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POST-TRAUMATIC STRESS DISORDER IN THE MILITARY VETERAN

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Before the formalization of post-traumatic stress disorder (PTSD) as a diagnosis in 1980, war-related psychiatric syndromes were known under a variety of names, including *shell shock, traumatic war neurosis,* and *combat exhaustion.* Whatever the label, it is clear that these labels referred to a condition much like what we now recognize as PTSD. For example, Kardiner and Spiegel[20] described a chronic traumatic war neurosis that involved preoccupation with the traumatic stressor, nightmares, irritability, increased startle responsiveness, a tendency to angry outbursts, and general impairment of functioning.

Futterman and Pumpian-Mindlin[17] reported a 10% prevalence of traumatic war neurosis in a series of 200 psychiatric patients seen in 1950. They noted as significant the fact that many of the men had not sought treatment even 5 years after the war. Follow-up studies of World War II veterans continued into the 1950s, when veterans of the Korean War were included as a comparison group in some studies. Investigators continued to observe significant symptoms in veterans up to 20 years postcombat. Archibald et al[1] found World War II combat veterans with "gross stress syndrome" to have severe problems such as increased startle, sleep disturbance, and avoidance of activities reminiscent of combat. A follow-up of these men that included Korean War veterans showed the same symptom profile and relatively more symptoms than in noncombat psychiatric patients or in combat controls.[2]

PTSD is a long-term reaction to war-zone exposure. Briefer reactions to combat stress are known by a variety of names,[29] although *combat stress reaction* (CSR) seems to be the most common. CSRs may be brief, lasting only a few hours or even a few minutes, or may persist for several weeks. Solomon[39] describes six symptom clusters: psychic numbing, anxiety reactions, guilt about functioning,

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depressive reactions, and psychotic-like states. Formal diagnostic criteria, however, do not exist.

CSRs may not necessarily share many features with PTSD, but they are strongly predictive of subsequent PTSD. Among Israeli soldiers who fought in the 1982 Lebanon War, PTSD prevalence was dramatically higher among those who had sustained a CSR compared with soldiers who had not.[34] In the CSR group, prevalence estimates were 62% 1 year after the war, 56% 2 years after, and 43% 3 years after; 1-, 2-, and 3-year estimates for the non-CSR group, which was comparable to the CSR group in both demographic background and war-zone exposure, were 14%, 17%, and 10%.

PREVALENCE

Estimates of PTSD prevalence among military veterans vary markedly as a function of the sample and methods used, even in the same war cohort. Few studies of military veterans have used the rigorous sampling methods necessary to derive epidemiologically sound prevalence estimates.

Vietnam and Vietnam-Era Veterans

The most methodologically adequate study of PTSD in the Vietnam cohort estimated the current prevalence in male Vietnam veterans to be just over 15%.[22] This study, known as the National Vietnam Veterans Readjustment Study (NVVRS), also estimated the current prevalence of PTSD in female Vietnam veterans to be 8.5%; current estimates for veterans who served outside of the Vietnam theater were 2.5% in men and 1.1% in women. Current PTSD was dramatically higher in men and women with high war-zone exposure: 35.8% in men and 17.5% in women. Lifetime PTSD among Vietnam veterans was estimated to be 30.9% in men and 26.9% in women.

In the NVVRS, current PTSD was higher among blacks (27.9%) and Hispanics (20.6%), than among whites (13.7%). Because individuals exposed to high war zone stress were much more likely to develop PTSD than those exposed to low or moderate stress and because black and Hispanic veterans were much more likely to have had higher war-zone exposure, it was necessary to control for this variable. It also was necessary to control for predisposing factors that might confound ethnicity (such as childhood and family background factors, premilitary factors, and military factors). When this multivariate analysis was performed, the increased prevalence among blacks was explained by their greater amount of combat exposure relative to whites; in contrast, the difference between whites and Hispanics was only partially explained by increased exposure among Hispanics.

