Traumatic Stress

From Theory to Practice

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5

Military Trauma

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INTRODUCTION AND HISTORICAL PERSPECTIVE

In the last 25 years, the scientific study of the psychological aftermath of war has flourished. A burgeoning clinical and empirical literature has provided incontrovertible evidence that war exacts a heavy toll in terms of human suffering, not only for combatants but also for military support personnel and affected civilians. Clinical investigators have delineated the symptoms that characterize war-related stress reactions and have devised etiological models that explain the onset and course of these symptoms. In addition, they have developed increasingly sophisticated assessment instruments and clinical interventions to evaluate and treat combat veterans.

In many ways the study of war-related trauma has served as a paradigm for the study of other types of traumatic stress such as rape and natural disasters. In 1980, the American Psychiatric Association, spurred in large part by reports documenting a distinct pattern of psychological problems among Vietnam combat veterans, adopted posttraumatic stress disorder (PTSD) as an official diagnostic category for the first time in the third edition of the *Diagnostic and Statistical Manual* (DSM-III) (APA, 1980). This recognition of PTSD as a distinct diagnostic entity stimulated even greater interest in attempting to understand and treat the war-related stress reactions, and it legitimized those veterans whose lives had been so profoundly disrupted by the lingering effects of their combat experiences.

What is remarkable about this energetic, sustained commitment to the

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study of war-related trauma is not its magnitude but the fact that it has emerged so recently. After all, since earliest times war has been a terrible but undeniable fact of human existence. Indeed, as a noted military historian recently concluded, "the written history of the world is largely a history of war" (Keegan, 1993, p. 386). Moreover, the adverse, often devastating psychological impact of war has long been recognized, and throughout history rich descriptions of war-related stress reactions abound. For example, in his discussion of Homer's *The Iliad,* Shay (1991) identified a number of themes that sound remarkably contemporary to those familiar with the difficulties facing Vietnam veterans. In *The Iliad* Achilles feels betrayed by his superiors and becomes mistrustful of everyone around him. He suffers profound grief and guilt over the loss of a beloved comrade. Enraged over this death he goes "berserk," and with reckless disregard for his own safety, he savagely attacks the enemy, committing atrocities in his desire for revenge. Finally, he complains of feeling emotionally numb, that he is "already dead."

Another striking illustration occurs in an often-cited passage from Shakespeare's *Henry IV,* Part I. In it Lady Percy expresses her concern over Hotspur's recent behavior, and in doing so, eloquently depicts a number of classic symptoms of war-related PTSD, including (in order) estrangement from others, restricted range of affect, difficulty sleeping, exaggerated startle, dysphoria, nightmares, and strong anxiety:

> O my good lord, why are you thus alone?
> For what offense have I this fortnight been
> A banished woman from my Harry's bed?
> Tell me, sweet lord, what is't that takes from thee
> Thy stomach, pleasure, and thy golden sleep?
> Why dost thou bend thine eyes upon the earth,
> And start so often when thou sit'st alone?
> Why hast thou lost the fresh blood in thy cheeks
> And given my treasures and my rights of thee
> To thick-eyed musing and cursed melancholy?
> In thy faint slumbers I by thee have watched,
> And heard thee murmur tales of iron wars,
> Speak terms of manage to thy bounding steed,
> Cry 'Courage! to the field!'...
> Thy spirit within thee hath been so at war,
> And thus hath so bestirred thee in thy sleep,
> That beads of sweat have stood upon thy brow
> Like bubbles in a late-disturbed stream,
> And in thy face strange motions have appeared,
> Such as we see when men restrain their breath
> On some great sudden hest. O, what portents are these? . . . (Act II, scene *iii*)

Other evidence of war-related PTSD can be found in more recent history. Hendin and Haas (1984a) presented two case examples of Civil War veterans, Lewis Paine, a conspirator in the plot to assassinate President Lincoln, and Ambrose Bierce, a well-known journalist and author. Paine fought for several years in the Confederate army, and his war experiences had a dramatic impact on his behavior. Good-natured and well-liked growing up, he became tempera-

mental and increasingly violent, and he completely withdrew from family members. After he was arrested following Lincoln's death, he tried to commit suicide. These changes were obvious to all who knew him, and his lawyer defended him by arguing that he suffered from war-related mental illness. Bierce fought for the North throughout the war, seeing heavy action and sustaining severe wounds. In their analysis of Bierce's private life and written work, Hendin and Haas (1984a) identified a pattern of symptoms commonly found in veterans with PTSD, including nightmares, emotional numbing, hypervigilance, heavy drinking, and a preoccupation with violence.

As these examples demonstrate, throughout history the symptoms of war-related PTSD have been readily apparent to anyone with the opportunity to observe an afflicted veteran. Nonetheless, prior to World War I, the medical profession generally ignored the adverse impact of war on psychological functioning, and even the preeminent psychopathologists of the late 19th and early 20th centuries (e.g., Kraepelin, 1913; Bleuler, 1924) gave little consideration to war-related stress syndromes. A growing awareness of such syndromes was apparent as early as the Civil War, when the term "nostalgia" was used to refer to a mix of severe depression and loneliness thought to result from prolonged absence from home (Kentsmith, 1986). However, the systematic investigation of war-related stress was first compelled by the horror of World War I, when millions fought and died in the first war conducted on a global scale and staggering rates of psychiatric casualties began to occur (see Herman, 1992; Kentsmith, 1986; Trimble, 1981).

In World War I, soldiers initially were thought to be suffering from the physical symptoms of constant exposure to the blast of artillery shells, and the diagnosis of "shell shock" was coined. Eventually, however, the psychological nature of the symptoms of shell shock was recognized, and the syndrome was conceptualized as a form of neurosis. Battlefield psychiatrists learned much about the phenomenology of war-related stress reactions and discovered the ingredients of effective intervention that became codified as the principles of *proximity, immediacy,* and *expectancy:* That is, that treatment should be initiated quickly, very close to the front lines, and with the expectation that the affected soldier will return to duty (Salmon, 1919).

The end of World War I eliminated the immediate press of treating psychiatric casualties in order to maintain an adequate fighting force, and interest in veterans and their problems quickly waned. Insights that had been gained were ignored, only to be rediscovered as if brand new during World War II. As Kardiner and Spiegel (1947) saw it:

> Somewhere the superstition was started that data collected from World War I had nothing to do with World War II. This war was going to be different. Perhaps it was anticipated that modern implements of warfare would create a new disease entity, or that a fresh point of view might add new information. Both of these proved to be untrue. The syndromes described in the last war are precisely the same as those in World War I. (p. 3)

However, these earlier lessons were quickly relearned and significant advances in the conceptualization and treatment of war-related stress ensued.

