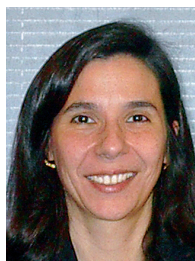


PTSD Treatment for Veterans: What's Working, What's New, and What's Next

Miriam Reisman

More than a decade of war in the Middle East has pushed post-traumatic stress disorder (PTSD) to the forefront of public health concerns. The last several years have seen a dramatic increase in the number of Iraq and Afghanistan war veterans seeking help for PTSD,¹ shining a spotlight on this debilitating condition and raising critical questions about appropriate treatment options and barriers to care.

While PTSD extends far beyond the military—affecting about eight million American adults in a given year²—the problem is especially acute among war veterans. Not only are recent veterans at higher risk of suffering from PTSD than those in the general population,³ they also face unique barriers to accessing adequate treatment.⁴ These include the requirement that they have either an honorable or general discharge to access Department of Veterans Affairs (VA) medical benefits, long waiting lists at VA medical centers, and the social stigma associated with mental illness within military communities.^{4,5} According to a study conducted by the RAND Center for Military Health Policy Research, less than half of returning veterans needing mental health services receive any treatment at all, and of those receiving treatment for PTSD and major depression, less than one-third are receiving evidence-based care.⁵



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PTSD in Combat Veterans

The existence of war-induced psychological trauma likely goes back as far as warfare itself, with one of its first mentions by the Greek historian Herodotus. In writing about the Battle of Marathon in 490 B.C., Herodotus described an Athenian warrior who went permanently blind when the soldier standing next to him was killed, although the blinded soldier himself had not been wounded.⁶ Such accounts of psychological symptoms following military trauma are featured in the literature of many early cultures, and it is theorized that ancient soldiers experienced the stresses of war in much the same way as their modern-day counterparts.⁷

The symptoms and syndrome of PTSD became increasingly evident during the American Civil War (1861–1865).⁸ Often referred to as the country's bloodiest conflict, the Civil War saw the first widespread use of rapid-fire rifles, telescopic sights, and other innovations in weaponry that greatly increased destructiveness in battle and left those who survived with a myriad of physical and psychological injuries.

The Civil War also marked the start of formal medical attempts to address the psychological effects of combat on military veterans. Jacob Mendez Da Costa (1833–1900), a cardiologist and assistant surgeon in the U.S. Army, undertook research on “irritable heart” (neurocirculatory

asthenia) in soldiers, and during the Civil War, this PTSD-like disorder was referred to as “Da Costa’s syndrome.”⁹ Da Costa reported in the *American Journal of Medical Science* that the disorder, marked by shortness of breath, rapid pulse, and fatigue, is most commonly observed in soldiers during times of stress, especially when fear is involved.⁹

Over the next century of American warfare, PTSD would be described by many different names and diagnoses, including “shell shock” (World War I), “battle fatigue” (World War II), and “post-Vietnam syndrome.” An estimated 700,000 Vietnam veterans—almost 25% of those who served in the war—have required some form of psychological care for the delayed effects of combat exposure.¹⁰ The diagnosis of PTSD was not adopted until the late 1970s, and it became official in 1980 with inclusion in the third edition of the *Diagnostic and Statistical Manual of Mental Disorders*.¹¹

Prevalence of PTSD in Veterans

Estimates of PTSD prevalence rates among returning service members vary widely across wars and eras. In one major study of 60,000 Iraq and Afghanistan veterans, 13.5% of deployed and nondeployed veterans screened positive for PTSD,¹² while other studies show the rate to be as high as 20% to 30%.^{5,13} As many as 500,000 U.S. troops who served in these wars over the past 13 years have been diagnosed with PTSD.¹⁴

It is not clear if PTSD is more common in Iraq and Afghanistan veterans than in those of previous conflicts, but the current war presents a unique set of circumstances that contribute heavily to mental health problems. According to Paula P. Schnurr, PhD, Executive Director of the VA National Center for PTSD, the urban-style warfare tactics in Afghanistan and Iraq, marked by guerrilla attacks, roadside improvised explosive devices, and the uncertain distinction between safe zones and battle zones, may trigger more post-traumatic stress in surviving military members than conventional fighting.¹⁵

In addition, Dr. Schnurr notes, improvements in protective gear and battlefield medicine have greatly increased survivability—but at a high price. “Between the way we’re protecting the troops and responding to injuries on the ground, a lot of soldiers are surviving with very significant injuries who would not necessarily have survived before,” she says. “And they’re returning stateside with both the physical and psychological trauma.”

Comorbidity of PTSD in Veterans

Complicating the diagnosis and assessment of PTSD in military veterans are the high rates of psychiatric comorbidity.² Depression is the most common comorbidity of PTSD in veterans. Results from a large national survey show that major depressive disorder (MDD) is nearly three to five times more likely to emerge in those with PTSD than those without PTSD.¹⁶ A large meta-analysis composed of 57 studies, across

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both military and civilian samples, found an MDD and PTSD comorbidity rate of 52%.¹⁷

Other common psychiatric comorbidities of PTSD in military veterans include anxiety and substance abuse or dependence.^{18–20} The National Vietnam Veterans Readjustment Study, conducted in the 1980s, found that 74% of Vietnam veterans with PTSD had a comorbid substance use disorder (SUD).²¹ In one study of recent veterans, 63% of those who met the diagnostic criteria for alcohol use disorders (AUDs) or drug use disorders had co-occurring PTSD, while the PTSD prevalence among those who met criteria for both AUDs and drug use disorders (e.g., alcohol dependence and cocaine abuse) was 76%.²²

Studies also suggest that veterans with comorbid PTSD and SUD are more difficult and costly to treat than those with either disorder alone because of poorer social functioning, higher rates of suicide attempts, worse treatment adherence, and less improvement during treatment than those without comorbid PTSD.^{23,24}

