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Veterans of Armed Conflicts

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In this chapter basic and clinical research findings are presented on the effect of armed conflicts on the veterans of such conflicts. For this discussion, "veterans" are defined as people who were participants—whether as active combatants or in support roles—in wars or related activities. The overall focus is on the mental health and functional outcomes of exposure to war stress emanating from studies of war veterans. The relatively abundant body of research examining the epidemiological (i.e., prevalence, comorbidities, and risk factors) and clinical characteristics of posttraumatic stress disorder (PTSD) is highlighted.

SCOPE OF PARTICIPATION IN ARMED CONFLICTS

Because of the number and distribution of veterans of armed conflicts throughout the world, it is important to study their experiences and psychosocial adjustment. There have been, and continue to be, so many wars and warlike events that vast numbers of people have participated and will continue to participate in armed conflicts. In the history of armed conflicts involving just European countries since 1918, there have been more than 60 instances of war between countries, civil wars, episodes of terrorism, and military interventions (Orner, 1992). Zwi (1991) counted 127 wars and more than 20 million war-related deaths in the world since World

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War II. More recently, the scale of participation in the armed conflict in South Africa is substantial, as documented in written testimony submitted to the South African Truth and Reconciliation Commission by representatives of the African National Congress and its armed forces and by members of the former apartheid government and its military and other security structures.

IMPACT

Case Study

One case example, abstracted from the public-domain of the National Vietnam Veterans Readjustment Study (NVVRS) (Kulka et al., 1988), typifies the effect of war-related PTSD on the social functioning of some veterans. This case is one example of the human experience of participants in armed conflicts and illustrates how these experiences may affect all of society.

> J.S., a Hispanic male veteran in his late 30s, has been married for almost 20 years, has three children, and works as a semiskilled laborer. He lives in a large metropolitan area in the northeastern region of the United States. He is the eldest of four children and grew up in a poor but stable and supportive family environment. He was drafted into the U.S. Army in 1966 and served one tour of duty in Vietnam, which ended in 1968. His primary duty was reconnaissance in an infantry unit. He experienced high and sustained war-zone stress exposure; he walked at the point of the squad, was frequently under fire, witnessed the death and injury of close buddies, witnessed the mutilation of the bodies of American troops, and was wounded in combat. He received several decorations, including the Purple Heart.
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> J.S. reports that his experience in Vietnam matured him, but that he had difficulty coping and began to drink heavily for the first time during his tour. On his return to civilian life, his problems with alcohol intensified; he was treated medically for alcohol-related pancreatic disease several years after his return. Alcohol abuse remains a serious problem to the present time.
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> With respect to the psychological impact of the war, he reported, "I developed a nasty temper, became very nervous, and have bad dreams that take me back into the war, like it's happening all over—then I can't get back to sleep." When reminded of the war, he becomes upset and vividly imagines the sights and smells of the battlefield, including the discovery of bodies that had been left for several days in the forest heat. He describes himself as frightened by his urges, easily startled, frequently on guard for no reason, emotionally withdrawn, and using alcohol to help forget about his wartime memories. His wife concurs, reporting that he has frequent nightmares, becomes enraged over minor irritations, avoids reminders of the war, and is reluctant to be emotionally close. He says he is fortunate that his wife continues to be supportive, despite his volatility and withdrawal (Kulka et al., 1988, pp. iv–16 to v–17). (Used with permission.)

Posttraumatic Stress Disorder

It was largely through the study of the postwar experiences of soldiers exposed to combat that the syndrome known today as PTSD (American Psychiatric

Association, 1987) was identified. Although accounts of postwar problems of combat veterans have long been known (Da Costa, 1871), the medical and scientific communities' efforts to describe and understand these problems did not achieve a critical mass until World War I (e.g., Hyams, Wignall, & Roswell, 1996; Kolb, 1943; Rivers, 1920). The prevalence of war-related mental health problems such as PTSD has been shown to vary as a function of the nature of the exposure (i.e., the experiences that people had while in war) and the characteristics of the participants (Kulka et al., 1990; Litz, Orsillo, Friedman, Ehlich, & Batres, 1997; Solomon, Weisenberg, Schwarzwald, & Mikulincer, 1987; Spiro, Schnurr, & Aldwin, 1994). These findings underscore the notion that each individual's experience of a given war is different and that the nature of a war's specific "risk profile" (i.e., how many people are exposed to which kinds of events) is an important determinant of each war's psychological and emotional sequelae (Schlenger, Fairbank, Jordan, & Caddell, 1999).