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Some of the most powerful new insights appeared in the classic texts of K diner and Spiegel (1947) and Grinker and Spiegel (1945). These seminal wc provided compelling explications of the phenomenology, nosology, and tr ment of war-related stress, thereby anticipating virtually every aspect of c temporary research on PTSD.

Two conceptual breakthroughs are particularly noteworthy. The first that the meaning of the term neurosis needed to be broadened well beyond traditional psychoanalytic sense: Although anxiety was still a useful organiz principle, the anxiety and terror experienced in battle derives primarily from the activation of underlying personality conflicts but from the very r present danger in the war-zone environment. The second was that a war-sti reaction is not a static entity but an unfolding process, with acute and chrc phases, that must be observed over time if it is to be adequately understo

Despite these gains, the end of the war once again brought about a ra decline in interest in the problems of veterans, and the study of war trauma all but abandoned until the Vietnam war. Why has the study of war trau waxed and waned, and what can account for the renewed surge of interes the topic over the last 25 years? In her landmark work on psychological trau Herman (1992) argued that this "familiar process of amnesia" typifies the sti of trauma in general, and that:

> The systematic study of psychological trauma therefore depends on the support of a political movement. Indeed, whether such study can be pursued or discussed in public is itself a political question. The study of war trauma becomes legitimate only in a context that challenges the sacrifice of young men in war. (p. 9)

In Herman's view, the impetus for the current period of investigation t began in the Vietnam era came from the indignation of the veterans themsel and was bolstered by the antiwar movement: "The moral legitimacy of antiwar movement and the national experience of defeat in a discredited had made it possible to recognize psychological trauma as a lasting and inev ble legacy of war" (p. 27).

In a similar vein, Solomon (1993), in her extensive investigation of com stress reactions in Israeli soldiers, identified powerful cultural forces at worl disavow the long-term psychological sequelae of war. One such force was resistance of the military to acknowledging that war can inflict lasting psyc logical damage. Another potent force was the denial of any weakness or nerability that might undermine Israel's new national identity:

> The idea that participation in combat might leave a searing imprint clashed with the image of the Israeli superman so assiduously cultivated by Israel's founders and pioneers and so eagerly adopted by subsequent generations. . . . In this collective belief system, weakness had no place. (pp. 51–52)

However, this reluctance eventually was overcome by the necessity of unc standing the psychological problems of soldiers, given the potential impact such problems in a small country with a large number of citizens serving in military.

Undoubtedly, other factors also have facilitated the investigation of the effects of war, including the emergence of increasingly sophisticated models of psychopathology and the development of innovative research methods. But whatever the reasons may be, the study of war trauma is now firmly established as a legitimate scientific endeavor, and a consistent body of knowledge has been established. Regardless of whether the observations have been informal or scientific, ancient or modern, two conclusions have been confirmed repeatedly. First, exposure to war-zone stress is associated with a variety of acute and chronic psychological problems. Second, this relationship is not perfect: That is, not everyone exposed to war develops a clinically significant stress reaction. The overarching question now has shifted from "Does war have a negative impact on psychological functioning?" to "Why do some individuals develop significant psychological problems, while some appear to make a good adjustment and function effectively?"

In our view, an individual's unique adaptation to war-zone stress is best understood in terms of complex interactions among the aspects of the trauma, aspects of the individual, and aspects of the recovery environment (see Green, Wilson, & Lindy, 1985). In the remainder of this chapter, we review the existing literature in an effort to address several key questions:

1. What is the nature of war, and what makes it traumatic?
2. What are the psychological consequences of exposure to war-zone stress?
3. How prevalent are war-zone stress reactions?
4. What are the risk factors for developing a war-zone stress reaction? What are the resilience factors?

Because of space constraints, this chapter is limited to a discussion of combatants and does not discuss the closely related literature on prisoners of war (see Hunter, 1993; Sutker, Winstead, Galina, & Allain, 1991; Ursano, 1985) or on the effects of war on civilians and refugees (see Kinzie, 1993; Mollica, Wyshak, & Lavelle, 1987).

THE NATURE OF WAR-ZONE STRESS

War involves prolonged exposure to a staggering array of extreme stressors, ranging from various physical privations to the pervasive threat of death. Each war poses its own hardships that color the experience of combatants and produce unique effects on long-term psychological adjustment. Wars differ with respect to climate (e.g., tropical, desert, Arctic), terrain (e.g., mountains, forest, plains), methods of warfare (e.g., conventional, guerilla), and types of weapons used. Also, wars may be fought on domestic or foreign soil, and they may be popular or unpopular. Finally, the experience of war may be very different depending on combatants' branch of service (e.g., Marines, Air Force) and specific duties (e.g., infantry, artillery, pilot).

However, although each war is different, the core traumatic experience any war is a profound and sustained degree of life threat or threat of serio injury and excruciating pain:

> The paramount stress is the actual danger of destruction, complete or partial. And it is this factor that predominates all others in importance and to which most reactions are oriented. All others are contributory. The danger of death is real, actual, immediate, inescapable; from it no flight is possible. When we study war neuroses we are studying essentially men's reactions to this real and immediate danger of destruction. (Kardiner & Spiegel, 1947, pp. 20–21)

The fear of being injured or killed is compounded by other experienc with death, including the horror and grief of witnessing the injury or death fellow soldiers; killing the enemy, or even more psychologically damagin killing a fellow soldier; and witnessing or participating in atrocities, or beha iors considered excessively brutal even for a war zone. Lifton (1974) has r ferred to the fallout of this inundation with death and dying as the "dea imprint," which he views as the most significant and disturbing sequela of wa

Wars share other common traumatic elements as well. As shown in Table investigators have developed conceptual schemes for delineating the dime sions underlying the vast array of experiences combatants may encounte These schemes overlap substantially, but each emphasizes somewhat differe aspects of war-zone stress. For example, Grinker and Spiegel (1945) and Ka diner and Spiegel (1947) identified three types of war-related stressor (1) demands on physical resources, which comprise the contextual stressors

Table 1. Dimensions of War-Zone Stress

Source	Dimensions	Examples
Grinker & Spiegel (1945), Kardiner & Spiegel (1947)	1. Demands on physical resources	Inadequate food, water, shelte hygiene; physical exertion; fatigue; auditory irritation
	2. Demands on emotional resources	Threat of personal injury or death; injury or death of friend; engaging in hostile, destructive activity
	3. Loss of cohesion/morale in combat unit	Poor relations with peers; loss trust in leaders; perception "losing"
Laufer, Gallops, & Frey-Wouters (1984)	1. Level of combat exposure	Served in forward areas; participated in firefights; received incoming fire; being wounded
	2. Witnessing abusive violence	Torture of prisoners; physical mistreatment of civilians; mutilation of bodies
	3. Participation in abusive violence	