PTSD is associated with physical pain symptoms, as well. For veterans returning from Iraq and Afghanistan, chronic pain continues to be one of the most frequently reported symptoms.^{25,26} Approximately 15% to 35% of patients with chronic pain also have PTSD.²⁷

Risk Factors for PTSD in Veterans

A number of factors have been shown to increase the risk of PTSD in the veteran population, including (in some studies) younger age at the time of the trauma, racial minority status, lower socioeconomic status, lower military rank, lower education, higher number of deployments, longer deployments, prior psychological problems, and lack of social support from family, friends, and community (Table 1).²⁸ PTSD is also strongly associated with generalized physical and cognitive health symptoms attributed to mild traumatic brain injury (concussion).²⁹

Female gender has also been implicated as a potential risk factor for PTSD in veterans.^{28,30} A number of factors may account for these findings, including a history of military or civilian sexual assault, which may increase a woman's risk for PTSD.³¹ According to one study, during 2002–2003, approximately 22% of screened female veterans reported military sexual trauma (MST), a term adopted by the VA to refer to sexual assault or repeated threatening sexual harassment that occurred while the veteran was in the military.³²

Despite numerous studies, according to Dr. Schnurr, whether PTSD is a greater risk to female veterans than male veterans is still largely unknown. However, she says that as women continue to play more active roles in the wars in Iraq and Afghanistan and are increasingly exposed to combat situations, their likelihood of experiencing PTSD rises.

More research is needed to better understand these and other risk factors for PTSD and to help clinicians and other care providers offer the necessary treatment before symptoms become chronic.²⁸ Several large VA studies are under way that include both psychological and neurobiological measurement, Dr. Schnurr says. She notes the benefit of studying the effects of war-related acute stress in real time, using both pre- and post-deployment assessments, as well as data from military members currently in theater. "These wars have given us the best opportunity to longitudinally track what happens to

Table 1 Significant Risk Factors for Combat-Related PTSD in Military Personnel and Veterans²⁸

Factors	Odds Ratio (95% CI)
Pretraumatic Factors	
Female gender	1.63 (1.32–2.01)
Nonwhite race	1.18 (1.06–1.31)
Lower education level	1.33 (1.14–1.54)
Lower rank (nonofficer)	2.18 (1.84–2.57)
Army as branch of service	2.30 (1.76–3.02)
Combat specialization	1.69 (1.39–2.06)
Number of deployments (≥ 2)	1.24 (1.10–1.39)
Longer length of deployments	1.28 (1.13–1.45)
Adverse life events	1.99 (1.55–2.57)
Prior trauma	1.13 (1.01–1.26)
Psychological problem(s)	1.49 (1.22–1.82)
Peritrauma Factors	
Combat exposure	2.10 (1.73–2.54)
Discharged a weapon	4.32 (2.60–7.18)
Saw someone wounded/killed	3.12 (2.40–4.06)
Severe trauma	2.91 (1.85–4.56)
Deployment-related stressor	2.69 (1.46–4.96)
Post-Trauma Factors	
Postdeployment support (yes)	0.37 (0.18–0.77)

CI = confidence interval; PTSD = post-traumatic stress disorder.

people and to examine the risk and resilience factors associated with the outcomes," she adds.

Defining and Redefining PTSD

The VA defines PTSD as "the development of characteristic and persistent symptoms along with difficulty functioning after exposure to a life-threatening experience or to an event that either involves a threat to life or serious injury."²⁹ In addition to military combat, PTSD can result from the experience or witnessing of a terrorist attack, violent crime and abuse, natural disasters, serious accidents, or violent personal assaults.

In 2013, the American Psychiatric Association revised the PTSD diagnostic criteria in the fifth edition of its *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5),³³ moving PTSD from the class of "anxiety disorders" into a new class of "trauma and stressor-related disorders." As such, all of the conditions included in this classification require exposure to a traumatic or stressful event as a diagnostic criterion. DSM-5 categorizes the symptoms that accompany PTSD into four "clusters":

- Intrusion—spontaneous memories of the traumatic event, recurrent dreams related to it, flashbacks, or other intense or prolonged psychological distress
- Avoidance—distressing memories, thoughts, feelings, or external reminders of the event

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- Negative cognitions and mood—myriad feelings including a distorted sense of blame of self or others, persistent negative emotions (e.g., fear, guilt, shame), feelings of detachment or alienation, and constricted affect (e.g., inability to experience positive emotions)
- Arousal—aggressive, reckless, or self-destructive behavior; sleep disturbances; hypervigilance or related problems.³³

PTSD can be either acute or chronic. The symptoms of acute PTSD last for at least one month but less than three months after the traumatic event. In chronic PTSD, symptoms last for more than three months after exposure to trauma.³⁴

PTSD Diagnosis and Assessment

Two main types of measures are used to help diagnose PTSD in veteran populations and assess its severity: structured interviews and self-report questionnaires.³⁴ The Clinician-Administered PTSD Scale for DSM-5 (CAPS-5) is considered the gold standard for PTSD assessment in both veterans and civilians.³⁵ The detailed 30-item interview has proven useful across a wide variety of settings and takes approximately 30 to 60 minutes to administer.