Therefore, prevalence rates of PTSD and other health problems are presented by conflict and by participants' characteristics and roles within a given conflict. Estimates of the prevalence of PTSD among U.S. Vietnam veterans are based on findings from several major community epidemiological studies. These include findings from the NVVRS (Kulka et al., 1990; Schlenger et al., 1992) that indicated that 15.2% of men and 8.5% of women who served with U.S. military forces in Vietnam had current PTSD, that is, met the criteria of the third revised edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III-R; American Psychiatric Association, 1987) during the 6 months prior to the interview. These rates were significantly higher than the PTSD prevalence rates reported for two comparison groups: (a) male and female veterans who did not serve in Southeast Asia and (b) civilians who did not serve in the military. Lifetime prevalence rates (i.e., the estimated proportion who had met the DSM-III-R criteria for PTSD at any time in their lives, whether they met the criteria currently) among Vietnam veterans were 30.9% for men and 26.9% for women (Weiss et al., 1992).

NVVRS findings also indicated significant differences in the prevalence of PTSD among African-American, Hispanic, and White male Vietnam veterans. Rates of current PTSD were 20.6% for African-American men, 27.9% for Hispanic men, and 13.7% for White men. A recent study of two American Indian samples also found significantly higher rates of lifetime and current PTSD among American Indians than among White Vietnam veterans (Friedman et al., 1997). Overall, findings from these studies indicate that ethnicity and race are risk factors for exposure to war stress and development of PTSD.

The Centers for Disease Control and Prevention Vietnam Experience Study (1988) estimated a lifetime PTSD prevalence of 14.7% and a current (past month) prevalence of 2.2%. In the Department of Veterans Affairs (VA) Twin Study (Goldberg, True, Eisen, & Henderson, 1990), the current prevalence of PTSD among a sample of twins who served in Vietnam was 16.8% compared with 5.0% among those who served elsewhere. Findings from the St. Louis site of the National Institute of Mental Health Epidemiologic Catchment Area program suggested a lifetime PTSD prevalence of 6.3% for Vietnam veterans (Helzer, Robins,

& McEvoy, 1987), adjusted to 11.8% when sampling and response rates were accounted for (Keane & Wolfe, 1990). In a study of Vietnam veteran members of a national veterans' organization (American Legion), current PTSD prevalences ranging from 1.8% to 15% were reported, depending on how exposure to combat was operationalized. Although the estimates of current PTSD prevalence in these and other major studies ranged from 1.8% to more than 25%, the estimates from the majority of studies lie very nearly within the 95% confidence interval of the NVVRS estimates (13.0% to 17.4%). These findings suggest that postwar PTSD among American Vietnam veterans is a significant and chronic public health problem (Schlenger et al., 1999).

O'Toole et al. (1994) estimated the prevalence of PTSD in a national sample of Australian veterans of the Vietnam war. Findings indicated a lifetime prevalence ranging from 11.7% to 20.9%, depending on how exposure to trauma and PTSD were assessed. The current (1-month) estimate of PTSD prevalence among Australian Vietnam veterans was 11.6%. In a study of Israeli veterans of the Lebanon war, Solomon et al. (1987) reported a PTSD prevalence rate of 16% 1 year after the war among soldiers who had not experienced an acute stress reaction during the war and a PTSD prevalence of 59% for soldiers who had experienced acute combat stress.

Follow-ups at 2 years (Solomon & Mikulincer, 1988) and 3 years (Solomon, 1989) postwar showed that soldiers who had experienced an acute stress reaction during military service continued to have significantly higher rates of PTSD than the comparison group. In both groups, rates of PTSD prevalence declined somewhat over time. Studies of American veterans of the Persian Gulf War and recent peacekeeping missions in Somalia and Bosnia have also shown elevated rates of PTSD among veterans exposed to hazardous conditions in these conflicts (Litz et al., 1997; Perconte, Wilson, Pontius, Dietrick, & Spiro, 1993; Southwick & Morgan, 1995; Southwick et al., 1993; Stretch et al., 1996; Sutker, Uddo, Brailey, & Allain, 1993; Wolfe, Brown, & Kelley, 1993). A longitudinal study of PTSD prevalence among Persian Gulf War veterans reported increasing rates of PTSD over 1-month, 6-month, and 24-month assessments following return to the United States from the Persian Gulf (Southwick & Morgan, 1995; Southwick et al., 1993).

