

## Veteran and Military Mental Health Issues

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## Continuing Education Activity

As the United States endures 2 decades of ongoing warfare, both the media and individuals with personal military connections have raised significant public and professional concerns about the mental health of veterans and service members. This activity reviews the assessment and management of mental health disorders affecting military personnel and veterans, mainly focusing on screening for military service and identifying risk factors unique to these populations. The subject matter delves into various prominent disorders, including posttraumatic stress disorder (PTSD), depression, suicidality, and substance use, providing insights into the crucial role of the interprofessional team in enhancing care for patients facing these challenges.

### Objectives:

- Describe the epidemiology and diagnostic features of PTSD and other mental health disorders prevalent in military populations.
- Screen for mental health issues among active-duty personnel and veterans using appropriate assessment tools and techniques.
- Identify risk factors unique to military personnel and veterans that may contribute to developing mental health disorders.
- Summarize the management options offered by the interprofessional team to enhance the comprehensive care of military personnel and veterans facing mental health challenges.

[Access free multiple choice questions on this topic.](#)

## Introduction

As the United States endures 2 decades of ongoing warfare, both the media and individuals with personal military connections have raised significant public and professional concerns about the mental health of veterans and service members.[1] The most widely publicized mental health challenges veterans and service members encounter are posttraumatic stress disorder (PTSD) and depression. Research indicates that approximately 14% to 16% of the US service members deployed to Afghanistan and Iraq have been affected by PTSD or depression.[2][3] Although these mental health concerns are prominently highlighted, it is crucial to acknowledge that other issues, such as suicide, traumatic brain injury (TBI), substance use disorder (SUD), and interpersonal violence, can be equally detrimental in this population. These challenges can have far-reaching consequences, significantly affecting service members and

their families.[4] Although combat and deployments are known to be associated with increased risks for these mental health conditions, general military service can also give rise to challenges. The presentation of these mental health concerns may not follow a specific timeline. However, there are particularly stressful periods for individuals and families, especially during periods of close proximity to combat or when transitioning from active military service.[5]

As per the recent reports released by the U.S. Census Bureau, there are around 18 million veterans and 2.1 million active-duty and reserve service members (<https://www.census.gov/newsroom/press-releases/2020/veterans-report.html>) in the United States. Since September 11, 2001, the deployment of 2.8 million active-duty American military personnel to Iraq, Afghanistan, and other areas has resulted in a growing number of combat veterans within the population. Over 6% of the US population has served or is currently serving in the military. Notably, this number also does not consider the significant number of relatives affected by military service.[6] Healthcare providers can enhance the quality of care they provide patients and potentially save their lives by comprehending the relationship between military service and a patient's physical and mental well-being.

### **Posttraumatic Stress Disorder**

PTSD was officially recognized and codified in the *Diagnostic and Statistical Manual of Mental Disorders (DSM)-3* in 1980, driven partly by the sociopolitical aftermath of the Vietnam War. However, its manifestations have been alluded to in different forms throughout history, with terms such as "soldier's heart" during the Civil War, "shell shock" in the First World War, and "combat fatigue" around the Vietnam War. The DSM criteria have remained primarily unchanged until the latest update in 2013. However, there is still ongoing debate regarding its classification. As a complex and constantly evolving combination of biological, psychological, and social factors, studying and diagnosing PTSD poses significant challenges. Although PTSD is commonly studied in individuals who have experienced war or natural disasters, its impact is not limited to specific groups and can affect anyone, including children. This disorder is commonly observed in individuals who have survived violent events such as assaults, disasters, terror attacks, and war. However, even secondhand exposure, such as learning that a close friend or family member experienced a violent threat or accident, can also lead to PTSD. Although many individuals may experience transient numbness or heightened emotions, nightmares, anxiety, and hypervigilance after exposure to trauma, these symptoms resolve within 1 month. However, in approximately 10% to 20% of cases, the symptoms may worsen and become persistent, causing significant impairment.[7] PTSD is characterized by intrusive thoughts, flashbacks, and nightmares related to past trauma, leading to avoidance of reminders, hypervigilance, and sleep difficulties. Frequently, reliving the event can evoke a sense of threat as intense as the original trauma. PTSD symptoms can significantly disrupt interpersonal and occupational functioning and manifest in various ways, affecting psychological, emotional, physical, behavioral, and cognitive aspects. Military personnel can be exposed to an array of potentially traumatizing experiences. Military personnel deployed during wartime may witness severe injuries or violent deaths, which can occur suddenly and unpredictably. These events can impact not only intended targets but also others in the vicinity. Active-duty military members risk non-military-related traumas beyond the challenging deployment environment, such as interpersonal violence and physical or sexual abuse. Symptoms related to these traumas may be exacerbated in the deployed environment.

### **Depression**

As a result of 2 decades of ongoing warfare in Afghanistan, there is a rising population of veterans seeking mental health treatment, with a significant portion having experienced combat and deployment. While caring for veterans, healthcare providers should consider the physical injuries they may have sustained during their service period and the emotional wounds they may be experiencing presently, including PTSD, acute stress disorder, and depression. Although depression does not garner the same level of attention as PTSD, this condition remains a prevalent mental health condition in the military. Research shows that depression is responsible for up to 9% of all ambulatory military health network appointments. The military environment can serve as a catalyst for the development and progression of depression. Factors such as separation from loved ones and support systems, the stressors of combat, and the

experience of witnessing oneself and others in harm's way all contribute to an increased risk of depression in both active-duty and veteran populations. After deployments to Iraq or Afghanistan, military medical facilities witnessed an increase in diagnosed depression cases, rising from a baseline of 11.4% of members to a rate of 15%.<sup>[8]</sup> Given this high prevalence, providers have a critical responsibility to identify active-duty and veteran patients who may be suffering from depression.

Major depression manifests through various symptoms, encompassing a depressed mood, loss of interest in activities, insomnia, weight loss or gain, psychomotor retardation, fatigue, reduced ability to concentrate, feelings of worthlessness, and thoughts of suicide. These symptoms dramatically affect the patient's capacity to operate at full potential. Although the array of symptoms is evident on paper, a patient's presentation can often be ambiguous. Surprisingly, it has been found that half of all patients suffering from depression are not correctly diagnosed by their general practitioner.<sup>[9]</sup> Therefore, accurate screening, identifying, and following through with appropriate treatments is paramount, especially in the active-duty and veteran military population.

## **Suicide**

Veteran suicide rates have reached their highest level in recorded history, with over 6000 veterans dying by suicide annually.<sup>[10]</sup> Furthermore, overall suicide rates within the United States have increased by 30% between 1999 and 2016. According to a study conducted in 27 US states, it was estimated that veterans committed 17.8% of reported suicide cases.<sup>[11]</sup> Data published by the U.S. Department of Veterans Affairs (VA) in 2016 indicated that veteran suicide rates were 1.5 times higher than those of non-veterans.<sup>[12]</sup> Research has shown that veterans are at significantly increased risk of suicide during their first year after leaving the military service.<sup>[13][14]</sup> In 2018, a Presidential Executive Order was signed to improve suicide prevention services for veterans during their transition to civilian life. Moreover, the Department of Defense (DoD) and VA have placed significant emphasis on suicide prevention due to the observed rise in fatal and non-fatal suicide attempts during the wars in Iraq and Afghanistan. <sup>[14]</sup> The suicide rates in the U.S. Armed Forces doubled between 2000 and 2012. However, since then, there has not been any significant change in the annual rate of suicides, with approximately 19.74 deaths per 100,000 service members occurring each year.<sup>[15][16]</sup>

## **Substance Use Disorders**

Despite receiving public attention over recent decades, SUDs, including alcohol use, continue to be a problem among veterans and military members. In these populations, alcohol use is prevalent and is frequently utilized for stress relief and socializing. SUDs are associated with significant adverse medical, psychiatric, interpersonal, and occupational outcomes. A study conducted on military personnel revealed that approximately 30% of completed suicides and around 20% of deaths resulting from high-risk behavior were attributed to alcohol or drug use. In the general US population, alcohol is the fourth leading cause of preventable death, contributing to 31% of driving-related fatalities involving alcohol intoxication.<sup>[17]</sup> According to the DSM-5, SUD is a group of behaviors that involve compulsive drug-seeking, which includes impaired control over drug use, dysfunctional social functioning due to drug use, and physiological changes resulting from drug consumption. Addiction represents the most severe stage of SUD in individuals, characterized by a loss of self-control that leads to compulsive drug-seeking behavior despite a desire to quit.<sup>[18]</sup> Substances encompass various categories, including legal drugs such as caffeine, nicotine, and alcohol; prescription medications such as opioids, sedatives or hypnotics, and stimulants; and illicit drugs such as marijuana, cocaine, methamphetamines, heroin, hallucinogens, and inhalants.