The well-validated PTSD Checklist for DSM-5 (PCL-5) is one of the most commonly used self-report measures of PTSD.³⁶ Administration of the 20-item questionnaire is required by the VA for veterans being treated for PTSD as part of a national effort to establish PTSD outcome measures. The PCL-5 can be completed in five to seven minutes.³⁶

Another widely used self-report measure for veterans is the Mississippi Scale for Combat-Related PTSD, a 35-item questionnaire in which respondents are asked to rate how they feel about each item using a five-point Likert scale (e.g., “Before I entered the military, I had more close friends than I have now.” [1 = not at all true to 5 = extremely true]).³⁷

Nonpharmacological Treatment Of PTSD in Veterans

The use of psychological interventions is regarded as a first-line approach for PTSD by a range of authoritative sources.^{38–40} Of the wide variety of psychotherapies available, cognitive behavioral therapy (CBT) is considered to have the strongest evidence for reducing the symptoms of PTSD in veterans and has been shown to be more effective than any other nondrug treatment.⁴¹

Two of the most studied types of CBT—cognitive processing therapy (CPT) and prolonged exposure (PE) therapy—are recommended as first-line treatments in PTSD practice guidelines around the world, including the guideline jointly issued by the VA and the Department of Defense (DoD).^{29,38–42}

First developed to treat the symptoms of PTSD in sexual assault victims,⁴² CPT focuses on the impact of the trauma. In CPT, the therapist helps the patient identify negative thoughts related to the event, understand how they can cause stress, replace those thoughts, and cope with the upsetting feelings.

PE therapy has been shown to be effective in 60% of veterans with PTSD.⁴³ During the treatment, repeated revisiting of the trauma in a safe, clinical setting helps the patient change how he or she reacts to memories of traumatic experiences,

as well as learn how to master fear- and stress-inducing situations moving forward. PE and CPT treatments each take approximately 12 weekly sessions to complete.^{44,45}

EMDR

Once highly controversial, eye-movement desensitization and reprocessing (EMDR) has been gaining acceptance and is now recommended as an effective treatment for PTSD in both civilian and combat-related cases in a wide range of practice guidelines.^{29,40,46,47} In EMDR, the therapist guides patients to make eye movements or follow hand taps, for instance, at the same time they are recounting traumatic events. The general theory behind EMDR is that focusing on other stimuli while revisiting the experience helps the patient reprocess traumatic information until it is no longer psychologically disruptive.

Pharmacotherapy of PTSD in Veterans

Some patients do not respond adequately to nondrug treatment alone, may prefer medications, or may benefit from a combination of medication and psychotherapy. In these cases, pharmacotherapy is also recommended as a first-line approach for PTSD.^{38–40}

Selective Serotonin Reuptake Inhibitors

Antidepressants are currently the preferred initial class of medications for PTSD, with the strongest empirical evidence available to support the use of the selective serotonin reuptake inhibitors (SSRIs).⁴⁸ Currently, sertraline and paroxetine are the only drugs approved by the Food and Drug Administration (FDA) for the treatment of PTSD.⁴⁹

All other medications for PTSD are used off-label and have only empirical support and practice guideline support.⁴⁹ These include the SSRI fluoxetine and the serotonin norepinephrine reuptake inhibitor (SNRI) venlafaxine, which are recommended as first-line treatments in the VA/DoD Clinical Practice Guideline for PTSD. Venlafaxine acts primarily as an SSRI at lower dosages and as a combined SNRI at higher dosages.

Although SSRIs are associated with an overall response rate of approximately 60% in patients with PTSD, only 20% to 30% of patients achieve complete remission.⁵⁰ In a study of extended-release (ER) venlafaxine, the response rate was 78%, and the remission rate was 40% (both assessed with an abbreviated version of CAPS) in patients with PTSD.⁵¹ Hyperarousal, however, did not show significant improvement. The ER formulation of venlafaxine is approved for patients with major depressive disorder, generalized anxiety disorder, social anxiety disorder, and panic disorder.⁵²

Second-Line Therapies

Second-line therapies for PTSD are less strongly supported by evidence and may have more side effects. They include nefazodone, mirtazapine, tricyclic antidepressants, and monoamine oxidase inhibitors.^{53–55} Prazosin has been found to be effective in randomized clinical trials in decreasing nightmares in PTSD. It blocks the noradrenergic stimulation of the alpha₁ receptor. Its effectiveness for PTSD symptoms other than nightmares has not been determined at this time.^{56,57}

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Alternative Pathways

Antidepressants have been the central focus of pharmacotherapy research in PTSD, but better treatments are greatly needed. "Right now, the interest is in novel medication development rather than simply relying only on the SSRIs that we have because we only get so far with them," Dr. Schnurr says.

Researchers are looking closely at the role of the inhibitory neurotransmitter gamma-aminobutyric acid (GABA) and the excitatory neurotransmitter glutamate in PTSD. Both GABA and glutamate play a role in encoding fear memories, and therapeutic research targeting these systems may open new avenues of treatment for PTSD. For example, the novel multimodal antidepressant vortioxetine (Trintellix, Takeda) modulates GABA and glutamate neurotransmission.

According to ClinicalTrials.gov, several ongoing studies are investigating the efficacy of vortioxetine and another new multimodal antidepressant, vilazodone (Viibryd, Allergan), in PTSD. Both drugs have been approved by the FDA for the treatment of depression but not for PTSD.

Anticonvulsants or antiepileptic drugs, which affect the balance between glutamate and GABA by acting indirectly to affect these neurons when their neuronal receptor sites are activated, could also provide a useful option in treatment of PTSD symptoms in patients who fail first-line pharmacotherapy. Topiramate, an anticonvulsant used to treat certain types of seizures, has demonstrated promising results in randomized controlled trials with civilians and veterans with PTSD.⁵⁸ Topiramate is currently listed in the VA/DoD Clinical Practice Guideline for PTSD as having no demonstrated benefit, and further studies are needed regarding the place of this drug in PTSD treatment.⁵⁹

Clinical research also suggests that smoking cannabis (marijuana) is associated with reduced PTSD symptoms in some patients. One study indicated that PTSD patients reported an average 75% reduction in CAPS symptom scores while using cannabis.⁶⁰

Although the use of medical marijuana to treat PTSD remains controversial, recent actions by the federal government have brought veterans closer to being able to obtain medical marijuana. In April 2016, the Drug Enforcement Administration approved the first-ever controlled clinical trial to study the effectiveness of cannabis as a treatment for PTSD in military veterans, and in May, Congress voted to lift a federal ban that has prevented veterans' access to medical marijuana through the VA in states that allow it. Medical marijuana is legal in 23 states and the District of Columbia for the treatment of glaucoma, cancer, human immunodeficiency virus, and other conditions.

