Care of the Military Veteran: Selected Health Issues

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According to the U.S. Census Bureau, 18.2 million veterans were living in the United States in 2017, of whom 1.6 million were female. Less than one-half of all veterans receive care at a Veterans Health Administration or military treatment facility, leaving most to receive services from primary care physicians. Injuries and illnesses common among this patient population include musculoskeletal injuries and chronic pain, mental health issues such as posttraumatic stress disorder (PTSD) and moral injury, traumatic brain injury, chemical and noise exposures, and infectious disease concerns. Family physicians should ask about military service and be well informed about the range of veterans' health concerns, particularly PTSD, depression, and suicidality. Physicians should screen veterans for depression using the Patient Health Questionnaire-9 and for PTSD using the PTSD Checklist for DSM-5. Veterans with traumatic brain injury should be screened specifically for comorbid PTSD and chronic pain because the diagnosis informs treatment. Exposures to loud noise, chemicals, and infectious diseases are prevalent and can cause disability. Family physicians can use available resources and clinical practice guidelines such as those from the U.S. Department of Veterans Affairs and Department of Defense to inform care and to assist veterans. (*Am Fam Physician*. 2019;100(9):544-551. Copyright © 2019 American Academy of Family Physicians.)

Illustration by Jonathan Dimes

A veteran is someone who has served in the military (following completion of basic training) as a member of the Army, Navy, Air Force, Marine Corps, or Coast Guard or as a commissioned officer in the Public Health Service, Environmental Science Services Administration, or National Oceanic and Atmospheric Administration. An estimated 18.2 million veterans (1.6 million females) were living in the United States in 2017 according to the U.S. Census Bureau.[1] Most veterans receive care exclusively from family physicians or cooperatively with the Veterans Health Administration or military treatment facility, although more than one-half receive care only from the civilian sector.[2] Eligibility for benefits is based on acceptable discharge classification and is outlined by the Veterans Benefit Administration on its website *(Table 1)*.

See related editorial on page 523.

CME **This clinical content** conforms to AAFP criteria for continuing medical education (CME). See CME Quiz on page 527.

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Patient information: A handout on this topic, written by the authors of this article, is available at https://www.aafp.org/afp/2019/1101/p544-s1.html.

Family physicians should assess patients' history of military service because awareness of the injuries and illnesses common in the military veteran patient population can inform care.[3] The U.S. Department of Veterans Affairs (VA) has developed a pocket card with suggested questions to help identify specific health issues common in veterans (https://www.va.gov/OAA/archive/Military-Health-History-Card-for-print.pdf). In this issue of *American Family Physician*, Drs. Bowman, Sanders, and Sharpe discuss resources to use at the point of care.[4]

Musculoskeletal Injuries

A history of musculoskeletal disorders is common among veterans. Although some musculoskeletal injuries occur because of combat injuries, most are nonbattle injuries, occurring in recreational and work-related settings. These injuries can result from acute traumatic events or cumulative stress and repetitive activities. Lower extremity overuse injuries associated with running, marching, and other load-bearing activities such as parachuting are especially prevalent.[5] Veterans may also experience a substantial increase in neck, back, and upper extremity musculoskeletal pain associated with deployments and the need to wear

body armor for extended periods in the post–Desert Storm era.[6]

Veterans have twice the incidence of osteoarthritis of similar-aged cohorts because of increased physical demands, traumatic injuries, and repetitive joint-loading activities. Female veterans experienced an adjusted incidence rate for osteoarthritis that was nearly 20% higher than men.[7] Musculoskeletal conditions are a leading cause of medical discharge from military service,[8] with the burden in deployed populations increasing over time.[9]

Chronic pain related to musculoskeletal issues is widespread among veterans. The link between chronic musculoskeletal pain and psychiatric conditions in veterans has been well documented and is important to address.[10] Those with persistent pain are more likely to have diagnoses of mood disorders, posttraumatic stress disorder (PTSD), substance use disorders, anxiety disorders, and traumatic brain injury (TBI) and to have a body mass index consistent with being overweight or obese.[11] Patient-centered, integrated, biopsychosocial care models have the best evidence in treating these individuals.[12]