An important aspect of Kulka et al's[22] study is that they estimated the prevalence of partial PTSD, a subdiagnostic constellation of symptoms that was associated with significant impairment, e.g., having the sufficient number of B (re-experiencing) and D (hyperarousal) symptoms, an insufficient number of C (avoidance/numbing) symptoms, and comorbid alcohol abuse or dependence (which might by interpreted as related to the C symptom cluster) (as per DSM-III-R). Among male theater veterans, lifetime and current prevalence of partial PTSD were 22.5% and 11.1%; comparable estimates for female theater veterans were 21.2% and 7.8%. Kulka et al note that the combined full and partial lifetime

prevalence estimates suggest that more than half of male (53.4%) and almost half of female (48.1%) Vietnam veterans have experienced clinically significant symptoms in relation to their war-zone experiences.

Other War Cohorts

After the formalization of PTSD as a diagnosis, isolated case reports began calling attention to the fact that some veterans of wars before Vietnam had PTSD. Larger studies of older war cohorts began appearing in the mid-1980s, and more recent data show remarkable similarity between World War II and Vietnam veterans in their psychophysiologic reactivity to stimuli reminiscent of their war trauma.[31] The prevalence of PTSD in older veterans, however, is unknown because no study has used a sample representative of the larger population. Estimates from community samples are low—roughly 2% for current PTSD.[28, 43] In patients hospitalized for medical illness, Blake et al[4] found the prevalence of current PTSD in World War II and Korean War veterans who had never sought psychiatric treatment to be 9% and 7%. Among those who had previously sought psychiatric treatment, 37% of the World War II veterans and 80% of the Korean War veterans had current PTSD. Rosen et al[32] found that 54% of a group of psychiatric patients who had been in combat during World War II met criteria for PTSD. The prevalence of current PTSD was 27%.

Data show evidence of PTSD in American men and women who served in the Persian Gulf (Wolfe J: unpublished data, 1993). A few days after return to the United States, the prevalence of current PTSD in men was 3.2% and in women 9.6%. Approximately 18 months later, these figures increased to 9.4% and 19.8%. This study is important because it demonstrates that PTSD may occur in military personnel who had relatively brief war-zone exposure, even following a successful war that received much popular support.

PSYCHIATRIC AND PSYCHOSOCIAL CORRELATES

PTSD in the military veteran is frequently associated with other psychiatric disorders, especially major depressive disorder and alcohol and substance use disorders. Kulka et al[22] reported that male Vietnam veterans with PTSD were more likely than theater veterans without PTSD to have a history of lifetime dysthymia and of lifetime and current major depressive episode, panic disorder, obsessive disorder, generalized anxiety disorder, alcohol abuse/dependence, substance abuse/dependence, and antisocial personality disorder. Female veterans with PTSD were similar to their male counterparts except that they did not differ from female veterans without PTSD in the prevalence of current obsessive-compulsive disorder, current alcohol abuse/dependence, and lifetime substance abuse/dependence; figures for current substance abuse and both lifetime and current antisocial personality disorder were not analyzed because of sample size limitations.[22]

The temporal relationship between PTSD and other comorbid disorders may differ as a function of war cohort. Davidson et al[9] reported that age of onset for PTSD was similar in both World War II and Vietnam veterans, but relatively more Vietnam veterans had a psychiatric diagnosis that predated their experiences in combat.

Military veterans with PTSD also may experience functional impairment, especially, we suspect, if the course of their disorder is chronic. Kulka et al[22] found that both male and female Vietnam veterans with PTSD were less likely to

be married and had more divorces, more marital problems, and more occupational instability than Vietnam veterans without PTSD. In addition, PTSD in the men was associated with increased social maladjustment: Thirty-five percent were homeless or vagrant, 25% had committed 13 or more acts of violence during the previous year, and 50% had been arrested or jailed more than once since the age of 18.