Suggested nonpharmacological and pharmacological treatments for PTSD are listed in Table 2.

Table 2 Selected Treatments for PTSD in Veterans

First-Line	Second-Line	Alternative Pathways
Nonpharmacological^{29,38-47}		
<ul style="list-style-type: none"> • Cognitive behavioral therapy <ul style="list-style-type: none"> ◦ Cognitive processing therapy ◦ Prolonged exposure therapy • Eye-movement desensitization and reprocessing 		
Pharmacological⁴⁸⁻⁶⁰		
<ul style="list-style-type: none"> • Antidepressants <ul style="list-style-type: none"> ◦ Sertraline* ◦ Paroxetine* ◦ Fluoxetine ◦ Venlafaxine 	<ul style="list-style-type: none"> • Nefazodone • Mirtazapine • Tricyclic antidepressants (e.g., imipramine) • Monoamine oxidase inhibitors (e.g., phenelzine) • Prazosin 	<ul style="list-style-type: none"> • Gamma-aminobutyric acid • Glutamate • Vortioxetine • Vilazodone • Anticonvulsants (e.g., topiramate) • Antiepileptics • Cannabis
PTSD = post-traumatic stress disorder.		
*These are the only drugs approved to treat PTSD by the Food and Drug Administration.		

Combined Pharmacotherapy and Psychotherapy

Medications and psychotherapies are used both separately and in combination to treat the symptoms of PTSD, as well as related comorbid diagnoses. Guidelines suggest a combination may enhance treatment response, especially in those with more severe PTSD or in those who have not responded to either approach alone.⁶¹ For example, studies have shown combined SSRIs and psychotherapy appear to be more effective than treatment with either intervention used alone.⁶²

Reducing Benzodiazepine Use Among Veterans

The VA/DoD Clinical Practice Guideline for PTSD cautions against any use of benzodiazepines to manage core PTSD symptoms because evidence suggests that they are not effective and may even be harmful.²⁹ However, despite this guidance, almost one-third of VA patients being treated for PTSD nationally were prescribed benzodiazepines in 2012, says Nancy Bernardy, PhD, Associate Director for Clinical Networking at the VA National Center for PTSD.

According to Dr. Bernardy, the rates of benzodiazepine use among veterans with PTSD are declining, but focused interventions are needed to achieve further reductions. She says the VA is studying the use of an academic detailing approach to share decision support tools around the appropriate use of these drugs.⁶³ The initiative targets subgroups of veterans with PTSD in which there are increased rates of benzodiazepine prescription, including those with comorbid substance use disorders and those with comorbid traumatic brain injury. Designed to be used by providers with their patients, the decision support tools incorporate safety concerns related to the targeted subgroups and offer tapering guidance and information on alternative, evidence-based treatments for PTSD.

"It's taken a while, but we're beginning to see success," Dr. Bernardy says of the initiative, adding that the involvement of family members is an integral part of the tapering process.

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The VA is also looking at other models for increasing engagement in evidence-based PTSD treatment through shared decision-making.

"Shared decision-making has not been used widely," Dr. Bernardy says. "So we are trying to create a culture where providers meet with patients and discuss PTSD treatment options—the pros and cons of each—and then let patients and family members make the best decisions for their care."

Treatment-Resistant PTSD

For patients with PTSD who do not respond to initial drug treatment, it may be necessary to explore additional pharmacotherapy options to control their symptoms. A number of pharmacological agents, including antipsychotics, antiadrenergic drugs, and anxiolytics, have also demonstrated some efficacy in treating PTSD.^{64,65}

However, for most pharmacological therapies, there is inadequate evidence regarding efficacy for PTSD, pointing to the need for more clinical studies in this area.⁶⁶ According to Dr. Schnurr, psychotherapy remains the most effective treatment for PTSD. "Antidepressants may be effective," she says, "but we see more results—and we also see more durable results—with the psychotherapies because they essentially go to the heart of helping the patient address the problem."

Economic and Societal Burden of PTSD

The need for better solutions is shown by the immense economic and societal burden of PTSD. First-year treatment alone for Iraq and Afghanistan veterans treated through the VA costs more than \$2 billion, or about \$8,300 per person.⁶⁷ Health care costs for veterans with PTSD are 3.5 times higher than costs for those without the disorder.⁶⁷ According to the VA, PTSD was the third most prevalent disability for veterans receiving compensation in 2012 (572,612 veterans), after hearing loss and tinnitus.⁶⁸

PTSD and Suicide

Veterans now account for 20% of all suicides in the U.S., with the youngest (18–24 years of age) four times more likely to commit suicide than their nonveteran counterparts of the same age. An estimated 18 to 22 veterans die from suicide each day.⁶⁹ According to a recent study published in *JAMA Psychiatry*, the likelihood of suicide increases once a person leaves active military service, and that risk is further increased in veterans whose service time was less than four years.⁷⁰

The association between PTSD and suicide has been a subject of debate, with some studies showing that PTSD alone is associated with suicidal ideation and behavior,^{71,72} and others indicating that the higher risk is due to comorbid psychiatric conditions.⁷³

Barriers to Effective PTSD Treatment

Despite efforts to increase access to appropriate mental health care, many military veterans continue to face barriers to getting PTSD treatment. The largest single barrier to timely access to care, according to a VA audit, is the lack of provider appointment availability.⁷⁴ An acute shortage of doctors in the VA, particularly in primary care, combined with the rising population of veterans seeking treatment, has led to months-long waiting times.⁷⁵

