The Gitenstein Institute for Health Law and Policy, Hofstra Master of Public Health Program
as part of the Garfunkel Wild, P.C.
Thought Leadership in Action Speaker Series

presents

MISSION CRITICAL
VETERANS HEALTH SUMMIT:

Addressing the Invisible Wounds of Our Nation's Veterans

Wednesday, April 6, 2016

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The Gitenstein Institute for Health Law and Policy

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HOFSTRA UNIVERSITY

MISSION CRITICAL VETERANS HEALTH SUMMIT:
ADDRESSING THE INVISIBLE WOUNDS OF OUR NATION'S VETERANS
April 6, 2016

9 a.m.	SYMPOSIUM REGISTRATION JOAN A. AXINN LIBRARY, 10TH FLOOR
9-9:30 a.m.	CONTINENTAL BREAKFAST

9:30-9:45 a.m. **WELCOMING REMARKS**

Janet L. Dolgin, PhD, JD
Jack and Freda Dicker Distinguished Professor of Law and Director, Gitenstein Institute for Health Law and Policy,
Maurice A. Deane School of Law at Hofstra University
Co-Director, Hofstra University Bioethics Center
Professor of Science Education, Hofstra Northwell School of Medicine

Corinne M. Kyriacou, MPH, PhD
Associate Professor and Graduate Director, Master of Public Health and Master of Science in Community Health Programs,
School of Health Professions and Human Services, Hofstra University

9:45-11 a.m. **PANEL DISCUSSION**
HEALTH CARE ISSUES FOR VETERANS

Christopher J. Kutner, MBA, JD
Partner, Rivkin Radler, LLP
Veteran, U.S. Air Force, 1980-1984

Nina A. Sayer, PhD, LP
Deputy Director, Center for Chronic Disease Outcomes Research,
Minneapolis VA Health Care System
Associate Professor, Departments of Medicine and Psychiatry,
University of Minnesota

Kristina L. Derro, MSW, JD
Managing Attorney, Legal Help for Veterans, PLLC

MODERATOR
Alan L. Jakimo, MBA, JD
Senior Counsel, Sidley Austin LLP
Special Professor of Law,
Maurice A. Deane School of Law, Hofstra University

11-11:15 a.m. **COFFEE BREAK**

11:15 a.m.-12:15 p.m.

PANEL DISCUSSION
SUICIDE AND SUICIDE-RELATED BEHAVIOR IN SERVICE MEMBERS AND VETERANS

John F. McCarthy, PhD, MPH
Director, Serious Mental Illness Treatment Resource and Evaluation Center, Office of Mental Health Operations, Department of Veterans Affairs
Research Associate Professor, Department of Psychiatry, University of Michigan Health System

Mary J. Bollinger, MPH, PhD
Assistant Professor, Division of General and Hospital Medicine, University of Texas Health Science Center

MODERATOR
Robert A. Wild, JD
Founding Member, Garfunkel Wild, P.C.

12:30-1:15 p.m.

LUNCH

1:15-3:15 p.m.

PANEL DISCUSSION
INVISIBLE WOUNDS: CASE STUDY OF PTSD FROM SEVERAL PERSPECTIVES

Keith Grant
Veterans Coordinator, Nassau County Department of Human Services

Mayer Bellehsen, PhD
Director, Feinberg Division of the Unified Behavioral Health Center for Military Veterans and Their Families, Northwell Health

Patricia Roberts, JD
Clinical Professor of Law, Director, Clinical Programs, and Director, Lewis B. Puller, Jr. Veterans Benefits Clinic, William & Mary Law School

Ranak Trivedi, PhD
Assistant Professor of Psychiatry and Behavioral Sciences, Palo Alto Veterans Affairs Health Care System

MODERATOR
Jennifer A. Gundlach, JD
Senior Associate Dean for Experiential Education and Clinical Professor of Law,
Maurice A. Deane School of Law, Hofstra University

3:15-3:30 p.m.

CLOSING REMARKS

ABOUT OUR PRESENTERS

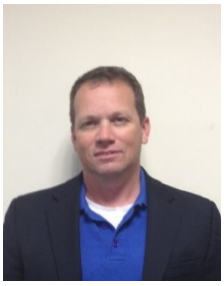
Mayer Bellehsen, PhD, is the director of the Northwell Health Feinberg Division of the Unified Behavioral Health Center for Military Veterans and Their Families, where he oversees and delivers mental health services to veterans, active duty military members, and family members who struggle with the challenges of reintegration into civilian life and post-traumatic stress disorder. Dr. Bellehsen is also the principal investigator for a pilot randomized controlled trial on the effectiveness of Transcendental Meditation as an adjunctive therapy for PTSD. Dr. Bellehsen has published in peer-reviewed publications and in various media outlets on topics related to trauma and its impact on the family.

Mary J. Bollinger, MPH, PhD, is a demographer, VA investigator, and assistant professor with the Division of General and Hospital Medicine at the University of Texas Health Science Center at San Antonio. She has expertise in health services research using geographic and spatial models. Dr. Bollinger was awarded a New Investigator grant applying spatial modeling to the problem of post-discharge outcomes in Texas, as well as a VA Office of Rural Health grant to assess the health care needs of rural veterans in Texas. She has integrated population demography and health services research using spatial statistical models and GIS to explicate the role of place-based variables in the patterns of PTSD care utilization, trajectories of comorbidities among Iraq and Afghanistan veterans (IAV), long-term outcomes for IAV with vascular injuries. She has also provided demographic expertise on a national needs assessment of rural veterans.

Kristina L. Derro, MSW, JD, is managing attorney for Legal Help for Veterans, PLLC. She concentrates her practice in veterans' disability matters before the VA and U.S. Court of Appeals for Veterans Claims. Ms. Derro utilizes her Master of Social Work, Bachelor of Arts in psychology and previous history of working with individuals suffering from mental health disorders in handling mental health disability claims before the VA.

Ms. Derro's litigation experience allows her to pursue cases involving federal tort claims against the VA. Before joining Legal Help for Veterans, she worked as a social worker with the economically disadvantaged and populations suffering from mental health disorders.

Janet L. Dolgin, PhD, JD, is the Jack and Freda Dicker Distinguished Professor of Health Care Law at the Maurice A. Deane School of Law and professor of science education at the Hofstra Northwell School of Medicine. She is also director of the Gitenstein Institute for Health Law and Policy and co-director of the Hofstra University Bioethics Center. She holds a BA in philosophy from Barnard College, a PhD in anthropology from Princeton University, and a JD from Yale Law School. Her scholarly work combines insights from anthropology and legal scholarship.



Keith Grant is a 14-year veteran of the U.S. Army and Army Reserve who served two combat tours in Iraq as an infantry officer. Since leaving active duty, he has served as a member of veterans' wildland firefighting and disaster response teams and as a board member of several national and local veterans' nonprofit organizations. A former journalist, Mr. Grant is a major in the U.S. Army Reserve and serves as the veterans coordinator for the Nassau County Department of Human Services.

Jennifer A. Gundlach, JD, is the senior associate dean for experiential education and a clinical professor of law at the Maurice A. Deane School of Law. Professor Gundlach began her teaching career at American University Washington College of Law in 2000, first as an adjunct professor in the Legal Methods first-year curriculum and then as a practitioner-in-residence in the Civil Practice Clinic.

Professor Gundlach's scholarship and presentations have drawn on recent developments in social science and educational theory to inform and improve law school teaching and curriculum reform. In addition, she has presented at workshops and conferences on issues involving professional responsibility and legal ethics, as well as disability law.

Alan L. Jakimo, MBA, JD, senior counsel in Sidley Austin's New York office, works in the corporate, securities, venture, and technology fields, with emphasis in the life science and information science industries. His experience encompasses a broad range of transactions in venues spanning the Americas, Asia and Europe and involving financial institutions and operating enterprises along the spectrum from startup to seasoned. The interplay among finance, technology development, and licensing of intellectual property rights plays a key role in many of Mr. Jakimo's assignments. He serves as a special professor of law at the Maurice A. Deane School of Law, where he teaches a course on the influence of law and regulation on the discovery, development and commercialization of regulated medical products.

Christopher J. Kutner, MBA, JD, represents managed care organizations, physician groups, hospitals and ancillary service providers, including laboratories, health care benefit administrators and suppliers of medical equipment. He enlisted in the U.S. military at age 19 and served four years active duty in the U.S. Air Force, attending college while serving. He earned the Air Force Commendation Medal and was honorably discharged to pursue a Bachelor of Mechanical Engineering degree from SUNY Stony Brook, which he earned in 1987.

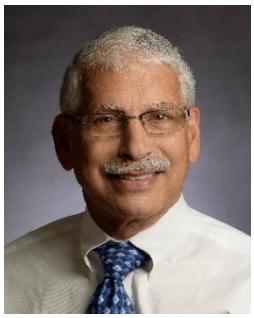
Corinne M. Kyriacou, MPH, PhD, is an associate professor and the graduate director of the Master of Public Health and Master of Science in Community Health programs at Hofstra University. She earned a doctorate in social policy and health services research from the Heller School at Brandeis University, where she was an Agency for Healthcare Research and Quality Fellow, and she holds a Master of Public Health from New York Medical College.

John F. McCarthy, PhD, MPH, is a national expert in program evaluation, suicide epidemiology, mental health performance measurement, and population health. He is director of the Veterans Affairs Serious Mental Illness Treatment Resource and Evaluation Center (SMITREC), a program evaluation center in the VA's Office of Mental Health Operations. After four years in hospital administration at Brigham and Women's Hospital, he earned his MPH and his PhD, in health services organization and policy, from the University of Michigan. He joined SMITREC in 1998. He has developed innovative analytic resources, including the National Psychosis Registry and National Registry for Depression. He leads the VA's national evaluation of Primary Care-Mental Health Integration and suicide monitoring and analysis. He is also an investigator in the VA's Center for Clinical Management Research and a research associate professor of psychiatry at the University of Michigan.

Patricia Roberts, JD, directs William & Mary Law School's Lewis B. Puller, Jr. Veterans Benefits Clinic, which she helped to create and support since its inception in 2008. As director of clinical programs, she is responsible for managing eight clinics, five of which are in-house programs started under her leadership, and a center at the law school. Professor Roberts also serves as a vice chair of the Military & Veterans Health Law Task Force, Health Law Section of the American Bar Association, and as a contributing writer to the *Clinical Law Professors Blog*. She is the creator of Military Mondays, a program that provides advice and counsel to veterans in Starbucks' locations across the country. Professor Roberts regularly speaks and writes on veterans' law topics and provides training to attorneys and advocates working pro bono for veterans.

Nina A. Sayer, PhD, LP, is deputy director of the Center of Innovation (COIN) at the Minneapolis VA Health Care System, the Center for Chronic Disease Outcomes Research (CCDOR); associate professor in the Departments of Medicine and Psychiatry; and adjunct associate professor in the Department of Psychology at the University of Minnesota. She is a clinical psychologist and health services researcher with specific scholarly interest and expertise in post-traumatic stress disorders (PTSD), psychiatric disability, unmet needs for mental health treatment, and TBI/polytrauma. For 10 years, she served as research director for the VA's Polytrauma and Blast-Related Injuries Quality Enhancement Research Initiative (QUERI), an implementation research center focused on improving health and health care for injured war veterans.

Ranak Trivedi, PhD, is a clinical health psychologist and health services researcher, with an expertise in understanding the relationship between psychosocial factors (e.g., depression and social support) and clinical outcomes of chronic illnesses. Her recent research has sought to improve engagement of family caregivers in managing chronic illness. She is a recent awardee of a mentored career development award from the VA HSR&D to develop a behavioral intervention to improve couples' coping among Veterans' with heart failure and their significant others. She also chairs the Mental Health Workgroup for the VA PACT National Evaluation team.