## **Etiology**

### **Posttraumatic Stress Disorder**

The etiology of PTSD remains partially understood, with progress in neuroscience and genetics contributing to its characterization as a biological, not solely a psychological, disease. Current research points to factors such as fear

conditioning, neural circuit dysregulation, memory reconsolidation, genetics, and epigenetics, particularly the impact of childhood trauma on hypothalamic-pituitary-adrenal (HPA) axis regulation. Similar to other complex disorders, PTSD is believed to be highly polygenic and influenced by external exposures.[19] Studies using magnetic resonance imaging have revealed differences in the size of anatomical structures in the brain, as well as variations in the levels of neurotransmitters when compared to healthy individuals.[20][21] Although the relationship between genetic predisposition, phenotype, and symptoms is still unclear, several measurable biomarkers can be utilized to determine the cause of PTSD. In addition, individual factors such as past trauma, belief systems, support networks, and other protective or exacerbating factors can impact one another in various ways.[7]

Several risk factors exist before, during, and after experiencing traumatic events. Childhood trauma places individuals at a higher risk of subsequently developing PTSD.[22][23] According to the VA, the most significant predictors of post-deployment PTSD are frequency and intensity of combat exposure. A comprehensive study conducted by the military of the United Kingdom revealed that several factors increase the risk of PTSD, which include lower rank, being unmarried, having a low level of education, being close to the enemy, experiencing low morale or unit social support, and being unaware of common psychological reactions upon returning home.[24] Similarly, a meta-analysis has identified certain risk factors that may already be present before experiencing trauma, which include being female, belonging to an ethnic minority group, having a lower level of education, being enlisted, serving in the Army, having a combat specialty, having undergone multiple deployments for longer periods, experiencing prior adverse life events, and having pre-existing psychological problems. The traumatic events involved in warfare include ongoing exposure to combat, firing a weapon, witnessing another getting wounded or killed, and other concurrent deployment-related stressors. Following the event, the absence of post-deployment psychological and social support increased the risk of PTSD.[25][26]

## **Depression**

Although there has been extensive research on major depressive disorder (MDD) for many years, its cause remains unclear. However, there is a definite connection between MDD and neurobiology. There is an ongoing debate about which markers and processes are the most critical in developing MDD in individuals. Patients with MDD have exhibited heightened responses to cortisol in the HPA axis, potentially explaining how stress becomes a significant risk factor.[27] Another hypothesis focuses on the neurocircuitry of emotions, specifically examining how dysfunction in the cortico-striato-pallido-thalamic circuitry could contribute to the emotional experiences of MDD.

Neurophysiological imaging provides evidence supporting the hypothesis of neurocircuitry dysfunction.[28] As part of the neurocircuitry, neurotransmitters, such as serotonin, have been shown to regulate emotions in MDD. Studies have also explored how serotonin contributes to the neuroplasticity of the human brain.[29] As research progresses, more definitive answers about the etiology of MDD are expected to emerge.

Numerous factors can predispose individuals to MDD. Some common risk factors in the general population include unemployment, financial stress, female gender, and a personal or parental history of mental health concerns.

The military presents the following additional risk factors that providers should consider:[30]

- Uniformed code of military justice actions (legal concerns)
- Rank and promotion complications
- Deployments
- Combat exposure
- Physical fitness concerns
- Permanent changes of station (frequent relocations)

- Command or leadership discord

## **Suicide**

Researchers studied veterans and service members to identify factors associated with military operations and suicide. The purpose was to pinpoint individuals who are vulnerable and provide them with early intervention. While serving in the military, members may encounter various stressors, including disciplinary actions, physical problems such as pain, conflicts with leadership, transferring duty stations, reductions in rank, or administrative separation from service.[31][32] Additional risks include comorbid conditions such as PTSD, MDD, and TBI. Military personnel may also experience worsened conditions due to exposure to combat, combat-related injuries, and access to lethal weapons.[33][34][15] Although young men between the ages of 17 and 19 have the highest risk of suicide, research has shown that female veterans have up to 2.5 times greater risk compared to non-veteran counterparts.[35] [36] Veterans who served in the Marines and Army and those with shorter service commitments of less than 2 years are at an increased risk.[35] Among veterans, those exposed to death or killing have notable associations with suicide, particularly if they witnessed another service member killed or wounded or if they were nearly killed or injured themselves in combat.[10][37] For veterans, the risk of suicide is time-dependent, with the greatest danger occurring within 6 to 12 months after military separation.[5][13]

Military cohorts may have protective factors, including a sense of duty toward others, a sense of belonging or identity, strong interpersonal bonds, and access to healthcare. In particular, service members with family and friends to discuss their deployments with are unlikely to experience suicidal ideation (SI). Another protective factor is having a sense of purpose or control over one's life.[38] Certain demographic features such as higher education, marriage, higher income, and active religious practice may also serve as buffers against suicidality.[32][39][40]

## **Substance Use Disorders**

Neuroscientific advances have significantly enhanced our understanding of drug effects on the brain. Addiction is now recognized as a chronic relapsing disorder triggered by repeat drug exposure in individuals vulnerable to genetics, development, and psychosocial conditions. These conditions encompass accessibility, drug use norms, and social support (or lack thereof). Drug use is fueled by the pharmacological effects of a substance, which result in rewarding experiences. The reinforcing effects of drug use heavily rely on dopamine signaling at the nucleus accumbens in the brain. Chronic exposure leads to glutamate-mediated adaptations in the striato-thalamo-cortical pathway, particularly in the prefrontal cortex at the orbitofrontal and anterior cingulate cortices. Another identified pathway is the limbic system, which comprises the amygdala and hippocampus. Drugs induce alterations in the extended amygdala, resulting in negative baseline emotional states that the drug temporarily alleviates. Counterintuitively, drug use is associated with blunted dopamine release in brain reward regions. The experience of using drugs does not live up to the anticipated reward triggered by conditioning to drug cues. Consequently, the substance leads to an increased drive to seek drugs and a reduced ability to regulate oneself due to its impact on the prefrontal cortex.[41]

Significant genetic influences contribute to SUDs, primarily within the dopaminergic system, affecting neurotransmission pathways. Other genetic influence points involve drug processing and metabolism. Research on gene-environment interactions has provided insights into potential mechanisms of how the environment influences substance use biology. Through epigenetic studies, changes in gene expression induced by drugs have been discovered that vary depending on the stage of the disease, specifically comparing substance initiation to chronic use. Ongoing studies investigate epigenetic mechanisms associated with substance use, such as methylation and microRNA.[18]

## **Epidemiology**

### **Posttraumatic Stress Disorder**

The prevalence of combat-induced PTSD is between 2% and 17% in US veterans. However, in other Western countries, during the same conflicts, the prevalence is lower and with a narrower range. This variability is multifactorial and influenced by the uniqueness of each theater of war and changes in diagnostic criteria over time. Each war exposes participants to varying intensities of combat and occurs in different sociopolitical contexts, from which troops are deployed and eventually returned. There are also notable differences between studies, including variations in sampling methods and measurement strategies, such as self-report versus structured interviews. In addition, delays in assessment after combat exposure, sometimes spanning years or decades, may potentially increase recall bias. The multifactorial, inherently subjective, and evolving nature of PTSD presents significant challenges in accurately defining its epidemiology.[26]

## **Depression**

Major depression is the most prevalent mood disorder in the general population, with an estimated lifetime prevalence of up to 21%. For females, the lifetime incidence ranges as high as 25%, whereas for males, it can be as high as 12%. [42][43][44] Given the high lifetime incidence rates in the general population, the VA and DoD are keenly interested in examining those figures for active-duty members and veterans. Gulf War veterans have a risk of suffering from depression that is more than twice that of the general population.[45] Military members deployed to different conflict zones away from their families and exposed to various stressors face an increased risk of experiencing MDD. According to a report in 2012, 15% of troops who returned from deployment had symptoms consistent with MDD. [43]

