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Research on Aging Military Veterans Lifespan Implications of Military Service

A substantial literature documents the impact of military service on health. This literature largely focuses on shorter-term consequences of combat and other war-related exposures. A smaller but growing body of work examines the effects of military service on health and adjustment in later life. By 2010, nearly 40% of US Veterans will be at least 65 years old, emphasizing the need to understand the long-term impact of both positive and negative effects of military service on the mental and physical health of aging Veterans. In a prior *Research Quarterly*, Cook (2001) described research on PTSD in older adults, including cohort and age-related issues that bear upon prevalence, symptomatology, assessment, and treatment in diverse aging populations. The studies overviewed here emphasize a lifespan developmental approach to understanding aging Veterans and their needs, wherein military experience in early life affects multiple domains throughout the life course and contributes to late-life functioning.

Lifespan Perspective

Settersten (2006) provided a strong argument for "life-course propositions and data" in his review of the personal and social legacies of military service. He argued for a framework incorporating history and other contextual influences and a longitudinal perspective on trauma and aging for Veterans. Noting that aging is not a process that begins near the end of life but rather is life-long, he detailed how early military experience could have both positive and negative outcomes across socioeconomic, psychological, and physical realms. Settersten

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asserted that military experience, especially combat, is often understudied yet might have substantial explanatory power in gerontological inquiry.

Work by Elder, Clipp, and associates forms the foundation for much of the current research on life-course consequences of exposure to stressful events. Using archival data, Elder and Clipp (1988) conducted one of the earliest longitudinal studies of male Veterans who served in World War II and the Korean Conflict. They commented on the historical context of homecoming from popular versus unpopular wars and the ways in which Veterans of different wars managed reintegration into civilian life. Their findings pointed to the salience of combat experience, enduring ties to comrades, and pre-service personality (especially emotional stability) to later-life psychological health and well-being. Elder and Clipp called for prospective research whereby outcomes can be traced forward in time to uncover both proximal and far-reaching effects of military service.

With data from male World War II and Korean Conflict Veterans, Spiro, Schnurr, and Aldwin (1997) elucidated key theoretical/methodological propositions that underlie a lifespan perspective on military service. Historical, social, and cultural circumstances and the benefits and risks of critical events in multiple spheres of life should be considered with attention to the diversity of developmental processes. They also emphasized that variability in outcomes occurs not only between individuals and groups (e.g., age or war cohorts), but also within individuals

Continued on page 2

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over the lifespan. Rather than document simple group or cohort differences, it is preferable to examine intra-individual change over time. Spiro et al. labeled military service a “hidden variable” in research on aging, one seldom considered as an explanation for trajectories of positive and negative outcomes in later life. Though the articles to follow may not attain the ideal tenets of a lifespan developmental point of view, they speak to varying degrees about individual differences in late-life outcomes due to early-life military experience.

Selected Articles on Health and Adjustment of Aging Veterans

A number of studies have documented PTSD prevalence and symptoms among aging Veterans. For example, Schnurr and colleagues (2002) estimated PTSD rates in a community-residing group of male US Veterans of World War II and Korea, oversampled for combat and civilian trauma. Less than 1% had current PTSD and less than 2% had lifetime PTSD, but almost 10% exhibited symptoms consistent with a partial-PTSD diagnosis. Dirkzwager, Bramsen, and Van der Ploeg (2001) found PTSD symptoms present four decades after exposure to combat among older Dutch Veterans of World War II. In 1992 and 1998, PTSD rates were 27% and 29% for service-connected disabled Veterans and 9% and 8% for nondisabled Veterans, respectively; 18% of disabled Veterans and 5% of nondisabled Veterans met full criteria for PTSD at both time points. Even when individual Veterans’ diagnostic status shifted from positive to negative, symptom scores remained elevated.

Other researchers have explored further the persistence and patterns of PTSD symptoms over time. Zeiss and Dickman (1989) asked World War II former prisoners of war (POWs) to describe retrospectively the degree to which they were troubled by PTSD symptoms after repatriation. The majority (60%) remained “seriously troubled” until 1950. From 1980 to 1983, 48% described themselves as “seriously troubled.” Approximately one fourth (24%) had been continuously troubled throughout their postwar lives, and 62% reported intermittent symptom recurrence. Port, Engdahl, and Frazier (2001) asked World War II ex-POWs to provide similar accounts. Approximately 60% reported being “seriously troubled” by symptoms immediately after the war. This percentage halved by 1950, continued to decline during the 1960s and 1970s, then increased from 1980-1989 and again from 1990-1999. A small proportion (11%) reported symptom reactivation, defined as early symptoms followed by a period of 25-30 years without symptoms, followed by renewed symptoms. Port et al. speculated that late-life factors (e.g., retirement) could have triggered distress.

