

STATE OF THE ART
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Psychological Problems Associated With Operation Enduring Freedom/Operation Iraqi Freedom Deployment

Abstract: *Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) are the longest sustained ground combat operations involving American forces since the Vietnam era. Our continued involvement in these conflicts has yielded an experienced fighting force; however, to meet the demands of these wars, soldiers are often being asked to complete multiple tours of duty, thus increasing the probability they will experience a combat-related physical injury or experience one or more potentially traumatic events. This article addresses the major psychological issues of concern associated with OEF/OIF deployment and combat. A central aim of this review is to focus on posttraumatic stress disorder, but the authors also address other frequently observed conditions, such as chronic pain, traumatic brain injury, substance abuse, and depression, all of which can have a negative effect on soldiers' and veterans' functioning and quality of life. Evidence-based assessment and treatment approaches are reviewed, and relevant resources for health care professionals are identified.*

Keywords: OEF/OIF veterans; combat; psychological factors; treatment; resources

Characteristics of the Iraq War

Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) are the longest sustained ground combat operations involving American forces since the Vietnam era. Our continued involvement in these conflicts has yielded an experienced fighting force; however, to meet the demands of these wars, soldiers are often asked to complete multiple tours of duty, thus increasing the probability they will experience a combat-related physical injury or other potentially traumatic events.

Advances in field medicine and protective equipment for vital organ systems have resulted in a high percentage of soldiers surviving physical injuries that would have been fatal in past conflicts.^{1,2} As a result, injured soldiers are returning home with complex injuries that have been described as “polytrauma,” which is defined by the Veterans Health Administration (VHA) as 2 or more injuries to physical regions or organ systems, one of which may be life threatening, resulting in physical, cognitive, psychological, or psychosocial impairments and functional disability.³ Common types of injuries reported by OEF/OIF veterans include chronic pain and mild traumatic

brain injury; however, psychological issues such as posttraumatic stress disorder (PTSD) and depression are increasingly recognized as significant problems for returning veterans.⁴

A recent survey indicated that approximately 92% of soldiers in Iraq experienced an attack or ambush, 86% reported knowing someone who was seriously injured or killed, 70% reported seeing dead or seriously injured Americans, and 53% handled and uncovered human remains.⁵ Considerable research suggests that deployment stressors and degree of combat exposure are significant risk factors for the development of PTSD and other mental health conditions such as depression and substance abuse.^{6,7} Thus, it is vital that health care professionals collaborate and implement effective primary, secondary, and tertiary interventions to decrease the likelihood that these disorders will become chronic and lifelong. These efforts must strive to foster veterans' resilience and well-being while also reducing the financial burden chronic illnesses can place on the health care system as a whole. The first step toward this end is to better understand the prevalence and characteristics of psychological problems that can arise from the trauma of war. The primary purpose of this article is to provide an

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overview and description of the psychological issues most often faced by OEF/OIF veterans. The article focuses largely on PTSD but will also address other frequently comorbid conditions, such as chronic pain, traumatic brain injury, substance abuse, and depression, all of which can have negative effects on veterans' everyday lifestyles and quality of life.

Diagnostic Criteria for PTSD

Posttraumatic stress disorder can occur following exposure to an event that is, or is perceived to be, threatening to the well-being of oneself or another person. Although anxiety and depressed mood are the most common symptoms associated with PTSD, the distinctive profile of diagnostic symptoms include (1) exposure to a traumatic event that involved the threat of death or serious injury (criterion A); (2) reexperiencing the event in the form of intrusive thoughts, nightmares, flashbacks to the traumatic event, and psychophysiological reactivity to cues of the traumatic event (criterion B); (3) avoidance of thoughts, people, and places that resemble the traumatic event, emotional numbing, and an absence of emotional attachments (criterion C); and (4) symptoms of hyperarousal, including heightened startle sensitivity, sleep problems, attentional difficulties, hypervigilance, and the presence of irritability and anger (criterion D).⁸

Epidemiology of PTSD

Two large-scale studies completed in the United States examined the prevalence of mental health disorders, including PTSD. The National Comorbidity Survey (NCS) estimated the lifetime prevalence rate of PTSD to be 7.8% in the general population, with women (10.4%) being twice as likely as men (5%) to have PTSD at some point during their lives.⁹ Kessler and colleagues¹⁰ conducted a revised version of the NCS to obtain an understanding of the lifetime prevalence of *DSM-IV* disorders in the United States. These results estimated a lifetime prevalence of PTSD at 6.8% (9.7% of women and 3.6% of men).