Poor availability of mental health services in many parts of the U.S. also presents a significant barrier for Iraq and Afghanistan veterans and their families.⁷⁶ Mental health specialists tend to concentrate in larger urban areas, and even in those areas, there are disparities in the per capita number of psychiatrists. Some rural areas have none.^{77,78} According to the VA Office of Rural Health, veterans from these areas are less likely than urban veterans to access mental health services, in part because of the greater distances they must travel.⁷⁹

One of the most frequently cited barriers to veterans getting timely and adequate care for PTSD is the social stigma associated with mental illness.^{80,81} Research indicates that service members may feel ashamed and embarrassed to seek treatment, perceive mental illness as a sign of a weakness, or feel that it is possible to "tough it out."⁸¹

According to Dr. Schnurr, considerable effort has been made to destigmatize seeking mental health treatment among military veterans. For example, the VA is developing initiatives to enhance collaborative care services that integrate mental and physical health, which is thought to help minimize the stigma associated with PTSD. Additionally, the VA has implemented various outreach initiatives, such as the "About Face" awareness campaign, a series of online videos that introduces viewers to veterans who have experienced PTSD and provides guidance on seeking care.

"It's a culture change," Dr. Schnurr says. "By working at both the community level and within the system, we are trying to comprehensively make the changes that will make it easier for veterans to recognize that they need help and then to seek help."

In an effort to address access to care issues, the VA is focusing on telehealth or the use of telecommunications technology to provide behavioral health services to veterans diagnosed with PTSD. Telehealth, which can be both convenient and destigmatizing, has particular potential in rural areas, where a large portion (38%) of VA enrollees diagnosed with PTSD live. A recent study of rural veterans with PTSD showed that receiving psychotherapy and related services via telephone or video conferencing can have positive effects, including the initiation of and adherence to appropriate treatment.⁸²

In another study of rural veterans in VA care, patients who received treatment remotely had greater reductions in PTSD scores at six months and at one year than those who were offered on-site care. According to the researchers, participants in the telemedicine group were much more likely to engage in their own care, a critical component of recovery.⁸²

Community-Based PTSD Care

Research indicates that community-based mental health providers are not well prepared to take care of the special needs of military veterans and their families, including evidence-based treatment of PTSD and depression.⁸³ According to Dr. Schnurr, there has not been sufficient dissemination and implementation of the most effective psychotherapies in community-based settings, such as primary care practices, behavioral health centers, substance-abuse treatment facilities, and hospital trauma centers. To help meet these needs, the VA developed the PTSD Consultation Program for Community

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Providers (PTSDconsult@va.gov), which offers free education, training, information, consultation, and other resources to non-VA health professionals who treat veterans with PTSD.

A number of initiatives across the country provide training and/or treatment support to providers who offer services to veterans with PTSD. The Center for Deployment Psychology, a nationwide network of medical centers, trains military and civilian behavioral health professionals to address the emotional and psychological needs of military personnel and their families through live presentations, online learning resources, ongoing consultation, and education.⁸⁴ Star Behavioral Health Providers is a resource for veterans, service members, and their families to locate behavioral health professionals with specialized training in understanding and treating military service members and their families.⁸⁵ The service is currently offered in California, Michigan, New York, Indiana, Ohio, Georgia, and South Carolina.

Challenges and Opportunities Ahead

While many important advancements have been made over the past few decades in understanding and treating symptoms of PTSD, the rising number of American veterans who suffer from the disorder continues to be a serious national public health problem. Cognitive behavioral therapy is a widely accepted method of treatment for PTSD, but there is clearly an urgent need to identify more effective pharmacological approaches for the management of symptoms, as not all patients will respond adequately to psychotherapy or evidence-based/first-line pharmacotherapy. Further understanding of the underlying physiological and neurological processes will be helpful in developing new and effective therapies to treat PTSD.

Research also suggests further opportunities for the VA and other health care systems to develop new and innovative ways to overcome barriers to treating veterans with PTSD. With veterans and their families increasingly seeking care outside of the VA system, community providers play a key role in helping to address these challenges. It is critical they receive the education, training, and tools to improve their understanding of and skills for addressing the needs of this unique population.