(continue

Table 1. *(Continued)*

Source	Dimensions	Examples
Schlenger et al. (1992): dimensions applicable to both male and female Vietnam veterans	1. Exposure to combat/ exposure to dead and wounded	Receiving fire; firing weapon at enemy; being wounded or injured; exposure to wounded/dying/dead; caring for casualties
	2. Exposure to or participation in abusive violence	Torturing prisoners; harming civilians; mutilation of bodies
	3. Deprivation	Lack of shelter, food, water supplies; fatigue; exposure to insects and disease
	4. Loss of meaning and control	Sense of purposelessness; feeling out of touch with the world
King, King, Gudanowski, & Vreven (1995)	1. Traditional combat events	Receiving fire; firing weapon at enemy; being wounded or injured; exposure to wounded/dying/dead
	2. Atrocities/episodes of extraordinarily abusive violence	Torturing prisoners; harming civilians; use of cruel weaponry or chemicals; mutilation of bodies
	3. Subjective or perceived threat	Perception of imminent danger/life threat; belief that one would not survive
	4. Harsh or malevolent environment	Lack of food, water; poor living arrangements; harsh climate; unpredictable/extended work schedule
Wolfe, Brown, Furey, & Levin (1993): dimensions applicable to female Vietnam veterans	1. Quality of care provided	Triage decisions; unnecessary death from inadequate equipment/personnel; life-threatening errors as a result of fatigue
	2. Discriminatory experiences	Sexual harassment; coercive sexual experiences; gender-based discrimination
	3. Environmental stressors	Receiving fire; imminent danger; uncomfortable environment; lack of time off
	4. Exposure to catastrophic death and dying	Viewing stream of casualties/ severely mutilated; attending to someone dying

inadequate food, water, and living conditions, as well as exhaustion resulting from sleep deprivation and physical exertion; (2) demands on emotional resources, consisting primarily of constant exposure to death; and (3) loss of cohesion and morale in the combat unit. These authors are unique among those cited in Table 1 in their emphasis on the stress associated with a breakdown in group cohesion in the combat unit. This is a crucial dimension, the power of which should not be underestimated: Strong attachments to fellow soldiers provide a potent buffer against fear, whereas a lack of cohesion, or worse, open dissension, can be a significant source of distress.

Laufer, Gallops, and Frey-Wouters (1984) distinguished three key aspects of war-zone stress: exposure to combat and witnessing or participating in abusive violence. Their emphasis on abusive violence as a separate dimension stemmed from reports of atrocities committed in the Vietnam war. However, atrocities are an ancient fact of war. As noted above, Homer described such savage violence in Achilles, attributing it to a mix of frustration, grief, and rage. The link between rage and dehumanizing violence was also clear to O'Brien (1993), who recognized uncanny similarities between his combat experiences in Vietnam and the experiences of the British troops who committed atrocities in the retreat from Lexington and Concord during the Revolutionary War:

> I identified with those British troops. The parallels struck me as both obvious and telling. A civil war. A powerful world-class army blundering through unfamiliar terrain. A myth of invincibility. Immense resources of wealth and firepower that somehow never produced definitive results. A sense of bewilderment and dislocation. A tough, skilled, zealous enemy that for years had been grossly underestimated. Growing frustration and rage at guerilla tactics—the constant sniping, the deadly little ambushes, an enemy that refused to fight conventional battles . . . Men died, then more men died, and after a time the enemy became "devils" and "demons" and "savages"—dinks, slopes, gooks. Houses were burned. Rumors of atrocity justified other atrocities. A kind of wildness invaded our spirits—animal desperation, animal fury—and gradually the entire universe seemed to condense into a fierce struggle for personal sanity. (p. 66)

It must be emphasized that most combatants do not deliberately participate in atrocities. However, since the Vietnam war, a number of clinical and empirical reports have shown that those who do participate in or witness acts of excessively brutal violence are at greater risk for developing severe, intractable symptoms of PTSD (e.g., Breslau & Davis, 1987; Gallers, Foy, Donahoe, & Goldfarb, 1988; Haley, 1974; Yager, Laufer, & Gallops, 1984; Yehuda, Southwick, & Giller, 1992).

Schlenger et al. (1992) factor-analyzed data on exposure to war-zone stress drawn from the National Vietnam Veterans Readjustment Study (NVVRS) (Kulka et al., 1990), a study widely recognized as the most methodologically rigorous epidemiological investigation of PTSD to date. The NVVRS included an extensive inventory of items intended to provide an exhaustive assessment of the aspects of combat exposure described in the literature as being important. Analyzing the data separately for men and women, Schlenger et al. (1992) found

some slight differences in the factors that emerged, but the dimensions in Table 1 essentially apply to either gender. Their conceptual scheme distinguishes "high magnitude" stressors such as life threat and exposure to death and dying from "low magnitude" stressors such as various physical deprivations.

Like Laufer et al. (1984), Schlenger et al. (1992) also found a dimension of exposure to or participation in abusive violence, as well as a new dimension, loss of meaning and control. This latter dimension refers to existential conflicts triggered by war, such as a sense of purposelessness and inability to find meaning in the experience. The circumstances of the Vietnam conflict were particularly conducive to the loss of meaning and control: It was an unpopular war that lacked clear objectives, making it difficult for some combatants to justify their own behavior, or to justify the death and destruction around them.

King, King, Gudanowski, and Vreven (1995) also analyzed the NVVRS data, supplying rationally derived categories for the same items used by Schlenger et al. (1992). They arrived at similar dimensions, distinguishing between traditional combat and harsh or malevolent environment and identifying a separate dimension of atrocities. But they also added a dimension of subjective or perceived threat, which speaks to the issue of whether stressors can be specified in completely objective terms, or whether an individual's subjective appraisal of the stressor must be considered.

Finally, Wolfe, Brown, Furey, and Levin (1993), recognizing that women in a war-zone may face a very different set of stressors, proposed several key dimensions of war-zone stress for women. Two of the dimensions they outlined are similar to those identified for men, including environmental stressors, consisting primarily of traditional combat experiences, and exposure to catastrophic death and dying. A third dimension, quality of care provided, is more centrally related to the experience of female Vietnam veterans, although it also is applicable to many male veterans, especially medical corpsmen and doctors. They also identified a fourth dimension, discriminatory experiences, that is much more specific to women. However, this dimension also may apply to at least some males who are raped or sexually coerced in the military, and if it were expanded to include racial or ethnic discrimination, it would apply broadly to all minority personnel (see Parson, 1985; Pina, 1985).