A number of more focused studies of the prevalence rates of PTSD suggested rates that were more variable. In a sample of members from a Detroit area health maintenance organization, 40% reported experiencing a traumatic event and 9.5% met criteria for PTSD (11.3% of women and 5.6% of men).¹¹ Among a sample of former Miami-Dade public school students aged 18 to 23 years, 11.5% met lifetime PTSD criteria (15.5% of women and 7.5% of men).¹² Another study found that in a sample of 509 adults in an urban primary care setting, 23% had PTSD (26% women and 19% of men).¹³ In comparison, prevalence of PTSD in the Department of Veterans Affairs primary care clinics has been estimated to be 11.5%.¹⁴

Individuals who are engaged in military combat are at significant risk for the development of PTSD. The National Vietnam Veterans Readjustment Study (NVVRS)^{15,16} indicated that 15.2% of all male Vietnam veterans interviewed met criteria for current PTSD. PTSD was significantly higher in participants who had been exposed to high levels of combat and war zone stressors. Among Vietnam veteran women, 8.5% of the 7200 women who served met criteria for current PTSD.

Several studies have been conducted to examine the prevalence of PTSD and other mental health disorders in OEF/OIF veterans. A study of 103 788 OEF/OIF veterans indicated that 25% (25 658) of the sample received one or more distinct mental health diagnoses.⁷ The single most common mental health diagnosis was PTSD, which was coded in 52% of those receiving mental health diagnoses. In another sample of 340 OEF/OIF veterans being seen at a level 2 Polytrauma Network site, 68.2% of the sample met diagnostic criteria for PTSD.⁴

Risk and Resiliency Factors

Although many people will experience a traumatic event over the course of their lifetime, most people do not develop PTSD as a consequence of the event. What are the factors associated with the development of PTSD following exposure to a traumatic event? In an effort to explain the development of PTSD, Keane

and Barlow¹⁷⁻¹⁹ proposed the triple vulnerability model of PTSD. According to the triple vulnerability model, an integrated set of 3 vulnerabilities needs to be present for developing the disorder: a generalized biological vulnerability, a generalized psychological vulnerability based on early experiences of lack of control over salient events, and a more specific psychological vulnerability in which one learns to focus anxiety on specific situations. Although the triple vulnerability model applies to the development of anxiety in general, Keane and Barlow¹⁷ extended this model to the development of PTSD specifically. According to their model, persons who are more likely to develop PTSD may inherit a biological or genetic vulnerability for developing an anxiety disorder.²⁰ When persons are exposed to a traumatic event, they often experience a basic and intense emotional response that can be classified as a "true alarm." However, the experience of "alarm" or other intense emotions is not sufficient in and of itself for the development of PTSD. To develop PTSD, one must develop anxiety or the sense that these situations, including one's own emotional reactions to them, are proceeding in an unpredictable and uncontrollable manner. Thus, when negative affect and a sense of uncontrollability develop, PTSD may emerge. Although this model implies that a psychological and biological vulnerability to develop the disorder exists, it is the case that anxiety or any disorder is always moderated to some extent by variables such as the availability of social support and the presence of adequate coping skills.¹⁷ In fact, current approaches to treatment serve to improve the individual's skill set of adequate coping strategies to prevent, reduce, or manage PTSD symptoms (see the evidence-based treatment section for more information).

With respect to social support, the current literature calls for more evidence-based research on integrating social support (ie, spouse, friend, or family member) within PTSD treatment. This may be challenging with victims of sexual assault as many are blamed or experience negative social reactions for their assault. However, because the victim's

well-being is associated with the perceived support received from a partner, and marital problems are associated with intimacy and sexuality, couples treatment that can enhance positive social support from the spouse or significant other is an important area for further investigation and implementation.²¹

Conditions That Are Frequently Comorbid With PTSD

It is well documented that PTSD is one of the most severe psychiatric illnesses, and it often manifests itself with a variety of concurrent psychological conditions.²² Individuals with a diagnosis of PTSD are at significant risk for having another *DSM* Axis I disorder, including major depressive disorder, generalized anxiety disorder, and substance abuse.²³ They are also at risk for developing chronic pain conditions because of the effects of their war injuries. Although treating the symptoms of PTSD is vital for recovery, treatment of these comorbidities may also prove critical as they are often associated with a more chronic course of PTSD, perhaps ultimately leading to functional impairment and disability.