Robert A. Wild, JD, is a founding member of Garfunkel Wild, P.C. and has served as the firm's chairman since its inception. The firm, which maintains offices in New York, New Jersey and Connecticut, represents an array of national and regional health care provider institutions, companies, practitioners and not-for-profit groups, as well as clients in other industries.

Mr. Wild's practice primarily focuses on addressing the legal, regulatory, business and financial needs of the firm's clients. His principal activities include complex transactions for health care providers, including regulatory, compliance, mergers and acquisitions, antitrust, reimbursement, professional conduct issues, patient issues, real estate, graduate medical education, and many other areas. He is a frequent lecturer and author in the field of health law and has addressed a broad variety of groups, organizations and health care providers.

Mr. Wild has served as an adjunct professor of health law at the Maurice A. Deane School of Law and as an assistant clinical professor of health law at Stony Brook University. He is a member of the New York State Bar Association Health Law Section, the advisory board of United Cerebral Palsy of Nassau County, the board of the St. John's Law School Alumni Association, and the board of New York Institute of Technology. He is a past chair of the board of United Way of Long Island and a past board member of NIFA (the Nassau County Interim Finance Authority).

Mr. Wild received his BA in 1964 from the State University of New York at Buffalo and his JD in 1967 from St. John's University School of Law.

Regional Variation and Other Correlates of Department of Veterans Affairs Disability Awards for Patients With Posttraumatic Stress Disorder

Maureen Murdoch, MD, MPH,†‡ James Hodges, PhD,§¶ Diane Cowper, MA,**‖ and Nina Sayer, PhD*††*

Background: Posttraumatic stress disorder (PTSD) is a chronic disabling condition affecting more than 600,000 United States veterans and is the most common psychiatric condition for which veterans seek Veterans Affairs disability benefits. Receipt of such benefits enhances veterans' access to Veteran Affairs health care and reduces their chance of poverty.

Objectives: We sought to determine whether previously identified regional variations in PTSD disability awards are explained by appropriate subject characteristics (eg, differences in PTSD symptomatology or dysfunction) and to estimate the impact of veterans' PTSD symptom severity or level of dysfunction on their odds of obtaining PTSD disability benefits.

Research Design: We used a mailed survey linked to administrative data.

Subjects: Subjects included 4918 representative, eligible men and women who filed PTSD disability claims between 1994 and 1998.

Results: A total of 3337 veterans returned useable surveys (68%). Before adjustment, PTSD disability claims approval rates ranged from 43% to 75% across regions. After adjustment, rates ranged from 33% to 72% ($P < 0.0001$). Severer PTSD symptoms were associated with greater odds of having PTSD disability benefits ($P < 0.0001$). Unexpectedly, poorer functional status was associated with lower odds of having benefits ($P < 0.0001$). On average, clinical differences between veterans who did and did not have PTSD disability benefits were small but suggested slightly greater dysfunction among those without benefits.

Conclusions: An almost twofold regional difference in claims approval rates was not explained by veterans' PTSD symptom severity, level of dysfunction, or other subject-level characteristics. Veterans who did not obtain PTSD disability benefits were at least as disabled as those who did receive benefits.

Key Words: posttraumatic stress disorder, veterans disability claims, compensation, geographic variations

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Portions of this research were presented at the VA HSR&D 19th Annual Meeting, February 2001 in Washington, DC.

The findings and conclusions presented in this report are those of the authors and do not necessarily represent the views of the Department of Veterans Affairs, the Veterans Benefits Administration, or VA HSR&D.

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The Veterans Affairs Administration (VA) operates the United States' largest health care-delivery system,[1] providing comprehensive care to more than 5 million veterans through a network of 160 hospitals and 850 affiliated clinics. Compared with civilian-sector patients, VA patients have substantially greater disease burdens, lower incomes, and less health insurance.[2,3] Although low-income veterans are eligible for VA services, access to VA health care is organized such that "service-connected" veterans have higher priority for enrollment than impoverished veterans without service connection.[4] "Service-connected" veterans have documented, compensative medical conditions or injuries that were aggravated by or related to their military service.

Unlike the Social Security disability programs, which have a strict definition of disability requiring total disability for at least 1 year, the VA rates service-connected conditions along a continuum ranging from 0% (nondisabling) to 100% (total disability),[4] and eligibility is unaffected by income or

employment status. Benefit packages become progressively more generous with higher disability ratings. For example, veterans with service-connected ratings of 0% receive no cash benefits but are entitled to free VA medical care for their specific service-connected conditions. Veterans with service-connected ratings of 50% or more receive, on average, $1726 per month in tax-free compensation and are entitled to free VA pharmacy services for any medical condition. Whether seeking treatment of service-connected conditions or not, veterans with service-connected ratings of 50% or more also have priority access for VA clinic appointments, specialty consultations, medical devices, and elective procedures compared with veterans with lower disability ratings or no service-connected disabilities. Thus, depending on local demand patterns, some low-income, nonservice-connected veterans may experience long waits, ranging from months to years, for needed health care. Not surprisingly, service connection ranks among the most important known predictors of VA health care use.[1,5,6] In its absence, veterans' odds of using VA services drop dramatically, even if they are eligible for VA services on the basis of low income.[6]

Historically, VA disability benefits have accounted for an average of one-quarter to one-half of Social Security Disability Insurance applicants' total family income,[7] suggesting VA service connection might also mitigate poverty. This mitigating effect may be particularly important among veterans with posttraumatic stress disorder (PTSD). We recently showed that psychiatrically disabled veterans' odds of impoverishment decreased by a factor of 2.4 if they were service-connected for PTSD, even after accounting for their receipt of other VA disability awards.[8]

PTSD, the most common psychiatric condition for which veterans seek VA service connection, is a chronic, disabling condition caused by experiencing or witnessing a horrific trauma.[9] Manifestations include intrusive, distressing recollections of the trauma; heightened autonomic reactivity; sleep, concentration, and memory problems; anhedonia; social isolation; and impaired physical health.[9,10] Approximately 600,000 veterans are affected by PTSD, and more than 200,000 have applied for VA service connection on this basis.[11]

Because of its critical effects on VA health care access and income, awards for service connection need to be equitable. Yet, in other analyses we showed that women veterans and black veterans were substantially less likely than other veteran groups to receive service connection for PTSD.[12,13] Differences in veterans' PTSD symptom severity or level of functional impairment did not account for these findings, although the gender discrepancy appeared to be almost completely mediated by differences in combat exposure.[12]

In a historical cohort study of almost 180,000 veterans, we documented a twofold regional difference in rates of PTSD service connection after adjusting for other confounders.[11] However, we were unable to adjust for veterans' PTSD symptom severity or functional impairment, so we could not comment on the appropriateness of these variations. Our goal in this work is to extend our earlier work to determine whether regional variations in PTSD disability awards persist after accounting for veterans' PTSD symptom severity and disability level. We also describe the association between veterans' PTSD symptom severity, disability level, and award for PTSD disability. This article is a planned, secondary analysis of data collected to assess gender differences in rates of PTSD service connection.[12]

METHODS

Setting and Subjects

As reported previously, of the approximately 160,000 men and 5,000 women who applied for VA PTSD disability benefits between 1994 and 1998, 2,700 men and 2,700 women were selected randomly for survey.[13] Women were oversampled to evaluate gender differences in PTSD disability awards, a major study objective. Another major objective was to assess the impact of a Veterans Benefits Administration (VBA) educational intervention, staged December 16, 1996, on the processing of disability claims related to sexual trauma.[14] Half of the sample applied for disability benefits before the intervention.

After excluding 5 duplicate names, 81 deceased veterans, and 396 veterans with untrackable addresses, 2466 men and 2452 women remained eligible for survey. These veterans were mailed a 20-page, self-administered questionnaire between 1998 and 2000. The Minneapolis VA Medical Center's Subcommittee for Human Studies approved the study's protocol. We used monetary incentives, repeated mailings, and telephone prompts to maximize responses. A total of 3337 veterans returned useable surveys (68% effective response rate).

Among respondents, 73% self-identified as white. Men's mean age was 55.6 years (SD 10.7) and women's, 41.3 years (SD 10.1). Although 67% of respondents had at least some college education, just more than a quarter were currently employed. Not quite three-fourths of respondents met survey criterion for PTSD.[12,13] Except for the Life Stressor Checklist, described below, survey instruments' internal consistencies ranged from 0.84 to 0.95 and did not vary importantly by region. Respondents were slightly more likely than nonrespondents to have worked for pay recently, and they had an average of 6 more months of military service than nonrespondents.[13] Otherwise, there were no significant differences between respondents and nonrespondents. Response rates did not vary significantly by region or by veterans' service-connected status.[12,13]

Survey and Administrative Data

Dependent Variable

The primary dependent variable, service connection for PTSD, indicated whether a veteran received VA disability benefits for PTSD. Veterans' service-connected status was abstracted from a VBA administrative database, the Veterans Issues Tracking Adjudication Log (VITAL).

Main Independent Variables

The main independent variables were the region in which veterans filed their claims, their PTSD symptom severity, and their level of disability. In 1995, Veterans Health Administration administrative offices were coalesced into 22 geographically proximal regions known as Veterans Integrated Service Networks (VISN). We assigned each VISN a nonidentifying letter code and used their 1995 boundaries (2 VISNs later merged) to represent geographic regions in the study. Within-VISN variations in claims approval rates were small. The VISN in which veterans filed their claims was abstracted from VITAL. VISNs were coded into 21 indicator variables and treated as a fixed effect for analysis.

A priori, we anticipated that veterans with severer PTSD symptoms and greater disability would be more likely to receive service connection for PTSD than those with less severe symptoms or disability. We measured veterans' current PTSD symptomatology by survey using the 26-item Penn Inventory for PTSD (Penn Inventory).[15] The Penn Inventory uses a 0 to 3 Likert response format, and scores range from 0 to 78. Higher scores indicate severer symptoms. The Penn Inventory has convergent validity with other PTSD measures and with the Impact of Event Scale.[15] Sensitivity is 95% and specificity, 89%.[15] Score changes of 9 or more are clinically important.[16] Scores of 35 or more identify veterans with PTSD with an accuracy of 93% to 97%.[17,18]

We conceptualized veterans' disability level to include work, role, and social functioning; physical functioning; and rates of major medical comorbidity. Work, role, and social functioning was measured by survey, using the self-reported Social Adjustment Scale (SAS).[19] The SAS measures both instrumental and affective performance, assessing psychosocial adjustment, and functioning across 6 domains: subjects' major "work" role (ie, paid occupation, homemaker, student); social interactions; marital, parental, and extended family interactions; and economic self-sufficiency. Domain scores may be combined to generate a single, overall measure of functioning that ranges continuously from 1 (best functioning) to 5 (worst functioning). We used this summary score in analyses. Normal, community-dwelling adults have average SAS summary scores of 1.6,[20] and a score change of 0.4 generally represents a large clinical effect (eg, the difference in functioning when presenting acutely with depression and when recovered 4 weeks later[19]).

We measured physical functioning by survey using the 12-item, RAND Revised Physical Functioning Battery.[21] Scores range continuously from 12 (worst impairment) to 36 (no impairment). Although designed to reduce "ceiling effects" in healthy populations by asking 2 additional items about subjects' ability to perform hard physical functions as compared with the original Physical Functioning Battery, perfect scores are the rule in the general population.[22] Reporting even a single limitation is associated with substantial mental health and general health rating decrements.[23]

We assessed veterans' major medical comorbidity level by using the Charlson Comorbidity Index, which assigns severity weights to 18 specific illnesses.[24] Weighted scores were converted to a categorical variable, where 0 = 0, 1 = 1, and 2 = a score of 2 or more. Higher scores indicate greater comorbidity. We generated veterans' Charlson Comorbidity scores by abstracting relevant diagnostic codes from VITAL. These codes were collected by VBA at the time veterans filed their claims and were not dependent upon veterans' prior use of VA medical facilities.