## **Suicide**

Before 2000, the suicide rates among military personnel and veterans were lower than those among civilians. However, these rates have increased over the last 20 years and exceed the current civilian rate. Within the military service, there are around 19.74 deaths per 100,000 members. In the US population, the age-adjusted suicide rate for individuals between the ages of 17 and 59 is approximately 16.8 per 100,000 members.[15] Approximately 21 veterans die by suicide daily, representing an incidence 50% higher than the general US adult population.[46][47] Concerns have escalated among female veterans as they have a 50% higher incidence of suicide than their civilian counterparts.[47]

## **Substance Use Disorders**

Changes to DSM criteria and the fact that not all veterans receive care through the VA make it challenging to determine the true prevalence of SUDs in veterans. As with the general population, SUDs are more common in male veterans (10.5% alcohol and 4.8% other drugs) than female veterans (4.8% alcohol and 2.4% other drugs). Unmarried individuals and veterans younger than 25 are at a higher risk for SUD.[48] This is believed to be due to military-specific experiences, such as deployment, combat, and the challenges of reintegrating into civilian life after separation. Mental health issues such as PTSD and depression are also associated with these stressors and may contribute to the development of SUD. Some individuals enlist in the military to leave their difficult home situations behind. A history of childhood trauma can also increase the likelihood of SUDs among veterans.[49]

In military and veteran populations, alcohol use disorders (AUDs) are the most prevalent SUDs. Based on the findings of the National Survey on Drug Use and Health, veterans were found to have a higher likelihood of consuming alcohol than non-veterans (56.6% compared to 50.8%, respectively) and engaging in heavy alcohol use (7.5% compared to 6.5%, respectively) over 1 month. Military personnel who experienced more combat had higher rates of problematic drinking than their peers. Specifically, they had heavy drinking rates of 26.8% and binge drinking rates of 54.8%, whereas other military personnel had rates of 17% and 45%, respectively. Smoking is more common in veterans than age-matched civilians (27% versus 21%, respectively). The rate of opioid prescriptions for veterans has been on the rise. Between 2001 and 2009, the percentage of VA opioid prescriptions increased from 17% to 24%. A diagnosis of PTSD (17.8%) or other mental health disorders (11.7%) significantly increased the likelihood of

receiving an opioid prescription compared to those without such diagnoses (6.5%). Illicit drug use among veterans is comparable to civilians, with approximately 4% reported over 1 month. Among veterans, marijuana is the most commonly used illicit drug, with a usage rate of 3.5% over 1 month. This percentage is higher than the usage rate of other illegal drugs, which is only 1.7%. Notably, cannabis use disorders increased by 50% between 2002 and 2009 among VA patients.[17]

## History and Physical

### Assessment of Military Service

The foundations of a comprehensive mental health assessment remain unchanged when discussing mental health concerns with a service member or veteran. However, a challenge practitioners encounter is identifying military service in a patient's history.[50] Studies have shown that veterans and their families do not disclose their military service history to healthcare providers. Therefore, it is crucial to conduct screenings in community-based or private clinics. Evidence suggests that fewer than half of primary care and mental healthcare providers screen for services, indicating that veterans are unlikely to undergo screening for military-related conditions, such as PTSD. In 2013, the American Academy of Nursing initiated a national campaign in support of veterans and their families.[51] The "Have You Ever Served in the Military?" initiative emphasized the significance of screening for military service during initial encounters.

Some additional recommended questions that might be helpful to ask include:

- "Have you or someone close to you ever served in the military?"
- "During which period did you serve?"
- "In which branch of the military did you serve?"
- "What were your responsibilities during your time in the military?"
- "Did you serve in a hostile or combat area?"
- "Have you encountered enemy fire, witnessed combat, or experienced casualties?"
- "Did you sustain any wounds or injuries or require hospitalization during service?"
- "Were you exposed to noise, chemicals, gases, demolition of munitions, pesticides, or any other potentially hazardous substances during your service?"
- "Have you ever used the VA for healthcare services?"

### Posttraumatic Stress Disorder

Certain individuals may encounter challenges in recognizing or openly discussing the emotional or cognitive aspects of PTSD. They may instead manifest symptoms through complaints related to physiological issues such as insomnia. Nevertheless, the diagnosis will rely on the patient's history, as not all patients exhibit physical exam findings. There are 8 criteria and 2 specifiers for PTSD, which should be comprehensively explored through history-taking, and they are outlined in the "Evaluation" section below.

### Depression

The foundation of a significant depression diagnosis lies in a patient's medical history. This should encompass a comprehensive course of the present illness, current symptoms and timeline, prior history of similar symptoms, factors that alleviate or aggravate the condition, the impact on daily living, and a thorough medical history, including psychiatric history. In addition, other categories to explore comprise family mental health history and social history,

encompassing job or relationship stressors, as well as potential support structures. The same comprehensive medical history is essential to gather for military personnel and veterans.[52] Providers should contemplate incorporating screening for current or prior military service into patient questionnaires, as military members may not readily disclose their current or previous occupation.[51]

A pertinent physical exam is crucial for any encounter and holds equal importance for patients presenting with mental health concerns. For instance, patients experiencing depression often exhibit physical manifestations such as fatigue, insomnia, or weight changes. Examining any potential organic etiologies is crucial when dealing with individuals exhibiting somatic symptoms. Furthermore, healthcare providers must be open and willing to adjust their diagnosis if new symptoms or a more fitting cause becomes apparent.

## **Suicide**

To assess suicide risk in patients, it is crucial to obtain comprehensive medical histories. Specifically, clinicians should identify exacerbating and protective factors, focusing on modifiable intervention targets.[53] During the encounter, providers must inquire about prior suicide attempts, current and previous suicidal thoughts, and self-destructive behavior. Signs indicative of impending suicide include individuals making plans or taking actions toward self-harm, such as acquiring a firearm, drafting a will, bidding farewell to loved ones, giving away personal belongings, or leaving a suicide note. Individuals at risk might frequently mention thoughts of suicide or death, and they may seek assistance from their primary care provider or visit an emergency department in the weeks leading up to a suicide attempt. During these encounters, as patients might describe vague health problems, providers must be mindful and conduct a comprehensive mental health assessment beyond the chief complaint. Some at-risk individuals may have a family history of suicide, and the risk can be elevated around the anniversary of their family member's death. Although the risk of suicide can escalate due to stress from sudden adverse life events, specific enduring issues, including disability, chronic pain, and mental health disorders, can also contribute to an increased risk of suicide. During a mental health assessment, clinicians need to pay attention to a patient's appearance, influence, judgment, and insight, and they should also check for signs of self-harm, such as rope burns or scars on the arms, wrists, or neck, on the patient's body. During the examination, healthcare providers may observe that some patients appear messy, unkempt, or unclean, experience anxiety or depression, or exhibit a lack of emotional responsiveness. Healthcare providers should be able to assess the patient's ability to manage stress and determine whether they have any difficulties while making decisions.

## **Substance Use Disorders**

SUDs are characterized by a pattern of drug use leading to distress or impairment. Diagnosis requires at least 2 of 11 symptoms, categorized under 4 groups, including impaired control, social impairment, risky use, and pharmacological effects, which occur over 1 year. Detailed criteria are mentioned in the "Evaluation" section below. After a positive screening (as discussed below), providers should conduct a comprehensive patient history and examination, including medical and mental health comorbidities, family history, and social background. Presentations may vary depending on the substance(s) an individual uses, and they may have incentives to minimize them. A mental status exam (MSE) may be helpful in the presence of psychiatric symptoms. This assesses appearance, behavior, speech, motor activity, mood and affect, perceptions, thought processes, thought content (including SI or homicidal ideation, hallucinations, and delusions), insight, judgment, and cognitive function. Providers should be alerted to the possibility of an SUD when abnormalities are detected, as they are frequently associated with such conditions. In SUDs, the MSE is typically normal, except during periods of intoxication, withdrawal, active psychosis, or cognitive impairment resulting from chronic substance use. In addition to the history and physical examination, a multidimensional assessment is essential to develop personalized and comprehensive management plans.