Comorbidity of PTSD with Other Disorders

Psychiatric comorbidity has been examined among clinical and community samples of veterans with PTSD. Keane and Wolfe (1990) studied patients in the Boston VA Medical Center's PTSD program and found high rates of comorbid substance abuse, major depression, dysthymic disorder, and antisocial personality disorder. Kulka et al. (1990) found that virtually all Vietnam veterans with PTSD had met criteria for one or more other psychiatric disorders at some time during their lives, and half were characterized by a current comorbid disorder. In men, the most prevalent comorbid disorders were alcohol abuse or dependence (75% lifetime, 20% current), generalized anxiety disorder (44% lifetime, 20% current), and major depression (20% lifetime, 16% current). Among women veterans, the most frequent disorders co-occurring with PTSD were major depression (42% lifetime, 23% current), generalized anxiety disorder (38% lifetime, 20% current), and dysthymic disorder (33% lifetime). Thus, war-related PTSD assessed in veterans 15 or more years after their participation in an armed conflict is associated with high levels of comorbid psychiatric disorder. More recently, PTSD has been found to play an important role in veterans' functioning independent of a variety of comorbid psychiatric and physical disorders to which impaired functioning might be attributable (Schlenger et al., 1999).

Other Psychological Outcomes

For men, participation in armed conflicts is associated with increased risk for developing antisocial personality disorder, even when a history of childhood behavior problems, PTSD diagnosis, and military factors are controlled in the analysis (Barrett et al., 1996; Resnick, Foy, Donahoe, & Miller, 1989). Compared with male Vietnam veterans exposed to low levels of war stress, men exposed to high levels were more likely to meet diagnostic criteria for major depression, dysthymia, obsessive-compulsive disorder, generalized anxiety disorder, and alcohol abuse and dependence (Jordan et al., 1991). For women who served in the American military in Vietnam, fewer disorders are associated with exposure to war stress. However, women exposed to high levels of war stress reported higher rates of major depression and dysthymia than female veterans who experienced less war trauma in Vietnam (Jordan et al., 1991).

Neurobiological Findings

A substantial body of research has found evidence of abnormalities in brain structure and function in war veterans with PTSD (Friedman, Charney, & Deutch, 1995). These findings are reviewed and synthesized in chapter 5 in this volume.

Physical Health

There is a growing body of research describing the long-term effects of trauma exposure and PTSD on veterans' physical health and utilization of medical services (e.g., Beckham et al., 1997; Centers for Disease Control and Prevention Vietnam Experience Study, 1988; Friedman et al., 1997; Friedman & Schnurr, 1995; Kulka et al., 1990; Long, Chamberlain, & Vincent, 1992; Shalev, Bleich, & Ursano, 1990; Solomon & Mikulincer, 1988). Shalev et al. (1990) found that Israeli veterans with PTSD reported more somatic symptoms than did matched controls but that groups did not differ on laboratory test findings. This study and others have also shown a greater frequency of adverse health practices (e.g., smoking, alcohol use) among veterans with PTSD. Analysis of American NVVRS (Kulka et al., 1990) and Mutsunaga Vietnam Veterans Project (Friedman et al., 1997) cohorts indicates that for White, Black, Hispanic, American Indian, Native Hawaiian, and Japanese-American theater veterans, exposure to war-zone stress and PTSD symptomatology

predict a lower perceived health status and a greater utilization of both physical and mental health services as indicated by the volume of inpatient admissions and outpatient visits.

Economic Impact

Several studies have examined associations between exposure to war stress, PTSD, and labor market outcomes among military veterans (Kulka et al., 1990; McCarren et al., 1995; Vincent, Long, & Chamberlain, 1994; Zatzick, Marmar, et al. 1997; Zatzick, Weiss, et al., 1997). Findings from these studies indicate that traumatic war experiences not only compromise mental and physical health, but also have deleterious consequences on labor market functioning. In two large samples of Vietnam veterans in the United States and a third sample in New Zealand, veterans receiving a diagnosis of PTSD were more likely to be unemployed than were those without the disorder (Kulka et al., 1990; McCarren et al., 1995; Vincent et al., 1994; Zatzick, Marmar, et al., 1997; Zatzick, Weiss, et al., 1997). Additionally, PTSD has been found to be associated with greater occupational instability among Vietnam veterans (Kulka et al., 1990). However, the relationship between PTSD and income and earnings in veterans is equivocal given that studies have reported mixed findings. Analysis of NVVRS data by Zatzick, Marmar, et al. (1997) and Zatzick, Weiss, et al. (1997) strongly suggests that the relationship between war trauma and labor market outcomes is in part mediated by PTSD.