TABLE 1

Military Veteran Resources for Community-Based Family Physicians

American Medical Association: Veterans' Health Resources for Medical Professionals
https://www.ama-assn.org/delivering-care/population-care/veterans-health-resources-medical-professionals
Addresses health issues that may affect veterans and their families
Community Provider Toolkit
https://www.mentalhealth.va.gov/communityproviders/index.asp
Screening for military service, handouts and training to increase knowledge about military culture, and mini-clinics focused on relevant aspects of behavioral health and wellness
Defense and Veterans Brain Injury Center
https://dvbic.dcoe.mil/
Helps integrate specialized traumatic brain injury care, research, and education across military and veteran medical care systems
Military Health System
https://health.mil/
Official website
National Resource Directory
https://nrd.gov/
Connects Wounded Warriors, service members, veterans, families, and caregivers to programs and services that support them
Psychological Health Center of Excellence: Training for Community Providers
https://www.pdhealth.mil/education-training/training-community-providers
Enhances community physicians' military cultural competency to improve communication and trust with their military patients
U.S. Department of Veterans Affairs: Office of Academic Affiliations
https://www.va.gov/OAA/archive/Military-Health-History-Card-for-print.pdf
Military Health History Pocket Card
U.S. Department of Veterans Affairs: Veterans Administration/ Department of Defense Clinical Practice Guidelines
https://www.healthquality.va.gov/
Evidence-based clinical practice guidelines to reduce variation in practice and to systematize best practices
U.S. Department of Veterans Affairs: Veterans Benefits Administration
https://benefits.va.gov
Eligibility for Veterans Administration benefits and programs
U.S. Department of Veterans Affairs: Veterans Health Administration
https://www.va.gov/health/
Official website

Mental Health Issues

POSTTRAUMATIC STRESS DISORDER

PTSD may develop after exposure to the types of traumatic events veterans might experience in combat. The individual may have recurrent, involuntary, and intrusive recollections of the event. The individual may experience dissociative states or distressing dreams. Intense psychological distress or physiologic reactivity often occurs when the veteran is exposed to triggering events. The veteran will make deliberate efforts to avoid thoughts, memories, feelings, or talking about the traumatic event. Problems with sleep onset and maintenance are common, often because of nightmares. Veterans with PTSD can have extensive functional impairments such as unemployment, family and relationship difficulties, aggressive behavior, and poor quality of life.[13]

Figure 1 shows a screening checklist for PTSD.[14] *Table 2* lists the *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed. (DSM-5) criteria for diagnosing PTSD.[15] Patients with suspected PTSD should undergo diagnostic evaluation that includes determination of DSM-5 criteria and acute risk of harm to self or others.[16] To confirm the diagnosis, symptoms must be present for at least one month and must cause clinically significant distress or impairment in relationships.[15] PTSD affects 10% to 13% of veterans from the Vietnam, Gulf, Afghanistan, and Iraq Wars.[17-19]

Veterans may be reluctant to seek treatment because of stigma, confidentiality concerns, and perceived treatment ineffectiveness.[20] Cognitive processing therapy and exposure

FIGURE 1

PCL-5

Some problems that people sometimes have in response to a very stressful experience are listed. Read each problem carefully and then circle one of the numbers to indicate how much you have been bothered by that problem in the past month.

In the past month, how much were you bothered by:	Not at all	A little bit	Mod-erately	Quite a bit	Extremely
1. Repeated, disturbing, and unwanted memories of the stressful experience?	0	1	2	3	4
2. Repeated, disturbing dreams of the stressful experience?	0	1	2	3	4
3. Suddenly feeling or acting as if the stressful experience were actually happening again (as if you were actually reliving the it)?	0	1	2	3	4
4. Feeling very upset when something reminded you of the stressful experience?	0	1	2	3	4
5. Having strong physical reactions when something reminded you of the stressful experience (for example, heart pounding, trouble breathing, sweating)?	0	1	2	3	4
6. Avoiding memories, thoughts, or feelings related to the stressful experience?	0	1	2	3	4
7. Avoiding external reminders of the stressful experience (for example, people, places, conversations, activities, objects, or situations)?	0	1	2	3	4
8. Trouble remembering important parts of the stressful experience?	0	1	2	3	4
9. Having strong negative beliefs about yourself, other people, or the world (for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous)?	0	1	2	3	4
10. Blaming yourself or someone else for the stressful experience or what happened after it?	0	1	2	3	4
11. Having strong negative feelings such as fear, horror, anger, guilt, or shame?	0	1	2	3	4
12. Loss of interest in activities that you used to enjoy?	0	1	2	3	4
13. Feeling distant or cut off from other people?	0	1	2	3	4
14. Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you)?	0	1	2	3	4
15. Irritable behavior, angry outbursts, or acting aggressively?	0	1	2	3	4
16. Taking too many risks or doing things that could cause you harm?	0	1	2	3	4
17. Being "super alert" or watchful or on guard?	0	1	2	3	4
18. Feeling jumpy or easily startled?	0	1	2	3	4
19. Having difficulty concentrating?	0	1	2	3	4
20. Trouble falling or staying asleep?	0	1	2	3	4