Indeed, based on the lifespan perspective, one might anticipate that exposure to early-life stressful events could have distal implications for responses to normative aging circumstances and changes in later life. Port and colleagues (2002) assessed combat-related PTSD symptoms and late-life factors in another sample of elderly POWs. PTSD was assessed on two occasions four years apart. Controlling for Time 1 PTSD, the residualized change in PTSD was related to health changes, social support, and fear of death, in the expected directions. Similarly, Kaup, Ruskin, and Nyman (1994) reviewed clinic charts and observed life stressors near the time of referral for PTSD symptoms in a small sample of male World War II Veterans. The majority (69%) had a work-related

stressor (including retirement), although change in health status of the Veteran (31%) or loved ones (37%) also occurred concurrent with referral.

Davison and colleagues (2006) and King and colleagues (2007) introduced the phenomenon of “late-onset stress symptomatology” (LOSS), distinct from PTSD. LOSS can appear in older combat Veterans who have functioned successfully since their military experience but begin to exhibit increased combat-related reminiscences and emotionality later in life, in concert with normative age-related stressors such as retirement, bereavement, and physical decline. Davison et al. presented a conceptual formulation and qualitative evidence for LOSS from focus groups of combat Veterans with no history of psychiatric illness. King et al. developed and validated a LOSS scale incorporating several themes: increased thoughts and dreams about the war, feeling more emotional about the war, stronger reactions to daily stressors, and noticeable behavior change. LOSS scores were correlated with concerns about retirement, health status, general distress, and social support, among other factors. LOSS was associated with accounts of combat exposure occurring many years earlier, and the authors provided evidence of discriminant validity of LOSS vis-à-vis PTSD.

Exposure to military trauma can impact physical health in later years. For example, Schnurr and colleagues (1998) studied four groups of World War II and Korean Conflict Veterans (those with no trauma, combat trauma only, noncombat trauma only, or both combat and noncombat trauma). Changes in general physical health, indexed across multiple organ systems, were modeled over time from ages 30 to 75. Men with exposure to both combat and noncombat trauma appeared especially susceptible to health decline, perhaps owing to a postwar “negative adaptive spiral” in which certain traumatized war Veterans were vulnerable to additional life stressors. The authors speculated that PTSD could serve a meditational role between trauma and physical health. Other work has emphasized specific late-life physical health outcomes associated with early-life trauma and PTSD symptoms (e.g., the large-scale epidemiological study of cardiovascular diseases in World War II ex-POWs by Kang, Bullman, & Taylor, 2006).

Combat exposure can lead to poorer health-related and psychosocial quality of life in later years. Quality of life and satisfaction with health, social relationships, and environment were significantly lower in Australian Veterans of the Korean Conflict, compared to similarly aged men, once demographic factors were taken into account (Ikin et al., 2009). Increasing levels of combat exposure and lower rank were associated with poorer quality of life across all domains.

A growing interest in resilience has fostered investigation into potential positive outcomes of military service. Aldwin, Levenson, and Spiro (1994) found that 10 of 14 positive perceptions of military service (e.g., “broader perspective,” “appreciate peace”) were endorsed by over 90% of Veterans in their VA Normative Aging Study sample. Their overall index of perceived desirable effects was orthogonal to an index of perceived undesirable effects and served to mitigate PTSD symptoms. Also studying men from the VA Normative Aging Study, Jennings and colleagues (2006) focused on the construct of late-life wisdom. Although there are several characterizations of wisdom, Jennings and colleagues

adopted a self-transcendent approach, which emphasizes self-definition, positive emotions, and a sense of interconnectedness with the world and others. Combat exposure alone was not related to wisdom, but the perception of desirable effects of military service was related to wisdom.

Finally, Feder et al. (2008) examined evidence of posttraumatic growth in a sample of 30 former Vietnam War POWs. Sixty-three percent reported at least a moderate degree of positive life change; 37% reported a great or very great degree of positive life change. Appreciation of life was the most highly endorsed growth domain, and posttraumatic growth was positively associated with both duration of captivity and optimism. As in other realms of trauma research, it appears that military experience, even for those subjected to prolonged combat or to the abuse, deprivation, and uncertainty of POW status, may reap benefits that persist into old age. This area of inquiry, however, is relatively new, and additional research on constructs such as resilience, growth, perceived benefits, and wisdom needs to be conducted, especially as regards the mechanisms by which they operate.