Consider the following factors during the assessment:



- The pattern of substance use, treatment history, intoxication or withdrawal potential, and continued use potential
- Emotional, behavioral, and cognitive conditions
- Living environment
- Employment and finances
- Criminal justice involvement
- Readiness to change

Alcohol consumption can have an impact on several organ systems and can lead to changes in behavior, mental health, and social interactions, even if these effects are not directly caused by drinking. Examples of these manifestations include:

- Injuries from accidents or assault
- Anxiety, depression, and suicidality
- Concurrent use of other drugs
- Central or peripheral neurological symptoms
- Sleep disturbances
- Hypertension
- Cardiac disease
- Electrolyte disturbances
- Gastrointestinal symptoms, including reflux (GERD)
- Bone marrow suppression
- Macrocytosis
- Malignancies, including oropharyngeal and gastrointestinal issues

Other substances are also associated with impaired function in nearly every organ system. Diseases may develop from direct toxicity, the method of administration, and high-risk behaviors related to use, such as needle sharing, unprotected sex, or poor hygiene. Possible physical indicators of SUDs include:

- Unintended weight loss or gain
- Scars (track marks) in injection drug use
- Nasal mucosal atrophy or septum perforation in inhalational use
- unsteady gait, slurred speech, pupil changes, conjunctival injection, eye tearing, rhinorrhea, odd behavior, tachycardia, and diaphoresis in cases of acute intoxication or withdrawal
- Signs of medical comorbidities resulting from drug use (refer to the “Complications” section below)

## Evaluation

### Posttraumatic Stress Disorder

Screening: PTSD screening serves multiple functions, with the primary one being risk assessment. This aids in identifying patients at risk of developing PTSD who may not fully meet the criteria yet, enabling them to be directed toward early prevention efforts. Screening also allows for earlier detection of acute and subthreshold cases or uncovering unidentified chronic PTSD patients.[54] The Primary Care PTSD Screen for DSM-5, or PC-PTSD-5, is a 5-item questionnaire with yes/no response options specifically designed for administration by primary care providers. This screening exhibits excellent diagnostic accuracy when compared to semistructured neuropsychiatric interviews. According to the study participants, a cutoff score of 3 or more was deemed the most sensitive, easily comprehensible, and bearable.[55] The PTSD Checklist for DSM-5, or PCL-5, is a 20-item self-administered questionnaire, which is helpful for screening, provisionally diagnosing, and monitoring symptom changes before and after the treatment.[56] The questionnaire employs a rating scale from 0 to 4 for each question; respondents can complete it in 5 to 10 minutes. Studies on veterans revealed probable PTSD can be indicated by a cutoff score ranging between 31 and 33 out of 80.[57] The questions are grouped into clusters corresponding to each DSM-5 diagnostic criteria B through E, allowing them to be used for provisional diagnosis in patients who meet the diagnostic rules.[56]

Diagnosis: The DSM-5 diagnostic criteria for adults are listed below.

- Exposure to death (actual or threatened), serious injury, or sexual violence by:
  - Experiencing it directly
  - Witnessing it as it occurred to others firsthand
  - Learning that it happened to a close friend or family member
  - Experiencing repeated or extreme exposures to unpleasant details of the event(s), such as police officers repeatedly finding human remains.

Notably, exposure through media is not applicable unless it occurred as part of the patient's work.

- Intrusion symptoms (more than 1):
  - Distressing memories of the event which are invasive, involuntary, and recurring
  - Recurrent nightmares about the event
  - Dissociative reactions, such as flashbacks, where the patient feels like they are reliving the event
  - Prolonged or intense psychological distress triggered by cues resembling some aspect of the event
  - Significant physiological responses to cues resembling some aspect of the event
- Avoidance of trauma-related stimuli, as displayed by 1 or both of the following:
  - Efforts to avoid distressing memories or thoughts related to the trauma
  - Steps to avoid people, locations, topics, or situations that trigger painful recollections of the event
- Negative mood or cognitions surrounding the event, as displayed by 2 or more of the following criteria:
  - Inability to recall significant features of the event, excluding other etiologies such as TBI and intoxication
  - Exaggerated or persistent pessimistic beliefs about the self, others, or the world
  - Distorted ideas about the cause or consequences of the trauma
  - Persistently negative emotional state, characterized by feelings of fear, anger, or shame
  - Detachment from others

- Inability to experience positive emotions such as satisfaction, love, and happiness
- Altered arousal and reactivity, as indicated by 2 or more of the following criteria:
  - Irritability, despite minimal provocation, often expressed as angry outbursts or physical or verbal aggression
  - Engaging in recklessness or self-destructive behavior
  - Experiencing hypervigilance
  - Demonstrating a marked startle response
  - Difficulties in concentration
  - Experiencing insomnia
- Criteria B through E must be present for longer than 1 month.
- These symptoms must cause considerable distress or impairment in social, occupational, or other important functional domains.
- Substances or other medical conditions cannot cause symptoms.

The ideal approach to diagnosing PTSD involves utilizing multimethod assessments, considering the limitations of individual tools. This typically includes employing a self-report symptom severity measure, such as the PCL-5, in conjunction with a semistructured clinical interview. Research on biological measurements, such as heart rate, sweat gland activity, and neuroimaging, is still ongoing, and these methods are not yet widely accessible. Semistructured clinical interviews, most commonly the Clinician-Administered PTSD Scale for DSM-5 (CAPS-5), are conducted by trained interviewers, considered the "gold standard" for diagnosis. The advantage of using a semistructured clinical interview lies in its ability to clarify responses, thereby reducing the likelihood of misinterpretation of questions, exaggeration or minimization of symptoms, and inconsistent responses.[54] CAPS-5 consists of 30 items and can diagnose symptoms within the last week, month, or over a lifetime while also quantifying severity based on symptom frequency and intensity. The reliability and validity of CAPS-5 are well-established, even among veterans.[58]

## Depression

Screening: Major depression is a common condition in the general population, but it is often underdiagnosed. To address this issue, the United States Preventive Services Task Force recommends depression screening for individuals 12 or older. As the youngest service members are 18 years old, it is highly recommended to conduct depression screening in the military community. At present, the Public Health Questionnaire (PHQ) instrument utilizes a 2-item (PHQ-2) and a 9-item (PHQ-9) to identify patients who require additional investigation efficiently. Even though PHQ-2 and PHQ-9 have similar sensitivities, the specificity of PHQ-9 is higher, with a range of 91% to 94% compared to PHQ-2's range of 78% to 92%.[59] Other screening tools for the primary care setting include the Beck Depression Inventory for Primary Care (BDI-PC) and the 5-item World Health Organization Well-Being Index (WHO-5). The BDI-PC has been utilized in over 7000 studies. The BDI-II, a variation of the BDI, is helpful as a severity scale. In the scoring of the BDI-II, a score of 0 to 13 indicates minimal depression, 14 to 19 corresponds to mild depression, 20 to 28 indicates moderate depression, and 29 to 63 indicates severe depression.[43]

Although still valuable as a severity tool, the BDI-II was found to have high sensitivity (over 90%) but lower specificity (59%) compared to the PHQ tools.[60] Screening does entail some risk of false positives, leading to unnecessary treatments. As an alternative, the WHO-5 is another user-friendly, self-administered questionnaire with a sensitivity of 86% and specificity of 81%.[61] These screening tests are crucial in initiating engagement with the depressed patient. Studies have demonstrated that implementing screening tools, such as patient questionnaires and

early feedback, reduced the risk of persistent depression (summary relative risk of 0.87 with a 95% CI of 0.79 to 0.95).[52] Considering the prevalence of depression in the active-duty and veteran populations, screening tools are strongly recommended, as they have been shown to increase detection rates from 10% to 47%.[52] Early detection of the disorder has proven effective in reducing the duration of symptoms in our military population.

**Diagnosis:** According to DSM-5 criteria, MDD can be diagnosed when a patient experiences 1 or more MDDs. An MDD episode is defined as having 5 symptoms present during 2 weeks and a change in baseline functional status. In addition, a depressed mood or a loss of interest or pleasure in activities is necessary to confirm the diagnosis. The complete list of symptoms to consider in MDD includes depressed mood, loss of interest or pleasure in activities, weight loss or gain, insomnia or hypersomnia, psychomotor agitation or retardation, fatigue, feeling worthless or excessive guilt, decreased concentration, and thoughts of death or suicide. Physiological causes, SUDs, and other psychiatric disorders must be excluded.