Other Covariates

Because service connection, PTSD symptom severity, and functional status may each vary as a function of sociodemographic characteristics, the survey asked about veterans' age, education, marital status, income, and race/ethnicity using single items.

Combat and sexual trauma, the in-service stressors that were cited most commonly by PTSD disability claimants,[12] were assessed by survey. A modified, 22-item version of the Combat Exposure Index measured veterans' combat exposure.[25] Scores range continuously from 0 (no combat) to 22 (heaviest combat) and correlate to the number of combat medals awarded veterans.[25] Three items from the "criminal sexual misconduct" subscale of the Sexual Harassment Inventory[26] that ask about attempted or completed in-service sexual assault by coworkers or supervisors plus a fourth question asking about other in-service sexual assaults determined veterans' in-service sexual assault status, coded as a yes/no variable. These 4 questions had an accuracy of 91% in a small internal validation study.[13]

Because veterans wait an average of 25 years after leaving the service to file PTSD disability claims,[11] they risk experiencing intervening traumas that could exacerbate PTSD symptoms.[27,28] We inventoried veterans' exposures to natural or manmade disasters, accidental injuries, and other serious traumas and stressors using an 11-item adaptation of the Life Stressor Checklist.[29] Scores range ordinally from 0 (no exposures) to 11 (exposures to all traumas listed); the internal consistency ranges from 0.70 to 0.72.[13]

Treatment access could mitigate PTSD over time, resulting in less severe symptoms among veterans with longstanding service connection compared with more recently

service-connected veterans or nonservice-connected veterans. We controlled for the time since veterans filed their claims in all analyses. We also controlled for whether veterans filed claims before or after the 1996 VBA educational intervention. We abstracted veterans' claim date from VITAL. Other aspects of veteran's military service associated with PTSD service connection, such as service branch and era and combat injury status (dichotomized as a yes/no variable),[11] were abstracted from VITAL.

Analyses

We used logistic regression to identify significant correlates of PTSD service connection. Table 1 shows the analysis strategy's 4 main steps, which were specified a priori. Step 1 assessed the association between region and PTSD service connection while simultaneously controlling for other known or suspected confounders. Step 1 included a sex by VISN interaction term because we had previously shown greater regional variability in PTSD service connection among women than among men[11] and because we had oversampled women. The sex by pre-/postintervention status interaction tested whether any intervention effect on service connection differed by gender.

Step 2 tested the present study's major hypothesis that differences in veterans' PTSD symptom severity and disability level might explain regional differences in PTSD service connection. We included the Life Stressor Checklist in this step because we thought it would moderate veterans' current PTSD symptom severity.

In-service sexual assault status was entered into the model in Step 3; combat exposure, in Step 4. Although we also thought these variables likely moderators of veterans' current PTSD symptom severity (and hence plausibly added in Step 2), previous research suggested both independently predicted veterans' odds of PTSD service connection.[11,14] We were interested in estimating their individual mediating effects, if any, on the association between region and PTSD service connection.

Before adding Step 2 variables, Step 1 variables with *P* values greater than 0.15 were excluded from the model except the interaction between sex and pre-/postintervention

TABLE 1. Analysis Strategy for Multiple Logistic Regression With PTSD Disability Award (Service Connection) as a Dependent Variable

	Step at Which Variable Was Entered				
Variables Entered Into Model	**1**	**2**	**3**	**4**	**Variable in Final Model?**
Sex	x				Yes
Intervention status (pre- versus postintervention)	x				Yes
Time since claim was filed	x				Yes
VISN (region)	x				Yes
Service era	x				Yes
Service branch	x				Yes
Race	x				Yes
Marital status	x				Yes
Age at time of claim	x	Variable Deleted Prior to Step 2			No
Years of education	x	Variable Deleted Prior to Step 2			No
Interactions:					
Sex by intervention status	x				Yes
VISN by sex	x				Yes
Penn Inventory Score (PTSD symptom severity)		x			Yes
Charlson Comorbidity Index		x			Yes
RAND Revised Physical Functioning Scale		x			Yes
Social Adjustment Scale Score (work, role, and social functioning)		x			Yes
Life Stressor Checklist Score (number of postservice traumas)		x			Yes
In-service sexual assault status			x		Yes
Modified Combat Exposure Index Score				x	Yes

PTSD indicates posttraumatic stress disorder; VISN, Veterans Integrated Service Networks.

period and the time since veterans filed their PTSD disability claims. We did not exclude variables in subsequent steps.

Earlier work suggested that variability in rates of PTSD service connection occurred mostly among veterans without combat injuries,[11] so we repeated the analysis steps in Table 1 in the subgroup of veterans without combat injuries. Too few combat-injured veterans were denied PTSD service connection in our sample (n = 26) to analyze their variation in PTSD disability awards using logistic regression. To account for the study's oversampling of women, we report adjusted estimates of VISN-specific rates of PTSD service connection for the sample overall and for men and women separately. Because this study's major objective was to examine gender differences in VA service connection for PTSD, we did not weight study results back to the original population. Doing so would have essentially negated the women's data (because women account for just 3% of all VA PTSD disability applicants). All adjusted estimates of veterans' rates of service connection are the least squares means produced by SAS statistical software's GENMOD procedure, transformed back to the probability scale.

To illustrate some differences between veterans with and without PTSD service-connection, we regressed Penn Inventory scores, SAS scores, physical functioning scores, modified Combat Exposure Index scores, and Life Stressor Checklist scores on veterans' service-connected status and other appropriate covariates. Adjusted estimates of veterans' mean scores are the least squares means produced by SPSS UNIANOVA. In all analyses, we used a Bonferronized P value of ≤ 0.005 as the threshold for statistical significance.

RESULTS

Just 2 constructs, age ($P = 0.42$) and education ($P = 0.28$), were deleted between analysis Steps 1 and 2. Age was highly collinear with veterans' period of service ($r = 0.85$). Variables retained in the final model are shown in the last column of Table 1. Table 2 shows that before adjustment, claims approval rates ranged from 42.9% to 74.8% across regions in the overall sample ($P < 0.0001$). Adjustment for other correlates of PTSD service connection had essentially no impact on this difference (after adjustment, $P < 0.0001$). The notable difference in the range of men's and women's observed rates of service connection across regions (26% vs. 42% points) became minimal after adjustment (44% vs. 48% points), and the interaction between VISN and sex was not significant ($P = 0.08$).

Table 3 shows that, as expected, PTSD symptom severity was associated with greater odds of service connection for PTSD. Unexpectedly, poorer work, role, and social functioning and poorer physical functioning were each associated with lower odds of PTSD service connection. Table 4 shows the remaining categorical correlates of service connection for PTSD besides region (shown in Table 2) and race and gender (reported elsewhere[12,13]). Veterans' level of major medical comorbidity did not significantly affect their odds of service connection.

Table 5 shows the adjusted mean scale scores for veterans with and without PTSD service connection. On average, after adjustment, veterans with PTSD service connection had severer PTSD symptoms, but better work, role, and social functioning scores and better physical functioning scores than veterans without PTSD service connection. These differences were statistically significant but of unclear clinical importance.

Subgroup Analysis

Among veterans without combat injuries, the regional variation in rates of PTSD service connection persisted after adjustment for all other correlates ($P < 0.0001$). The pattern of effects described for the remaining correlates of PTSD service connection were also unchanged from the full group analysis (data not shown).

DISCUSSION

Large regional variations in VA disability awards for PTSD have been described almost since PTSD was first recognized as a compensative condition in 1980.[30] Originally, this variation was largely attributed to clinicians' and claims processors' unfamiliarity with the diagnosis.[31] However, the VA has since gained considerable expertise in diagnosing and treating PTSD and is now the United States' largest provider of PTSD services.[32] VBA also has gained considerable experience in handling PTSD claims. Since 1980, it has implemented several programs to standardize the processing of such claims,[30,33–35] including the educational intervention that prompted this study.[14]

Despite these efforts, rates of PTSD service connection varied almost twofold across regions between 1994 and 1998. Consistent with earlier research, this variation could not be explained by regional dissimilarities in veterans' sociodemographic or military characteristics, rates of major medical comorbidity, or combat-injury status.[11] We extend these findings to show that the regional variation in PTSD disability awards likewise could not be attributed to regional differences in veterans' current PTSD symptom severity or level of disability.

Chance error seems an unlikely cause of this variation. For example, even though the smallest numbers of survey respondents came from the 2 regions with the lowest and highest adjusted claims approval rates, respectively, these same regions have consistently ranked among the lowest and highest claims-approving regions in the country since 1980.[11] Regions with historically similar work loads have consistently had different claims approval rates, even after adjustment for characteristics associated with PTSD service connection.[11] Thus, smaller workloads and greater inexperience

TABLE 2. Observed and Adjusted Rates of Service Connection for PTSD by VISN (Region)

	Rate of PTSD Service Connection, %								
	Sample Overall (n = 3331*)			Men Only (n = 1653)			Women Only (n = 1678)		
VISN (Region)	n	Observed	Adjusted (95% CI)†	n	Observed	Adjusted (95% CI)†	n	Observed	Adjusted, (95% CI)†
A	200	75	63 (51–73)	105	81	61 (45–74)	95	37	64 (51–76)
B	55	71	65 (47–79)	31	77	64 (39–83)	24	63	65 (42–83)
C	160	66	65 (53–75)	114	63	46 (34–60)	46	**74**	**80 (65–90)**
D	190	64	57 (46–68)	96	77	57 (42–71)	94	51	57 (44–70)
E	49	67	**72 (52–86)**	16	81	**76 (44–93)**	33	61	67 (47–83)
F	79	54	50 (35–65)	28	68	49 (26–72)	51	47	51 (35–67)
G	338	55	48 (39–58)	199	63	48 (37–60)	139	44	49 (37–61)
H	194	65	54 (43, 65)	96	76	52 (37–66)	98	54	56 (43–69)
I	149	59	52 (40–64)	76	75	55 (38–71)	73	43	49 (35, 64)
J	141	46	38 (27–50)	69	61	44 (29–60)	72	**32**	**32 (20–48)**
K	49	**43**	**33 (19–51)**	17	**59**	**32 (13–59)**	32	34	34 (18–55)
L	150	55	48 (36–60)	62	65	44 (28–61)	88	49	51 (37–65)
M	125	60	52 (39–64)	47	64	41 (25–60)	78	58	62 (48–75)
N	84	61	51 (37–65)	39	69	44 (26–64)	45	53	58 (40–74)
O	128	58	45 (33–58)	69	73	51 (35–68)	59	41	40 (25–56)
P	225	54	47 (36–57)	127	65	50 (37–63)	98	40	44 (31–58)
Q	124	54	50 (38–63)	53	66	49 (31–66)	71	45	52 (37–67)
R	144	55	53 (40–66)	57	75	59 (39–76)	87	41	47 (33–61)
S	132	70	60 (47–73)	60	83	61 (41–78)	72	58	60 (44–73)
T	256	69	60 (50–70)	108	70	50 (36–64)	148	68	70 (58–79)
U	228	70	66 (56–75)	124	80	66 (52–78)	104	59	67 (54–77)
V	131	**75**	71 (58–81)	60	**85**	71 (51–85)	71	66	70 (56–82)

*Data are missing for 2 men and 4 women.