Future Directions

This brief review of a lifespan perspective on PTSD highlights some of the work that has been conducted over the past 20 years, and provides a context in which other studies can be interpreted. To advance our knowledge of the long-term effects of military service on aging Veterans, we may need to modify both conceptual models and empirical approaches. With respect to the conceptual, it is important to recognize that the effects of military service, especially in wartime, can continue to reverberate throughout a lifetime, intertwining with the effects of other stressors encountered subsequently through the life course. It is important also to recognize that the tapestry of events and their long-term effects will likely differ across persons.

With respect to the empirical, we need more longitudinal studies if we are to build a comprehensive lifespan model of the long-term effects of military service. What such a model might offer is the possibility of describing the patterns and trajectories of symptoms over time and their effects on physical and mental health in later life. Clearly, extending empirical work to include aging women Veterans is critical; whether models of the lifespan effects of military service differ between men and women is an open question. Finally, it would be useful to explore further whether the LOSS phenomenon is distinct from PTSD and if so, whether it constitutes a prevalent – or even a normative – late-life outcome of both the positive and negative effects of military service. Taken together, such conceptual and empirical advances could guide improved approaches to intervention, tailored to the context of the life course and the individual conditions.

Reference

Cook, J.M. (Summer 2001). **Post-traumatic stress disorder in older adults.** *PTSD Research Quarterly*, 12 (3), 1-7.

Aldwin, C.M., Levenson, M.R., & Spiro, A. (1994). **Vulnerability and resilience to combat exposure: Can stress have lifelong effects?** *Psychology and Aging*, 9, 34-44. The purpose of this study was to examine whether appraisals of desirable and undesirable effects of military service mediated the effect of combat stress on PTSD symptoms in later life in 1,287 male Veterans, aged 44-91 years ($M = 63.56$, $SD = 7.46$), 40% of whom had been in combat. The men reported more desirable effects of military service (e.g., mastery, self-esteem, and coping skills) than undesirable ones; both increased linearly with combat exposure ($r = .17$ and $.33$, $p < .001$, respectively). Path analysis revealed that the appraisals were independent and opposite mediators, with undesirable effects increasing and desirable effects decreasing the relationship between combat exposure and PTSD, even controlling for depression and response style. Although lifelong negative consequences of combat exposure were observed, perceiving positive benefits from this stressful experience mitigated the effect.

Davison, E.H., Pless, A.P., Gugliucci, M.R., King, L.A., King, D.W., Salgado, D.M., et al. (2006). **Late-life emergence of early-life trauma: The phenomenon of late-onset stress symptomatology among aging combat veterans.** *Research on Aging*, 28, 84-114. This study aimed to provide preliminary evidence for, and explore potential antecedents and correlates of, a phenomenon observed in aging combat Veterans termed late-onset stress symptomatology (LOSS). LOSS is a hypothesized phenomenon among older Veterans who (a) experienced highly stressful combat events in early adulthood; (b) functioned successfully throughout their lives, with no chronic stress-related disorders; but (c) begin to register increased combat-related thoughts, feelings, reminiscences, memories, or symptoms commensurate with the changes and challenges of aging, sometimes decades after their combat experiences. Using a qualitative focus group methodology with 47 World War II, Korean Conflict, and Vietnam War Veterans, the authors obtained preliminary evidence for the presence of LOSS as defined, identified some of its features, revealed some normative late-life stressors that may precipitate LOSS, and uncovered potential intrapersonal risk and resilience factors for LOSS. The authors present illustrative quotations from the group discussions and discuss the implications and future directions of this research. [Author Abstract]

Dirkzwager, A.J.E., Bramsen, I., & Van der Ploeg, H.M. (2001). **The longitudinal course of posttraumatic stress disorder symptoms among aging military veterans.** *Journal of Nervous and Mental Disease*, 189, 846-853. This study examined the longitudinal course of PTSD among two samples of Dutch aging military Veterans: 576 Veterans with a military disability pension and 198 community sample Veterans, who fought in World War II, the former Dutch East Indies, and Korea. Both samples were investigated in 1992 and in 1998 with a standardized and validated instrument measuring PTSD symptoms. In 1992, 27% of the Veterans with a military disability pension met the criteria for a PTSD diagnosis; in 1998, this was 29%. Of the community sample Veterans, 9% reported a PTSD diagnosis in 1992; in 1998 this was 8%. The results provide strong support for the long-term persistence of PTSD symptoms. In addition, PTSD caseness at one time point

was associated with significantly elevated PTSD symptom severity at the time of no PTSD diagnosis. No evidence was found for an aggravation of PTSD due to stressors associated with aging. [Author Abstract]