Some patients with PTSD are severely, chronically incapacitated. Similar to individuals with other persistent mental disorders, such as schizophrenia, their social functioning is markedly restricted. They often rely heavily on public housing, community support, and public mental health services. The severity of PTSD may result in repeated hospitalizations over the years and may require ongoing outpatient treatment.[16]

RISK AND PROTECTIVE FACTORS

Not all people who are exposed to a traumatic event go on to develop PTSD. It is now generally recognized that both the likelihood of ever developing PTSD and the likelihood of developing chronic PTSD depend on pretraumatic and post-traumatic factors as well as on features of the trauma itself. In one study that examined predictors of lifetime PTSD, premilitary factors accounted for 9% of the variance, military factors 19%, and postmilitary factors 12%.[19]

Premilitary Factors

Who a person is before entering the military influences both the nature of military experiences and his or her reactions to those experiences. The risk of PTSD is increased by younger age of entry into the military, less premilitary education, prior psychiatric disorder, and childhood behavior problems.[19, 22] Normal personality characteristics also may play a role. Using premilitary Minnesota Multiphasic Personality Inventory (MMPI) scores, we found that risk of PTSD was increased by normal range elevations on several scales, especially Psychopathic Deviate and Masculinity-Femininity.[34] An interesting study of twins who were either Vietnam or Vietnam-era veterans found that genetic factors accounted for 30% of PTSD symptom liability, even after controlling for amount of war-zone exposure.[46] Negative environmental factors in childhood, however, such as physical abuse, economic deprivation, and parental mental disorder, also increase the risk of PTSD following war-zone exposure.[7, 22] Given such findings, it is reasonable to think that sexual and emotional abuse in childhood also would increase the risk of PTSD in veterans.

Military Factors

A high amount of war-zone exposure dramatically increases one's risk of PTSD. (War-zone exposure refers here not only to actual combat, but also to its results as experienced by individuals who deal with injury and death, such as medical or graves registration personnel. In female veterans, war-zone exposure additionally may involve sexual harassment and assault.[48]) Male Vietnam veterans with high war-zone exposure are seven times more likely than veterans with low or moderate exposure to have current PTSD; female veterans with high war-

zone exposure are four times more likely than their less exposed counterparts to have current PTSD.[22]

In addition to *amount* of war-zone exposure, *type* of exposure is an important risk factor for PTSD. Being wounded or injured increases the risk of current PTSD twofold to threefold in both male and female veterans.[22] Exposure to atrocities also increases the risk of PTSD, even when amount of other war-zone experiences is taken into account.[19] An especially traumatic event in the war zone is being imprisoned by the enemy. One study of World War II veterans who had been prisoners of war in the Pacific theater found that 78% had lifetime PTSD and 70% had current PTSD; in contrast, World War II veterans with high war-zone exposure were much less likely to have lifetime (29%) or current (18%) PTSD.[44]

Postmilitary Factors

An important predictor of PTSD is the nature of the post-traumatic environment. In male Vietnam veterans, poor social support both at homecoming and at present is associated with increased risk of PTSD.[19] Another significant postmilitary factor is a veteran's coping skills,[49] although coping deficits may be relatively specific to war-related stressors (i.e., memories) and not to everyday stressors.[12]

SPECIAL POPULATIONS

Most research on PTSD in war veterans has been conducted in Western industrialized nations (United States, Europe, Israel, and Australia). With few exceptions,[10, 22] most studies have focused on white male veterans. Far less research has addressed the matter of PTSD among female, ethnic minority, or physically disabled veterans. The only studies on the impact of war-zone stress on people from non-Western or traditional ethnocultural backgrounds have focused on civilian or refugee cohorts exposed to military violence[25] and therefore are outside the scope of this article.

The most extensive research on PTSD in female military personnel has focused on female Vietnam theater veterans. Most of these women were nurses, although some served in intelligence, security, supply, clerical, and air traffic control positions. Although they did not function as combatants, many female Vietnam theater veterans had high levels of exposure to war-zone trauma, especially nurses, who were often exposed to a constant stream of combat casualties 12 hours a day, 6 days a week for 12 months. The NVVRS showed that patterns of PTSD association with risk factors were generally similar for male and female Vietnam veterans.[22] The women, on average, however, differed from men in that they tended to be white, older, better educated, and more likely to have the rank of officer. In addition, some female veterans also experienced sexual harassment and assault.[48] The adverse, traumatic impact of sexual assault on the military experience of women has only begun to receive the attention it deserves. It certainly appears to contribute substantially to the development of PTSD among female military personnel.