†Results of the final multiple logistic regression, described in Table 1, last column. Thus, adjusted rates are adjusted for all variables listed in Table 1, except age and education. **Bold** font highlights VISNs with highest and lowest observed and adjusted rates of service connection.

CI indicates confidence interval; VISN, Veterans Integrated Service Networks.

TABLE 3. Continuously Measured Correlates of PTSD Service Connection

Variable	Adjusted* Odds Ratio† (95% CI)	*P* Value
Penn Inventory Score (PTSD symptom severity)	1.46 (1.33–1.61)	<0.0001
Social Adjustment Scale Score (work, role, and social functioning)	0.78 (0.71–0.85)	<0.0001
RAND Revised Physical Functioning Score	1.14 (1.03–1.25)	0.0008
Modified Combat Exposure Index Score	2.38 (2.06–2.75)	<0.0001
Life Stressor Checklist Score (number of postservice traumas)	0.82 (0.75–0.90)	<0.0001

*Results of the final multiple logistic regression, described in Table 1, last column. Thus, adjusted odds ratios are adjusted for all variables listed in Table 1, except age and education.

†Odds ratio arising from a one-standard deviation increase in the continuously measured correlate.

CI indicates confidence interval; PTSD, posttraumatic stress disorder.

processing PTSD disability claims in some regions compared with others seem inadequate to explain our findings.

Given service connection's known effects on mentally ill veterans' use of VA services[5,6,36] and its likely effect on their vulnerability to poverty,[7,8,36] our data raise concerns that veterans filing claims in regions with lower rates of PTSD service connection could be at risk for less adequate health care access or severer economic hardship compared with

TABLE 4. Categorically Measured Correlates of PTSD Service Connection

Variable	Number of Respondents	Observed Rate of Service Connection, %	Adjusted Rate of Service Connection, % (95% CI)*	*P* Value After Adjustment
Intervention status				0.013
Preintervention	1627	60	52 (43–60)	
Postintervention	1710	64	58 (50–65)	
Interaction, sex by intervention status				0.84
Male, preintervention	820	69.8	51 (41–60)	
Male, postintervention	835	72.8	56 (46–65)	
Female, preintervention	807	49.8	53 (44–62)	
Female, postintervention	875	54.6	59 (50–68)	
Service era				0.0007
World War II	232	78	65 (54–76)	
Korean Conflict	141†	59	48 (36–61)	
Vietnam Conflict	1629	67	50 (42–58)	
Post-Vietnam Conflict	603	48	47 (38–56)	
Gulf War I	523	55	54 (45–63)	
Post-Gulf War I	209	63	63 (52–72)	
Service Branch				0.026
Army	2034	61	51 (44–58)	
Navy	491	60	57 (48–65)	
Marines	424	71	56 (47–65)	
Air Force	346	57	60 (51–68)	
Other	42	57	49 (32–67)	
Marital status: sharing home with a romantic interest				0.0004
Yes	188	48	47 (37–58)	
No‡	3149	63	62 (55–68)	
Charlson Comorbidity Index Score				0.15
0	2736	62.2	56 (48–63)	
1	426	56.8	50 (41–59)	
2 or more	175	65.7	58 (47–69)	
In-service sexual assault				< 0.0001
Yes	1264	56	62 (53–70)	
No	2073	65	47 (39–56)	

*Results of the final multiple logistic regression, described in Table 1, last column. Thus, adjusted rates are adjusted for all variables listed in Table 1 except age and education. The associations between race and gender and PTSD service connection are reported elsewhere.[12,13]

†Includes 2 veterans who served just prior to the Korean Conflict and 52 veterans who served just after the Korean Conflict.

‡This category included veterans who were married, single, divorced, widowed, or separated.

CI indicates confidence interval; PTSD, posttraumatic stress disorder.

veterans filing claims in regions with higher claims approval rates. Because neither chance nor subject-level differences appeared to explain this regional variation, future research should aim at determining whether there are systematic differences between regions in the way claims processors handle PTSD disability claims or in the way disability evaluators conduct or interpret PTSD disability examinations. Unfortunately, our data do not describe the optimal rate of service connection, and regions with lower rates of PTSD service connection could be granting disability awards at more appropriate levels than regions with higher claims approval rates. Consequently, research is also required to determine the most appropriate benchmark for the rate of PTSD service connection.

Severer PTSD symptoms and better functioning were associated with greater odds of service connection at a very high level of statistical significance, but most clinical differences between service-connected and nonservice-connected veterans were small. Possibly the 2 groups' difference in work, role, and social functioning was clinically important.

TABLE 5. Adjusted Means of Selected Characteristics According to Veterans' Service-Connected Status*

Variable	Service Connected for PTSD: Yes (n = 2060) Mean (SE)	Service Connected for PTSD: No (n = 1277) Mean (SE)	*P* Value
Penn Inventory Score (PTSD symptom severity)	43.4 (1.0)	39.6 (1.0)	<0.0001
Social Adjustment Scale Score (work, role, and social functioning)	2.7 (0.0)	2.8 (0.0)	<0.0001
RAND Revised Physical Functioning Score	29.2 (0.2)	28.6 (0.2)	0.001
Modified Combat Exposure Index Score	4.6 (0.2)	3.2 (0.2)	<0.0001
Life Stressor Checklist Score (number of post-service traumas)	3.9 (0.1)	4.3 (0.1)	<0.0001

*Each variable is adjusted for all other variables listed in the table body and for age, race, gender, marital status, education, employment status, service era, branch of service, in-service sexual assault status, time since claim was filed, pre-/postintervention status, and major medical comorbidities.

The mean difference in the 2 groups' SAS scores was comparable to that reported for women before and after undergoing elective surgery and has been correlated with other mental state changes.[37] Whether this is sufficient to conclude that veterans denied PTSD service connection were clinically more disabled or dysfunctional than service-connected veterans is unclear. Certainly veterans denied service connection for PTSD were not *less* disabled than those who obtained service connection.

Other studies comparing the clinical characteristics of successful and unsuccessful disability benefits applicants have also identified surprisingly few differences.[7,38–40] However, longer-term outcomes, such as hospital lengths of stay, quality of life, total income, reliance on welfare or food stamps, and homelessness, tend to be poorer among those denied benefits.[38,39,41] As noted elsewhere,[12] regardless of service-connected status, our sample's overall disability level was high: Their SAS scores were worse than that reported by persons with schizophrenia, alcohol abuse, or major depression[20,42] and similar to that reported by hospitalized mentally ill patients.[43] Given such dysfunction, nonservice-connected veterans may be at particularly high risk of poor long-term outcomes. To the extent that VA service connection for PTSD might mitigate poor outcomes, inappropriate variations in awarding service connection need to be identified and eliminated.

Because on average, veterans' PTSD symptom severity and functional status were assessed almost 2 and a half years after they applied for benefits,[13] prevalence–incidence bias and maturation effects could have confounded our findings. Service-connected veterans with the most severe PTSD symptoms could have died earlier than less symptomatic veterans. With sicker veterans selected out, differences among the service-connected and nonservice-connected would appear diminished. Alternatively, service-connected benefits, eg, cash payments, greater VA health care access, reduced or zero pharmacy costs, and rehabilitative and employment services, could contribute to improved functioning over time. Even if service-connected veterans were substantially sicker and more disabled than nonservice-connected veterans when they filed their claims, treatment effects could have reduced or reversed this difference by the time they were surveyed. We did not identify an interaction between time since claims were filed, service-connected status, and veterans' PTSD symptoms or functional status in other analyses,[12] but treatment and other maturation effects cannot be completely excluded.

Interestingly, if a treatment effect were found, it would argue against the rather common assumption that disability benefits interfere with recovery.[44–46] Because nonservice-connected veterans were at least as dysfunctional as service-connected veterans at the time of survey, it might also suggest that the former experience difficulty finding effective treatment programs and/or income subsidies outside of the VA safety net.[2]

We did not assess it, but other psychiatric disorders could have mediated or contributed to the apparently paradoxical association between greater dysfunction and lower odds of PTSD service connection. Comorbid PTSD and substance abuse or dependency are associated with greater dysfunction and poorer recovery.[47–49] However, when veterans' functional limitations are attributed to personality disorders or to primary drug or alcohol use, PTSD service connection cannot be granted, even if the veteran is severely disabled.

Greater dysfunction at the time of claims application could directly undermine veterans' likelihood of service connection. In other research, individuals with the greatest psychiatric impairments were less likely than moderately impaired subjects to obtain new public benefits after disenrollment from a Supplemental Social Security Income (SSI) program.[40] Compared with more functional veterans, those with severer disabilities could have had greater difficulties completing paperwork or other tasks required for service connection.[39,40] Sorting between these competing hypotheses and determining the causal direction of associa-

tion between PTSD service connection and disability is essential to understanding the effect of service connection and service connection disparities on long-term outcomes.

The precedent for providing benefits to American military veterans predates this country's founding, and in 2002 the VA paid almost $23 billion in compensation to veterans. Yet, to our knowledge, we are the first to examine predictors and correlates of PTSD service connection in a nationally representative sample of men and women veterans. We estimate that almost 100,000 veterans have applied for and been denied VA PTSD disability benefits since 1980.[11] To the extent that our research is generalizable to them, many likely suffer profound dysfunction and disability. Our data have identified important disparities in PTSD disability awards, including regional disparities. Veterans denied PTSD disability awards appeared to be at least as disabled as those who obtained them, but the long-term consequences to those denied benefits are unknown. Research is needed to understand the reasons for award disparities and to assess the impact of PTSD service connection on long-term outcomes among psychiatrically ill veterans. Similarly, research is needed to see whether these findings generalize to veterans seeking service connection for other disorders.