In a recent study on mental health service utilization among OEF/OIF veterans using the Veterans Administration (VA) health care system,⁷ 25% of veterans received 1 or more distinct mental health diagnoses, with the median number of different diagnoses being 3. The most prevalent diagnosis was PTSD, which was found in 13% of all OEF/OIF veterans in the study population. Depression was seen in 5%, and substance use disorder was seen in another 5% of the study population. Younger aged veterans, such as those between 18 and 24 years, tended to show the highest risk of receiving 1 or more mental health diagnoses. In another study of 4 US combat infantry units, veterans were assessed prior to deployment and 3 months after return from combat duty. The findings suggested that there were higher rates of participants meeting screening criteria for depression, generalized anxiety, and PTSD after duty in

Iraq, as compared with Afghanistan, with the largest difference in the rate of PTSD largely caused by combat intensity.⁶ Given the high prevalence of comorbid psychiatric conditions, we now turn our focus to describing several frequently comorbid psychological disorders and important issues faced by returning OEF/OIF veterans with PTSD.

Depression

Major depression and dysthymia are mood disorders that are highly associated with PTSD.²³ Some researchers suggest that these mood disorders may develop as a by-product of the traumatic event,²⁴ but these conditions may also precede exposure to the traumatic events of war and thus might be considered as risk factors (vulnerabilities) for developing PTSD. Typically, though, the first onset of depression is higher among individuals exposed to traumatic events who develop PTSD as compared with

in men are significantly lower than in women.²³

Substance Abuse

Substance abuse and dependence disorders frequently co-occur with PTSD.²⁸ Approximately 30% to 50% of men and 25% to 30% of women with lifetime PTSD also have an associated substance use disorder (SUD). Accordingly, some researchers have theorized that men and women may differ in the ways that they develop a SUD. For example, 65% to 84% of women meet criteria for PTSD first before developing an SUD. For men, there is an increased risk for experiencing trauma during the process of substance abuse, thus suggesting that the use of substances might lead to PTSD.²³ These rates suggest that women may be using substances as a form of self-medication from the PTSD symptoms, whereas for men, the substance use serves as an antecedent to the



The co-occurrence of chronic pain and PTSD may have serious negative implications for the adaptive functioning of OEF/OIF veterans who have experienced a combat event.



those who are exposed to trauma and do not.²⁵

The prevalence of mood disorders is similar among men and women with PTSD. For men, the current prevalence of major depression ranges from 10% to 55%, with a lifetime rate of 26% to 70%; for women, the prevalence of major depression is about 17% to 23%, with a lifetime rate of 42% to 49%. With respect to dysthymia, the lifetime prevalence is 21% to 29% for men and 23% to 33% for women with PTSD.^{26,27} On the basis of these data, some experts hypothesize that men with PTSD may be particularly vulnerable to depression, given that in the general population, rates of depression

trauma. Nevertheless, there are significantly higher rates of substance abuse in both men and women with PTSD as compared with SUD-diagnosed individuals without PTSD.

The context in which the substance abuse occurs is also important to consider as it can aid in early detection. In the recent Millennium Cohort Study of OEF/OIF veterans, the baseline, follow-up, and new-onset prevalence of alcohol abuse was highest among those with combat exposures as compared with those who did not experience combat or were not deployed.²⁸ In addition, more women than men endorsed heavy weekly drinking at baseline and new onset, whereas more

men reported binge drinking and alcohol-related difficulties at all 3 time points. Furthermore, the highest level of alcohol misuse was found among Reserve/Guard personnel who were deployed and reported combat exposures as compared with a comparison group of active-duty personnel. These authors suggest that stressors related to depression, PTSD, deployment, and return to the continental United States may make it more difficult to control the use of alcohol and thereby result in greater alcohol-related problems. In addition, they hypothesize that the greater percentage of alcohol misuse found among Reserve/Guard personnel may be caused by inadequate training and preparation of civilian soldiers for the additional stress of combat exposure during deployment, family stress as a result of the transition between the military and civilian occupational settings, and reduced access to support services such as family services, physical fitness programs, and prevention programs in the civilian communities when they return home.

Additional contextual factors to consider for substance abuse detection include negative emotions, interpersonal and marital conflict, and physical discomfort, all of which individually and in conjunction with one another increase the risk of substance abuse. Furthermore, although some experts hypothesize that men will abuse substances when experiencing positive emotions, this is not the case for women as they tend to experience fewer positive emotions as a result of the emotional numbing associated with PTSD.²⁹