Posttraumatic stress disorder screening checklist for *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed. (PCL-5) criteria. A total score of 33 or higher suggests the patient may benefit from posttraumatic stress disorder treatment.

therapy produce meaningful clinical improvements for individuals with PTSD (see previous issue of *American Family Physician* for more information).[21] Eye movement desensitization and reprocessing and stress inoculation training, which teaches anxiety-management skills, have also been used for treatment. Selective serotonin reuptake inhibitors and venlafaxine are helpful in treating PTSD symptoms. Only sertraline (Zoloft) and paroxetine (Paxil) are approved by the U.S. Food and Drug Administration for PTSD treatment. Benzodiazepines are not recommended

TABLE 2

DSM-5 Diagnostic Criteria for Posttraumatic Stress Disorder

Note: The following criteria apply to adults, adolescents, and children older than 6 years.

A. Exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways:
   1. Directly experiencing the traumatic event(s).
   2. Witnessing, in person, the event(s) as it occurred to others.
   3. Learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental.
   4. Experiencing repeated or extreme exposure to aversive details of traumatic event(s) (e.g., first responders collecting human remains; police officers repeatedly exposed to details of child abuse). **Note:** Criterion A4 does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work related.

B. Presence of one (or more) of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred:
   1. Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s).
   2. Recurrent distressing dreams in which the content and/or affect of the dream are related to the traumatic event(s).
   3. Dissociative reactions (e.g., flashbacks) in which the individual feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.)
   4. Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).
   5. Marked physiological reactions to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).

C. Persistent avoidance of stimuli associated with the traumatic event(s), beginning after the traumatic event(s) occurred, as evidenced by one or both of the following:
   1. Avoidance of or efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).
   2. Avoidance of or efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).

D. Negative alterations in cognitions and mood associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:
   1. Inability to remember an important aspect of the traumatic event(s) (typically due to dissociative amnesia and not to other factors such as head injury, alcohol, or drugs).
   2. Persistent and exaggerated negative beliefs or expectations about oneself, others, or the world (e.g., "I am bad," "No one can be trusted," "The world is completely dangerous," "My whole nervous system is permanently ruined").
   3. Persistent, distorted cognitions about the cause or consequences of the traumatic event(s) that lead the individual to blame himself/herself or others.
   4. Persistent negative emotional state (e.g., fear, horror, anger, guilt, or shame).
   5. Markedly diminished interest or participation in significant activities.
   6. Feelings of detachment or estrangement from others.
   7. Persistent inability to experience positive emotions (e.g., inability to experience happiness, satisfaction, or loving feelings).

E. Marked alterations in arousal and reactivity associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:
   1. Irritable behavior and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or objects.
   2. Reckless or self-destructive behavior.
   3. Hypervigilance.
   4. Exaggerated startle response.
   5. Problems with concentration.
   6. Sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep).

F. Duration of the disturbance (Criteria B, C, D, and E) is more than 1 month.

G. The disturbance causes clinically significant distress or impairment in social, occupational, other important areas of functioning.

H. The disturbance is not attributable to the physiological effects of a substance (e.g., medication, alcohol) or another medical condition.

DSM = Diagnostic and Statistical Manual of Mental Disorders.

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for PTSD symptoms.[22] See the VA/Department of Defense clinical practice guideline algorithm for the management of PTSD (https://www.healthquality.va.gov/guidelines/MH/ptsd/VADoDPTSDCPGFinal012418.pdf).

MORAL INJURY

Combat veterans may experience moral injury separate from or concomitantly with PTSD. Although not a DSM-5 diagnosis, moral injury is defined as symptoms resulting from perpetrating, failing to prevent, bearing witness to, or learning about acts that transgress deeply held moral beliefs and expectation.[23] Veterans with moral injury have more intense feelings of guilt, shame, sadness, and anger.[24] Acceptance and commitment therapy, a mindfulness-based therapy, can treat moral injury by focusing on personal values and values-consistent behaviors.[25] Treatment for military-related PTSD and moral injury should be coordinated with therapists who have experience with these conditions.