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REFERENCES

1. Agha Z, Lofgren R, VanRuiswyk J, et al. Are patients at Veterans Affairs medical centers sicker? A comparative analysis of health status and medical resource use. *Arch Intern Med*. 2000;160:3252–3257.
2. Wilson N, Kizer K. The VA health care system: an unrecognized national safety net. *Health Affairs*. 1997;16:200–204.
3. Rosenheck R, Massari. Wartime military service and utilization of VA health care services. *Mil Med.* 1993;158:223–228.
4. VHA Allocation Resource Center. *Enrollment Cost Summary: September 2000 Data (Second Year)*. Braintree, MA: VHA Allocation Resource Center; 2002.
5. Rosenheck R, Stolar M. Access to public mental health services: determinants of population coverage. *Med Care*. 1998;36:503–512.
6. Gamache G, Rosenheck R, Tessler R. Factors predicting choice of provider among homeless veterans with mental illness. *Psychiatr Serv*. 2000;51:1024–1028.
7. Bound J. The health and earnings of rejected disability insurance applicants. *Am Econ Rev*. 1989;79:482–503.
8. Murdoch M, vanRyn M, Hodges J, et al. Mitigating effect of Department of Veterans Affairs (VA) disability benefits for PTSD on low income. *Mil Med*., in press.
9. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders.* 4th ed. Washington, DC: American Psychiatric Association; 1994.
10. Schnurr P, Spiro A, Paris A. Physician-diagnosed medical disorders in relation to PTSD symptoms in older male military veterans. *Health Psychol*. 2000;19:91–97.
11. Murdoch M, Nelson D, Fortier L. Time, gender, and regional trends in the application for service-related post-traumatic stress disorder disability benefits, 1980–1998. *Mil Med*. 2003;168:662–670.
12. Murdoch M, Hodges J, Hunt C, et al. Gender differences in service connection for PTSD. *Med Care*. 2003;41:950–961.
13. Murdoch M, Hodges J, Cowper D, et al. Racial disparities in VA service connection for posttraumatic stress disorder disability. *Med Care.* 2003; 41:536–549.
14. Hunt C. Women Veterans Issues, Part 1: Developing PTSD Sexual Assault Claims in: C&P Training Operations Teleconference [video broadcast]. Dec. 16, 1996.
15. Hammarberg M. Penn Inventory for Posttraumatic Stress Disorder: Psychometric properties. *Psychol Assess*. 1992;4:67–76.
16. Hammarberg M, Silver S. Outcome of treatment for posttraumatic stress disorder in a primary care unit serving Vietnam veterans. *J Trauma Stress*. 1994;7:195–216.
17. Hammarberg M. *Scoring the Penn Inventory for PTSD*. Philadelphia: University of Pennsylvania; 1990.
18. Baker D, Boat B, Grinvalsky H, et al. Interpersonal trauma and animal-related experiences in female and male military veterans: implications for program development. *Mil Med*. 1998;163:20–25.
19. Weissman M, Bothwell S. Assessment of social adjustment by patient self-report. *Arch Gen Psychiatry*. 1976;33:1111–1115.
20. Weissman M, Prusoff B, Thompson W, et al. Social adjustment by self-report in a community sample and psychiatric outpatients. *J Nerv Ment Dis*. 1978;166:317–326.
21. Stewart A, Ware JJ, Brook R, et al. *Conceptualization and Measurement of Health for Adults in the Health Insurance Study: Vol. II, Physical Health in Terms of Functioning.* Vol R-1987/2-HEW. Santa Monica: RAND; 1978.
22. Stewart A, Ware JJ, Brook R. Advances in the measurement of functional status: construction of aggregate indexes. *Med Care*. 1981;XIX: 473–488.
23. Ware JJ, Davies-Avery A, Brook R. *Conceptualization and Measurement of Health for Adults in the Health Insurance Study: Vol. VI, Analysis of Relationships Among Health Status Measures.* Vol R-1987/6-HEW. Santa Monica: RAND; 1980.
24. Charlson M, Pompei P, Ales K, et al. A new method of classifying prognostic comorbidity in longitudinal studies: development and validation. *J Chron Dis*. 1987;40:373–383.
25. Janes G, Goldberg J, Eisen S, et al. Reliability and validity of a combat exposure index for Vietnam veterans. *J Clin Psychol*. 1991;47:80–86.
26. Murdoch M, McGovern P. Development and validation of the Sexual Harassment Inventory. *Violence Vict*. 1998;13:203–216.
27. Stretch R, Knudson K, Durand D. Effects of premilitary and military trauma on the development of post-traumatic stress disorder symptoms in female and male active duty soldiers. *Mil Med*. 1998;163:466–470.
28. King D, King L, Foy D, et al. Posttraumatic stress disorder in a national sample of female and male Vietnam veterans: risk factors, war-zone stressors, and resilience-recovery variables. *J Abnorm Psychol*. 1999; 108:164–170.
29. Wolfe J, Kimmerling R, Brown P, et al. Psychometric review of the Life Stressor Checklist-Revised. In: Stamm B, ed. *Measurement of Stress, Trauma, and Adaptation*. Lutherville, MD: Sidran Press; 1996.
30. Sparr L, White R, Friedman M, et al. Veterans' psychiatric benefits: enter courts and attorneys. *Bull Am Acad Psychiatry Law*. 1994;22:205–222.
31. Atkinson R, Henderson R, Sparr L, et al. Assessment of Vietnam veterans for posttraumatic stress disorder in Veterans Administration disability claims. *Am J Psychiatry*. 1982;139:1118–1121.
32. National Center for PTSD. Research at the Northeast Program Evaluation Center, West Haven. *Dept. Veterans Affairs, National Center for PTSD* [electronic citation]. June 7, 2000. Available at: http://www.ncptsd.org/about/divisions/nepec/nepec_research.html. Accessed November 17, 2004.
33. *Sexual Trauma Sensitivity* [Training video-tape]. Washington, DC: Women Veterans Health Program, Veterans Health Administration; 1996.
34. Veterans Benefits Administration. *Blueprint for Change: Implementation Plan*. Washington, DC: Department of Veterans Affairs; 1997.
35. Watson P, McFall M, McBrine C, Schnurr P, et al. *Practice Guidelines*

for Post Traumatic Stress Disorder Compensation and Pension Examinations. Washington, DC: Department of Veterans Affairs; 2000.
36. Strauss GD, Sack DA, Lesser I. Which veterans go to VA psychiatric hospitals for care: a pilot study. *Hosp Community Psychiatry*. 1985;36: 962–965.
37. Cooper P, Osborn M, Gath D, et al. Evaluation of a modified self-report measure of social adjustment. *Br J Psychiatry*. 1982;141:68–75.
38. Perl J, Kahn M. The effects of compensation on psychiatric disability. *Soc Sci Med*. 1983;17:439–443.
39. Rosenheck R, Dausey D, Fisman L, et al. Outcomes after initial receipt of Social Security benefits among homeless veterans with mental illness. *Psychiatry Serv*. 2000;51:1549–1554.
40. Swartz J, Lurigio A, Goldstein P. Severe mental illness and substance use disorders among former supplemental security income beneficiaries for drug addiction and alcoholism. *Arch Gen Psychiatry*. 2000;57:701–707.
41. Rosenheck R, Frisman L, Gallup P. Effectiveness and cost of specific treatment elements in a program for homeless mentally ill veterans. *Psychiatry Serv*. 1995;46:1131–1139.
42. Weissman M, Olfson M, Gameroff M, et al. A comparison of three scales for assessing social functioning in primary care. *Am J Psychiatry*. 2001;158:460–466.
43. Zlotnick C, Zakriski A, Shea M, et al. The long-term sequelae of sexual abuse: support for complex posttraumatic stress disorder. *J Trauma Stress*. 1996;9:195–205.
44. Jordan R, Cook R, Milligan M. Impact of service connection on chronicity: does secondary gain affect veterans' health care utilization? *Fed Pract.* 1997(Dec):37–39.
45. Campbell W, Tueth M. Misplaced awards: Veterans Administration system and symptom magnification. *Clin Ortho Rel Res*. 1997;336:42–46.
46. Satel S. When disability benefits make patients sicker. *N Engl J Med*. 1995;333:794–796.
47. Zlotnick C, Warshaw M, Shea M, et al. Chronicity in posttraumatic stress disorder (PTSD) and predictors of course of comorbid PTSD in patients with anxiety disorders. *J Trauma Stress*. 1999;12:89–100.
48. Perconte S, Griger M. Comparison of successful, unsuccessful, and relapsed Vietnam veterans treated for posttraumatic stress disorder. *J Nerv Ment Dis*. 1991;179:558–562.
49. Williams W, Weiss T, Edens A, et al. Hospital utilization and personality characteristics of veterans with psychiatric problems. *Psychiatry Serv*. 1998;49:370–375.

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Reintegration Challenges in U.S. Service Members and Veterans Following Combat Deployment

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Although the majority of combat veterans reintegrate into civilian life without long-lasting problems, a sizable minority return from deployment with psychiatric or physical injuries that warrant medical attention. Even in the absence of diagnosable disorders, many experience functional problems that impede full reintegration into civilian life. Considerable resources have been allocated to studying, diagnosing, treating, and compensating combat-related disorders. This important work has resulted in significant improvements in healthcare for those with deployment-related difficulties. Nevertheless, many service members and veterans with reintegration difficulty may not receive needed help. Based on our review, we argue that in addition to treatment and compensation for diagnosable postdeployment problems, a comprehensive approach to reintegration is needed that includes partnership between the government, private sector, and the public.

The U.S. combat operations in Afghanistan, Iraq, and neighboring countries, referred to as Operation Enduring Freedom (primarily in Afghanistan, October

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2001 through present), Operation Iraqi Freedom (March, 2003 through August 2010), and Operation New Dawn (September 2010 through December 2011), taken together comprise the longest war the United States has fought[1] since the Vietnam War and the first extended war to depend on an all-volunteer military. These operations have heightened concern about the lasting consequences of war for service members, veterans, their families, and society as a whole. As the Afghanistan and Iraq Wars wind down, policy makers, healthcare providers, social scientists, and the public are increasingly concerned not only about the toll these wars have taken on those who have served, but also with determining what can be done to heal veterans' psychological and physical injuries and foster their reintegration into civilian life.

The majority of combat veterans do not experience lingering mental health or adjustment problems and make a successful transition to civilian life (Bonanno et al., 2012; Hotopf et al., 2006; Institute of Medicine (IOM), 2010; Kulka et al., 1990). However, veterans who struggle with deployment-related difficulties may bring back disturbing images, thoughts, emotions, and behavioral reactions to certain triggers, as well as physical injuries from these wars that cannot be easily put aside upon return home. Meanwhile, the families of deployed service members may have established new routines while the veteran was deployed and also face readjustment issues when their veteran family member returns home and hopes or is expected to resume his or her family role. These family readjustment challenges are likely more difficult when veterans return with mental and physical health problems that cause significant distress and/or impair their ability to participate in major life activities as they may have done prior to deployment.

Effective policies and programs to address the needs of service members and veterans returning from hazardous deployments require an understanding of the deployment-related health and reintegration problems that they may face and the programs already in place to help them. The objective of this article is to present information that will enhance the reader's understanding of these service members' and veterans' needs and the resources available to them and point the way to policy, programs, and research to improve long-term health and functional outcomes. We do not provide a systematic review of the scientific literature. Rather, we synthesize research based on our knowledge of the most recent, representative, and robust studies. We focus primarily on service members and veterans returning from the recent wars because they are likely to benefit from new policies and programs put in place to facilitate their health and reintegration.

The present article is divided into six sections. First, to create a context for the remaining sections, we examine the characteristics of U.S. veterans from the recent wars that need to be taken into consideration in enhancing or developing policies and programs. Second, we describe the prevalence of mental health

[1] We refer to veterans who participated in Operation Enduring Freedom, Operation Iraqi Freedom and Operation New Dawn as Afghanistan and Iraq War Veterans.

disorders and physical injuries and illnesses, as well as suicide. Third, we discuss postdeployment social and functional problems and their relation to mental health concerns. Fourth, we review risk and protective factors for Posttraumatic Stress Disorder (PTSD) and the U.S. Department of Defense resilience training program that seeks to enhance protective factors. Fifth, we discuss current U.S. Department of Veterans Affairs (VA) programs to address select deployment-related health concerns. Last, we discuss policy implications based on this review. We consider research gaps throughout.

The Experience of Afghanistan and Iraq War Veterans Compared with Veterans of Prior U.S. Wars

There are likely considerable similarities in the combat and postcombat readjustment experiences between those formerly deployed to Afghanistan and Iraq and neighboring countries and veterans of prior wars. However, there are also factors that distinguish these veterans from veterans of prior war eras. These differences may affect the prevalence and types of postdeployment problems they experience.

Demographic Characteristics

Veterans of the current wars are demographically unique from veterans of prior wars. First, a higher proportion of female service members are serving than in previous war eras (U.S. Department of Veterans Affairs, Women Veterans Task Force, 2012). Women now comprise approximately 12% of forces deployed to the recent wars. Although technically barred from serving in combat until recently, a growing and unprecedented number of female service members are deployed to combat areas in combat support roles. Women who served in the operations in and around Afghanistan and Iraq, therefore, represent the largest cohort of women in U.S. history who have been involved extensively and actively in combat operations. In contrast, the vast majority of troops who served in the Vietnam War were male. In addition, female service members are more likely than male service members to experience sexual trauma while in the military (Haskell et al., 2010). One in five female veterans compared with one in a hundred male veterans who use the VA for healthcare screen positive for military sexual trauma, which includes sexual assault and harassment during active duty (U.S. Department of Veterans Affairs, Women Veterans Task Force, 2012).