Traumatic Brain Injury

Given the large number of injured soldiers who have experienced blows to the head, been in close proximity to a blast from an improvised explosive device (IED), or experienced other combat hazards, mild to moderate traumatic brain injury (TBI) is believed to be common and has been labeled a “signature injury” in the wars in Iraq and Afghanistan.³⁰ Mild TBI and concussion may be characterized by irritability, memory problems, difficulty concentrating, or altered mental status; these are often referred to as

postconcussive syndrome.³¹ Although mild TBI can resolve within a month of the injury, for some people, the symptoms can last for months or years.^{33,32} Head and neck injuries such as TBI have been reported in a significant number of soldiers who have been evacuated from Iraq and Afghanistan.^{33,34} Complicating the clinical picture further is that psychiatric conditions such as PTSD can also interfere with normal cognitive function and mild TBI. Furthermore, mild TBI may increase the risk for developing PTSD.³¹ A recent survey of 1965 OEF/OIF veterans conducted by the RAND Corporation found that 14% screened positive for PTSD, 14% endorsed major depression, and 19.5% reported symptoms consistent with a mild TBI during deployment; of those experiencing TBI, over a third (37.4%) also had overlapping PTSD or depression. Assuming that the prevalence found in this study is representative of the 1.7 million service members who had been deployed for OEF/OIF as of October 2007, these findings suggest that approximately 300 000 returning service members are currently experiencing PTSD or major depression, and about 320 000 may have experienced a mild TBI during deployment.³⁴

Hoge et al³⁵ shed new light on the relationship between combat-related mild TBI during deployment and post-deployment health-related outcomes, including PTSD. In a survey of 2225 US Army infantry soldiers, 3 to 4 months after deployment to Iraq, of the 124 (4.9%) soldiers reporting injuries with loss of consciousness, 43.9% also met criteria for PTSD. Analyses indicated that soldiers with mild TBI were more likely to report health-related problems such as poor general health, missed workdays, medical visits, and a high number of somatic and postconcussive symptoms than were soldiers with other injuries. A recent study found that in a sample of 340 OEF/OIF veterans being seen at a level 2 Polytrauma Network site, 42.1% of the sample met criteria for TBI, PTSD, and chronic pain simultaneously.⁴ These data demonstrate the high rate of comorbidity among these conditions and support the need for an integrated approach to treatment.

Chronic Pain

Given the physical injuries often sustained in combat, acute and chronic pain are among the most significant problems facing returning OEF/OIF soldiers, with commonly reported pain sites including the head, back, legs, and shoulders.^{36,37} Pain that persists for an extended period of time (ie, months or years), accompanies a disease process, or is associated with a bodily injury and has not resolved over time may be referred to as “chronic” pain.³⁸ The National Institute of Health identified chronic pain as the costliest medical problem in America, affecting nearly 100 million individuals.³⁹ Consistent with a biopsychosocial model of illness, individuals with chronic pain often report that pain interferes with their ability to engage in occupational, social, or recreational activities. Their inability to engage in these activities may contribute to increased isolation, negative mood (eg, feelings of worthlessness and depression), and physical deconditioning, all of which in turn can exacerbate or contribute to the experience of pain.

The co-occurrence of chronic pain and PTSD may have serious negative implications for the adaptive functioning of OEF/OIF veterans who have experienced a combat event. Research suggests that patients with chronic pain and PTSD experience more intense pain and affective distress,⁴⁰ higher levels of life interference,⁴¹ and greater disability⁴² than patients with either pain or PTSD alone. Although rates vary, it appears that 45% to 85% of patients who report for the treatment of PTSD also have a significant chronic pain condition.^{43,44} The association between pain and PTSD is likely to be stronger among OEF/OIF veterans when compared with Vietnam-era veterans as the traumatic event and the pain condition are more likely to have a recent onset and to be associated with the same event.

In an effort to develop more effective treatments for returning military personnel with comorbid chronic pain and PTSD, a randomized clinical trial of an integrated treatment for veterans with chronic pain and PTSD is being conducted (J. D. Otis and T. M. Keane, unpublished raw data, 2009). Integrating components of

effective treatments for pain and for PTSD, this 12-session intervention recognizes the many important interrelated cues and symptoms associated with PTSD and chronic pain. Results of the study thus far have been positive; although participants in all 3 active treatment conditions manifested clinically significant decreases in their self-reported pain and PTSD symptoms, initial data suggest that those who received the integrated treatment showed the most substantial changes from pre- to posttreatment. As similar studies are launched and treatment strategies are tested with patients with comorbid pain and PTSD, refinement of components of our existing treatment protocols will follow the path suggested by the data collected.

Impact on the Family

The impact of war zone deployment on military families is apparent, with family adjustment difficulties being a primary concern reported by returning OEF/OIF veterans.⁴⁵ Evidence suggests that deployment is associated with less family cohesion and nurturance, increased spousal emotional distress, depression, and child behavior problems. In addition, some research asserts that certain characteristics of PTSD symptoms are associated with greater psychological and marital distress in spouses (ie, avoidance, emotional numbing, and anger).⁴⁶ However, the spouse's perception of the severity of the veteran's PTSD symptoms and combat exposure plays a role in their own level of psychological distress and marital satisfaction.