REFERENCES

1. Institute of Medicine. Treatment for posttraumatic stress disorder in military and veteran populations final assessment. Report Brief. June 2014. Available at: www.nationalacademies.org/hmd/~/media/Files/Report%20Files/2014/PTSD-II/PTSD-II-RB.pdf. Accessed April 1, 2016.
2. U.S. Department of Veterans Affairs. How common is PTSD? August 13, 2015. Available at: www.ptsd.va.gov/public/PTSD-overview/basics/how-common-is-ptsd.asp. Accessed March 23, 2016.
3. Norris FH, Slone LB. Understanding research on the epidemiology of trauma and PTSD. *PTSD Research Quarterly* 2013;24(2-3): 1-13. Available at: www.ptsd.va.gov/professional/newsletters/research-quarterly/V24n2-3.pdf. Accessed March 15, 2016.
4. American Public Health Association. Removing barriers to mental health services for veterans. Available at: www.apha.org/policies-and-advocacy/public-health-policy-statements/policy-database/2015/01/28/14/51/removing-barriers-to-mental-health-services-for-veterans. Accessed April 3, 2016.
5. Tanielian T, Jaycox LH, eds. *Invisible Wounds of War: Psychological and Cognitive Injuries, Their Consequences, and Services to Assist Recovery*. Santa Monica, California: RAND Corporation; 2008.
6. Swartz MH. *Textbook of Physical Diagnosis: History and Examination*, 7th ed. Philadelphia, Pennsylvania: Elsevier; 2014.
7. Abdul-Hamid WK, Hughes JH. Nothing new under the sun: post-traumatic stress disorders in the ancient world. *Early Sci Med* 2014;19:549-557.
8. Iribarren J, Prolo P, Neago N, Chiappelli F. Post-traumatic stress disorder: evidence-based research for the third millennium. *Evid Based Complement Alternat Med* 2005;2:503-512.
9. Da Costa JM. On irritable heart: A clinical study of a form of functional cardiac disorder and its consequences. *Am J Med Sci* 1871;61:17-52.
10. Crocq M-E. From shell shock and war neurosis to posttraumatic stress disorder: a history of psychotraumatology. *Dialogues Clin Neurosci* 2000;2:47-55.
11. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*, 3rd ed. Washington, D.C.: American Psychiatric Association; 1980.
12. Eber S, Barth S, Kang H, et al. The National Health Study for a New Generation of United States Veterans: methods for a large-scale study on the health of recent veterans. *Mil Med* 2013;178:966-969.
13. U.S. Department of Veterans Affairs. PTSD in Iraq and Afghanistan veterans. June 3, 2015. Available at: www.publichealth.va.gov/epidemiology/studies/new-generation/ptsd.asp. Accessed July 1, 2016.
14. Thompson M. Unlocking the secrets of PTSD. *Time* 2015;185:40-43.
15. Carlock D. A guide to resources for severely wounded Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) veterans. *Issues in Science and Technology Librarianship* 2007. Available at: www.isstl.org/07-fall/internet2.html. Accessed April 5, 2016.
16. Kessler RC, Sonnega A, Bromet E, et al. Posttraumatic stress disorder in the National Comorbidity Survey. *Arch Gen Psych* 1995;52: 1048-1060.
17. Rytwinski NK, Scur MD, Feeny NC, et al. The co-occurrence of major depressive disorder among individuals with posttraumatic stress disorder: a meta-analysis. *J Trauma Stress* 2013;26:299-309.
18. Hoge CW, Auchterlonie JL, Milliken CS. Mental health problems, use of mental health services, and attrition from military service after returning from deployment to Iraq or Afghanistan. *JAMA* 2006;295(9):1023-1032.
19. Milliken CS, Auchterlonie JL, Hoge CW. Longitudinal assessment of mental health problems among active and reserve component soldiers returning from the Iraq war. *JAMA* 2007;298:2141-2148.
20. Richardson LK, Frueh BC, Acerno R. Prevalence estimates of combat-related post-traumatic stress disorder: critical review. *Aust N Z J Psychiatry* 2010;44:4-19.
21. Kulka RA, Schlenger WE, Fairbank JA, et al. The National Vietnam Veterans Readjustment Study: tables of findings and technical appendices. New York, New York: Brunner/Mazel; 1990. Available at: <http://search.proquest.com/docview/42404631?accountid=28179>. Accessed April 1, 2016.
22. Seal KH, Cohen G, Waldrop A, et al. Substance use disorders in Iraq and Afghanistan veterans in VA healthcare, 2001-2010: implications for screening, diagnosis and treatment. *Drug Alcohol Depend* 2011;116:93-101.
23. McCauley JL, Killeen T, Gros DF, et al. Posttraumatic stress disorder and co-occurring substance use disorders: advances in assessment and treatment. *Clin Psychol Sci Prac* 2012;19:283-304.
24. Hamblen JL, Kivlahan D. PTSD and substance use disorders in veterans. U.S. Department of Veterans Affairs. February 23, 2016. Available at: www.ptsd.va.gov/professional/co-occurring/ptsd_sud_veterans.asp. Accessed July 1, 2016.
25. Gironda RJ, Clark ME, Massengale JP, Walker RL. Pain among veterans of Operations Enduring Freedom and Iraqi Freedom. *Pain Medicine* 2016;7:339-343.
26. Clark ME. Post-deployment pain: a need for rapid detection and intervention. *Pain Medicine* 2014;5:333-334.
27. U.S. Department of Veterans Affairs. Chronic pain and PTSD: a guide for patients. August 13, 2015. Available at: www.ptsd.va.gov/public/problems/pain-ptsd-guide-patients.asp. Accessed April 11, 2016.
28. Xue C, Ge Y, Tang B, et al. A meta-analysis of risk factors for combat-related PTSD among military personnel and veterans. *PLoS One* 2015;10(3):e0120270.