Turning to data on veterans of the Persian Gulf War, cited earlier, women reported more PTSD symptoms than men at 5 days and 18 months after their return to the United States. It is unclear whether the higher prevalence among female veterans reflects sexual trauma in addition to other war-zone stressors or it reflects a greater tendency for women to endorse PTSD symptoms on questionnaires.

There has been relatively little attention focused on PTSD among nonwhite military veterans,[25] although Egendorf et al[10] addressed post-Vietnam psychological problems among black veterans, and Kulka et al[22] rigorously measured PTSD in black and Hispanic subsamples of Vietnam theater and Vietnam-era veterans and civilians.[22] Little is known about PTSD among American Indian, Asian American, Native Alaskan, Native Hawaiian, or Pacific Islander military veterans, although research on this matter is in progress. Preliminary findings on Vietnam theater veterans from the Sioux nation indicate high rates of PTSD (S Manson: personal communication, 1993). The NVVRS data reviewed previously showed increased prevalence among black and Hispanic veterans relative to whites—a difference that could not be completely explained by increased war-zone exposure among the nonwhite minorities. There are a number of factors that might contribute to any additional risk for PTSD among nonwhite American military personnel. These include negative environmental factors in childhood, limited economic opportunities, racism in the military and at home, overidentification with the nonwhite enemy, exacerbation of traumatic stress by institutional racism, a bicultural identity, and nonmembership in the majority culture.[25] Although it is obviously of great importance to investigate possible associations between ethnocultural factors and PTSD prevalence rates, it is necessary to do so with ethnoculturally sensitive instruments. Marsella et al[25] have argued that future research of this nature must use cross-cultural and medical anthropologic research strategies.

More than 300,000 Americans were wounded in Vietnam, more than half required hospitalization, and approximately one quarter (more than 75,000) became seriously disabled. Thanks to efficient evacuation procedures and modern medical technology, many survived who would not have lived in previous wars. A price for this survival was a 300% higher rate of amputations or of crippling wounds to the lower extremities than occurred during World War II.[36] People with chronic physical disabilities resulting from war-zone injuries have the higher rates of PTSD, as stated earlier.[22] They are particularly vulnerable to unremitting PTSD. The persistent pain, disfigurement, and physical impairment from which they suffer serve as constant reminders of the traumatic event(s) that created these problems. In this regard, the physical disability itself is a trauma-related stimulus that constantly stirs the pot of intrusion, avoidant/numbing, and arousal symptoms. Treatment of such individuals is complicated and often disappointing because it must address physical and PTSD problems simultaneously.

COURSE OF ILLNESS

The fact that lifetime prevalence estimates of PTSD exceed current estimates indicates that some individuals experience reduction of symptoms, if not recovery, over time. Stating that a significant number of individuals who once had PTSD no longer meet diagnostic criteria, however, does not mean that such individuals are free of symptoms. Although recovery does occur, many individuals continue to suffer from *partial PTSD*. These individuals fall short of a minimum of six symptoms. In many cases, however, these residual symptoms may seriously impair marital, familial, vocational, or social functioning.

Longitudinal studies show that the course of PTSD is quite variable. Although some trauma survivors may become free of most or all PTSD symptoms, others may develop a persistent mental disorder marked by relapses and remissions in which patients are severely, chronically incapacitated.[6, 16] Between these

two extremes are a number of disease patterns. Blank[6] has concluded that acute, delayed, chronic, and intermittent or recurrent forms of PTSD have been well documented. Op den Velde et al[30] described three life-span developmental courses among World War II Dutch resistance fighters: a subacute form that gradually becomes chronic, a delayed form with onset 5 to 35 years after the end of World War II, and an intermittent subtype with relapses and remissions.