The conceptual schemes outlined in Table 1 are helpful in understanding the trauma of the war zone, but they don't address the question of how war compares with other types of traumatic events. Green (1993) proposed eight generic dimensions of trauma that are helpful in contextualizing war-zone stressors. These are: (1) threat to life and limb, (2) severe physical harm or injury, (3) receipt of intentional harm or injury, (4) exposure to the grotesque, (5) violent or sudden loss of someone close to you, (6) witnessing or learning of violence to someone close to you, (7) learning of exposure to a noxious agent, and (8) causing death or severe harm to another. Clearly, a soldier in any war zone is at risk for being exposed to *all* of these types of events, and combatants with moderate to high degrees of exposure typically experience multiple incidents reflecting the full gamut of psychological trauma.

War-zone trauma is characterized not only by exposure to a broad range of stressors, but by the frequency and duration of exposure, and by the unique demands of being a victim as well as a perpetrator of traumatic violence. Since military duty in a war zone typically lasts over months or even years, there is a much greater likelihood of repeated and sustained traumatic exposure. Also, unlike many other victims of interpersonal trauma, combatants have the training and the means to aggress against the attacker, killing or maiming the enemy in the context of being victimized and threatened. This conflict often leads to the use of coping strategies such as aggression and violence and emotional numbing, which further colors the traumatic conditioning that takes place in a war zone.

SYNDROMES OF WAR-ZONE STRESS

Symptom Picture

As noted earlier, a variety of labels have been used to describe the psychological problems that can develop as an result of exposure to war-zone stress. In addition to nostalgia and shell shock, war-zone stress reactions have been classified as traumatic neurosis, war neurosis, combat exhaustion, or battle fatigue (see Kentsmith, 1986). Historically, however, this terminological confusion has arisen from a failure to recognize the distinction between acute and chronic phases of war-zone stress reactions, and from a failure to appreciate fully the diversity of symptoms that can appear during the acute phase. Acute stress reactions occur either during combat or shortly after, whereas chronic reactions persist over time. Chronic reactions may represent a crystallization of an acute reaction but also may develop in combatants who did not break down in combat. According to Kardiner and Spiegel (1947):

> The simple fact is that the stresses of war create only one syndrome which, though not unique to war conditions, is extremely frequent . . . a syndrome which is variously identified as traumatic neurosis, shell shock, battle fatigue, combat exhaustion, and any number of variations of nomenclature. All these terms mean the same thing. They all refer to the common acquired disorder consequent on war stress . . . It is a process and it changes, becomes organized and consolidated, and in each of these time phases different phenomena appear. (p. 2)

The first two editions of the Diagnostic and Statistical Manual of Mental Disorders (DSM) perpetuated the lack of recognition of a chronic war-related stress syndrome, classifying reactions to combat either as "gross stress reaction" (APA, 1952) or "transient situational disturbance" (APA, 1968). Both of these designations implied that reactions to combat were relatively brief in nature and could be expected to resolve quickly. Clinicians were directed to make a diagnosis of another disorder should symptoms endure. Only with the inclusion of PTSD in DSM-III was there official acknowledgment that the symptoms of traumatic stress can persist for months or years (APA, 1980).

Recently, Solomon (1993), drawing on her thorough examination of psychiatric casualties in the Israeli army, proposed a useful distinction between what she calls "combat stress reaction" (CSR), which refers to the acute syndrome of war-zone stress occurring on the battlefield, and PTSD, which refers to the lasting effects of war (see Chapter 10, this volume). Like Kardiner and Spiegel nearly half a century earlier, Solomon (1993) was struck by the bewildering variety and instability of symptoms characteristic of acute reactions, which make CSR especially difficult to define:

> A major cause of the lack of clear definition is the polymorphous and labile quality of CSR, that is, the variability and rapid changes of its somatic, emotional, cognitive, and behavioral manifestations. Some casualties become apathetic and withdrawn; others rant and rage. Some freeze on the spot or hide in a trench, while others run amok or charge against a hidden enemy. Moreover, whatever the predominant symptom, it can be rapidly replaced by others that, in turn, can yield to yet others. (pp. 27–28)

In order to delineate the essential features of CSR, Solomon and her colleagues interviewed Israeli soldiers, collecting and analyzing first-person accounts of CSRs. Six primary dimensions were identified: (1) distancing, which refers to the use of psychic numbing or fantasy to reduce the staggering sensory overload of the battlefield; (2) anxiety, ranging from apprehension to incapacitating terror, in conjunction with sleeplessness and intrusive images of death; (3) guilt and exhaustion, which are related in that CSR casualties often feel guilty about their loss of functioning; (4) loneliness and vulnerability; (5) loss of control, including impulsive behaviors such as running amok, as well as the inability to regulate emotional states or bodily functions; and (6) disorientation, including confusion, loss of concentration, and fainting. As Solomon (1993) noted, these dimensions are largely consistent with other accounts of acute war-zone stress reactions (e.g., Grinker & Spiegel, 1945; Kardiner & Spiegel, 1947).

In contrast to CSR, PTSD is a more clearly discernible syndrome comprising three clusters of symptoms: (1) reexperiencing the trauma, (2) numbing and avoidance, (3) and hyperarousal (APA, 1980, 1987, 1994). In PTSD, frightful and horrific images of traumatic war experiences force their way into consciousness in the form of intrusive thoughts, nightmares, and flashbacks. These symptoms, which many investigators regard as the hallmark of the disorder (e.g., Brett & Ostroff, 1985), may appear suddenly and without warning, unbidden and apparently uncued. Alternatively, they may be triggered by reminders of combat, including overt, obvious cues (e.g., war movies; hearing firecrackers or helicopters) as well as cues such as emotional states (e.g., sadness, anger, longing for intimacy) that have a more subtle association with the trauma.

Closely linked with the reexperiencing symptoms are a class of symptoms characterized by heightened states of physiological arousal, including exaggerated startle, irritability and anger, hypervigilance, sleep disturbance, and difficulty concentrating. These hyperarousal symptoms may be viewed as mani-

festations of conditioned emotional responses (e.g., Keane, Fairbank, Caddell, Zimering, & Bender, 1985) or as the sequelae of the chronic overstimulation of the "fight or flight" response (Kardiner & Spiegel, 1947; Kolb, 1987). The myriad dangers of a war zone demand of combatants a perpetual state of vigilance, leaving the sympathetic nervous system in a state of permanent "overdrive."

In order to reduce the painful impact of intrusions and arousal, veterans with PTSD employ a variety of avoidance strategies. They avoid situations reminiscent of combat (e.g., parades, veterans activities, hunting) and suppress trauma-related thoughts and feelings. Some succeed in blocking out painful memories altogether, leaving them with psychogenic amnesia for at least some portion of a traumatic event. In addition, they often evidence significant signs of psychic numbing similar to those seen in CSR. They are less interested in daily activities, feel distant or cut off from other people, and complain of feeling emotionally "shut down." Many veterans turn to the powerful numbing effects of alcohol and other drugs. They also may channel their emotional energy strategically, using rage to displace fear and vulnerability, or profound depression to preclude feeling anything at all. However, although these avoidance strategies can consume enormous energy, they are seldom completely successful, and traumatic memories continually threaten to break through into awareness. Herman (1992) has designated this ongoing struggle between intrusion and constriction as the central dialectic of trauma.