**Laboratory and imaging:** Evaluations should be conducted at the provider's discretion, guided by the patient's history and physical examination. Common laboratories drawn in the initial evaluation of a patient with depressive symptoms include:

- Complete blood count
- Serum chemistry panel
- Urinalysis
- Thyroid-stimulating hormone
- Rapid plasma reagin
- Human chorionic gonadotropin
- Urine toxicology screen

Imaging is generally reserved for cases with suspicion of structural brain diseases. Further laboratory and neuroimaging evaluations should be guided by the findings in the patient's history and physical examination.

## **Suicide**

Although numerous resources are available for identifying those at elevated risk of suicide, most of these screening tools are ineffective in accurately predicting risks. These tools often exhibit low positive predictive values and high false-negative and high false-positive rates.[62] Nonetheless, these questions have been proven not to increase a patient's SI or behavior; therefore, screening ultimately presents no significant harm.[63] In contrast, patients may not feel comfortable admitting to suicidality without prompting and, therefore, may appreciate the opportunity to discuss their thoughts. Screening may also assist clinicians in directing additional investigations into patients' behavioral health. One widely accepted method is Item 9 on the PHQ-9 tool, which identifies suicide risk as mentioned below.

Item 9: "Over the past 2 weeks, how often have you been bothered by thoughts that you would be better off dead or of hurting yourself in some way?"

Responses: "Not at all," "Several days," "More than half the days," or "Nearly every day." [64]

Generally, patients who respond with high levels of SI are associated with a higher risk of death by suicide.[34] However, a significant constraint of the PHQ-9 is its many false-negative rates. One study found that 71.6% of suicidal deaths were by patients who endorsed "not at all" on Item 9.[62] Although it has some limitations, the VA still suggests using it as a screening tool for suicidality with a weak recommendation.

Clinicians should conduct suicide risk evaluations on patients who screen positive. There are multiple analytic models and assessment tools for determining the future risks of suicide. These methods aid in standardizing the information gathered during the patient interviews.[65] However, as no single approach is sufficient to evaluate suicidal risks in these cases, healthcare providers should also conduct clinical interviews with patients to assess the risk instead of relying solely on assessment tools.[66]

## **Substance Use Disorders**

**Screening:** Although several alcohol-use screenings have been validated, none offer advantages over the single-item screening, Alcohol Use Disorders Identification Test (AUDIT), or AUDIT-Concise Test (AUDIT-C) in primary care settings. The AUDIT is the most effective test for identifying individuals who engage in high-risk, hazardous, or harmful drinking. Depending on the score cutoffs and criteria used, the test showed a sensitivity range of 51% to 97% and a specificity range of 78% to 96%. On the other hand, the CAGE questions were found to be most helpful in predicting AUDs and dependence. The questions showed a sensitivity range of 43% to 94% and a specificity range of 70% to 97%. Some single-item screening questions have been suggested. An example of a validated question is, "On a single occasion within the last 3 months, have you had 5 or more drinks containing alcohol?" An affirmative response for identifying problematic alcohol use in individuals was 62% sensitive and 93% specific.

The brevity, memorability, and lack of scoring make this screening easy to use. AUDIT is the most widely validated AUD screening, containing 10 items that take 2 to 3 minutes to complete. The screening questions assess the frequency, quantity, drinking occasions, impairment, dependence, harmful use, and concern from others. Scores range from 0 to 40, with a score of 8 or higher indicative of unhealthy alcohol use. The AUDIT-C questionnaire consists of 3 questions related to excessive alcohol consumption. Although it was proven primarily in male veterans, other studies validating its use in various populations are now being published. Studies show a sensitivity range of 54% to 98% and a specificity range of 57% to 93% for varying definitions of "heavy drinking." [67]

The AUDIT-C questions are as follows:

- How often do you have a beverage containing alcohol?
- How many drinks containing alcohol do you consume on a typical drinking day?
- How often do you have 6 (male) or 4 (female) or more drinks on a single occasion?

CAGE is a series of 4 questions designed to detect SUDs and dependence according to DSM-4 criteria. This set of questionnaires is most helpful in identifying patients with severe problems when responses to 2 or more questions are positive. If the responses are positive, they should be supplemented with quantity and frequency questions.[67]

The CAGE questions are as follows:

- Have you ever felt the need to **C**ut down on drinking?
- Have others **A**nnoyed you by criticizing your drinking?
- Have you ever felt **G**uilty about your drinking?
- Have you ever needed to drink first thing in the morning to steady your nerves or get rid of a hangover (**E**ye-opener)?

**Diagnosis:** DSM-5 diagnostic criteria are listed below. The presence of 2 to 3 symptoms is considered a mild SUD, 4 to 5 symptoms indicate a moderate SUD, and 6 or more symptoms indicate a severe SUD.[18]

Impaired control:

1. Taking the substance in more significant amounts or over a more extended period than intended.
2. Unsuccessful attempts or a persistent desire to reduce or regulate the use.
3. Spending excess time to obtain, use, or recover from the effects of the substance.
4. Experiencing solid cravings, intense desire, or urges for the substance can occur at any time.

Social impairment:

1. Inability to manage roles at work, school, or home due to significant interference caused by substance use.
2. Continued use of a substance despite experiencing recurrent social or interpersonal consequences exacerbated by the use.
3. Reduced participation in significant social, recreational, or occupational activities due to substance use.

Risky use:

1. Substance use in physically hazardous locations.
2. Continued substance use despite being aware of persistent physical or psychological consequences worsened by the drug.

Pharmacology:

1. Increasing the dosages of the substance to achieve the desired effect (tolerance).
2. Developing withdrawal symptoms, such as physical or psychological symptoms, which occur when substance intake is discontinued, or its dosage is decreased.

Laboratory tests such as urine, blood, sweat, hair, saliva, and breath tests exist for alcohol and other drugs, and they can detect recent substance use. Patients are more likely to answer use-related questions honestly when an objective measure has been accepted. However, as objective measures cannot quantify the frequency or dose(s) used, they may be of higher utility in monitoring abstinence. Basic screening tests exist for amphetamines, cocaine, cannabis, certain opioids, and phencyclidine. Except in emergencies, permission for obtaining a drug screening must be obtained. Although several alcohol-specific laboratory tests exist, they frequently require heavy and repetitive alcohol consumption to detect abnormalities, and most of them have varying degrees of non-specificity.

In the absence of other explanations, the following can aid in the assessment of unhealthy alcohol use:

- Liver function tests: Aspartate aminotransferase (AST) and alanine aminotransferase (ALT) can show elevated levels of hepatotoxicity. An AST:ALT ratio of 2:1 is more specific to alcohol-induced liver disease. In addition, bilirubin levels may be elevated, and albumin levels may be decreased in cases of liver damage.
- Complete blood count: Chronic alcohol use can lead to anemia, pancytopenia, and macrocytosis, which can be observed in the blood count.
- Gamma-glutamyltransferase (GGT): GGT is another enzyme primarily found in the liver and is often elevated with excessive alcohol use. The reference range for GGT is typically 8-40 units/L in females and 9-50 units/L in males.

The following tests are less commonly accessible:

- Carbohydrate-deficient transferrin (CDT): A CDT level higher than 1.6% indicates prolonged and excessive alcohol consumption within approximately 2 weeks. Although CDT is fairly specific, it may also show elevated levels in some rare liver diseases, such as primary biliary cirrhosis.
- Phosphatidylethanol (PEth): PEth is a specific marker for alcohol use. A value greater than 20 ng/dL is associated with moderate alcohol consumption, whereas values greater than 200 ng/dL typically indicate heavy alcohol consumption.[68][67]

## Treatment / Management

### Posttraumatic Stress Disorder

Treatment for PTSD should be initiated soon after diagnosis when symptoms have persisted for at least 4 weeks, although most patients present with the symptoms months or years later. First-line treatment primarily involves psychotherapy, while medications can be considered a reasonable alternative or adjunctive strategy based on patient preference or when psychotherapy is not accessible.