Only a few studies have examined interpersonal violence between veterans and significant others; however, the available evidence suggests that domestic violence rates are higher among veterans with PTSD than among veterans without PTSD or individuals in the general population.⁴⁷ Research suggests that the rates of domestic violence among veterans with PTSD are similar to the rates among veterans suffering from depression. A study by Sherman et al⁴⁷ found that 81% of veterans with PTSD and 81% of depressed veterans perpetrated at least 1 violent act toward their partner within the past year.

These rates are 6 times greater than the rates found in the general population. Similarly, 45% of veterans with PTSD and 42% of depressed veterans perpetrated at least 1 severe violent act toward their partner within the past year.

There are some suggestions that factors related to PTSD such as "anger control" and "anger expression" may predict interpersonal violence.⁴⁸ In addition, some research suggests that a history of childhood abuse among veterans is related to increased symptoms of PTSD, which may itself increase risk of interpersonal violence. Although some literature suggests these veterans are within the help-seeking population, rates of this profile of veterans seeking couples therapy is low.⁴⁷ These findings delineate a relatively understudied and high-risk population of veterans and further highlight the importance of considering the veterans' history and present marital context while proactively treating their PTSD and related comorbidities.

With respect to the nature of intergenerational transmission of psychological distress, from parent to child, the research is mixed. Some research indicates that veterans' children are at an increased risk of experiencing distress perhaps because they have not yet fully developed the cognitive and emotional capacity to cope with the absence of their parent.⁴⁹ Other findings suggest adolescents are also at risk for the development of emotional and behavioral difficulties, and they appear to exhibit a range of avoidance behaviors secondary to their thoughts, feelings, and reactions to war.^{50,51} Dekel and Goldblatt⁵² indicate that the consequences of PTSD, rather than PTSD itself, may be the contributing factors in parent-child transmission. These authors completed a literature review of the existing research and found mixed results pertaining to mental distress, family functioning, and self-esteem. However, they deduce that the literature is pointing in the direction that the veteran's trauma and distress is the primary contributor of distress among his or her children and that the greater use of violence by this parent indicates the extent of distress by the child. Therefore, the children of OEF/OIF

veterans deserve special attention so that continued research can determine the best targets for early and sustained intervention through all stages of their parents' tour of duty as well as for helping them adjust to their parents' return.

Finally, Dekel and Goldblatt⁵² suggest that more research is needed to identify the direct and indirect mechanisms through which trauma and the associated symptoms are transmitted to their children. They suggest exploring the contribution of comorbidities such as depression and substance abuse as potential significant factors. Furthermore, because their review is based on studies comprising mostly male veterans who were receiving mental health treatment, research is needed to expand its scope and to include the wives of veterans and women veterans. Longitudinal and qualitative research may help in achieving these research goals.

Vocational Problems

Work impairment for individuals with PTSD has been found to be similar to that of the work impairment rates of individuals suffering from depression. The estimates translate into an annual loss in productivity in excess of \$3 billion in the United States alone.⁵³ In a study looking at the characteristics of callers to the Anxiety Disorders Association of America (ADAA) with PTSD and subthreshold PTSD (SPTSD), the PTSD callers had higher rates of work impairment than the SPTSD and psychiatric disorder controls.⁵⁴ These findings highlight the importance of early intervention approaches to reduce occupational and vocational maladjustment.

Suicide

Outreach and treatment of PTSD requires attention toward the management of suicidal thoughts and behavior. Nearly 5% of the general population will at some point in time make a suicide attempt. An additional 17.5% will have suicidal thoughts, and 3.9% will progress to the point of having a plan and means of accomplishing it.⁵⁵ The rates of suicide in the veteran population are approximately twice as high as those in the

general population.⁵⁶ A recent study of suicide mortality among veterans treated for depression in the VA concluded that, unlike the general population, younger age was identified as a factor for increased risk, a finding of significant importance as a new and younger cohort of veterans return from Iraq and Afghanistan.⁵⁷ Veterans with PTSD are likely to manifest several risk factors that increase the probability of suicidal thinking and suicide attempts, including depression and feelings of hopelessness, substance abuse, estrangement from social supports, chronic anxiety and anger, and employment or financial difficulties.⁵⁸ It is important that all health care providers in the primary care setting be knowledgeable and prepared to handle crisis situations as well as provide resources to patients (ie, suicide hotline numbers and location of the nearest emergency room) so they can receive the support they need before and during a crisis. To assist combat veterans and others with suicidal ideation and feelings, there are great resources available about which all clinicians should be aware. The site www.suicidepreventionlifeline.org and the suicide prevention line (1-800-273-TALK) can confidentially assess and offer treatment options to veterans in serious distress.