Individuals who appear to have recovered completely from PTSD may relapse when subsequently exposed to stimuli and situations that resemble the initial trauma. Solomon's[39] studies have emphasized the vulnerability of Israeli combat veterans to reactivation of PTSD symptoms if they had previously exhibited combat stress reactions. Solomon and colleagues observed reactivation of PTSD among asymptomatic veterans of the 1967 Yom Kippur War when re-exposed to the war-zone stress of the 1982 Lebanon War. An example of reactivation of PTSD among American veterans occurred during the Persian Gulf War, when there was a marked increase in PTSD symptoms among male and female Vietnam veterans apparently in response to the massive array of war-related stimuli that flooded American print and broadcast media.[18, 47] PTSD also may recur following life events associated with aging, such as retirement.[1, 11]

Finally, it is worth noting that people with PTSD often find it difficult to cope with the vicissitudes and ordinary hassles of life. Interpersonal conflicts, parenting problems, vocational setbacks, and the like may sometimes produce reactivation or exacerbation of PTSD symptoms. The mechanism for such a well-known clinical phenomenon may be that hassle-provoked autonomic arousal precipitates trauma-related symptoms through response generalization.

PREVENTION

Of course, the best primary prevention for war-related PTSD is the prevention of war. Many psychiatrists view such work as beyond their professional purview, although some have stated that social action is a responsibility of psychiatric professionals. For example, Friedman[13] has argued that from a public health perspective, prevention of war (and other traumas) is a valid professional concern. Another primary preventive method is to screen out carefully military recruits who are at greatest risk for developing PTSD. Such a strategy is unlikely to succeed for reasons outlined by Oei et al.[29] A third strategy is a psychoeducational approach to basic training that would equip new military recruits with tools for coping with anticipated war-zone stressors.[29] This could be called a stress inoculation approach.

Secondary prevention, the minimizing of long-term psychological sequelae following war-zone exposure, consists of interventions based on the treatment principles of proximity, immediacy, expectancy, and simplicity.[3, 26] Salmon[33] first delineated these principles during World War I, and they have proved successful in reducing the number of psychological casualties, at least in the short-term. Soldiers are treated close to the frontline, quite soon after initial symptoms appear. Caregivers communicate the message that they are having a normal and temporary reaction and should be able to resume their duties after a brief period of rest and support. They are given opportunities to discuss the traumatic experiences in daily group critical incident stress debriefing sessions.[27] Because of the principle of positive expectancy and the desire to normalize the soldier's responses, pharmacotherapy is often avoided during frontline treatment of acute CSRs. Under appropriate conditions, however, pharmacotherapy can be used effectively for recently evacuated military casualties.[15] In a thought-provoking

article, Camp[8] outlines the ethical dilemmas for military psychiatrists who believe that their responsibilities to the military are sometimes in conflict with their responsibilities to the individual patient.

Military personnel who do not respond to the front-echelon treatment should be offered critical incident stress debriefing in a group context if this has not yet occurred. Careful psychiatric assessment (including ruling out physical causes for the psychiatric symptoms) is best carried out during an initial drug-free interval. Once the diagnosis is established, pharmacotherapy may be initiated as appropriate to the diagnosis. There are theoretical reasons to believe that early treatment with appropriate drugs may prevent some of the long-term sequelae of exposure to trauma, including the later development of PTSD.[15]

TREATMENT

Treatment of PTSD nearly always should include psychotherapy (group or individual or both), pharmacotherapy, peer group participation, and family therapy. Although most treatment for PTSD occurs in an outpatient setting, there also is a place for the use of both short-term hospitalization during periods of crisis and longer term inpatient programs for intensive treatment and rehabilitation. In addition, treatment of alcohol or other substance abuse or dependence is often a prominent need for many veterans with PTSD.