PTSD Treatment for Veterans: What's Working, What's New, and What's Next

29. Management of Post-Traumatic Stress Working Group. *VA/DoD Clinical Practice Guideline for the Management of Post-Traumatic Stress*. Washington, D.C.: Department of Veterans Affairs and Department of Defense; October 2010. Available at: www.healthquality.va.gov/PTSD-FULL-2010c.pdf. Accessed June 5, 2016.
30. Magruder K, Serpi T, Kimerling R, et al. Prevalence of post-traumatic stress disorder in Vietnam-era women veterans: The Health of Vietnam-Era Women's Study (HealthVIEWS). *JAMA Psychiatry* 2015;72:1127–1134.
31. Suris A, Lind L, Kashner TM, et al. Sexual assault in women veterans: an examination of PTSD risk, health care utilization, and cost of care. *Psychosom Med* 2004;66:749–756.
32. Kimerling R, Gima K, Smith MW, et al. The Veterans Health Administration and military sexual trauma. *Am J Public Health* 2007;97:2160–2166.
33. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed. Washington, D.C.: American Psychiatric Association; 2013.
34. U.S. Department of Veterans Affairs. How is PTSD measured? August 10, 2015. Available at: www.ptsd.va.gov/public/assessment/ptsd-measured.asp. Accessed April 4, 2016.
35. Weathers FW, Blake DD, Schnurr PP, et al. The Clinician-Administered PTSD Scale for DSM-5 (CAPS-5). 2013. Available at: www.ptsd.va.gov. Accessed March 29, 2016.
36. Wilkins KC, Lang AJ, Norman SB. Synthesis of the psychometric properties of the PTSD Checklist (PCL) military, civilian, and specific versions. *Depress Anxiety* 2011;28:596–606.
37. U.S. Department of Veterans Affairs. Mississippi Scale for Combat-Related PTSD (M-PTSD). February 23, 2016. Available at: www.ptsd.va.gov/professional/assessment/adult-sr/mississippi-scale-m-ptsd.asp. Accessed March 29, 2016.
38. Forbes D, Creamer M, Phelps A, et al. Australian Guidelines for the Treatment of Adults with Acute Stress Disorder and Post-traumatic Stress Disorder. *Aust N Z J Psychiatry* 2007;41:637–648.
39. National Collaborating Centre for Mental Health (UK). Post-traumatic stress disorder: the management of PTSD in adults and children in primary and secondary care. *NICE Clinical Guidelines, No. 26*. Leicester (UK): Gaskell; 2005.
40. Ursano RJ, Bell C, Eth S, et al. Practice guideline for the treatment of patients with acute stress disorder and posttraumatic stress disorder. *Am J Psychiatry* 2004;161(suppl 11):S3–S31.
41. Institute of Medicine. Treatment of PTSD: an assessment of the evidence. October 2007. Available at: <http://nationalacademies.org/hmd/-/media/Files/Report%20Files/2007/Treatment-of-PTSD-An-Assessment-of-The-Evidence/PTSDReportBriefFINAL2.pdf>. Accessed March 15, 2016.
42. Resick PA, Schnicke MK. Cognitive processing therapy for sexual assault victims. *J Consult Clin Psychol* 1992;60:748–756.
43. Eftekhari A, Ruzek JI, Crowley JJ, et al. Effectiveness of national implementation of prolonged exposure therapy in Veterans Affairs care. *JAMA Psychiatry* 2013;70(9):949–955.
44. U.S. Department of Veterans Affairs. Prolonged exposure therapy. August 14, 2015. Available at: www.ptsd.va.gov/public/treatment/therapy-med/prolonged-exposure-therapy.asp. Accessed April 5, 2016.
45. U.S. Department of Veterans Affairs. Cognitive processing therapy. August 14, 2015. Available at: www.ptsd.va.gov/public/treatment/therapy-med/cognitive_processing_therapy.asp. Accessed April 5, 2016.
46. Foa EB, Keane TM, Friedman MJ, Cohen JA, eds. *Effective Treatments for PTSD: Practice Guidelines of the International Society for Traumatic Stress Studies*. New York, New York: Guilford Press; 2009.
47. World Health Organization. *Guidelines for the Management of Conditions Specifically Related to Stress*. Geneva, Switzerland: WHO; 2013.
48. Puetz TW, Youngstedt SD, Herring MP. Effects of pharmacotherapy on combat-related PTSD, anxiety, and depression: A systematic review and meta-regression analysis. *PLoS One* 2015;10(5):e0126529.
49. Jeffreys M. Clinician's guide to medications for PTSD. U.S. Department of Veterans Affairs. Available at: www.ptsd.va.gov/professional/treatment/overview/clinicians-guide-to-medications-for-ptsd.asp. Accessed April 4, 2016.
50. Berger W, Mendlowicz MV, Marques-Portella C, et al. Pharmacologic alternatives to antidepressants in posttraumatic stress disorder. *Prog Neuropsychopharmacol Biol Psychiatry* 2009;33:169–180.
51. Davidson J. Treatment of posttraumatic stress disorder with venlafaxine extended release: a 6-month randomized controlled trial. *Arch Gen Psychiatry* 2006;63:1158–1165.
52. Effexor XR (venlafaxine HCl) prescribing information. Philadelphia, Pennsylvania: Wyeth Pharmaceuticals; August 2015. Available at: <http://labeling.pfizer.com/showlabeling.aspx?ID=100>. Accessed December 19, 2015.
53. Davis LL, Jewell ME, Ambrose S, et al. A placebo-controlled study of nefazodone for the treatment of chronic posttraumatic stress disorder: a preliminary study. *J Clinical Psychopharmacol* 2004;24:291–297.
54. McRae AL, Brady KT, Mellman TA, et al. Comparison of nefazodone and sertraline for the treatment of posttraumatic stress disorder. *Depress Anxiety* 2004;19(3):190–196.
55. Schneider FR, Campeas R, Carcamo J, et al. Combined mirtazapine and SSRI treatment of PTSD: a placebo-controlled trial. *Depress Anxiety* 2015;32(8):570–579.
56. Krystal JH, Rosenheck RA, Cramer JA, et al. Adjunctive risperidone treatment for antidepressant-resistant symptoms of chronic military service-related PTSD. *JAMA* 2011;306(5):493–502.
57. Raskind MA, Peskind ER, Hoff DJ, et al. A parallel group placebo controlled study of prazosin for trauma nightmares and sleep disturbance in combat veterans with post-traumatic stress disorder. *Biol Psychiatry* 2007;61(8):928–934.
58. Yeh MS, Mari JJ, Costa MC, et al. A double-blind randomized controlled trial to study the efficacy of topiramate in a civilian sample of PTSD. *CNS Neurosci Ther* 2011;17(5):305–310.
59. Andrus MR, Gilbert E. Treatment of civilian and combat-related posttraumatic stress disorder with topiramate. *Ann Pharmacother* 2010;44(11):1810–1816.
60. Greer GR, Grob CS, Halberstadt AL. PTSD symptom reports of patients evaluated for the New Mexico Medical Cannabis Program. *J Psychoactive Drugs* 2014;46(1):73–77.
61. Forbes D, Creamer M, Bisson JI, et al. A guide to guidelines for the treatment of PTSD and related conditions. *J Trauma Stress* 2010;23:537–552.
62. Cuijpers P, Sijbrandij M, Koole SL, et al. Adding psychotherapy to antidepressant medication in depression and anxiety disorders: a meta-analysis. *World Psychiatry* 2014;13:56–67.
63. U.S. Department of Veterans Affairs. Health Services Research and Development. RRP 13-242-HSR&D Study: Strategies to Improve PTSD Care. March 24, 2014. Available at: www.hsrd.research.va.gov/research/abstracts.cfm?Project_ID=2141703966. Accessed April 10, 2016.
64. Alderman CP, McCarthy LC, Marwood AC. Pharmacotherapy for post-traumatic stress disorder. *Expert Rev Clin Pharmacol* 2009;2:77–86.
65. Ravindran LN, Stein MB. Pharmacotherapy of PTSD: premises, principles, and priorities. *Brain Res* 2009;1293:24–39.
66. Hoskins M, Pearce J, Bethell A, et al. Pharmacotherapy for post-traumatic stress disorder: systematic review and meta-analysis. *Brit J Psych* 2015;206:93–100.
67. Congressional Budget Office. The Veterans Health Administration's treatment of PTSD and traumatic brain injury among recent combat veterans. February 2012. Available at: www.cbo.gov/sites/default/files/112th-congress-2011-2012/reports/02-09-PTSD_0.pdf. Accessed March 30, 2016.
68. Guina J, Welton RS, Broderick PJ, et al. DSM-5 criteria and its implications for diagnosing PTSD in military service members and veterans. *Curr Psychiatry Rep* 2016;18(5):43.
69. U.S. Department of Veterans Affairs, U.S. Department of Defense. VA/DoD clinical practice guideline for assessment and management of patients at risk for suicide. June 2103. Available at: www.healthquality.va.gov/guidelines/MH/srb/VADODCP_SuicideRisk_Full.pdf. Accessed April 1, 2016.
70. Reger MA, Smolenski DJ, Skopp NA, et al. Risk of suicide among U.S. military service members following Operation Enduring