MILITARY SEXUAL TRAUMA

Military sexual trauma refers to sexual assault or harassment experienced during military service. A high prevalence of military sexual trauma occurs among veterans, with mean prevalence rates of 3.9% for male veterans and 38.4% for female veterans. Data suggest that most individuals do not report military sexual trauma. Health consequences can include poor psychological well-being, chronic health conditions, substance misuse, high morbidity and mortality rates, and significant economic effects.[26] Family physicians can screen for military sexual trauma by asking the following questions (https://www.va.gov/oaa/pocketcard/). Did you have any unwanted sexual experiences in the military, for example, threatening or repeated sexual attention, comments, or touching? Did you have any sexual contact against your will or when unable to say no, such as being forced or when asleep or intoxicated? Every VA facility has a coordinator for military sexual trauma–related issues, and veterans can receive related care even if they are not eligible for VA health care.[27]

DEPRESSION AND SUICIDE

Prevalence of depression varies depending on the screening or diagnostic instrument, population, and time period. Lifetime depression was lower among World War II and Korean War era veterans compared with nonveterans but higher among veterans than nonveterans of the Vietnam War era.[28] The rate of suicide is 1.4 times higher among male veterans and 1.8 times higher among female veterans than nonveterans. Among veteran suicides, men 18 to 34 years have the highest suicide rate. Most veteran suicides involve a firearm (69% compared with 48% for nonveterans).[29] Family physicians caring for military veterans should annually screen patients for depression and suicidality using the Patient Health Questionnaire-9 and should annually screen for the first five years after separation then once every five years after for PTSD using the PTSD Checklist for DSM-5.[16,29] Risk-based management, clinical interventions, comprehensive and regularly updated safety planning, and reliable continuity of care may reduce the risk of suicide.[29] As part of the VA's suicide prevention efforts, the Veterans Crisis Line, a free and anonymous confidential resource, is available to any veteran regardless of VA health care eligibility (see the Veterans Health Administration website in *Table 1*).

Traumatic Brain Injury

TBIs among veterans can be caused by direct impact, rapid acceleration/deceleration, or blast injuries sustained from traditional ordinance or improvised explosive devices. Blast injuries are complex and related to the direct effects of the blast waves; potential for multiple reflections occurs if the veteran was in an enclosed space.[30] Veterans who experienced blast-related mild TBI report a significantly higher proportion of back pain (41.3%); were more likely to report head, neck, or back pain (70%); and had late onset headache (19% one week to one month after injury and 42% greater than one month following).[31] Family physicians should ask veterans about a history of TBI and treat related conditions accordingly.

Chronic pain is a significant comorbid post-TBI symptom. Approximately 30% to 90% of veterans report pain following a deployment-related TBI, and they are five to seven times more likely to report persistent pain up to five years following the TBI. Nonpharmacologic interventions include physical therapy, exercise, and cognitive behavior therapy. Initial pharmacotherapy should include nonsteroidal anti-inflammatory drugs and acetaminophen followed by tricyclic antidepressants, selective serotonin reuptake inhibitors, or selective norepinephrine reuptake inhibitors. These medications also have the additional advantage of potentially treating comorbid depression with management of associated headaches. Related neuropathic pain and muscle spasticity should be treated with gabapentin (Neurontin) or baclofen (Lioresal).[31]

Whereas opioids may provide pain relief, they carry the risk of abuse, tolerance, and significant adverse effects such as cognitive impairment, which may be problematic for patients with TBI. If opioid therapy is considered, it is recommended to follow the VA/Department of Defense guidelines (https://www.healthquality.va.gov/guidelines/Pain/cot/VADoDOTCPG022717.pdf) to determine appropriateness and a timeline to begin tapering or discontinuing such therapy.

