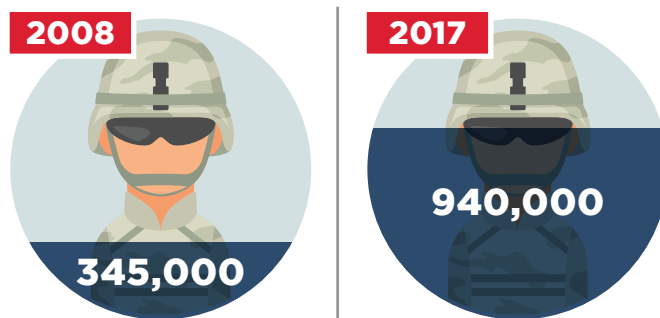
Combat experiences are a frequent cause of PTSD, but the condition can also be triggered by military sexual trauma. Of veterans who use VA health care, 23 percent of women report sexual assault while in the military, and 55 percent of women and 38 percent of men report experiencing sexual harassment.[7]

Given the scope and severity of veterans' mental health challenges, policymakers would do well to continue to look for innovative ways to address PTSD.

Virtual Reality & Mental Health

Treating PTSD is a challenge. Even with available psychotherapies and pharmacotherapies, PTSD never fully remits in more than half of patients.[8] That's why new treatment techniques that integrate traditional exposure therapy with virtual reality technologies are so valuable.

Virtual reality is the most immersive form of what's known as extended reality. While augmented and mixed reality devices overlay digital aspects onto the real world, virtual reality uses a headset and sometimes other tools to create an entirely new digital environment.[9]

Schools, businesses, laboratories, and public institutions are all finding valuable uses for virtual reality technologies. For example, students can take virtual reality field trips anywhere in the world, allowing them to explore cities and landscapes firsthand instead of just looking at a map. Businesses, meanwhile, can use virtual reality apps to allow customers to take a virtual tour of an entire

store instead of looking at a catalog, giving them a real-time shopping experience.

But perhaps the greatest implications for virtual reality are its uses for health care. Institutions use virtual reality images to determine diagnoses and perform treatments. Surgeons can more effectively locate tumors, place incisions, or practice difficult procedures before performing them on the patient.[10] And virtual reality can be a game-changing therapeutic tool for mental health, particularly in enhancing the practice of what's known as exposure therapy.

Exposure therapy has long been a mainstay of PTSD treatment. With the help of a therapist, patients recount their trauma experience as if it were happening that very moment. In the safety of a clinical environment, repeated reliving of the experience enables patients to sort through the feelings and emotions triggered by the incident and de-condition themselves, a process known as habituation or extinction.

Virtual reality technology can enhance exposure therapy, bolstering its effectiveness for veterans with PTSD. One such technology is Bravemind, an immersive, interactive military simulation that incorporates virtual reality into psychotherapy sessions.

Created at the University of California Institute for Creative Technologies with support from the U.S. Army Research Laboratory, Bravemind uses not only immersive 3D graphics but also other realistic stimuli. This includes sounds, vibrations, and even smells that can recreate veterans' prior military settings and allow them to face their traumatic experiences.

The technology offers therapists the unique ability to control, document, and measure stimuli and patient response as veterans interact with the technology's multisensory and immersive environments. Bravemind accounts for the fact that military deployments and combat scenes look different to different servicemembers. The technology can recreate 14 different environments, from remote rural areas to crowded city markets – complete with enemy attackers, innocent bystanders, and explosive devices.

Veterans talk to their therapists before and after the virtual reality experience, enhancing the exposure therapy's ability to help veterans process past traumatic experiences and address mental health symptoms that continue to plague them.

> Over time, the technology can help improve veterans' mental health, a sure step toward reducing rates of veteran suicide.

The effectiveness of using virtual reality to treat PTSD has been demonstrated in multiple clinical studies. One large-scale trial found that therapy incorporating virtual reality technology:

- Had a dropout rate of just two percent

- Resulted in two-thirds of patients no longer meeting diagnostic criteria for PTSD at the conclusion of treatment.[11]

Expanding Access to Virtual Reality-Based Treatment

Bravemind software is offered free of charge to qualified clinics and research facilities. To make this and similar programs widely available to the veterans who need them, however, policymakers will need to provide greater support.

Congress has recognized the significant challenges concerning veterans' mental health, passing the Clay Hunt Suicide Prevention for American Veterans Act in 2015.[12] The approved 2019 Veterans Affairs budget includes $8.6 billion for mental health care, along with $206 million earmarked for suicide prevention outreach.[13]

And in March 2019, President Donald Trump signed a measure creating the President's Roadmap to Empower Veterans and End a National Tragedy of Suicide initiative. It establishes a new Cabinet-level task force responsible for creating a strategy across federal agencies to prevent veterans' suicide, something the president termed "a tragedy of staggering proportions." The White House described the executive order as a "national call to action."[14]

But there is still room for additional efforts, particularly in exploring and more fully realizing the mental health benefits of virtual reality-enabled treatments. In particular, Congress must provide for more federal support for virtual reality research and the expansion of virtual reality resources for veterans around the nation.

Members of Congress must ensure that veterans' mental health continues to be a top priority. The VA spends $1.9 billion on research each year,[15] and Congress can ensure that the VA continues to have the necessary funds to invest in mental health research and treatment.

Congress can also support policies that make competent, military culture-focused mental health care available to all veterans. Data shows that 14 of every 20 veterans who die by suicide have not received care from the VA.[16] Meanwhile, the National Alliance of Mental Illness reports that only 13 percent of private mental health providers meet the criteria to deliver culturally competent, evidence-based care.[17] Worse, half of all U.S. counties lack any practicing mental health professionals at all, much less therapists trained to provide military-centric care.

Improved policies can help make sure that all veterans, regardless of where they live, have access to the mental health care they need.

Conclusion

Researchers do not fully understand why some veterans who have been exposed to traumatic situations develop PTSD while others do not. But it's apparent that the collection of technologies and devices that comprise virtual reality can often offer hope of relief to those who do experience this serious and debilitating mental condition.

Congress has made strides in recognizing PTSD and other service-related mental health issues as a significant problem, and also in allocating funds to help veterans overcome these challenges. But there is much work left to be done.

Veterans have kept their promise to the United States. Now it's policymakers' role to see that the country does the same for veterans.

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SoldierStrong Access is a non-profit advocacy organization existing alongside its non-profit charity partner, Soldier Strong. After succeeding in helping dozens of veterans overcome challenges with mobility and launching a scholarship fund to put college within reach of America's returning soldiers, Soldier Strong knew changes in public policies would be necessary to provide access to these opportunities for the veterans community at large.

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