Veterans of the Afghanistan and Iraq Wars are also more racially diverse than veterans of prior war eras, with only about 66% identified as being white compared, for example, with 90% of those deployed as part of the Vietnam War (IOM, 2010). Compared with Vietnam War veterans, veterans from recent wars are also older and more likely to be married (IOM, 2010).

The Afghanistan and Iraq Wars are fundamentally different from previous wars in their heavy dependence on the Reserve component and National Guard

troops (IOM, 2010). Reserve and National Guard service members now comprise 44% of U.S. veterans separated from active duty after having served in Afghanistan and Iraq. These service members are older than those deployed from the active component of the military and many leave jobs to serve in the military. Unlike active duty service members who return to assigned bases, Reserve, and National Guard service members transition directly back to their home communities, which may be unevenly prepared to help them with their readjustment (IOM, 2010).

Deployment Characteristics

The wars in Afghanistan and Iraq and neighboring countries are the longest sustained military operations since the Vietnam War. However, they have employed a smaller number of troops. Whereas 12% of the U.S. population served in World War II and 2% served in the Vietnam War, only about 0.5% has served in military operations in and around Afghanistan and Iraq (Meagher, 2007). Therefore, a smaller proportion of the U.S. population is bearing the burden of these wars, and it is likely that a smaller proportion actually interacts with veterans of recent wars than interacted with veterans of prior wars.

To meet the demands of the wars in and around Afghanistan and Iraq, the U.S. operations have been staffed on a rotational basis. This approach spreads deployments over the entire pool of deployable service members. But because the Afghanistan and Iraq military operations have been so lengthy, there have been multiple deployments for many personnel, especially soldiers and marines. American soldiers in Vietnam and their families at home knew that after a 365-day tour, the veteran would not have to go back. The same cannot be said for Afghanistan and Iraq War veterans who have been deployed more frequently and have had less time between deployments (dwell time) to recuperate than planned (IOM, 2010).

Modern Warfare

In this era of modern warfare, the majority of combat injuries are blast related (Gondusky & Reiter, 2005). In combat, sources of blast injury include artillery, rocket and mortar shells, mines, booby traps, aerial bombs, improvised explosive devices, and rocket propelled grenades. The severity and pattern of blast injuries depends on the composition and amount of explosive material involved, surrounding environment, delivery method, distance between the victim and the blast, and presence of intervening protective barriers or environmental hazards (Centers for Disease Prevention, 2006). Traumatic brain injury (TBI) is a common blast-related injury (Okie, 2005; Warden et al., 2005). However, given the possible effects of explosions on the human body, it is not surprising that blast injuries are often associated with polytrauma, meaning that they involve more than one body organ

or system (U.S. Department of Veterans Affairs, Office of Patient Care Services, 2005). Blasts also impact more body systems and organs than other mechanisms of injury (Sayer et al., 2008).

Due to improved body armor, surgical care deployed far forward on the battlefield, and rapid evacuation to major hospitals via military aircraft equipped with sophisticated equipment, more individuals are surviving beyond the acute phase of blast injuries (Gawande, 2004). In fact, the recent conflicts have seen the highest ratio of wounded to killed-in-action in U.S. history. As of March 22, 2013, 6,669 U.S. troops have died and 50,569 have been wounded in action and evacuated from the operations in and around Afghanistan and Iraq (U.S. Department of Defense, 2013). The fatality to wounded ratio for these military operations, therefore, is 1:7.6, compared to 1:2.6 in the Vietnam War and 1:1.7 in World War II (IOM, 2010). Consequently, not only is the military and VA providing medical care to individuals with injuries who may have died in previous wars, but family members are also providing life-long informal care to relatively young but severely injured veterans. Thus, these wars have also heighted concern about family caregivers of war-injured veterans.

Advances in Federal Healthcare Services

There have been enormous advances in healthcare available for service members returning from war with deployment-related problems. Perhaps most dramatic are changes in the treatments available for PTSD, which did not even enter the official psychiatric nomenclature until 1980, after the end of the Vietnam War (American Psychiatric Association [APA], 1980). Before then, terms like shell shock, battle or combat fatigue, or war neurosis were used to describe the constellation of trauma-related symptoms that have come to be known as PTSD (IOM, 2010). Now, both the Departments of Defense and VA screen for common deployment-related health concerns, including PTSD, depression, high-risk alcohol use, military sexual trauma, and TBI. These screening programs have increased the rate of detection of problems common in returning service members and veterans that might otherwise have gone unnoticed. In addition, the Department of Defense and VA have collaborated on the development of Clinical Practice Guidelines for high frequency deployment-related health conditions (U.S. Department of Veterans Affairs, 2013). The U.S. government has also implemented toll-free telephone hotlines for service members, veterans, and their family members to help individuals with deployment-related health problems learn about and obtain needed services (U.S. Department of Veterans Affairs, 2012a; U.S. Department of Veterans Affairs, Suicide Prevention Line, 2013). Furthermore, the VA offers benefits, services, and training specifically for family caregivers of post-September 11, 2001 veterans (U.S. Department of Veterans Affairs, 2012c). Therefore, whereas barriers to access and variations in the quality of care are of continued concern

(Burnam et al., 2008; IOM, 2010; Milliken, Auchterlonie, & Hoge, 2007; Seal et al., 2010), and new or improved treatments are needed, the United States is now better prepared to identify and address the deployment-related health concerns of individuals returning from war and their families than it has ever been.

Readjustment Problems in Former War Fighters: Mental and Physical Health

Mental Health Disorders in Active Duty Personnel

Deployment and combat exposure are associated with increased risk for psychiatric disorders, including PTSD, other anxiety disorders, alcohol abuse, depression, and suicide (IOM, 2008). Information on the prevalence of these problems is needed to improve detection and ensure the availability of appropriate and timely health and other services. Unlike after earlier wars, researchers are now examining postdeployment mental health problems in service members soon after their return from the war zone (that is, before they discharge and become veterans) (e.g., Hoge et al., 2004; Hoge, Auchterlonie, & Milliken, 2006; Milliken et al., 2007; Smith et al., 2008). In a large cross-sectional survey of combat infantry units, Hoge et al. (2004) found that 11–17% of soldiers and marines met strict screening criteria for major depression, generalized anxiety, or PTSD 3–4 month after returning from deployment to Afghanistan or Iraq. An even higher percentage (18–35%) met screening criteria for alcohol misuse after deployment. Rates of mental health problems, particularly PTSD, were significantly higher after return from combat deployment than before deployment, particularly for PTSD. In a population-based study of all army soldiers and marines who completed routine postdeployment screenings over a 1 year period, 19% of Operation Iraqi Freedom service members and 11% of Operation Enduring Freedom service members screened positive for a mental health concern immediately after deployment, compared with less than 9% of service members returning from other locations (Hoge et al., 2006). However, in a subsequent population-based longitudinal study of Iraq War soldiers, the rate of mental health problems increased substantially during the first 6 months after returning from deployment, particularly among Reserve and National Guard soldiers, demonstrating that symptom assessments immediately postdeployment underestimate the mental health burden in returning service members (Milliken et al., 2007). Finally, in a large, population-based prospective study of U.S. service members, combat deployment in support of the wars in Afghanistan and Iraq was associated with new-onset heavy weekly drinking, binge drinking, and alcohol-related problems among Reserve and National Guard personnel and younger service members (Jacobson et al., 2008).

Because of its direct association with traumatic events, including combat (APA, 2013), PTSD warrants particular attention. Sundin, Fear, Iversen, Rona,

and Wessely (2010) conducted a systematic and quantitative review to summarize PTSD prevalence estimates and methodological sources of variation in these prevalence estimates in 19 U.S. and U.K. studies of personnel who had been deployed to Iraq. Studies based on treatment-seeking samples were excluded. PTSD prevalence estimates for pre- and nondeployed troops were fairly consistent across these studies, ranging from 2% to 5.6%. In contrast, prevalence estimates of PTSD postdeployment varied. Excluding two studies classified as outliers, PTSD prevalence ranged between 10.3% and 17% in studies based on nonrandom surveys of combat troops (soldiers and marines). Prevalence estimates ranged from 2.1% to 11.6% in population-based studies and studies based on random samples drawn from the entire military population that used stringent criteria for identifying PTSD cases. The two U.K. studies, both of which were based on random samples representative of the military population, reported the lowest prevalence of PTSD (Hotopf et al., 2006; Rona et al., 2006). Based on their review, Sundin and colleagues concluded that anonymous surveys tended to yield higher rates of PTSD compared to studies that used "on the record" recording, the risk of PTSD postdeployment was higher in those activated from the Reserve (and National Guard) component, and in U.S. studies PTSD rates increased during the year after deployment.

Taken together, the above findings suggest that the prevalence of PTSD observed in service members within the first year after deployment as part of military operations in and around Afghanistan and Iraq, particularly in studies based on samples of soldiers and marines with combat exposure, is roughly comparable to estimates of the prevalence of PTSD among Vietnam veterans assessed more than a decade after the end of the Vietnam War as part of the National Vietnam Veteran Readjustment Study (Dohrenwend et al., 2006; Kulka et al., 1990) and veterans of the 1991 Gulf War assessed about 5 years after that war (Kang, Natelson, Mahan, Lee, & Murphy, 2003). Although the majority of service members do not develop PTSD, these prevalence estimates exceed the 3.5% estimated prevalence of current PTSD in the U.S. population (Kessler, Chiu, Demler, Merikangas, & Walters, 2005). In U.K. service members, the prevalence of probable PTSD was low and alcohol misuse was more prevalent than PTSD, both before and after combat deployment (Fear et al., 2010). More research is needed to determine whether the rate of PTSD and other mental health concerns continues to rise beyond the year after deployment in U.S. service members. Studies like the Millennium Cohort Study (Ryan et al., 2007), which is a population-based study launched in 2001 to evaluate the long-term health of U.S. military service members and the influence of military exposures on health over 21 years, will help fill this evidence gap.

Mental Health Disorders in Treatment Samples of Veterans

Studies based on veterans who use the VA for medical care, though not representative of the entire veteran population, provide insight into the prevalence

of mental health problems in treatment-seeking veterans in the years following military discharge. These studies demonstrate that the cumulative prevalence of mental health disorders in veterans who used VA healthcare is considerably greater than the rates of current disorders reported in the survey studies of active duty personnel. Specifically, 54% of Afghanistan and Iraq War veterans who used VA healthcare from October 1, 2001 through September 30, 2012 had a psychiatric diagnosis. PTSD was the single most common diagnosis, observed in 29% of these VA healthcare users (U.S. Department of Veterans Affairs, Epidemiology Program, 2012). The majority of Afghanistan and Iraq War veterans with a psychiatric diagnosis carried more than one (Seal et al., 2009) and PTSD in particular was associated with a higher prevalence of alcohol, pain, and sleep-related problems (Stecker, Fortney, Owen, McGovern, & Williams, 2010). Interestingly, the rate of diagnosed PTSD and other mental health concerns increased with time in the VA healthcare system (Seal et al., 2009). Although reasons for this are unknown, it may be that, over time, VA clinicians do a better job of detecting mental health concerns, veterans become more comfortable reporting problems or veterans actually experience increased mental health problems in the years after military discharge.