Elder, G.H., & Clipp, E.C. (1988). **Combat experience, comradeship, and psychological health.** In J.P. Wilson, Z. Harel, & B. Kahana (Eds.), *Human adaptation to extreme stress: From the Holocaust to Vietnam* (pp. 131-156). New York: Plenum Press. Topics treated: Some life-span implications of combat experience; The measurement of combat experience; Combat and psychological functioning; Preservice psychological functioning; Conclusion; References.

Feder, A., Southwick, S.M., Goetz, R.R., Wang, Y., Alonso, A., Smith, B.W., et al. (2008). **Posttraumatic growth in former Vietnam prisoners of war.** *Psychiatry, 71*, 359-370. This study examined posttraumatic growth in 30 male Veterans captured and held as prisoners of war during the Vietnam War. Participants were assessed with structured diagnostic interviews administered by trained clinicians as well as with the Posttraumatic Growth Inventory (PTGI) and other questionnaires measuring dispositional optimism, religious coping, social supports, and purpose in life. Mean age (standard deviation-SD) of participants was 66.7 (6.0) years. Mean total PTGI score (SD) was 66.3 (17.5), indicating a moderate degree of posttraumatic growth. The most strongly endorsed items corresponded to the Appreciation of Life and Personal Strength factors. The group as a whole was optimistic and reported moderate use of positive religious coping. Posttraumatic growth did not significantly differ in repatriates with and without psychopathology, but it was significantly positively correlated with dispositional optimism. In the final regression model, length of captivity and optimism were significant predictors of posttraumatic growth. Our findings confirm that it is possible to achieve long-lasting personal growth even in the face of prolonged extreme adversity. Prospective studies are needed to further evaluate whether pre-existing traits such as optimism can predict growth after trauma. [Author Abstract]

Ikin, J.F., Sim, M.R., McKenzie, D.P., Horsley, K.W.A., Wilson, E.J., Harrex, W.K., et al. (2009). **Life satisfaction and quality in Korean War veterans five decades after the war.** *Journal of Epidemiology and Community Health, 63*, 359-365. *Background:* Military service is considered to be a hidden variable underlying current knowledge about well-being in the elderly. This study aimed to examine life satisfaction and quality of life in Australia's surviving male Korean War Veterans and a community comparison group, and to investigate any association with war deployment-related factors. *Methods:* Participants completed a postal questionnaire which included the Life Satisfaction Scale, the brief World Health Organization Quality of Life (WHOQOL-Bref) questionnaire, and the Combat Exposure Scale. *Results:* Korean War Veterans reported significantly lower Percentage Life Satisfaction (PLS) and quality of life scores on four WHOQOL-Bref domains, compared with similarly aged Australian men (each p value <0.001). These outcomes were most strongly associated with severity of combat exposure and low rank. Mean PLS was approximately 15% lower in Veterans who reported heavy combat compared with those reporting no combat, and approximately 12% lower in enlisted ranked Veterans compared with officers.

Conclusions: Fifty years after the Korean War, life satisfaction and quality in Australian Veterans is poor relative to other Australian men, and is associated with deployment-related factors including combat severity and low rank. In order to respond effectively to current and projected population health needs, nations with large Veteran populations may need to consider the impact of military service on well-being in later life.

Jennings, P.A., Aldwin, C.M., Levenson, M.R., Spiro, A., & Mroczek, D.K. (2006). **Combat exposure, perceived benefits of military service, and wisdom in later life: Findings from the Normative Aging Study.** *Research on Aging, 28*, 115-134. Stress, even extremely traumatic stress, may pose both risks and benefits. Although combat can have lifelong negative consequences, the perception of positive benefits from military experience can mitigate the negative effects of combat on mental health. However, little research has examined the impact of trauma earlier in life on the development of positive adaptation, such as wisdom, later in life. The authors examined whether combat exposure and the perception of benefits from military experience, assessed in 1990, were associated with greater wisdom in later life, assessed in 2001 in 615 men from the Normative Aging Study men (mean age 74 years, SD = 6.8 years). A quadrilinear relationship between combat exposure and wisdom was found. Moderate levels of combat were associated with higher levels of wisdom. The perception of benefits and coping predicted wisdom. Thus, how one appraises and copes with problems may be more important in the prediction of positive adaptation than the simple occurrence of stress. [Author Abstract]