SORT: KEY RECOMMENDATIONS FOR PRACTICE

Clinical recommendation	Evidence rating	Comments
Family physicians should assess patients' history of military service.[3]	C	Expert opinion in the absence of clinical trials
Patients with chronic musculoskeletal pain and multisystem illness should have symptoms evaluated based on clinical judgment and be treated with a collaborative, team-based approach, including a behavioral health specialist.[12]	C	Expert opinion and a systematic review of clinical and epidemiological evidence
Patients with suspected posttraumatic stress disorder should undergo diagnostic evaluation that includes determination of *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed., criteria and acute risk of harm to self or others.[16]	C	Expert opinion and a review of clinical evidence
Risk-based management, clinical interventions, comprehensive and regularly updated safety planning, and reliable continuity of care may reduce the risk of suicide.[29]	C	Consensus expert opinion in the absence of clear validated, predictive models

A = consistent, good-quality patient-oriented evidence; **B** = inconsistent or limited-quality patient-oriented evidence; **C** = consensus, disease-oriented evidence, usual practice, expert opinion, or case series. For information about the SORT evidence rating system, go to https://www.aafp.org/afpsort.

With chronic pain, returning military veterans with TBI were three times more likely to have PTSD. Physicians should be aware that TBI-related cognitive impairment may reduce the PTSD response rate to cognitive behavior therapy by 50%. Physicians can consider using first-line pharmacotherapies such as selective serotonin reuptake inhibitors and selective norepinephrine reuptake inhibitors. Mirtazapine (Remeron), prazosin (Minipress), tricyclic antidepressants, nefazodone, and monoamine oxidase inhibitors should be used with caution given the potential for adverse events and potentially limited effectiveness of these medications for the treatment of veterans with TBI and PTSD. Whereas no randomized controlled trials exist, expert opinion supports using a comprehensive approach with consideration of other psychosocial needs, using single agents beginning at lower doses, and allowing for longer treatment trials when considering effectiveness.[32]

Exposures

NOISE-RELATED HEARING LOSS

Hearing deficits are a common issue for veterans. A 2015 report showed that 16% to 26% of male veterans and 7% to 13% of female veterans from Iraq and Afghanistan Wars were diagnosed with hearing problems.[33] Exposure to high-caliber weapons, fighting in areas that are more developed with buildings closer together, and participation in weapons training have been shown to cause up to 55% of reported hearing loss.[34]

INFECTIOUS DISEASES

Infectious disease diagnoses seen immediately following traumatic injuries include skin and soft-tissue infection, osteomyelitis, and urinary tract infection. Up to 29% of posttraumatic injury infections occurred after the service member was discharged from the military, meaning the veteran may present to care in the community.[35] Other infectious diseases related to military service, particularly in Southwest Asia, include malaria, brucellosis, *Campylobacter jejuni*, *Coxiella burnetii* (Q fever), mycobacterium tuberculosis, nontyphoid salmonella, shigella, leishmaniasis, and West Nile virus.[36] These diseases can have a delayed presentation, emphasizing the need to query patients about overseas military service and to include these diagnoses in the differential for returning veterans who present with relapsing-remitting fevers, fatigue, muscle or joint aches, persistent cough, and/or nonhealing skin ulcers.

ENVIRONMENTAL EXPOSURES

Environmental exposures are also a significant concern to military veterans. The most prevalent exposures for Iraq and Afghanistan veterans were air pollution, depleted uranium, vehicle exhaust, and petrochemicals. Gulf War veterans, who were also exposed to asbestos and chemical-biologic agents, have a higher incidence of hypertension, musculoskeletal complaints, PTSD, and periodontal disease compared with nondeployed veterans.[37] Airborne hazards have been associated with reports of respiratory complications, decreased forced vital capacity, and other long-term

problems.[34] Agent Orange, an herbicide used during the Vietnam War, has been recognized by the VA as a cause for several illnesses, including B-cell leukemia, Hodgkin disease, lung and prostate cancers, ischemic heart disease, and type 2 diabetes mellitus.[38] Veterans who served in Vietnam, Korea, or Thailand or who worked on certain planes may have been exposed. Family physicians can access resources regarding Agent Orange on the Veterans Health Administration website listed in *Table 1*.

This article updates a previous article on this topic by Quinlan, et al.[39]

Data Sources: A PubMed search was completed using the key terms military personnel, veterans, posttraumatic stress disorder, moral injury, military sexual trauma, traumatic brain injuries, occupational exposure, inhalation exposure, chemical exposure, burn pits, noise exposure, musculoskeletal injury, communicable diseases, and infectious disease. Also searched were the U.S. Department of Veterans Affairs, Veterans Health Administration, Department of Defense, and Psychological Health Center of Excellence. Search dates: December 3, 2018, and July 29, 2019.

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