Not all veterans receive their medical care through the VA. At the time of this writing, 56% of eligible Afghanistan and Iraq War veterans were enrolled in the VA compared with roughly 30% of Vietnam and 25% of Korean and WWII veterans (U.S. Department of Veterans Affairs, 2010a) . Overall, only about 20% of all U.S. veterans use the VA (U.S. Department of Veterans Affairs, 2010a). The prevalence of psychiatric and other adjustment problems in Afghanistan and Iraq War veterans who do not use the VA is understudied. Research involving a national sample of Afghanistan and Iraq War veterans with self-reported reintegration difficulty suggested that those who used VA healthcare were more likely to have military-related problems, including probable PTSD, probable TBI, and readjustment difficulties, than those who did not use the VA, even controlling for demographic differences between groups (Sayer et al., 2013). This makes sense given that the VA specializes in treatment for military-related health conditions. However, mental health problems were not absent in those who did not use the VA and the unmet healthcare needs of veterans with deployment-related difficulties who do not use the VA for healthcare is a significant public health concern.

TBI and Polytrauma

TBI has been called the "signature injury" of the wars in and around Afghanistan and Iraq because of its higher prevalence compared with prior wars (DePalma, Burris, Champion, & Hodgson, 2005; Okie, 2006). TBI can be caused by penetrating trauma or blunt force, including acceleration/deceleration

forces that cause the brain to collide with the skull. TBI is categorized as mild, moderate, or severe based on the length of loss of consciousness, alteration of consciousness, or posttraumatic amnesia at the time of injury (U.S. Department of Veteran's Affairs/Department of Defense, 2009). Research on TBI in veterans from prior wars focused on more severe forms of TBI, including penetrating brain injury. Since September 11, 2001, however, the focus has shifted to mild TBI, also referred to as concussion, which is far more common in military personnel (Defense and Veterans Brain Injury Center, 2013). There are challenges to determining the incidence and prevalence of deployment-related TBI, particularly among service members with mild injuries that do not require immediate in-theater medical attention and therefore whose injuries are not documented soon after the time of injury when the injury-causing event and acute injury characteristics (e.g., alteration of consciousness) are most accurately assessed. Findings based on surveys of individuals formerly deployed to Afghanistan and Iraq suggest that 10–23% may have had a deployment-related mild TBI (Hoge et al., 2008; Schell & Marshall, 2008; Schneiderman, Braver, & Kang, 2008; Terrio et al., 2009; Vanderploeg et al., 2012). However, because of the difficulty obtaining accurate information on TBI history through brief self-report measures, the gold standard for TBI diagnosis is a clinical interview and evaluation with a medical specialist (Corrigan & Bogner, 2007; Vanderploeg et al., 2012). Research based on review of VA clinical records indicates that almost 10% of the Afghanistan and Iraq War veterans utilizing VA services over a 3-year period received a TBI diagnosis (Cifu et al., in press; Taylor et al., 2012). There is virtually no information on the rate of TBI in veterans who do not use VA for medical care, although findings from one study suggest that it may be considerably lower than among VA users (Sayer et al., 2013). Interestingly, in a longitudinal study of National Guard soldiers (Polusny et al., 2011), self-reported history of TBI increased over time after deployment, like the rate of PTSD and other mental health concerns (Milliken et al., 2007; Sundin et al., 2010). Importantly, because the diagnosis of TBI is based on history rather than current symptoms, the rate of TBI should not be confused with the rate of TBI-related disability, which is unknown, or be considered a definitive indicator of healthcare needs.

Given the life-threatening circumstances in which deployed troops are sustaining TBI, it is perhaps not surprising that the vast majority of U.S. veterans diagnosed with combat-related TBI are also diagnosed with PTSD and other psychiatric disorders (Taylor et al., 2012). Pain, particularly headache, is also frequently associated with TBI (Taylor et al., 2012; Sayer et al., 2009). About three-fourths of veterans with TBI who used VA also carried pain diagnoses and more than two-thirds had both pain and mental health diagnoses (Cifu et al., in press; Taylor et al., 2012). Visual, auditory, and vestibular problems also cooccur with blast-related TBI (Vanderploeg et al., 2012). This is likely because the events that cause the TBI can also cause sensory impairments.

Due to this high rate of comorbidity, it is difficult to determine whether persistent symptoms and functional impairments in individuals with TBI, often referred to as postconcussive symptoms, are due to the brain injury itself, comorbidities, or the combination of disorders. Postconcussive symptoms include deficits in memory, attention, concentration, irritability, anxiety, depression, fatigue, disordered sleep, headache, and dizziness. Most of these symptoms are nonspecific and seen in individuals with psychiatric and pain disorders who do not have a TBI history, as well as in individuals with no disorders (McCrea, 2008; Meares et al, 2008). Some research suggests that most if not all persistent symptoms in service members with mild TBI and PTSD are attributable to PTSD. In a survey of 2,525 army infantry soldiers who had recently returned from year-long Iraq deployment, Hoge et al. (2008) found that after adjusting for PTSD, depression, and other variables, headache was the only symptom uniquely associated with mild TBI with loss of consciousness. Similarly, in a longitudinal survey of 953 National Guard soldiers who had deployed to Iraq, mild TBI history did not predict other outcomes, after accounting for PTSD (Polusny et al., 2011). In contrast, other investigators have found that PTSD alone does not fully account for cognitive, affective, and physical symptoms in combat veterans who also have TBI (Brenner et al., 2010; Schneiderman et al., 2008; Vanderploeg, Belanger, & Curtiss, 2009). Vanderploeg and colleagues (2012) argued that it is not surprising that controlling for PTSD and depression minimizes the association between TBI and postconcussive symptoms, given that PTSD, depression, and postconcussive symptoms are all health outcomes with symptom overlap. The effect of mild TBI on long-term health outcomes in veterans with multiple deployment-related health conditions remains an area warranting further investigation.

It is worth noting concerns about potential long-term neurodegenerative effects of TBI and blast exposure among veterans (e.g., Miller, 2011, 2012). Research indicates that a history of TBI, including mild TBI, is associated with physiological changes to the brain and the development of Alzheimer's disease and other forms of dementia (Fakhran, Yaeger, & Alhilali, 2013; Giunta et al., 2012; Zhou et al., 2013). For example, a historical cohort study of more than 1,700 World War II veterans documented 2.3 and 4.5 times greater risk of dementias among those who had been hospitalized during their military service for moderate or severe TBI, respectively, compared to those hospitalized for other reasons (Plassman et al., 2000). Additionally, chronic traumatic encephalopathy, a condition also associated with progressive neurodegeneration, has been identified postmortem in athletes, veterans, and others with documented history of multiple TBI (McKee et al., 2013). In addition to TBI, other conditions related to military service, such as PTSD, may also increase veterans' risk of neurodegeneration (Veitch, Friedl, & Weiner, 2013). Research aimed at systematically identifying whether there is increased prevalence of neurodegenerative disease among veterans of the Afghanistan and Iraq War is ongoing.

Traumatic Amputations

Although the numbers are relatively small, service members who return from the war with traumatic limb loss are a high priority group for both the Department of Defense and the VA. The total number of service members with traumatic limb loss from the Vietnam War was estimated to be 5,283; as of December 3, 2012, the total number of major-limb amputations due to battle injuries in the Afghanistan and Iraq Wars was 1,715 (Fisher, 2013). A major amputation involves a leg at or above the ankle, or an arm at or above the wrist. These injured service members experience a high rate of comorbidity, including hearing loss, pain, and mental health disorders, particularly PTSD and depression (Reiber et al., 2010; U.S. Department of Veterans Affairs, Office of Inspector General, 2012). TBI appears to be much more common in Afghanistan and Iraq War veterans with major limb loss than in Vietnam War veterans with major limb loss. A large national survey observed self-reported TBI in 3.4% of Vietnam War veterans compared with 33.9% of Afghanistan and Iraq War veterans with major limb loss (Reiber et al., 2010). Nevertheless, Reiber and colleagues also identified indicators of good adjustment in this battle-injured sample—71% of Vietnam and 86% of Afghanistan and Iraq War veterans in their sample rated their overall health as good to excellent. Interestingly, those with multiple limb loss reported the highest health status. The researchers speculated that the close brush with death may have led these veterans to appreciate just being alive, leading to higher perceived well-being (Reiber et al., 2010).

The VA Office of the Inspector General (2012) conducted a study of all Afghanistan and Iraq War veterans with major limb loss as of August 17, 2011. Almost all (99%) transitioned to VA care within 5 years after separation from active duty. In addition, veterans with amputations were significant users of all VA healthcare services, not just prosthetic services. The most frequent diagnostic categories other than those related to war injuries were mental disorders (77%), diseases of the musculoskeletal system and connective tissue (75%), and diseases of the nervous system and sense organs (70%). Similar to what Reiber et al. (2010) observed, TBI was diagnosed in 35% of these veterans after discharge. There was evidence of good adjustment despite the challenge of major limb amputation, although veterans with upper extremity amputations consistently fared worse than veterans with lower extremity amputations in their psychosocial adaptation, activity limitation, and prosthetic satisfaction.

Other Deployment-Related Injuries and Illnesses

Service members and veterans also return from war with nonbattle-related injuries and illnesses that may have lasting effects. Reports show there have been many times more hospitalizations, medical evacuations, and casualties due to

nonbattle-related injuries and illnesses than to battle-related conditions during the Afghanistan and Iraq Wars (Belmont et al., 2010; Forbes et al., 2012; Hauret, Taylor, Clemmons, Block, & Jones, 2010; U.S. Department of Defense, Armed Forces Health Surveillance Center, 2011). A similar pattern was observed in the 1991 Persian Gulf War (Writer, DeFraites, & Keep, 2000). An in-depth analysis of U.S. Army soldiers medically evacuated from Afghanistan or Iraq identified the leading types of non-battle injuries as fractures, inflammation/pain, and dislocations to the back, knee(s), or wrists/hands, with sports and physical training, falls or jumps, and motor vehicles being the most frequent causes (Hauret et al., 2010). Other reports show the leading types of illnesses to be gastrointestinal and psychiatric disorders (Belmont et al., 2010; Forbes et al., 2012). Deployment-related environmental exposures present an additional concern. In one recent assessment, approximately 90% of Afghanistan and Iraq War veterans reported worrisome exposures to air pollution or poor air quality (e.g., sandstorms, burn pits), 81% to petrochemicals, 37% to contaminated food or water, and 21% to depleted uranium (Teichman, 2012). Although the long-term effects of these exposures are unknown, preliminary reports suggest they may be linked to increases in new-onset asthma and other pulmonary diseases (Morris, Zacher, & Jackson, 2011).

Postdeployment Injury

Research has consistently shown that veterans are at increased risk of fatal injury after combat deployments relative to veterans who were not deployed or to veterans deployed to noncombat zones (Knapik, Marin, Grier, & Jones, 2009). This increase in risk occurs primarily within the first 5 years after deployment (Kang & Bullman, 2001). The majority of fatal injuries are related to motor vehicle crashes, with a minority associated with homicides or suicides (Kang & Bullman, 2001). There is a paucity of research on risk factors for nonfatal injury postdeployment. Some work suggests that risk of injury postdeployment may be associated with mental health disorders, heavy drinking and other health risk behaviors, TBI and polytruama (Bell, Amoroso, Wegman, & Senier, 2001; Carlson et al., 2011; Carlson et al., 2012; Killgore et al., 2008).