Kang, H.K., Bullman, T.A., & Taylor, J.W. (2006). **Risk of selected cardiovascular diseases and posttraumatic stress disorder among former World War II prisoners of war.** *Annals of Epidemiology, 16*, 381-386. *Purpose:* American World War II (WWII) prisoners of war (POWs) suffered both mental and physical deprivation while interned. The long-term health consequences of the internment were studied for an increased risk of cardiovascular diseases and PTSD. *Methods:* This study evaluated healthcare utilization data for 10 years (1991-2000) from Veterans Affairs (VA) and non-VA healthcare providers for 19,442 former WWII POWs and 9,728 non-POW controls. The risk of diseases was approximated by odds ratios adjusted for race and age. *Results:* Collectively, former POWs had statistically significant increased risk of PTSD, and those POWs with PTSD also had statistically significant increased risks of cardiovascular diseases including hypertension and chronic ischemic heart disease when compared to both non-POWs and POWs without PTSD. *Conclusions:* Among former WWII POWs, risk of cardiovascular disease is related to having PTSD. [Author Abstract]

Kaup, B.A., Ruskin, P.E., & Nyman, G. (1994). **Significant life events and PTSD in elderly World War II veterans.** *American Journal of Geriatric Psychiatry, 2*, 239-243. The authors reviewed clinic records of 20 WWII Veterans referred for evaluation of PTSD. Twelve patients qualified for a diagnosis of PTSD, and eight reported several symptoms of PTSD. The most frequent symptoms were insomnia (80%), nightmares (75%), and irritability (65%). Fourteen Veterans had an exacerbation of symptoms occurring with life stresses, including retirement, deteriorating health, or death of a

loved one. The authors conclude that elderly WWII combat Veterans should be monitored for changes in PTSD symptoms when significant stressful life events occur.

King, L.A., King, D.W., Vickers, K., Davison, E.H., & Spiro, A. (2007). **Assessing late-onset stress symptomatology among aging male combat veterans.** *Aging and Mental Health, 11*, 175-191.

This study's goal was to develop a measure of late-onset stress symptomatology (LOSS). LOSS is a phenomenon observed in aging combat Veterans who (a) were exposed to highly stressful combat events in their early adult years, (b) have functioned successfully throughout midlife with no history of chronic stress-related disorders, but (c) begin to register increased combat-related thoughts, feelings, and reminiscences commensurate with the changes and challenges of aging. Several samples of older male combat Veterans from World War II, the Korean Conflict, and the Vietnam War served as participants. We developed a LOSS Scale that demonstrated a high degree of internal consistency reliability (coefficient alpha = 0.97). Scores were stable over brief intervals but were sensitive to developmental change over an extended period. Factor analysis suggested a single LOSS factor. Bivariate associations between LOSS score and other variables (e.g., indicators of contemporary life stressors, resilience, quality of life) were consistent with hypotheses, and there was support for the incremental validity of LOSS vis-à-vis posttraumatic stress symptoms and symptoms of general distress. Discussion of the potential uses of the scale, future directions for psychometric research, and suggestions for generalizing the LOSS construct to other trauma populations are provided. [Author Abstract]

Port, C.L., Engdahl, B., & Frazier, P. (2001). **A longitudinal and retrospective study of PTSD among older prisoners of war.** *American Journal of Psychiatry, 158*, 1474-1479. *Objective:* The authors examined the longitudinal changes in PTSD symptom levels and prevalence rates over a 4-year time period among American former prisoners of war (POWs) from World War II and the Korean War. Retrospective symptom reports by World War II POWs dating back to shortly after repatriation were examined for 1) additional evidence of changing PTSD symptom levels and 2) evidence of PTSD cases with a long-delayed onset. *Methods:* PTSD prevalence rates and symptom levels were measured by the Mississippi Scale for Combat-Related PTSD. For the longitudinal portion of the study, participants were 177 community-dwelling World War II and Korean POWs. For the retrospective portion, participants were 244 community-dwelling World War II POWs. *Results:* PTSD prevalence rates and symptom levels increased significantly over the 4-year measurement interval. Retrospective symptom reports indicated that symptoms were highest shortly after the war, declined for several decades, and increased within the past two decades. Long-delayed onset of PTSD symptoms was rare. Demographic and psychosocial variables were used to characterize participants whose symptoms increased over 4 years and differentiate participants who reported a long-delayed symptom onset. *Conclusions:* Both longitudinal and retrospective data support a PTSD symptom pattern of immediate onset and gradual decline, followed by increasing PTSD symptom levels among older survivors of remote trauma.