Modes of psychotherapy that have been used to treat war zone–related PTSD can be broadly divided into psychodynamic treatments and cognitive-behavioral treatments.[24] Common to both types of treatment is the encouragement of exposure to the traumatic memories and the associated physiologic and affective responses (often called abreaction in dynamic models and prolonged exposure in cognitive-behavioral models), coupled with attempts to integrate the traumatic experience into one's life story or cognitive schemas. Scurfield[35] in reviewing several models of recovery defined five common essential treatment principles in all the psychotherapies reviewed, including: (1) establishing a therapeutic alliance; (2) providing education about stress responses and the recovery from trauma; (3) providing help with anxiety management and reduction; (4) facilitating the re-experiencing of the trauma in a tolerable, safe manner; and (5) helping with integration of the traumatic events.

In fact, few treatments for PTSD in military veterans (or other trauma survivors) have been rigorously evaluated. We are aware of only eight randomized, controlled trials of treatment for military veterans. These include four drug trials and four trials of cognitive or behavioral treatments.[38] The cognitive behavioral treatments tested include prolonged exposure, relaxation techniques, and desensitization techniques. The psychotropic medications that have been assessed in this population are phenelzine, imipramine, desipramine, and amitriptyline. In general, successful treatment reduces the intrusion/re-experiencing and hyperarousal symptoms of PTSD and is less successful with avoidant/numbing symptoms. Psychotherapy and pharmacotherapy of PTSD are reviewed elsewhere in this issue.

An additional option for American Vietnam veterans is treatment at a veterans' center. These are community-based centers that emphasize peer counseling, group therapy, community involvement, and family treatment and education.[5] Questions of moral pain,[23] including guilt over acts of omission and commission, and existential questions, resulting from the experience of participating in combat and other traumatic war-zone events, are perhaps best addressed in the context of peer groups and best ameliorated through active engagement in the community.

As already noted, military personnel with PTSD often have comorbid substance-abuse problems. Neurobiologic factors that are characteristic of chronic PTSD may increase a PTSD patient's risk for alcoholism or substance abuse.[14] In addition, the adrenergic hyperarousal associated with withdrawal from abused substances may exacerbate PTSD symptoms. Furthermore, the dual diagnosis literature strongly suggests that the best treatment outcomes result when two coprimary illnesses are treated simultaneously. For all these reasons, Kofoed et al[21] argue that PTSD and substance abuse/dependence must be treated simultaneously when they co-occur.

Before leaving the topic of treatment, mention must be made of longer term, institutional treatment of PTSD. There are specialized inpatient treatment units at several VA hospitals in the United States. The programs are designed to help veterans focus on intensive, trauma-related therapy as well as rehabilitation therapy. The Israel Defense Forces Medical Corps developed a variation on this type of institutional care, the pilot test of which is known as the Koach Project.[40] The program borrowed heavily from the principles of treatment of acute combat stress reactions in that positive expectancy and similarity of the treatment setting to the traumatic setting were emphasized. Although psychometric outcome data failed to demonstrate the program's efficacy, the approach is worthy of further study.[42]

PHYSICAL HEALTH

Literature suggesting that exposure to combat trauma may alter the body's normal physiology and health dates back to reports on cardiovascular abnormalities among Civil War veterans. Over the years, these problems have been variously labeled *soldier's heart, Da Costa's syndrome, irritable heart, effort syndrome,* and *neurocirculatory asthenia.*[14] Studies have confirmed that exposure to war-zone stress is associated with poorer health and more chronic medical problems in diverse strata of the veteran population, e.g., male and female Vietnam veterans,[22] male Australian World War II prisoners of war.[45]

Despite this extensive literature, there is little research that has addressed the question whether PTSD rather than traumatic exposure per se is associated with poor health among military veterans. In the NVVRS, both male and female Vietnam veterans with current PTSD reported more physical health problems, poorer health status, and more medical service utilization.[22] After controlling for war-zone exposure, Wolfe et al[50] found among 109 female Vietnam theater veterans that higher PTSD scores were associated with increased likelihood of neurologic, cardiovascular, gastrointestinal, gynecologic, dermatologic, and ophthalmologic/otolaryngologic complaints. Israeli combat veterans with PTSD had higher rates of somatic complaints than a non-PTSD comparison group.[41] When tested on a treadmill, Israeli combat veterans with PTSD exhibited low effort tolerance and decreased cardiac reserve.[37] Finally, preliminary data collected by Wolfe and colleagues (Wolfe J: unpublished data, 1993) on veterans of Operation Desert Storm indicate a strong association between PTSD and health. Eighteen months after their return from the Persian Gulf, almost 75% of the men and 94% of the women with PTSD reported that their health had worsened since their return. The most frequent complaints were general aches and pains, headaches, and lack of energy.