Assessment and Screening of PTSD

For purposes of conceptual understanding and treatment planning, it is fundamental for clinicians to determine the appropriate psychological diagnosis or diagnoses for their patients. The manner in which a diagnosis for PTSD is reached can vary depending on the purpose of the assessment (ie, clinical practice or research) and the amount of time available to complete the assessment. Different assessment contexts require different assessment approaches, depending on the particular assessment goals of the professional (see Wilson and Keane⁵⁹ for reviews of available techniques for the assessment of PTSD within various contexts).

Paramount to a diagnosis of PTSD is the clear identification of a criterion A event,

to which subsequent symptoms are linked. Therefore, when selecting diagnostic measures, clinicians should consider whether the measure assesses the presence of a traumatic event, in addition to ensuring that the measure is psychometrically sound. Two different methods commonly used to assess PTSD include (1) structured diagnostic interviews and (2) self-report psychological questionnaires.

Structured Diagnostic Interviews

Structured diagnostic interviews are extremely valuable tools for assessing PTSD symptoms.⁶⁰ Although it is standard practice in research settings to employ structured diagnostic interviews, the use of structured interviews in the clinical setting is less common, except in a clinical forensic practice.⁶¹ This likely is because of time and cost burdens, as well as the need for specialized training to administer many of these interviews. Nonetheless, the use of structured diagnostic interviews for PTSD in clinical settings has been recommended to improve diagnostic accuracy and aid in treatment planning.⁶² Below, we provide information on 2 structured interviews that were developed to measure PTSD symptoms.

Clinician Administered PTSD Scale (CAPS). Developed by the National Center for PTSD,⁶³ the CAPS is the most widely used structured interview for diagnosing and measuring the severity of PTSD.⁶⁴ The CAPS assesses all *DSM-IV*⁸ diagnostic criteria for PTSD, as well as the associated symptoms of guilt and dissociation. Importantly, the CAPS contains separate ratings for the frequency and intensity of each symptom; this permits flexibility in scoring and analyses. It also promotes uniform administration and scoring through carefully phrased prompt questions and explicit rating scale anchors with clear behavioral referents. There is also flexibility built into the administration of the CAPS. Interviewers can administer only the 17 core symptoms, all *DSM-IV* criteria, and/or the associated symptoms. Administration time is approximately 30 minutes to an hour, depending on those sections the

interviewer chooses to use. Once trained, interviewers are able to ask their own follow-up questions and use clinical judgment in arriving at a diagnosis.

Structured Clinical Interview for DSM-IV (SCID-IV). The SCID-IV^{65,66} assesses a broad range of Axis I and II psychiatric conditions. It is divided into separate modules corresponding to *DSM-IV* diagnostic criteria, with each module providing the interviewer with prompts and follow-up inquiries intended to be read verbatim to respondents. The SCID can be administered by clinicians and highly trained interviewers. Although the SCID is a good diagnostic tool, several limitations exist. First, the SCID permits only a dichotomous rating of PTSD (eg, presence or absence of symptoms), whereas most clinicians agree that psychological symptoms occur in a dimensional rather than dichotomous fashion.⁶⁷ Second, the SCID does not assess for the frequency or severity of symptoms. Third, the anchors employed in the SCID do not provide clear behavioral referents. Finally, only those symptoms associated with the “worst event” are assessed; the effects of other traumas are generally not evaluated.

Self-Report Measures

Self-report measures provide information on the presence or absence of PTSD, trauma symptoms, and their severity. Several measures provide specific cutoffs that are indicative of a diagnosis of PTSD, whereas the majority incorporates continuous indicators of symptom severity. In general, self-report measures are more time and cost efficient than diagnostic interviews and are of particular utility in clinical settings in which a structured interview is not feasible or practical. Clinicians are encouraged to use those measures that have been normed in the population for which they will be employed to maximize accuracy and efficiency.¹⁸

Mississippi Scale for Combat Related PTSD. The 35-item Mississippi Scale is widely used to assess combat-related PTSD symptoms.⁶⁸ The scale items were selected from an initial pool of 200 items generated by experts to closely

match the *DSM-III* criteria for the disorder. The Mississippi Scale has been updated and now assesses the presence of symptoms reflecting the *DSM-IV* criteria for PTSD and several associated features. Respondents are asked to rate, on a Likert-type scale, the severity of symptoms over the time period occurring “since the event.” The Mississippi Scale yields a continuous score of symptom severity as well as diagnostic information. It is available in several languages and takes 10 to 15 minutes to administer.