Port, C.L., Engdahl, B., Frazier, P., & Eberly, R. (2002). **Factors related to the long-term course of PTSD in older ex-prisoners of war.** *Journal of Clinical Geropsychology, 8*, 203-214. This study examined relationships between socioenvironmental factors occurring in later life and current and changing PTSD symptom levels in a sample of 177 community-dwelling World War II and Korean era ex-prisoners of war. Factors examined included negative life events, negative health events, social support, and death acceptance. PTSD was assessed at Time 1. PTSD and the later-life factors were then assessed 4 years later (Time 2). Cross-sectional analysis examined the relationship of the later-life factors to current PTSD symptomatology. Longitudinal analysis examined their relationship to changing PTSD symptomatology over the 4-year interval. Negative health changes, social support, and death acceptance were significantly related to current and changing PTSD symptomatology, but negative life events were not. The authors conclude that health and psychosocial factors that may occur in later life can be related to PTSD symptom levels even many decades after a traumatic experience.

Schnurr, P.P., Spiro, A., Aldwin, C.M., & Stukel, T.A. (1998). **Physical symptom trajectories following trauma exposure: Longitudinal findings from the Normative Aging Study.** *Journal of Nervous and Mental Disease, 186*, 522-528. This study modeled physical symptom trajectories from ages 30 to 75 in 1,079 older male military Veterans who were assessed every 3 to 5 years since the 1960s. Combat exposure and noncombat trauma were used to define four groups: no trauma ($N = 249$), noncombat trauma only ($N = 333$), combat only ($N = 152$), and both combat and noncombat trauma ($N = 345$). Number of symptoms on the Cornell Medical Index physical symptom scale increased 29% per decade. Men who had experienced either combat or noncombat trauma did not differ from nonexposed men, but those who had experienced both combat and noncombat trauma had 16% more symptoms across all ages. There were no differences in age-related trajectories as a function of trauma history. In cross-sectional analysis, men with combat and noncombat trauma had more PTSD symptoms, but not more depression symptoms, than men with either no trauma or noncombat trauma only. Discussion focuses on the importance of considering physical as well as psychological outcomes of exposure to traumatic events. [Author Abstract]

Schnurr, P.P., Spiro, A., Vielhauer, M.J., Findler, M.N., & Hamblen, J.L. (2002). **Trauma in the lives of older men: Findings from the Normative Aging Study.** *Journal of Clinical Geropsychology, 8*, 175-187. Research on the prevalence of traumatic exposure has tended to focus on younger populations, limiting our knowledge about trauma and its effects in older adults. In this study, lifetime trauma exposure was assessed in a sample of 436 male military Veterans of World War II and the Korean Conflict (age 59-92). A clinician-administered screening measure, the Brief Trauma Interview, was developed to assess lifetime exposure to 10 categories of trauma using DSM-IV criteria. PTSD was assessed in interview and questionnaires. Despite a high prevalence of trauma exposure, symptom levels were relatively low. Few men met criteria for current or lifetime PTSD. Secondary analyses found that lifetime symptom severity was higher in men who met the DSM-IV A.2

ABSTRACTS *continued*

criterion, in contrast with men who did not meet A.2. Findings indicate that trauma is highly prevalent among older men, although many may be asymptomatic. [Author Abstract]

Settersten, R.A., Jr. (2006). **When nations call: How wartime military service matters for the life course and aging.** *Research on Aging, 28*, 12-36. Most scholarship on aging is based on cohorts born early in the 20th century, and these cohorts have had significant experience with war. Wartime experiences may therefore be critical but largely hidden variables underlying current scientific knowledge about aging. Evidence marshaled in this article illustrates the powerful insights gained when research on this topic is guided by lifecourse propositions and data. It reveals how wartime military service, especially during World War II, affected the short- and long-ranging development of recruits. It also highlights the need to better account for the potential legacies of service for physical, psychological, and social functioning in late life. These matters will become increasingly important as sizable World War II and Korean Veteran populations move through advanced old age, and as the Vietnam Veteran population moves into old age. Systematic attention to the effects of wartime service is necessary to determine the degree to which contemporary knowledge about aging can be generalized to future cohorts. [Author Abstract]