In addition to these cardinal symptom clusters, combat veterans with PTSD often suffer from a variety of associated problems. At the symptom level, one of the most important collateral features of war-zone-related PTSD is guilt (e.g., Glover, 1984; Kubany, 1994). Frequently PTSD patients feel guilty about their behavior in the war-zone (acts of commission), or about their failure to act at a crucial moment (acts of omission). They also may feel guilty simply about surviving when others around them were killed. Other associated symptoms include homicidal or suicidal ideation, verbal or physical aggression, and dissociative symptoms such as amnesia, depersonalization, derealization, and identity disturbance (Bremner, Steinberg, Southwick, Johnson, & Charney, 1993).

At the diagnostic level, one of the best-replicated findings regarding the clinical picture of PTSD is a high rate of comorbidity: That is, combat veterans with PTSD typically meet the criteria for at least one other psychiatric disorder (e.g., Keane & Wolfe, 1990; Kulka et al., 1990). For example, in the NVVRS (Kulka et al., 1990), veterans with PTSD had higher current and lifetime prevalence of every disorder assessed, relative to veterans without PTSD. Particularly high rates of alcohol abuse, generalized anxiety disorder, depression, and antisocial personality disorder were found among PTSD veterans. An astonishing 99% of the PTSD group met the lifetime criteria for at least one additional disorder, as compared to 41% of the non-PTSD group.

Data from our clinic (Orsillo, Weathers, Litz, Steinberg, & Keane, 1993) substantiates these results: Virtually every PTSD veteran in our sample had at least one other lifetime diagnosis, and relative to non-PTSD veterans, PTSD

veterans had significantly higher rates of current and lifetime depression, panic, and social phobia. The PTSD veterans also had very high rates of alcohol and drug abuse, but they did not differ from control subjects in this regard, probably because most of the non-PTSD subjects also were seeking clinical services, many of them for substance use disorders.

Given the powerful, pervasive nature of the symptoms of PTSD, it is not surprising that this syndrome can have a deleterious effect on virtually every aspect of psychological functioning. In order to fully appreciate the impact of PTSD on the lives of afflicted veterans, it is crucial to look beyond a tally of symptoms and consider the functional impairment these symptoms cause. Such a view has been incorporated into the newly released diagnostic criteria for PTSD in the Diagnostic and Statistical Manual of Mental Disorders IV (DSM-IV) (APA, 1994), which include the new requirement that symptoms either cause significant distress or cause marked impairment in an important area of functioning.

A growing number of research studies have documented the disrupting effect of PTSD on veterans' lives. For example, Keane, Scott, Chavoya, Lamparski, and Fairbank (1985) found that Vietnam veterans with PTSD suffered a steep decline in the size and quality of their social support networks after the war, reporting significantly lower levels of support relative to veterans without PTSD. In a study of marital adjustment in Vietnam combat veterans, Carroll, Rueger, Foy, and Donahoe (1985) found that veterans with PTSD reported significantly more problems in self-disclosure, emotional expressiveness, and physical aggression with their spouses and partners, and poorer overall adjustment in their relationships, than did veterans without PTSD. Nezu and Carnavale (1987) found that PTSD in Vietnam veterans was associated with poorer interpersonal problem solving and greater emotion-focused versus problem-focused coping.

Jordan et al. (1992) recently completed a comprehensive investigation of the impact of PTSD on family and marital functioning conducted as part of the NVVRS. They found that relative to control groups veterans with PTSD were younger, less well-educated, less likely to be employed, and less likely to be married. Of the veterans who had been married, veterans with PTSD were more likely to be divorced. They also found that veterans with PTSD and their spouses and partners report more marital problems, more parenting problems, more family violence, and poorer overall family adjustment. Such findings demonstrate that the repercussions of PTSD are manifested in every sphere of afflicted veterans' social and occupational functioning.

Course

Although the cross-sectional symptom pictures of CSR and PTSD have been well documented, much less is known about the course of war-zone stress reactions. As discussed above, observations to date suggest that CSR represents the acute phase and PTSD represents the chronic phase of a disorder that

unfolds over time. However, the relationship between these phases is not well understood. Prospective, longitudinal data are rare, and much of what is known is based on retrospective reports. Understanding the course of war-zone stress reactions requires the consideration of at least three key questions:

1. Do war-zone stress reactions constitute an acute or a chronic syndrome?
2. Does the onset of symptoms occur immediately or after a significant delay?
3. Are symptoms relatively stable over time, or is there evidence of a phasic disorder?

Regarding the first question, converging evidence from extensive clinical observations (e.g., Kardiner & Spiegel, 1947), epidemiological studies (e.g., Kulka et al., 1990), and long-term follow-up studies (e.g., Archibald & Tuddenham, 1965) clearly point to a chronic syndrome of war-zone stress. Virtually every study indicates that years and even decades after exposure to war, a significant proportion of veterans still suffer from what is now known as war-zone-related PTSD. For example, data from the NVVRS indicated that half of all Vietnam veterans who ever had PTSD still had it nearly two decades after the war. A 3-year follow-up of Israeli veterans with and without CSR (Solomon, 1993) revealed that 75% of CSR casualties were diagnosed with PTSD in at least 1 of the years and 28% had PTSD for all 3 years. In contrast, only 28% of the non-CSR group had PTSD at some point, and just 3% had PTSD for all 3 years. In our clinic, as in other Department of Veterans Affairs Medical Centers throughout America, we routinely assess and treat Vietnam veterans, and even Korean and WW II veterans, whose symptoms have persisted relatively unabated since discharge from the military.

More difficult to answer is the question of the timing of the onset of symptoms. The clinical and empirical evidence regarding CSR clearly indicates that at least in some veterans the onset of symptoms is immediate. However, during the Vietnam war, considerable controversy arose around this issue. Initial reports suggested that the rates of psychiatric casualties were much lower than in previous wars: about 1.2%, compared to 6% during the Korean conflict and 23% during WW II (see Bourne, 1970). Nonetheless, this optimistic outlook began to fade after it was discovered that following homecoming many veterans began to show significant impairment in functioning and symptoms of war-zone stress. Some investigators took this as evidence of a delayed stress syndrome (e.g., Figley, 1978). Indeed, we have seen a number of cases in our clinic in which the veteran returned from Vietnam and apparently functioned at a very high level, holding down steady employment, marrying, raising children, only to have an apparently abrupt onset of symptoms as many as 10 to 15 years later.