Non-pharmacological therapies: Effective PTSD psychotherapies include exposure therapy, cognitive processing therapy (CPT), trauma-focused cognitive behavioral therapy (TF-CBT), and eye-movement desensitization and reprocessing (EMDR). Exposure therapy is rooted in emotional processing theory and seeks to correct a dysfunctional fear cognitive structure. CPT is trauma-specific and takes 12 weeks. This approach incorporates emotional processing and social cognitive theory elements, aiming to address and rectify distorted cognitions about the self and the world that may arise following trauma.[69] TF-CBT is a therapy that is a combination of exposure and cognitive techniques.[70] The type of therapy chosen depends on the patient's dominant symptoms, as those experiencing fear and avoidance tend to benefit from exposure techniques, whereas those with guilt and mistrust may benefit more from cognitive therapies. Interpersonal psychotherapy, initially designed for depression treatment, has demonstrated efficacy against PTSD as well, although it has received less research attention in comparison.[69]

Pharmacotherapy: Medications can be an effective option in reducing core PTSD symptoms. They are more effective against hyperarousal and mood symptoms and less effective for re-experiencing emotional numbing and avoidance symptoms. No medication class has demonstrated better suitability or tolerability than others. However, the largest and greatest number of trials have been conducted on selective serotonin reuptake inhibitors (SSRIs). Multiple randomized control trials found reduced PTSD symptoms with SSRIs compared to placebo. Venlafaxine, a serotonin-norepinephrine reuptake inhibitor (SNRI), has shown effectiveness and tolerability in limited literature.[71][72] Second-generation antipsychotics and an alpha-blocker antihypertensive, prazosin, are second-line treatments that effectively reduce symptoms.[73] The effectiveness of benzodiazepines remains a topic of debate, and expert consensus advises caution when considering their use. There is limited research coverage and no clear evidence of significant symptom reduction with tricyclic antidepressants (TCAs), monoamine oxidase inhibitors (MAOIs), and mood stabilizers.

Combination therapies: Some trials suggest that SSRIs, TF-CBT, and their combinations are roughly equivalent in effectiveness, with some advantages to psychotherapy for patient preference. There was improved adherence when patients were given their preferred treatment modality.[74][75] A recent meta-analysis showed that multicomponent interventions were the most effective treatment approach. The same study found that psychotherapy, especially trauma-focused modalities, was effective for PTSD, comorbid anxiety, depression, and insomnia. Pharmacotherapies were less effective than psychotherapy for addressing PTSD symptoms and improving sleep.[73]

### Depression

Treatment for MDD remains the same for both the general and military populations. Combinations of pharmacological and psychotherapies have been proven to be the most effective treatment strategy.[76]

**Psychotherapy:** Psychotherapy is a category of treatment options that involve talk sessions between the patient and the provider. Several types of psychotherapies include CBT, interpersonal psychotherapy, behavioral activation, problem-solving therapy, supportive psychotherapy, and psychodynamic psychotherapy. Although no specific type has been proven superior to another, CBT and Interpersonal Psychotherapy are often chosen as the first-line treatments due to the extensive body of research supporting the effectiveness of these methods.[77][78] CBT involves the patient discussing practices, behaviors, and beliefs that must be changed or reinforced to help the patient.

**Pharmacotherapy:** Ongoing evidence supports the use of pharmacological agents in treating MDD. Available options include serotonin reuptake inhibitors (SRIs), SSRIs, MAOIs, SNRIs, and TCAs. Each class of medications works in slightly different ways and is beyond the scope of this article. The selection of the appropriate agent should be tailored to the individual patient's needs. Patient factors include comorbid conditions, clinical presentation, adverse effects, and previous medication use.[79] For instance, SSRIs are typically considered first-line for MDD; however, if a patient desires to quit smoking and lose weight, bupropion may be a more suitable choice due to its specific adverse effect profile and additional uses. Although more robust and more involved treatments, such as ketamine infusions, are available, they are typically reserved for refractory cases.

**Electroconvulsive therapy (ECT):** ECT involves an electric current to stimulate the brain into a generalized cerebral seizure. Although ECT is widely accepted as a productive and safe therapy, it is generally reserved for severe and resistant MDD cases.[80] ECT is less frequently used because of the stigma associated with the procedure created by popular media.

## **Suicide**

The VA and DoD recommend implementing a crisis response plan to assess SI and the individual's history of previous attempts as part of the treatment. Patients at imminent risk of suicide should be hospitalized, and a safety plan should be developed to ensure their well-being.[81] The provider and patient should discuss recent stressors and collaboratively identify behavioral, cognitive, or physical signs of crisis for the patients. In addition, patients should identify self-management skills to help them distract from distressing situations, reduce stress, and consider the protective factors in their lives. Clinicians should provide emergency resources, including medical and mental health providers and suicide lifelines (refer to the "Consultations" section below). Follow-up and appropriate referrals are essential for continued care. Finally, if the patient is in the military, the provider should inform the patient's leadership to enact safety measures for protecting the patient and unit missions. Current regulations require that a member with suicidal behavior be placed on a duty limitation, which restricts them from entering exacerbating environments, such as deployment to remote locations. Hence, military medical services play a crucial role in treating suicidal patients. Detailed information can be found in the VA/DoD clinical practice guidelines (<https://www.healthquality.va.gov/guidelines/MH>).

## **Substance Use Disorders**

**Non-pharmacological therapies:** Psychotherapy is the mainstay of SUD treatment. Screening, Brief Intervention, and Referral to Treatment (SBIRT) is the first-aid strategy intended to intervene in unhealthy drinking before it progresses to AUD and offers immediate treatment for those who have already developed it. If further treatment or evaluation is necessary, patients should be provided with the option of longer-term management in either primary care or specialist settings. Evidence-based psychotherapy or behavioral interventions should be available, with short-term CBT being a common approach to identify and modify maladaptive thoughts and behaviors related to substance use. In addition, CBT can be beneficial in incentivizing abstinence, managing contingencies, and enhancing stress management skills. [17]

Patient-centered motivational interviewing aims to encourage patients to participate in treatment actively. Research has demonstrated that this approach can reduce weekly drinks consumed and alcohol dependence rates.[82] In those with comorbid PTSD, integrated therapies addressing both conditions have been developed. Studies indicate that



adding trauma-focused interventions does not exacerbate substance use and, in many cases, may lead to a decrease in substance use. PTSD outcomes have shown improvement with integrated approaches in multiple randomized controlled trials. However, there is currently insufficient evidence to determine whether integrated treatment plans are superior to treating SUDs and PTSD separately but concurrently.[83]

**Pharmacotherapy:** Several pharmacotherapies have garnered support in managing SUDs, primarily by reducing cravings or withdrawal symptoms to incentivize abstinence or reduce barriers to quitting.[17] The 3 medications approved by the U.S. Food and Drug Administration (FDA) for AUDs include naltrexone, acamprosate, and disulfiram. The FDA approves methadone, buprenorphine, and naltrexone for opioid use disorders (OUDs). However, there are currently no off-label drugs to treat cocaine or marijuana use disorders.[84]

In addition to clinical interventions, veterans with SUDs can be introduced to self-help groups such as Alcoholics Anonymous or Narcotics Anonymous. These groups are generally free, widely available, and valuable for ongoing maintenance and engagement for those seeking abstinence.[17]

## Differential Diagnosis

### Posttraumatic Stress Disorder

The diagnosis of PTSD involves considering a wide range of possible conditions, which can be made more complex by the presence of other psychiatric disorders. Some of these are discussed in the "Complications" section below. The following is a brief list that pertains specifically to adults:

- Acute stress disorder: Acute stress disorder is diagnosed in individuals presenting with at least 9 of 14 symptoms in 5 categories (intrusion, negative mood, dissociation, avoidance, and arousal), which lasts between 3 days to 1 month after a trauma, and leads to functional impairment. Although most patients recover within this period, those who remain symptomatic even after 30 days are reclassified as having PTSD.
- Adjustment disorders
- Depressive disorders
- Anxiety disorders: includes specific phobias, social anxiety disorder (social phobia), panic disorder, agoraphobia, and generalized anxiety disorder.
- Substance use
- Obsessive-compulsive disorder
- Bereavement
- Schizophrenia and other psychotic disorders
- Personality disorders, especially borderline personality disorder
- Dissociative disorders
- Conversion disorder
- TBI

### Depression

Although the complete differential diagnosis for MDD is extensive and goes beyond the scope of this article, 3 other conditions that must be considered before establishing this diagnosis are grief, adjustment disorder, and persistent depressive disorder (PDD). Grief typically occurs in response to the loss of a loved one. Patients experiencing grief

often exhibit symptoms that overlap with depression, including decreased interest in activities, depressed mood, and thoughts about the deceased individual.[85] Auditory hallucinations are not uncommon in cases of grief. Adjustment disorder is characterized by a self-limited but out-of-proportion, emotional, or behavioral response to an acute stressor that does not meet the diagnostic criteria for another mental health disorder. Rates of adjustment disorder are considered equivalent or higher than MDD.[86] PDD shares many of the same symptoms and diagnostic criteria as MDD. The distinguishing characteristics lie within the timeline of each disorder. In MDD, symptoms must be present for at least 2 weeks, whereas in PDD, symptoms must persist for 2 years without a break of 2 months or more.