Social Consequences

A number of studies have examined the social consequences of participation in armed conflicts (Barrett et al., 1996; Carroll, Rueger, Foy, & Donahoe, 1985; Jordan et al., 1992; Roberts et al., 1982; Yager, Laufer, & Gallops, 1984). Particularly noteworthy is the finding that participation in armed conflict is associated with postwar involvement in the criminal justice system, including arrests for violent crimes (Yager et al., 1984). In a study that compared families of male Vietnam veterans with PTSD with families of male veterans without PTSD, families of veterans with PTSD showed much higher levels of severe and diffuse problems with marital and family adjustment, parenting skills, and violent behavior (Jordan et al., 1992).

Risk and Protective Factors

Risk for PTSD among military veterans separates into premilitary, military, and postmilitary factors (Keane et al., 1985; Kulka et al., 1990; Yehuda, 1999). Cumulative evidence across decades of research with war veterans emphasizes the importance of the stressor in predicting health outcomes, with an approximate dose–response relationship: higher levels of exposure to war stressors are associated with poorer health outcomes. Among war-related factors, variables such as serving in an enlisted rank, being drafted or conscripted into the military (versus volunteering), and receiving wounds in action have been shown to increase risk for PTSD (Helzer et al., 1987; Kulka et al., 1990).

Specific dimensions of war stressor exposure that have been found to directly affect PTSD are a malevolent environment, perceived threat, or participating in or witnessing atrocities or abusive violence (D. W. King, King, Gudanowski, & Vreven, 1995). Participation in traditional combat activities (e.g., firing a weapon, receiving incoming rounds) appears to have an effect on PTSD, although recent research suggests that combat affects PTSD indirectly through perceived threat (D. W. King, King, Foy, & Gudanowski, 1996). Identified risk factors that predate military service include a positive family history of psychiatric disorder and instability (e.g., Fontana & Rosenheck, 1994; Kulka et al., 1990); emotional or psychological disorder as a youth, such as conduct disorder (Kulka et al., 1990); previous trauma history, including sexual or physical abuse during childhood (Engel et al., 1993; Fontana, Schwartz, & Rosenheck, 1997); and developmental maturity at the time of entry into armed conflict (Kulka et al., 1990). Orr and Pittman (1999) have recently provided evidence that poorer intellectual ability or a compromised neurodevelopmental history constitutes a neurocognitive risk factor for PTSD. Genetic studies involving veterans with PTSD show that even after controlling for factors that influence exposure to trauma, there may be a genetic influence on vulnerability for PTSD (True & Lyons, 1999).

A host of other factors have been shown to affect PTSD in military veterans. These factors include social cognitive variables, such as self-efficacy, attributional style, and coping (Mikulincer & Solomon, 1988; Solomon, Benbenishty, & Mikulincer, 1991; Solomon, Mikulincer, & Benbenishty, 1989); hardiness (Sutker, Davis, Uddo, & Ditta, 1995); functional and structural social support variables; and stressful life events that occur after participation in armed conflict, including repeated exposures to violent events (L. A. King, King, Fairbank, Keane, & Adams, 1998; Wolfe, Brown, & Bucsela, 1992); and postwar homecoming experiences (Fontana & Rosenheck, 1995).

RECOMMENDATIONS FOR FUTURE RESEARCH

- Research is needed to develop and evaluate approaches for effectively reintegrating large numbers of veterans into societies that have limited economic resources available for providing veterans with medical, educational, and housing benefits.
- Symptoms, signs, and ill-defined conditions of veterans of armed conflicts, such as joint pain, fatigue, headaches, memory loss, rash or dermatitis, and so forth, continue to be poorly understood and require systematic epidemiologic and clinical study.
- Research is needed on methods for improving the use of information on risk factors for war-related health problems to prevent such consequences among men and women who serve in military forces.

- There is currently a lack of empirical information on the types of problems associated with reintegrating demobilized armed forces from formerly opposing parties into a society.
- The longitudinal course of traumatic stress reactions among veterans of armed conflicts is still poorly understood. Research is needed that prospectively follows the course of traumatic stress reactions from acute stress disorder to end-stage chronic PTSD, as well as the course of other behavioral and health problems.

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