Still, such cases do not necessarily provide conclusive evidence of a true delayed stress response. There are a number of possible explanations for a delay in symptom reporting. One is that there is a true delayed stress syndrome in which the onset of symptoms occurs well after the end of the war—after an

interval of months or even years in some cases. However, a second possibility is that symptoms do begin immediately, but some afflicted individuals postpone seeking treatment, perhaps because they have adequate coping responses, or because their symptoms initially are relatively mild. Whatever the reason, even though they are symptomatic all along, they do not come to the attention of mental health workers until well after the war. A third possibility is that for some combatants the initial symptom picture may consist primarily of negative symptoms (i.e., avoidance and emotional numbing), so that the full stress-response syndrome may go undetected.

Solomon (1993) presented data directly addressing this issue. In an examination of 150 Israeli veterans who sought treatment for PTSD at least 6 months after combat, she found that: ". . . genuinely delayed onset was quite rare in our sample. In the vast majority of the cases, there was no true latency period: The veterans had approached the mental health services following protracted, often unremitted suffering (p. 213)." In this sample only 10% were classified as genuine cases of delayed-onset PTSD. For the rest of the sample, the apparent delay in symptom onset could be accounted for by delayed help-seeking for chronic PTSD (40%), exacerbation of subclinical PTSD (33%), or reactivation of an earlier CSR from a previous war (13%). For a few veterans, the presenting symptoms turned out to be related to a psychiatric disorder other than PTSD (4%).

The last issue to be considered is whether the symptom picture shows variability over time. Some have argued that PTSD is a phasic disorder, characterized by phases of intrusive symptoms alternating with phases of avoidance and numbing symptoms (e.g., Horowitz, 1986). This may be the case for some combatants, although there is scant evidence bearing directly on this issue. In a similar vein, Solomon (1993) reported that a significant proportion of Israeli veterans showed apparent fluctuation of symptoms over time. Nearly one-half of the CSR group and one-fourth of the non-CSR subjects had some variability in diagnostic status across the 3 years of her follow-up study. However, the PTSD veterans we see in our clinic typically present with significant numbers of both intrusive and avoidance symptoms, and based on their retrospective accounts, they appear to have had the same symptom configuration for extended periods of time. The issue of symptom variability over time clearly merits further investigation.

Prevalence

In the last 15 years, investigators have conducted a number of epidemiological studies designed both to determine the prevalence of PTSD and other psychological problems in combat veterans and to identify risk factors associated with an increased likelihood of developing a stress-related syndrome (for a review, see Keane, 1990; Kulka et al., 1991). The available studies have focused almost exclusively on Vietnam veterans, and with few exceptions they have included only male veterans as subjects.

Estimates of the prevalence of PTSD and other stress-related syndrom vary widely from study to study. This is in large part the result of methodolog cal differences across studies, particularly regarding the methods used to sele subjects and to determine "caseness," or the presence or absence of a disord in a given individual. Some studies have investigated samples that either are tc small or are unrepresentative of the population of all veterans, and most stu ies have relied on assessment instruments that are inadequate for identifyir PTSD (Keane, 1990; Kulka et al., 1991). Early studies were conducted prior the publication of official diagnostic criteria and prior to the development psychometrically sound diagnostic instruments. Thus, the data that were cc lected did not necessarily correspond directly to PTSD as currently conce tualized, and the measures used had unknown validity (see Kulka et al., 1991

In one of the earliest studies, Egendorf, Kadushin, Laufer, Rothbart, an Sloan (1981) used a probability sampling procedure to survey a total of 1,34 Vietnam theater veterans, Vietnam era veterans, and nonveteran control sul jects. Because the study was conducted in the late 1970s, the survey did n include questions corresponding directly to the criteria for PTSD develope for the DSM-III (APA, 1980). Rather, the investigators determined the prev lence of significant stress reactions based on a 22-item symptom checklist th overlapped with PTSD symptoms. Depending on the region of the count being sampled, they estimated that 21% to 26% of theater veterans had current stress reaction, as compared to 17% to 18% of era veterans and 14% 19% of nonveterans. Veterans exposed to heavy combat had an even great risk for having a current stress reaction (34%–35%). Also, ethnic minori status was a significant risk factor: Both blacks (39%–41%) and Chicanos (38% were more likely to have a current stress reaction relative to whites (17%–20%

In another early study, Card (1983) surveyed 481 Vietnam theater vete ans, 502 Vietnam era veterans, and 487 nonveterans, all of whom were fir studied as ninth graders in 1960 as a part of Project TALENT, a longitudin study of achievement. Again, the survey did not include questions specificall designed to measure PTSD symptoms. Instead, a diagnosis of PTSD was d rived by fitting questionnaire items, including modified items from the Bri Symptom Inventory (BSI) (Derogatis & Spencer, 1982), to PTSD criteria. Th current prevalence of PTSD for theater veterans was 19.3%, which was signif cantly higher than the prevalence for era veterans (12.9%) or nonveterar (12.1%). As in the Egendorf et al. (1981) study, veterans with high levels c combat exposure were at increased risk for PTSD, with a current prevalence c 27%. Card (1983) also found that exposure to war-zone stress was the stronge contributor to PTSD. Of 10 specific combat exposure variables, 8 were signif cantly associated with PTSD symptomatology, as opposed to only 1 of 14 pr military sociodemographic and personality variables (low self-confidence at ag 15) and only 1 of 11 military adjustment variables (high alcohol consumption i the military).

Two additional studies employed survey instruments containing question that more directly assessed PTSD symptoms. Snow, Stellman, Stellman, an

Sommer (1988) surveyed 2,858 male Vietnam veterans identified from American Legion membership lists. The PTSD measure was a symptom checklist based on DSM-III criteria. Although prevalence estimates varied depending on how exposure to combat was defined, as many as 15% of veterans were found to have current PTSD. Goldberg, True, Eisen, and Henderson (1990) examined 715 monozygotic male twin pairs who were discordant for service in the Vietnam theater. Again, the PTSD measure was a symptom checklist based on PTSD criteria. The current prevalence rate of PTSD for twins who were Vietnam theater veterans was 16.8% as compared to 5% for their cotwins who served in the military but not in Southeast Asia. Also, for the twins exposed to the Vietnam theater, the prevalence of PTSD increased as the degree of combat exposure increased: At the lowest levels of combat exposure these twins were up to three times more likely to have PTSD relative to their cotwins, but at the highest levels of combat, they were more than nine times more likely to have PTSD.