### **Substance Use Disorders**

Differential diagnoses in SUDs depend on the specific substance involved and are numerous. Furthermore, for most other DSM-5 diagnoses, it is crucial to rule out substance-induced variants, as they can manifest similarly or trigger the onset of such disorders. Substance-related diagnoses include psychotic, bipolar, depressive, anxiety, obsessive-compulsive, related sleep disorders, sexual dysfunction, delirium, and neurocognitive disorders.

## **Treatment Planning**

### **Military Command Exception to Health Insurance Portability and Accountability Act (HIPAA)**

There is a significant stigma against seeking care for mental health disorders in the active-duty population, primarily due to the fear of potential repercussions on their military career. Although specific circumstances may necessitate notification of an active-duty patient's Commanding Officer, most routine mental health care does not. An upfront discussion between a provider and a patient regarding the limits of confidentiality is crucial to establishing a trusting and effective patient-provider relationship. Instances in which a medical provider must notify a patient's Commanding Officer include situations involving a severe risk of harm to the patient, others, or the mission. In these instances, the disclosure of otherwise protected health information is considered essential for national security and the patient's well-being. This exception helps prevent high-risk patients from being assigned to work duties that could limit their access to appropriate care and potentially place them in further harm's way until their condition is stabilized.

## **Prognosis**

### **Posttraumatic Stress Disorder**

The prognosis for PTSD varies widely between individuals and can sometimes lead to a chronic condition. Approximately one-half of adults will experience recovery within 3 months, whereas another one-third may recover by 12 months. However, a significant minority of patients may remain symptomatic even after 10 years. Those who recover without treatment are more likely to do so within the first year. However, affected individuals may experience educational or occupational challenges, difficulties in intimate relationships, and reduced social support.[87] Nevertheless, current treatments have shown effectiveness in reducing symptoms and achieving remission. Treating all conditions concurrently for individuals with psychiatric comorbidities is generally recommended for better outcomes.[73]

### **Depression**

MDD is variable, with less than half of cases resolving within 3 months of onset, compared to approximately 80% showing improvement within 12 months. MDDs falling under the severe specifier are associated with a higher risk of recurrence and can sometimes become a chronic condition requiring ongoing attention and maintenance. Studies have shown that patients who continued with pharmacotherapy for a minimum of 6 to 12 months following their first depressive episode experienced less risk of recurrence of symptoms than those who discontinued medication earlier (25% compared to 50%). Although remission is the ultimate goal, trials show that continued care and collaborative treatment programs reduce the prevalence and incidence of MDDs later in life.[88]

## **Suicide**

Patients who have experienced non-completed suicide attempts have a significantly increased risk for subsequent attempts. Although the risk of completed suicide is highest in the first year after an attempt, the danger can remain elevated for a decade.[89][90] Several studies estimate that the risk of a repeat suicide attempt is approximately 5% to 10% over a timeframe ranging from 5 to 35 years.[91] Providers should screen for depression and SUDs, as they are correlated with completed suicides through an increased likelihood of further attempts.[92][93]

## **Substance Use Disorders**

A significant study on VA patient-centered medical homes found that depression, severe mental illness (excluding PTSD), and SUDs were associated with an increased 1-year risk of hospitalization and death. The authors attributed the exemption for PTSD to the higher frequency of healthcare encounters in patients with PTSD. This supports the idea that mental illnesses, including SUDs, are associated with poor outcomes but can be somewhat relieved by access to care.[94] In another study, veterans admitted into intensive PTSD programs were divided into 7 groups based on their substance use: no substance use, or use of alcohol, opiates, sedatives, cocaine, or marijuana alone, and use of multiple substances. Changes in non-substance use outcomes, including PTSD symptoms, violence, suicidality, medical problems, and employment before and after PTSD treatment, were compared, and the effect of abstinence on each group was evaluated. Although abstinence rates varied among the groups, it was consistently associated with improved outcomes, except for employment, in all the groups.[95]

## **Complications**

### **Posttraumatic Stress Disorder**

Patients with PTSD are susceptible to a range of somatic and mental health comorbidities, and the direction and extent of overlap between these diagnoses are intricate. In a study involving OIF/OEF veterans with PTSD, it was found that compared to veterans without mental health conditions, those with PTSD had more medical diagnoses, with the most common being lumbosacral spine disease, headache, lower extremity joint problems, and hearing loss.[96] PTSD often co-occurs in patients with chronic pain, which, in turn, is associated with an increased risk of AUD.[97] Among obese VA patients, there is a correlation between obstructive sleep apnea and mood and anxiety disorders, with the strongest association found in PTSD and MDD.[98]

PTSD and AUD have been consistently linked over decades of research. Research demonstrated that men have a higher prevalence of AUD, whereas women have a higher prevalence of PTSD. However, individuals with either disorder are more likely to have the other. SUDs were 4 times more likely (with a rate of 55% to 75%) in Iraq and Afghanistan veterans with PTSD.[99] A 2018 review found no clear order of development between the two: some evidence suggests veterans with past trauma develop AUD, supporting a self-medication hypothesis. Other studies show that those with SUDs have more exposure to traumatic events and an increased risk of developing PTSD.[100] In both veteran and civilian samples, comorbid SUD/PTSD patients demonstrated poorer treatment responses, more severe substance use, social and legal problems, and higher rates of suicide attempts compared to those with either disorder alone.[101]

A study has shown that depression and PTSD are often connected, as 36% of patients with depression had positive PTSD screens. Individuals suffering from both depression and PTSD experience higher medical illness burdens, worse prognoses, lower social support, higher rates of suicidal ideation, and prolonged treatment needs compared to those with either condition alone.[102] The study found that 57% of participants reported lifetime DSH, with 45% reporting DSH in the last 2 weeks. DSH was a significant predictor of SI, along with PTSD symptom severity.[103] PTSD is associated with higher rates of suicidal ideation independent of other psychiatric disorders.[104]

TBI and PTSD are also known to have comorbidities and are the subject of extensive research. The most significant studies of Iraq and Afghanistan veterans show an overlap rate between 5% and 7% in these conditions. In individuals

with mild TBI (mTBI), the frequency of PTSD ranges from 33% to 39%. As many as 23% of returning OIF/OEF veterans experienced TBI, with the vast majority classified as mild cases. However, even mTBI can result in somatic, cognitive, or behavioral changes that may complicate presenting PTSD symptoms. The effectiveness of treatments for mTBI or PTSD alone is still uncertain and requires further research. Furthermore, there is some concern that pharmacotherapies used for PTSD may exacerbate cognitive symptoms of the disorder. Cognitive limitations, impaired emotional regulation, impulse control, and pain resulting from TBI may also restrict the effectiveness of PTSD treatment and hinder patients' ability to engage in therapy actively.[105]

## **Depression**

MDD is accompanied by a constellation of symptoms that can lead to further complications. Weight gain and fatigue are common symptoms of depression. Studies have shown an odds ratio of 1.18, indicating a link between depression and obesity.[106] Obesity is associated with many comorbidities, including heart disease, high blood pressure, and diabetes. MDD is also associated with an increased risk of suicide. Veterans are especially vulnerable, with over 6000 committing suicide yearly.[10] Issues with pain and SUDs are also much more prevalent in cases with MDD among veterans.