Spiro, A., Schnurr, P.P., & Aldwin, C.M. (1997). **A life-span perspective on the effects of military service.** *Journal of Geriatric Psychiatry, 30*, 91-128. For the last several years, we have been studying the positive and negative developmental effects of military service on men's aging. In this paper, we describe the life-span approach that we have adopted and outline its application to the study of military service. Our thesis is that military service is a hidden variable in men's aging, and the failure to consider its consequences has important implications for the understanding of aging. To illustrate some aspects of the life-span perspective, we present results from our work with the Normative Aging Study. [Adapted from Text, pp. 91-92]

Zeiss, R.A., & Dickman, H.R. (1989). **PTSD 40 years later: Incidence and person-situation correlates in former POWs.** *Journal of Clinical Psychology, 45*, 80-87. A statewide sample of WWII ex-POWs ($N = 442$) responded to questionnaires that sampled current and past difficulties with PTSD-related symptoms; an incidence of serious difficulties with these symptoms of 56% was revealed. Retrospective reports of temporal patterns revealed no consistent patterns of symptom occurrence, but, rather, a waxing and waning of difficulties over the 40-year period. Unexpectedly, measures of severity of the POW experiences did not predict current symptomatology. Rank at time of capture, however, was consistently and strongly predictive of PTSD. It is suggested that PTSD is a highly persistent phenomenon and that both situation and person variables contribute to the development and maintenance of PTSD. [Author Abstract]

CITATIONS

Bramsen, I., Deeg, D.J.H., Van der Ploeg, E., & Fransman, S. (2007). **Wartime stressors and mental health symptoms as predictors of late-life mortality in World War II survivors.** *Journal of Affective Disorders, 103*, 121-129. In a study of late-life mortality among 1,448 World War II survivors, the highest hazard rates of mortality were found among military Veterans and war survivors who had been seriously wounded. PTSD, suicidal thoughts, and depression were associated with a higher hazard rate.

Clipp, E.C., & Elder, G.H. (1996). **The aging veteran of World War II: Psychiatric and life course insights.** In P.E. Ruskin & J.A. Talbot (Eds.), *Aging and Posttraumatic Stress Disorder* (pp.19-51). Washington, D.C.: American Psychiatric Press. The authors summarize their research with elderly World War II combat Veterans, which included pre-war data and repeated post-war assessments. Both positive and negative outcomes are reviewed.

Elder, G.H., Clipp, E.C., Brown, J.S., Martin, L.R., & Friedman, H.S. (2009). **The lifelong mortality risks of World War II experiences.** *Research on Aging, 31*, 391-412. In a longitudinal study of 854 male American Veterans, 38% of whom served in World War II, overseas duty, service in the Pacific theater, and exposure to combat significantly increased mortality risk, whereas individual differences in education, mental health in 1950, and age at entry into the military did not.

Floyd, M., Rice, J., & Black, S.R. (2002). **Recurrence of posttraumatic stress disorder in late life: A cognitive aging perspective.** *Journal of Clinical Geropsychology, 8*, 303-311. To explain the recurrence of PTSD among older adults who have been symptom-free for many years, the authors theorize that age-related decreases in attention make the intrusion of trauma-related memories more likely. The increase in intrusive memories, combined with age-related decreases in working memory, explicit memory, and prospective memory, leads to subjective distress associated and recurrence of PTSD.

Fontana, A., & Rosenheck, R. (1994). **Traumatic war stressors and psychiatric symptoms among World War II, Korean, and Vietnam War veterans.** *Psychology and Aging, 9*, 27-33. In a sample of 5,138 war-zone Veterans of World War II, the Korean War, or the Vietnam War, severity of war-related PTSD increased with traumatic exposure, regardless of the war in question, and decreased with age.

Hiskey, S., Luckie, M., Davies, S., & Brewin, C.R. (2008). **The emergence of posttraumatic distress in later life: A review.** *Journal of Geriatric Psychiatry and Neurology, 21*, 232-241. In a review of the literature, the authors conclude that evidence of emergent late-life PTSD (related to earlier life events) is found in a few studies of male war Veterans ($n = 4$) and several case studies ($n = 12$). They recommend that future research assess participants' histories more fully and explore the phenomenon across groups other than male Veterans.