More recently, in order to estimate the lifetime prevalence of PTSD in the general population, Helzer, Robins, and McEvoy (1987) administered the PTSD module of the Diagnostic Interview Schedule (DIS) (Robins, Helzer, Croughan, & Ratcliff, 1981) to respondents at the St. Louis site of the Epidemiological Catchment Area (ECA) study. Of the total sample of 2,493 subjects, 64 were male Vietnam theater veterans. The investigators found that the lifetime prevalence of PTSD was 4% among combat-exposed veterans who had not been wounded, 20% among wounded veterans, and 6.3% for all veterans combined. Relative to an estimated 1% lifetime prevalence of PTSD in the general population, these rates suggest that Vietnam theater veterans are at increased risk for developing PTSD. However, the small sample size does not allow for stable estimates of prevalence and makes it difficult to generalize to Vietnam veterans in general.

In the Vietnam Experiences Study (VES), the Centers for Disease Control (1988) used the PTSD module of the DIS to determine current and lifetime PTSD diagnostic status in 2,490 Vietnam veterans. The lifetime prevalence of PTSD was found to be 14.7%, and the current prevalence (previous month) was 2.2%. This current prevalence estimate is significantly lower than in other studies, and this discrepancy has been a target of criticism. In particular, the VES has been criticized for reliance on the DIS to assess PTSD. The authors of the NVVRS have argued that the version of the DIS PTSD module used in the VES has very low sensitivity for diagnosing PTSD, meaning that it fails to detect true cases of PTSD, and thus it substantially underestimates the actual prevalence of the disorder (Kulka et al., 1991).

The NVVRS (Kulka et al., 1990) surpassed all other epidemiological studies of combat-related PTSD conducted to date. This study had several unique advantages, including the use of a national probability sample to ensure representativeness, the use of multiple measures of PTSD in recognition of the fallibility of any single measure, and the inclusion of both male and female veterans and controls. Kulka et al. (1990) found that among Vietnam theater

veterans the current prevalence of PTSD was 15.2% for males and 8.5% for females, with a lifetime prevalence of 30.9% for males and 26.9% for females. In addition, 11.1% of males and 7.8% of females had current partial PTSD, meaning that they had a significant number of PTSD symptoms but did not meet all the criteria for the disorder. These data indicate that more than a quarter of all Vietnam theater veterans currently have PTSD or high levels of PTSD symptomatology. The current prevalence of PTSD was much lower for Vietnam era veterans (2.5% for males and 1.2% for females) and civilian controls (1.1% males and 0.3% females).

As in other studies, veterans with the greatest exposure to combat were at significantly elevated risk for developing PTSD. For those with high levels of combat exposure, the current prevalence of PTSD was 35.8% for males and 17.5% for females, whereas for those with low to moderate levels of combat exposure, the prevalence was 8.5% for males and 2.5% for females. Also, ethnicity was again an important risk factor for PTSD. The current prevalence of PTSD was 20.6% for blacks and 27.8% for Hispanics, as compared to 13.7% for white/other veterans.

RISK AND RESILIENCE

A large number of empirical studies, including the epidemiologic studies described above, point to the unambiguous conclusion that the level of exposure to war-zone trauma is the best predictor of PTSD, with greater exposure leading to greater symptomatology. Nonetheless, clinical investigators have identified other risk factors that may render certain individuals particularly susceptible to the psychological impact of war-zone stress. In addition to the risk factors noted earlier, studies have focused primarily on genetic influences and developmental experiences. In addition, a few studies have identified resilience factors that may buffer the effects of war-zone stress for some veterans.

Genetic Factors

Recent family studies and twin studies have investigated the possibility of a genetic contribution to adjustment to war-zone trauma. According to the logic of the family-study approach, if there is a genetic predisposition for combat-related PTSD, then close relatives of veterans with PTSD should be at increased risk for PTSD, or perhaps at increased risk for disorders commonly found to be comorbid with PTSD such as depression and panic disorder. In the first study of psychiatric disorders in the families of veterans with PTSD, Davidson, Swartz, Storck, Krishnan, and Hammett (1985) interviewed 36 World War II, Korean, and Vietnam veterans with PTSD, asking them to report psychopathology in their first degree relatives. For purposes of comparison, these investigators also reported data previously collected on nonveterans diagnosed with either depression or generalized anxiety disorder.

They found that the rate of anxiety disorders among the relatives of the

PTSD subjects was higher than among the relatives of depressed subjects and comparable to that found in the relatives of subjects with generalized anxiety. Also, in both the PTSD and generalized anxiety groups, relatives had roughly equal rates of anxiety and depression, whereas in the depression group, relatives had much higher rates of depression than of anxiety disorders. Although this pilot study had several important methodological limitations, including small sample size, lack of matched control groups, and reliance on the family-history method, it provided some evidence that PTSD may be more closely related to other anxiety disorders than to depression.

Davidson, Smith, and Kudler (1989) conducted a second study designed to address some of the limitations of the first. To determine family history of psychiatric disorders, they conducted family-history interviews with 108 World War II, Korean, and Vietnam veterans with PTSD, all but two of whom had been in combat. They also interviewed subjects in three different control groups, including 21 nonpsychiatric controls, 24 subjects with major depression, and 15 alcoholics. Overall, very few differences were found among the four groups. When compared to the families of the three control groups, the families of veterans with PTSD were not found to be at increased risk for any of the psychiatric disorders assessed. In fact, only two significant differences were found between the PTSD group and any of the control groups. First, the siblings and parents of depressed subjects were at greater risk both for chronic depression and for a category combining both chronic and remitting depression, relative to the siblings and parents of PTSD subjects. Second, the children of depressed subjects were at greater risk for generalized anxiety disorder than were the children of PTSD subjects.

An intriguing finding involving the families of PTSD subjects emerged when the investigators compared the 106 PTSD subjects who had been in combat with the 31 control subjects who also had been in combat (Davidson et al., 1989). The siblings and parents of PTSD subjects were at increased risk for a category combining all anxiety disorders assessed (generalized anxiety, phobic/panic, and PTSD). Overall, this study suggests that PTSD does not have a familial association with depression but may have a familial association with other anxiety disorders.

Although family studies are suggestive of genetic influences, they cannot isolate the impact of genetic influences from the impact of shared environment. Twin studies and adoption studies provide much clearer evidence of an independent contribution of heredity to the development of psychopathology. To date, no adoption studies of PTSD have been conducted, but in a recent twin study, investigators attempted to disentangle the relative contributions of genetic factors and environmental factors to the development of PTSD symptoms.

True et al. (1993) measured the degree of combat exposure and the severity of PTSD symptoms in 4,042 pairs of male twins from the Vietnam Era Twin (VET) Registry. Both members of all twin pairs served on active duty at some point during the Vietnam era. Fifty-five percent of the twin pairs were monozygotic (MZ) or identical twins, and the rest were dizygotic (DZ) or fraternal

twins. The logic of the twin study approach is that if genetic factors are impoı tant in the development of a disorder, then MZ twins, who are geneticall identical, should have greater similarity of symptoms relative to DZ twins, wh on average share only half of their genes. Thus, if heredity is an importan etiological factor in combat-related PTSD, then MZ twins should be more simi lar than DZ twins in terms of PTSD symptoms.