PTSD Checklist (PCL). Developed by researchers at the National Center for PTSD in Boston,⁶⁹ the PCL is a 17-item self-report measure of PTSD symptoms. Different scoring procedures may be used to yield either a continuous measure of symptom severity or a dichotomous indicator of diagnostic status. Dichotomous scoring methods include either an overall cutoff score or a symptom cluster scoring approach. The original scale was based on the *DSM-III-R* criteria for PTSD and has been updated to reflect the 17 diagnostic criteria outlined in the *DSM-IV*. Respondents are asked to rate, on a Likert-type scale, “how much each problem has bothered them” during the past month. The timeframe can be adjusted as needed to suit the goals of the assessment. There is a civilian (PCL-C) and a military (PCL-M) version of the measure. On the PCL-C, reexperiencing and avoidance symptoms apply to any lifetime stressful event, whereas for the PCL-M, reexperiencing and avoidance symptoms apply to stressful events that are military related only. The PCL has been used extensively in both research and clinical settings and takes 5 to 10 minutes to administer. If needed, a 17-item Life Events Checklist, developed as a companion to the CAPS to identify potentially traumatic experiences, can be used with the PCL. It is typically completed by patients in a matter of a few minutes.

Evidence-Based Treatments for PTSD

As presented earlier, several recent studies affirm the presence of PTSD in

large numbers among returning OEF/OIF veterans.⁷ In addition, 60% of all mental health diagnoses among these veterans were initially made in non-mental health settings, with 42% made in primary care settings and 18% in other settings. Furthermore, only 23% to 40% of these veterans sought mental health care and reported concerns about stigmatization to be a major barrier to seeking treatment. These findings highlight the need for the development of interventions that would contribute to the mitigation of mental health problems among returning veterans when being treated in primary care settings. Early evidenced-based intervention is integral to the prevention of chronic mental illness in this population.⁷⁰

Exposure therapy, cognitive therapy, anxiety management techniques, and pharmacological interventions are the 4 most empirically supported as efficacious treatments for PTSD across a diverse population of PTSD survivors.⁷¹ These 4 psychological treatments are described briefly here.

Exposure Therapy

Using exposure therapy for PTSD, the clinician guides the patient in vividly remembering the details of the traumatic event until the patient has experienced a decline (extinction) in the intensity of the recalled material and it no longer elicits a PTSD reaction from the patient (ie, hyperarousal, reexperiencing, numbing, anxiety, hypervigilance, etc). In this context, the patient returns (either in imagination or in vivo) to the site of the traumatic event (eg, the location of his or her car accident), thereby decreasing avoidance and fostering mastery over paired trauma cues.⁷¹ In vivo exposure is often viewed as the most effective and efficient form of exposure therapy. Yet, in cases where this type of exposure therapy is not possible, such as in combat, imaginal exposure can be used. Imaginal exposure is based on the same goal of reducing avoidance and fostering mastery. In this context, the trauma cues are presented using imagery in order for the patient to describe the vivid details of the traumatic event. This description is

based on stimulus, response, and meaning propositions that the patient has associated with the event.

Cognitive Therapy

Cognitive models of PTSD are based on information-processing theory suggesting that PTSD develops from a fear network in memory that initiates escape and avoidance behaviors.⁷² Meaning elements are part of the mental fear structure that can be modified with prolonged exposure and cognitive restructuring. Cognitive processing therapy (CPT), originally developed for female rape victims, now possesses an evidence base with other PTSD populations.⁷¹ This treatment is integrative such that it incorporates elements of exposure therapy, cognitive therapy, and anxiety management training and involves the writing and reading of the traumatic event as well as restructuring of critical cognitive distortions that were developed from the patient’s interpretation of the traumatic event. Key domains of safety, trust, power and control, self-esteem, and intimacy are addressed.

Anxiety Management Training

Anxiety management training (AMT) is a psychoeducational approach that introduces behavioral and cognitive strategies to help patients manage their emotional response in PTSD. This skill set consists of relaxation, diaphragmatic breathing, trauma education, cognitive restructuring, guided self-dialogue, communication skills training, and anger management.⁷¹ Using several of the evidence-based approaches to the treatment of PTSD, Keane and colleagues⁷³ developed a PTSD treatment that included exposure therapy, AMT, and cognitive restructuring as core features. As a phase-oriented approach, it comprises 6 phases: (1) behavioral stabilization, (2) trauma education, (3) anxiety management skills training, (4) trauma-focused work, (5) relapse prevention skill training, and (6) aftercare procedures.

Pharmacological Interventions

In accordance with the progress in the understanding of biological mechanisms of PTSD, pharmacological interventions

Table 1.