PTSD Treatment for Veterans

- Freedom or Operation Iraqi Freedom deployment and separation from the U.S. military. *JAMA Psychiatry* 2015;72:561–569.
71. Ramsawh HJ, Fullerton CS, Herberman Mash HB. Risk for suicidal behaviors associated with PTSD, depression, and their comorbidity in the U.S. Army. *J Affect Disord* 2014;161:116–122.
 72. Sareen J, Cox BJ, Stein MB, et al. Physical and mental comorbidity, disability, and suicidal behavior associated with posttraumatic stress disorder in a large community sample. *Psychosom Med* 2007;69(3):242–248.
 73. Fontana A, Rosenheck R. Attempted suicide among Vietnam veterans: a model of etiology in a community sample. *Amer J Psychiatry* 1995;152:102–109.
 74. U.S. Department of Veterans Affairs. Access Audit—System-Wide Review of Access (May 12, 2014–June 3, 2014). Available at: www.va.gov/health/docs/VAAccessAuditFindingsReport.pdf. Accessed August 18, 2016.
 75. Oppel RA, Goodnough A. Doctor shortage is cited in delays at VA hospitals. *The New York Times*. May 29, 2014. Available at: www.nytimes.com/2014/05/30/us/doctor-shortages-cited-in-va-hospital-waits.html. Accessed January 20, 2016.
 76. Department of Defense Task Force on Mental Health. *An Achievable Vision: Report of the Department of Defense Task Force on Mental Health*. Falls Church, Virginia: Defense Health Board; 2007.
 77. Institute of Medicine Committee on Crossing the Quality Chasm: Adaptation to Mental Health and Addictive Disorders. Increasing workforce capacity for quality improvement. *Improving the Quality of Health Care for Mental and Substance-Use Conditions*. Washington, D.C.: National Academies Press; 2006. Available at: www.ncbi.nlm.nih.gov/books/NBK19820. Accessed August 18, 2016.
 78. New Freedom Commission on Mental Health. *Subcommittee on Rural Issues: Background Paper*. DHHS Pub. No. SMA-04-3890. Rockville, Maryland: 2004. Available at: <http://annapoliscoalition.org/wp-content/uploads/2014/03/presidents-new-freedom-commission-background-paper.pdf>. Accessed August 18, 2016.
 79. VHA Office of Policy and Planning Office of Rural Health (ORH). *Fiscal Years 2012–2014—ORH Strategic Plan Refresh*. Available at: www.ruralhealth.va.gov/docs/ORH_StrategicPlanRefresh_FY2012-2014.pdf. Accessed April 10, 2016.
 80. Corrigan P. How stigma interferes with mental health care. *Am Psychol* 2004;59:614–625.
 81. Committee on the Assessment of the Readjustment Needs of Military Personnel, Veterans, and Their Families, Board on the Health of Select Populations, Institute of Medicine. *Returning Home from Iraq and Afghanistan: Assessment of Readjustment Needs of Veterans, Service Members, and Their Families*. Washington, D.C.: National Academies Press; 2013. Available at: www.nap.edu/read/13499/chapter/1. Accessed August 19, 2016.
 82. Fortney JC, Pyne JM, Kimbrell TA, et al. Telemedicine-based collaborative care for posttraumatic stress disorder: a randomized clinical trial. *JAMA Psychiatry* 2015;72(1):58–67.
 83. Tanielian T, Farris C, Batka C, et al. *Ready to Serve: Community-Based Provider Capacity to Deliver Culturally Competent, Quality Mental Health Care to Veterans and Their Families*. Santa Monica, California: RAND Corporation, 2014. Available at: www.rand.org/pubs/research_reports/RR806.html. Accessed April 3, 2016.
 84. Center for Deployment Psychology. Mission, vision, and history. Available at: <http://deploymentpsych.org/about/mission>. Accessed July 15, 2016.
 85. Star Behavioral Health Providers homepage. Available at: www.starproviders.org. Accessed July 15, 2016. ■