## **Suicide**

Suicide attempts and completions are traumatic events that can impact many people and lead to long-term concerns. Friends and family members may experience various emotions toward the patient, including anger, guilt, betrayal, anxiety, or helplessness. Post-suicide interventions can help family and friends understand suicide victims and reduce their inappropriate assumption of responsibility.[107] However, CBT for family members and friends has not shown clinically significant improvements in grief and depressive symptoms.[108] Nonetheless, monitoring the family, friends, and coworkers of the suicide victim can be beneficial in reducing the risks of PTSD, depression, and suicide.

## **Substance Use Disorders**

Psychiatric symptoms, including distress, often precede and exacerbate cravings in individuals with SUDs. The presence of comorbid psychiatric disorders can make SUDs more severe and challenging to treat. Among OEF/OIF veterans with SUDs, 82% to 93% had another co-occurring mental health disorder, and they were 3 to 4 times more likely to have PTSD or depression. Less than 1% of veterans had an isolated diagnosis of SUD. Veterans with dual diagnoses were more likely to experience homelessness and require disability benefits. They also tend to have lower quality of life, poorer relationships, and higher rates of aggression.[99] Interpersonal, legal, and professional consequences of alcohol use are twice as likely in binge drinkers compared to other drinkers (9% versus 4%).[17] Furthermore, those with SUDs have higher rates of medical comorbidities such as obesity, sleep disturbances, physical injury, and chronic pain.[109] Specific medical complications vary by the substance(s) used, routes of administration, and other factors, highlighting the need for thorough history-taking and a high index of suspicion.

Medical conditions potentially resulting from, and possibly indicating, SUD are listed below.[110]

- Cardiovascular disease: Hypertension, cardiomyopathy, endocarditis, and heart failure
- Gastrointestinal disease: Pancreatitis, cirrhosis, chronic liver disease, and hepatitis B or C
- Kidney failure
- Central nervous system disease: Dementia, memory/attention impairment, cerebral vasculitis, intraparenchymal hemorrhage, stroke or TIA, and TBI
- Pulmonary disease: Chronic obstructive lung disease, bronchospasm, pneumonia, hypersensitivity pneumonitis, and tuberculosis
- Sexually transmitted infections

- Impaired immunity
- Bacterial infections
- Pregnancy and birth complications

## Consultations

Practitioners should be dedicated to understanding the unique challenges veterans and their families face and be familiar with available military resources. Making appropriate referrals is an essential aspect of providing continued care for veterans. There are various reasons to refer veterans to military or VA-related organizations, as they can benefit from treatment plans that involve providers and other veterans who understand their life experiences. The DoD and affiliated organizations offer programs to assist with various concerns that veterans may face.

Military OneSource is an excellent example that serves military members and their families, offering programs such as non-medical counseling, financial coaching, and employment resources. Coaching into Care is a valuable VA telephone service that connects veterans and their loved ones with relevant programs in local VA facilities or communities. The service provides free coaching from licensed psychologists and social workers to help veterans adjust to civilian life and seek appropriate treatment. Community peer groups can be a valuable tool when available.

If there are no local VA services available, veterans and family members can call the Vet Center Call Center, which provides 24-hour readjustment counseling from staff who are also combat veterans or family members of veterans. In moments of crisis, the VA offers the toll-free Veterans Crisis Line, which has trained responders, many of whom are veterans.

For active-duty patients and medical officers, familiarity with the "Military Command Exception" for disclosing protected health information (PHI) that would otherwise violate the HIPAA Privacy Rule is crucial. This exception requires medical personnel to notify a patient's Commanding Officer when a patient poses a severe risk of harm to self, others, or the mission. Medical personnel and Commanding Officers must consider a service member's fitness for duty when determining appropriate duty assignments and facilitating access to care for the individual.

## Deterrence and Patient Education

### Posttraumatic Stress Disorder

The risk of developing PTSD and the effectiveness of treatments can be influenced by social support. However, it can be challenging for patients to admit to the effects of past traumas and initiate care. There may be a strong sense of fear, vulnerability, and confusion. PTSD affects physical and mental health in ways that are not always apparent. Thus, awareness of the signs and symptoms is essential. Patient buy-in and commitment to treatment courses, especially when addressing comorbid conditions, are crucial in reducing the illness burden for patients and their loved ones.

### Depression

Military members are at risk of developing MDD, given risk exposures inherent to both the general population and military service. Despite the DoD's renewed energy and devotion to providing members adequate access to care, the stigma around mental health remains. Military members and veterans report worrying about appearing weak or being overlooked for a position as reasons not to seek care.<sup>[43]</sup> Communicating the need to seek treatment in a judgment-free setting is crucial to patient follow-up. Support resources are available across the DoD and VA. Educating patients on accessing these resources is essential for promoting self-directed care. Utilizing social networks as a support system is also helpful in gaining patient buy-in for treatment programs. MDD is a significant concern within the active-duty and veteran populations. However, with proper screening, diagnosis, and treatment programs within the military's vast resource network, strides can be made in decreasing its prevalence.

## **Suicide**

Due to high rates of suicide among veterans, safety plans are mandated by the VA for those at risk.[12] This commonly utilized tool outlines strategies for patients to manage and overcome recurring suicidal impulses. Safety plans have 6 hierarchical steps to mitigate suicide risk:[111]

- Step 1: Identify warning signs that indicate an impending suicidal crisis.
- Step 2: Employ internal coping strategies (meditation, pleasant activities, or relaxation techniques).
- Step 3: Reach out to social contacts or visit locations that are distractions.
- Step 4: Contact a family member or friend for help
- Step 5: Contact a professional or agency (Veterans' Crisis Line or a therapist).
- Step 6: Remove or reduce access to lethal means.

It is important to note that safety plans do not provide absolute protection for patients or clinicians, and even patients who agree to follow their safety plans may still be at high risk. Therefore, thorough evaluations and meaningful therapeutic interactions should be utilized, especially in cases involving impulsive patients.

## **Substance Use Disorders**

The treatment of SUDs typically involves short-term therapy to identify and modify unhelpful thoughts and behaviors associated with substance use. For certain substances such as opioids, alcohol, and tobacco, medications can also be effectively used as part of the treatment approach. Other substances, including cocaine and marijuana, have no approved medications, making counseling the treatment's mainstay. The military and VA offer free counseling, including smoking cessation programs, which have been effective and shown to improve long-term outcomes. The treatment provided to patients can be individualized to address specific needs, help rebuild relationships with loved ones, and provide valuable life skills for veterans.

## **Enhancing Healthcare Team Outcomes**

Diagnosing mental health disorders in military and veteran populations requires detailed history-taking. Still, in some cases, additional tests such as MSE, cognitive testing, and labs may be necessary to differentiate between various medical and psychiatric illnesses. Timely diagnosis and intervention are best achieved through interprofessional collaboration between healthcare providers and patients.

For the active-duty population, enlisted uniformed healthcare personnel with roles unique to the military medical environment, such as combat medics and hospital corpsmen, are often directly accessible to patients in the field and on the Homefront as the first point of contact for medical care. Enlisted healthcare personnel can serve as an extension of primary care providers and play a crucial role in screening populations at risk for mental health disorders.

Medics, Corpsmen, and primary care providers can often be the first to suspect conditions such as PTSD, depression, suicidality, SUDs, and comorbidities, allowing for timely identification and intervention. Nurses, medics, and corpsmen are vital in patient education and monitoring. They act as a crucial link among care teams. Social workers serve as outpatient counselors and are indispensable in addressing these disorders with pervasive social effects. Pharmacists should be consulted when utilizing pharmacotherapy, particularly in patients with comorbid medical and psychiatric conditions. Psychologists and psychiatrists play essential roles in guiding or providing care, especially for patients with high acuity or complexity, ensuring comprehensive and effective treatment approaches. For active-duty personnel, both patients and providers should be familiar with the "military command exception" to confidentiality and when notification of a patient's chain of command is required. This knowledge is critical for establishing patient-provider trust and ensuring the safety and well-being of the patient.

All treatment and intervention should involve the patient and, when appropriate, the family as part of the interprofessional treatment team, as social support plays a crucial role in both the pathogenesis and recovery of these disorders. Employing interprofessional methods will lead to better patient outcomes.

## Review Questions

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