However, as True et al. (1993) point out, a complicating factor in applyin the twin study methodology to combat-related PTSD is that MZ twins are mor likely to be concordant for exposure to combat. This leaves open the possibilit that any greater similarity of PTSD symptoms in MZ twins relative to DZ twin could result from this higher concordance for exposure to combat. Therefore they conducted an analysis allowing them to estimate the genetic contributioı to PTSD symptoms above and beyond the genetic contribution to combat expo sure. They concluded that "heritability contributes substantially to the suscep tibility for nearly all symptoms of PTSD, even after taking into account differ ences in concordance for combat exposure between MZ and DZ twins" (p. 261) Estimates of the amount of variance in PTSD symptoms caused by geneti influences ranged from 13% to 30% for reexperiencing symptoms, 30% to 34% for avoidance symptoms, and 28% to 32% for hyperarousal symptoms. Al though these estimates indicate a significant impact of heredity on the develop ment of PTSD, they can also be seen as indicating that two-thirds or more o the variability in PTSD symptoms is attributable to environmental factors sucl as exposure to combat and various developmental risk factors.

Developmental Factors

A number of investigations have focused on the role of premilitary vul nerability in the development of PTSD, including variables such as unstabl families, childhood physical and sexual abuse, the presence of conduct disor der or other psychiatric problems, and having a father who had been in com bat. Fontana and Rosenheck (1993) recently reviewed studies examining th contribution of these and other factors to the development of PTSD. The noted that these studies suffer from a variety of methodological problems making it difficult to ascertain the actual degree of impact of developmenta history. Using a sophisticated statistical approach, they evaluated the causa contribution of a number of variables from several domains, including premili tary vulnerabilities, military entry conditions (e.g., age of entry and draftec versus enlisted), war-zone experiences, and dissociative reactions durin combat.

Although several premilitary variables had an indirect effect on PTSD Fontana and Rosenheck (1993) found that only one, having a father who hac been in combat, made a direct contribution to the development of PTSD. The concluded that:

> [The sons of combat veterans] joined the military at a younger age and were more prone to participate in abusive violence than others. . . . We believe that an idealization of combat and war as extension of the father may be an important mechanism

> involved in these paths. Such an idealization may either prime young soldiers to engage in destruction as a fulfillment of the heroic image for themselves, or it may result in severe disillusionment in the face of the unromantic realities of war. It is also possible that fathers who were damaged psychologically in combat passed their traumatization on to some of their sons. For these sons, simply being in a war zone may have been sufficient to reactivate the secondary traumatization from their childhood. (p. 492)

Several very recent studies have examined more closely the role of childhood abuse in the development of PTSD. Bremner, Southwick, Johnson, Yehuda, and Charney (1993) found that Vietnam veterans with PTSD had significantly higher rates of childhood physical abuse and higher overall rates of early trauma than did veterans without PTSD. This finding was replicated by Zaidi and Foy (1994) who found a strong positive correlation between early physical abuse and combat-related PTSD. In general, childhood trauma as a risk factor for combat-related PTSD has been largely ignored in previous investigations. However, these new findings suggest that the systematic evaluation of early abuse experiences should be a standard part of any assessment of PTSD in combat veterans.

Resilience Factors

Relatively few studies have attempted to identify the characteristics of combat veterans who make a positive adjustment following their war experiences. Hendin and Haas (1984b) summarized their findings from intensive interviews with 10 Vietnam combat veterans who did not evidence PTSD. They identified the following characteristics that this group of veterans seemed to have in common: (1) the ability to function calmly under pressure; (2) the use of understanding and judgment; (3) the acceptance of fear in themselves and in others; (4) a lack of participation in excessive violence; and (5) an absence of guilt. In a second study Wolfe, Keane, Kaloupek, Mora, and Wine (1993) examined 152 Vietnam combat veterans, identifying a subset of veterans with high levels of combat exposure who seemed to have adjusted well to life after the military. In this study, the most powerful predictor of positive adjustment was the use of nonavoidant, problem-focused methods of coping with stress. Although these studies offer only preliminary evidence, they clearly point to the need to better understand how some veterans are able to adapt favorably to their war-zone experiences.

WOMEN IN THE WAR ZONE

A pressing issue in the investigation of military trauma is the impact of war-zone stress on women. Until recently, women have not been recognized sufficiently for their roles in the military in general, nor for their direct contributions to war-zone operations in particular. Thus, the literature on the unique psychological impact of war-zone stress on women is still quite limited (Wolfe, 1993). Historically, two factors account for this lack of attention to women

veterans. First, war-zone-related PTSD has been stereotyped as stemming fro extreme and direct life-threatening combat events, thus implicitly excludin women who served in combat-support and service-support roles (see King al., 1995). Second, women have tended not to seek services at Department Veterans Affairs Medical Centers, fostering the erroneous conclusion that the have not suffered from PTSD and other psychosocial problems stemming fro war-zone exposure.

Recently, there has been a positive shift in the manner in which poli makers in America perceive women veterans' contributions to the militar There is growing recognition that women in a war zone can experience a wid range of potentially traumatic stressors and can develop PTSD and other ps chological problems requiring treatment (Baker, Menard, & Johns, 198 Schnaier, 1986). As a result of the greater support and validation women vete ans have received on a societal level, more of them have begun to disclos memories of their war-zone experiences. As women play an increasingly activ role in the military, serving in greater numbers and in roles that expose them t greater levels of combat, gender differences in response to war-zone stress wi become a crucial focus for research.

SUMMARY AND CONCLUSIONS

War is a terrifying, horrifying experience that taxes every physical an psychological resource and leaves an indelible imprint on the psyche long afte the fighting stops. It differs from many other traumatic life events in its pr longed intensity and its blurring of the distinction between victim and pe petrator. War leads to a characteristic stress response known in its acute phas as combat stress reaction and in its chronic phase as posttraumatic stress diso der. The degree of combat exposure consistently has been shown to be the mo powerful predictor of war-related psychological problems, but individual di ferences in genetics, developmental history, and personality factors may shap an individual's unique adaptation to trauma. Although much progress has bee made in understanding the long-term effects of exposure to war-zone stres many questions involving the etiology, assessment, and treatment of wa related stress syndromes remain unanswered. Unfortunately, although wa may not be an inevitability, there is every indication that future military co flicts will continue to provide opportunities to investigate all of the issues raise in this chapter regarding the impact of war-zone stress on psychologic functioning.

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