Resources for Veterans

Resource	Description	Information Location
US government-sponsored programs		
VA Polytrauma System of Care	For veterans and returning service members with multiple injuries	http://www.polytrauma.va.gov/facility_locations.asp?isFlash=1
National Center for Posttraumatic Stress Disorder	Provides information on research, education, and training on posttraumatic stress disorder (PTSD) and stress-related disorders	http://www.ncptsd.va.gov/ncmain/index.jsp
US Department of Veterans Affairs	Dedicated to helping veterans get the services they have earned	http://www.va.gov/
US Department of Defense	Includes news from the Pentagon and links to other US government Web sites	http://www.defenselink.mil/
Nongovernment programs and resources		
Vet Centers	Provide readjustment counseling and outreach services to all veterans who served in any combat zone	http://www.vetcenter.va.gov/index.asp
The International Society for Traumatic Stress Studies	Promotes advancement and exchange of knowledge about severe stress and trauma	http://www.istss.org/
American Psychological Association	Scientific and professional organization that represents psychology in the United States	http://www.apa.org/
Anxiety Disorders Association of America	Nonprofit organization dedicated to informing the public, health care professionals, and media that anxiety disorders are real, serious, and treatable	http://www.adaa.org/

are important.^{74,75} The most common pharmacological agent for PTSD is the selective serotonin reuptake inhibitor (SSRI) antidepressant medication. Sertraline and paroxetine have been approved by the Food and Drug Administration for the treatment of PTSD. Clinical trials with SSRIs for PTSD have found modest levels of effectiveness; however, they are at least as effective as other antidepressant medications and with fewer side effects.^{68,76-82}

Given these findings and the fact that attrition rates are high in medication

trials, future research is needed to better understand the neurobiology of PTSD to develop more effective medications specifically targeted to treat PTSD.⁸² Preliminary evidence suggests that a combination of psychological and pharmacological interventions may be effective in preventing the development and/or the progression of PTSD. Based on the above information, this area is promising in terms of continued development, and it is likely that funding agencies will continue to support research and development efforts toward finding more

effective pharmacological treatments for PTSD.⁷¹

Resources for Veterans

A number of resources are currently available to health care providers and the public to assist with the dissemination of current and accurate information about PTSD and its comorbid conditions (see Table 1). The VA Polytrauma System of Care, which was created in response to identified health care needs of OEF/OIF veterans, currently comprises 4

Polytrauma Rehabilitation Centers and 17 additional Polytrauma Network sites that are located throughout the United States. These facilities not only provide a variety of medical, rehabilitative, and psychosocial services for veterans but also encourage the involvement of families and friends throughout the rehabilitation process.

The VA National Center for PTSD (NC-PTSD; www.NCPTSD.va.gov) is a center of excellence for research and education on the prevention, understanding, and treatment of PTSD. The NC-PTSD has 7 divisions across the country with the goals of improving the assessment and treatment of PTSD, advancing scientific understanding of PTSD, disseminating PTSD information to clinicians, and supporting the global war on terror by collaborating with the Department of Defense and other US agencies to increase our readiness in times of emergency. In addition to treatment programs and organizations in the VA, a number of other agencies with expertise in the assessment and treatment of anxiety-related disorders, including PTSD, can provide useful information.

Future Directions

Given the likelihood of the continued involvement of US troops in war zones across the world, soldiers will continue to be engaged in combat situations that will result in PTSD and trauma-related conditions. Military combat can result in many types of injuries; some of these are visible (eg, loss of a limb), and others are less apparent and more psychological in nature (eg, PTSD, depression, substance abuse). In terms of ultimate outcomes and the assurance of optimal functioning, it is important that we address each of the different types of combat injuries. Given that these conditions rarely occur in isolation, consideration of the interaction of multiple conditions seems critical to enhancing clinical outcomes. For example: What is the best treatment approach for a veteran with PTSD, TBI, and a substance abuse problem? How do chronic pain, PTSD, and TBI interact with one another? How can the family be

helped to assist a veteran who has experienced one or more of these conditions? Clearly, research focusing on the development of integrated treatments across many concurrent problems is needed.

Mental health treatment continues to carry with it a stigma among current and former members of the military. Efforts to reduce this stigma so that individuals can obtain treatment early in the course of their disorder and avoid problems associated with chronic conditions are needed. The development of creative ways to improve access to care, while reducing stigma associated with accessing care, such as Internet and Web-based interventions, wireless access to information in waiting areas, Internet chat rooms, and pod casts, should be given priority for future investigation.

Overall, health care providers who treat OEF/OIF veterans are encouraged to develop interdisciplinary collaborations to gain a broader understanding of how the experience of war-related injury influences the lives of returning war veterans; to recognize the importance of treating the entire person, not just a particular disorder; and to prioritize the creative development of innovative and effective treatments for this important component of the veteran population. AJLM

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