There are a number of ways by which PTSD might increase the risk of poor health or adverse health complaints. Physiologic and neurobiologic alterations

associated with PTSD[14] (see also the article by Southwick et al in this issue) might increase biologic susceptibility to cardiovascular, gastrointestinal, endocrine, autoimmune, and other medical disorders. Adverse health behaviors (smoking, drinking, eating disorders, sexual behavior) associated with PTSD might affect health risk. Comorbid depression, anxiety disorders, and alcoholism/substance abuse might increase disease susceptibility, and heightened vigilance or perceptions of autonomic changes might increase rates of health complaints.

SALUTARY EFFECTS OF WAR-ZONE EXPOSURE

The significant problems associated with PTSD among military veterans have overshadowed the fact that some veterans who have extensive combat exposure are well adjusted and high functioning.[34, 49] Moreover, war-zone exposure can have potentially salutary effects, although these effects may not be observed immediately after war and may not involve all aspects of function. For example, Elder and Clipp[11] studied personality change from adolescence to midlife in male Korean War and World War II veterans. Veterans with heavy combat exposure had the greatest gains in resilience and decreases in helplessness relative to less-exposed veterans but at a price—the heavy exposure group also had the most painful memories and emotional distress.

SUMMARY

1. Military personnel exposed to war-zone trauma are at risk for developing PTSD. Those at greatest risk are those exposed to the highest levels of war-zone stress, those wounded in action, those incarcerated as prisoners of war, and those who manifest acute war-zone reactions, such as CSR.
2. In addition to problems directly attributable to PTSD symptoms per se, individuals with this disorder frequently suffer from other comorbid psychiatric disorders, such as depression, other anxiety disorders, and alcohol or substance abuse/dependence. The resulting constellation of psychiatric symptoms frequently impairs marital, vocational, and social function.
3. The likelihood of developing chronic PTSD depends on premilitary and postmilitary factors in addition to features of the trauma itself. Premilitary factors include negative environmental factors in childhood, economic deprivation, family psychiatric history, age of entry into the military, premilitary educational attainment, and personality characteristics. Postmilitary factors include social support and the veteran's coping skills.
4. Among American military personnel, there are three populations at risk for unique problems that may amplify the psychological impact of war-zone stress. They are women whose war-zone experiences may be complicated by sexual assault and harassment; nonwhite ethnic minority individuals whose premilitary, postmilitary, and military experience is affected by the many manifestations of racism; and those with war-related physical disabilities, whose PTSD and medical problems often exacerbate each other.
5. The longitudinal course of PTSD is quite variable. Some trauma survivors may achieve complete recovery, whereas others may develop a persistent mental disorder in which they are severely and chronically incapacitated. Other patterns include delayed, chronic, and intermittent PTSD.

6. Theoretically primary preventive measures might include prevention of war or screening out vulnerable military recruits. In practice, primary preventive measures have included psychoeducational and inoculation approaches. Secondary prevention has been attempted through critical incident stress debriefing administered according to the principles of proximity, immediacy, expectancy, and simplicity. Tertiary prevention has included psychotherapy, pharmacotherapy, dual diagnosis approaches, peer counseling, and inpatient treatment. Few treatments have been rigorously evaluated.
7. There are both theoretical reasons and empirical findings to suggest that military veterans with PTSD are at greater risk for more physical health problems, poorer health status, and more medical service usage. Much more research is needed on this matter.
8. Despite the potential adverse impact of war-zone exposure on mental and physical health, there is also evidence that trauma can sometimes have salutary effects on personality and overall function.

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