CITATIONS *continued*

Hunt, N., & Robbins, I. (2001). **The long-term consequences of war: The experience of World War II.** *Aging and Mental Health, 5*, 183-90. In a study of 731 World War II and Korean War Veterans, 19% showed clinically significant distress as much as 50 years after the event. Various factors that may influence the persistence of distress were explored.

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Sutker, P.B., Vasterling, J.J., Bailey, K., & Allain, A.N. (1995). **Memory, attention, and executive deficits in POW survivors: Contributing biological and psychological factors.** *Neuropsychology, 9*, 118-125. Neuropsychological functioning, PTSD, and depression were studied in 108 former prisoners of war (POWs). Associations between trauma (severe malnutrition/weight loss and psychological hardship) and cognitive deficits (attention/tracking, executive functions, and learning/memory) were explored.

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VA's National Center for PTSD celebrates its 20th anniversary by Matthew J. Friedman, MD, PhD, Executive Director

Twenty years ago, on August 23, 1989, following a national competition, The National Center for PTSD was established. Its mission, as stipulated in Public Law 98-258, has been to advance the welfare of America's veterans through research, education, and training on the causes, diagnosis, and treatment of PTSD and stress-related disorders. Its vision has been to be the foremost leader in information on psychological trauma and PTSD. Such information is either generated through the Center's robust research program or through synthesis of both published scientific literature and collective clinical experience. All information is disseminated to the field through publications, treatment manuals, in-person trainings, and web-based platforms, especially NCPTSD's website (www.ptsd.va.gov).

The Center was established as a five-part (later increased to seven-part) consortium in which each division provided expertise in specific areas. This organizational structure has permitted us to draw on the expertise distributed throughout the Center in times of war and national emergencies, as well as for ongoing programs. It has also permitted the rapid and efficient translation of science into practice and practice into science. The Executive Division at VAMC White River Junction, VT, sets Center priorities, provides operational support, houses the PTSD Resource Center, hosts the website, and publishes both the *PTSD Research Quarterly* and the *Clinician's Trauma Update*. The Behavioral Science Division, located at VAMC Boston, MA, focuses on assessment, post-deployment psychology, psychophysiology, information processing, and epidemiology. The Women's Health Sciences Division, also at Boston, focuses on women veterans, military sexual trauma, physical health, and psychotherapy research. The Clinical Neurosciences Division at VAMC West Haven, CT, has been a leading center of research on neurobiology, pharmacotherapy, brain imaging, genetics, and resilience. The Evaluation Division, also at West Haven and embedded within The Northeast Program Evaluation Center (NEPEC), conducts program evaluation on all of VA's specialized

PTSD clinical programs. The Dissemination and Training Division at VAMC Palo Alto hosts the PTSD Clinical Training Program and focuses on dissemination, health services research, and sleep research. The Pacific Islands Division at VAMC Honolulu, HI, focuses on telehealth and ethnocultural research. Major academic affiliations are with Dartmouth, Stanford, Yale, and Boston University.

The breadth of our research program has extended from genetic research and brain imaging to multisite randomized clinical trials, to epidemiologic surveys, to program evaluation of every PTSD program within the VA system. Our work has identified abnormalities in behavior, sleep, cognition, memory, physiological reactivity, and hormonal regulation, as well as in brain structure and function associated with PTSD. We have developed some of the major instruments currently utilized in PTSD screening, assessment, diagnosis, and treatment research, such as the Clinician Administered PTSD Scale (CAPS), the PTSD Checklist (PCL), and the Primary Care PTSD Screen (PC-PTSD). Our website (www.ptsd.va.gov) has emerged as the most comprehensive internet source of information on PTSD, providing information for veterans, their families, mental health practitioners, researchers, policy makers, and the general public. The website also hosts PILOTS (Published International Literature on Traumatic Stress), the largest and most comprehensive bibliographic database on traumatic stress in the world, which has indexed over 37,000 citations.

During the past 20 years, NCPTSD authors have published 2,500 articles, chapters, and books, made over 4,400 scientific or educational presentations, and obtained approximately 222 million dollars in extramural funding for over 520 peer-reviewed research projects. Looking toward the future, the National Center's new strategic priorities focus on traumatic brain injury, substance use disorders, aging, and resilience with regard to both research and guiding clinical practice. There is clearly much more work to be done, but I believe we have made a good start.



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