Suicide in Military Personnel and Veterans

Historically, suicide rates have been lower in active duty military than in the general population (Hill, Johnson, & Barton, 2006). However, U.S. Army suicide rates nearly doubled from 2004 to 2008 (Bachynski et al., 2012) and in 2008 the suicide rate in the army exceeded the age-adjusted rate in the civilian

population (Kuehn, 2009; Levin, 2009). Based on an analysis of historical trends, Bachynski et al. concluded that 25–50% of the suicides in soldiers occurring in 2008 might have been related to the major commitment of troops to combat in Afghanistan and Iraq beginning in 2003. Similarly, in a study based on the entire active duty population in 2005 and 2007, Operation Enduring Freedom and Iraqi Freedom deployment was associated with increased risk of suicide for the army in 2005 and for all military services in 2007 (Hyman, Ireland, Frost, & Cottrell, 2012). To improve surveillance of suicides across all military branches, in 2008, the Department of Defense launched the Department of Defense Suicide Event Report program, which provides information on the demographics, behavioral health history, and circumstances at the time of suicide or suicide attempt (National Center for Telehealth and Technology, 2013). Data from the Department of Defense Suicide Event Report indicate that almost half of those who died by suicide in 2011 had a history of at least one known psychiatric diagnosis and a known failure in a spousal or intimate relationship. This is consistent with the civilian literature on risk factors for suicide (Boscarino, 2006; Harris & Barraclough, 1997). These data also showed that about half of active duty personnel who died by suicide in 2011 had served in the military operations in and around Afghanistan and Iraq.

Studies are inconsistent with regard to the risk of suicide among veterans relative to the general population (Blow et al., 2012; Kang & Bullman, 1996, 2008; McCarthy et al., 2009). A recent study of the population of VA healthcare users found that in each of the 8 years from 2000 to 2007, suicide was more common in veterans who used the VA for medical care compared with the general U.S. age- and gender-matched population (Blow et al., 2012). Furthermore, in contrast to what was observed in army personnel since 2003 (see Bachynski et al., 2012 cited above), suicide rates in veterans who used the VA *decreased* after 2003, the year the war in Iraq began, perhaps because of increased sensitivity to mental health concerns in VA. Importantly, the relatively higher rate of suicide among VA users compared with the general population may reflect the higher rate of health problems that lead to VA healthcare use rather than or in addition to veteran status. A recent study compared suicide rates from 2005 to 2008 among veterans in 16 states who used VA for healthcare to those who did not (Katz, McCarthy, Ignacio, & Kemp, 2012). Suicide rates were higher among male veterans 30 years old or older who used the VA for healthcare compared to the male veterans in the same age groups who did not. In addition, the rate of suicide increased from 2005 to 2008 among male veterans younger than 30 years old who did *not* use VA healthcare. In contrast, it did not increase during this time period among male veterans younger than 30 years old who used the VA. The authors hypothesized that this may reflect enhanced mental health services within the VA during this time period.

Readjustment Problems in Former War Fighters: Social and Functional Outcomes

Even in the absence of a diagnosed deployment-related physical or psychiatric disorder, former war fighters may have difficulty transitioning from their military to their civilian roles. In a national survey of randomly sampled Afghanistan and Iraq combat veterans who used VA healthcare services, Sayer et al. (2010) found that at least 25% were having some to extreme difficulty in major life domains after their deployments. Although these problems were more common in those with probable PTSD, high proportions of the entire sample faced challenges in multiple domains of functioning and community involvement regardless of their mental health status. Problems with postdeployment functioning or community reintegration may go undetected or untreated because they fall outside the scope of what is typically addressed in healthcare settings. Left untreated, these reintegration problems, like mental health problems and TBI sequelae, can have deleterious effects on the veteran, as well as his or her family and community.

Interpersonal Functioning

A vast body of literature identifies marital conflict, divorce, interpersonal violence, and parenting problems among combat veterans from different countries and from nearly all combat eras, including the most recent (Caselli & Motta, 1995; IOM, 2010; Jordan et al., 1992; Kulka et al., 1990; Sayer et al., 2010). For example, Sayer et al. (2010) reported that 29–42% of Afghanistan and Iraq War veterans experienced difficulty in social relations, such as confiding in others and getting along with spouses, children, and friends. Extended research on World War II and Vietnam veterans suggests that combat may have a lifetime deleterious effect on interpersonal functioning, primarily through its association with PTSD (Cook, Riggs, Thompson, Coyne, & Sheikh, 2004; Koenen, Stellman, Sommer, & Stellman, 2008).

Deployment not only affects the veteran, but also spouses and children. Research based on medical records has shown a higher prevalence of mental health diagnoses in spouses of active duty U.S. Army soldiers during deployments to Afghanistan and Iraq compared with spouses of nondeployed soldiers (Mansfield et al., 2010). Children of deployed parents, from preschool to adolescent age, exhibit greater levels of anxiety, depression, anger, and defiance than those of nondeployed parents (Chandra et al., 2010; Lester et al., 2010; Lincoln, Swift, & Shorteno-Fraser, 2008). Afghanistan and Iraq War veterans have reported that their partners and children seemed afraid of and detached from them (Sayers, Farrow, Ross, & Oslin, 2009). Long and multiple deployments appear to exacerbate these family functioning problems (Chandra et al., 2010; Lester et al., 2010; Mansfield et al., 2010). Surprisingly little research has compared interpersonal and family

functioning between active duty and National Guard or reserve component veterans. Research is needed to identify the potentially distinct needs of the latter given the U.S. military's increased reliance on National Guard and Reserve component troops in recent wars (IOM, 2010).

Considerable attention has been paid to the role of mental health disorders in postdeployment relationship problems. PTSD and depression symptoms have repeatedly been shown to be associated with poorer marital quality, parenting problems, and intimate partner violence among veterans (Jordon et al., 1992; Orcutt, King, & King, 2003; Palmer, 2008; Riggs, Byrne, Weathers, & Litz, 1998). However, other factors such as childhood relationship with one's mother and war stressors have also been associated with poorer interpersonal functioning, independent of PTSD and other mental health problems (Orcutt et al., 2003).

Legal Problems

A low proportion of the U.S. veteran population (3% in 2007) is involved in the criminal justice system at any one time (Blue-Howells, Clark, van den Berk-Clark, & McGuire 2013). The rate of incarceration among veterans is consistently lower than among nonveterans (Mumola, 2000), a trend that is due, in part, to the older average age of the veteran compared to the nonveteran population, and the tendency for younger age to be associated with incarceration. However, even when age-adjusted, the rate of incarceration among veterans remains about 10% lower than the rate for nonveterans (Noonan & Mumola, 2007). These figures are specific to males; data comparing female veterans and nonveterans are needed, especially given the changing demographic of the military population.

Despite lower annual rates of incarceration, many who serve or have served in the military have one or more lifetime encounters with the justice system. In a random sample of Gulf War I military personnel in one U.S. state, nearly one-fourth had been incarcerated at least once in their lifetimes (Black et al., 2005). Similarly, in a random sample of Afghanistan and Iraq War veterans in the United Kingdom, 17% had a lifetime record of criminal offense (MacManus et al., 2013). Even higher rates of incarceration have been shown in clinical samples. A U.S. study of all male VA mental health patients showed that nearly 40% of those between 18 and 39 years old were incarcerated during the study time frame (1994–1997; Rosenheck, Banks, Pandiani, & Hoff, 2000), and a recent national study of U.S. veterans in VA substance use disorder treatment programs found that more than one-half had a lifetime history of three or more arrests (Weaver, Trafton, Kimerling, Timko, & Moos, 2013).

Witnessing family violence, lack of stable living environments, combat exposures, mental health problems, and substance abuse have all been implicated in veterans' legal problems (Black et al., 2005; Elbogen et al., 2012; Erickson, Rosenheck, Trestman, Ford, & Desai, 2008; Greenberg & Rosenheck, 2009). In

a recent national survey of randomly sampled Afghanistan and Iraq War veterans, 9% reported having been arrested since returning home from deployment. After controlling for demographic and deployment characteristics, veterans' arrests were associated with alcohol and drug misuse and PTSD with high levels of anger and irritability (Elbogen et al., 2012). Similarly, in the U.K. study of Afghanistan and Iraq War veterans, those with high levels of self-reported aggressive behaviors, probable PTSD, or alcohol misuse were more than twice as likely to have a record of committing a violent offense after deployment (MacManus et al., 2013). Because of the treatment needs of incarcerated combat veterans, the VA now offers outreach services that help connect incarcerated veterans with health services and case management. Furthermore, there is a national movement toward developing specialized treatment-based court programs for veterans in the criminal justice system (Berenson, 2010; Blue-Howells et al., 2013; Holbrook & Anderson, 2011).

Employment Challenges

Returning to or acquiring civilian employment is a major reintegration milestone. Unfortunately, a sizeable proportion of veterans returning from the current wars experiences difficulty in this important area. Sayer et al. (2010) reported that 25–41% of Afghanistan and Iraq combat veterans who used VA healthcare experienced some-to-extreme productivity problems after deployment (e.g., problems keeping a job; completing the tasks needed for home, work, or school). National data from the Bureau of Labor Statistics have shown consistently higher annual unemployment rates among recent veterans than among civilians (U.S. Department of Labor, Bureau of Labor Statistics, 2012). The higher rate of unemployment is particularly pronounced among younger veterans. Specifically, in 2011, veteran unemployment in 18–24 year olds reached nearly 30% compared to 17% among civilians (U.S. Department of Labor, Bureau of Labor Statistics, 2012). Vietnam veterans also experienced employment-related difficulties, resulting in lower lifetime earnings than among demographically comparable nonveterans (Angrist, 1990).

Although the post-2008 economic crisis has undoubtedly played a role in high unemployment rates among recent veterans, mental and physical health issues are likely also contributory. In Vietnam veterans, poorer mental health (particularly PTSD) was associated with lower income, unemployment, and job loss (Schnurr, Lunney, & Sengupta, 2004; Vinokur, Caplan, & Williams, 1987). Similarly, VA-enrolled Afghanistan and Iraq combat veterans who screened positive for PTSD were five times more likely to report problems finding or keeping a job than those who screened negative (Sayer et al., 2010). The effects of veterans' TBI history on employment status have not been systematically studied, but unemployment was 45% in one clinical sample of recent veterans with mild TBI seeking VA care

(Cohen, Suri, Amick, & Yan, 2012). Longitudinal data from more than 4,000 U.S. National Guard members showed that unemployment and associated financial hardships likely exacerbated mental health symptoms (Riviere, Kendall-Robbins, McGurk, Castro, & Hoge, 2011), suggesting a negative feedback loop between unemployment and mental health.

Homelessness

Inextricably linked to other psychosocial problems (i.e., unemployment and incarceration), homelessness is arguably one of the most severe outcomes experienced by veterans. Although the "true" rate of homelessness among veterans in unknown and likely changes over time based on labor market and other contextual factors, it has been estimated that veterans comprise approximately 12% of the U.S. homeless population. This equates to a rate of homelessness in veterans that is twice that of the civilian population (U.S. Department of Housing and Urban Development, 2011). Current rates of homelessness among Afghanistan and Iraq War veterans are unknown, but it has been speculated that this population is experiencing the same, if not greater, levels of homelessness as veterans of previous war eras (IOM, 2010). Demographic factors like gender and race/ethnicity are strongly associated with homelessness among veterans. For example, women veterans are overrepresented in the homeless veteran population by a factor of at least 2 (Fargo et al., 2012; Gamache, Rosenheck, & Tessler, 2003), and Black, Hispanic, and American Indian/Alaskan Native veterans are overrepresented by 100–500% (Fargo et al., 2012). Military trauma exposures including combat intensity, length, and recurrence of deployments, and military sexual trauma are associated with propensity for homelessness (Kulka et al., 1990; Rosenheck & Fontana, 1994; Washington et al., 2010) as are mental health issues including illicit drug use, pathological gambling, substance use disorder, personality disorders, and schizophrenia or bipolar disorder (Edens, Kasprow, Tsai, & Rosenheck, 2011). Some evidence also suggests that PTSD increases risk for homelessness in combat veterans (Kulka et al., 1990; O'Connell, Kasprow, & Rosenheck, 2008; Blackstock, Haskell, Brandt, & Desai, 2012). Preventing and ending homelessness among veterans is a major priority for the VA.

Risk and Protective Factors for PTSD and Evidence of Resilience

In this section, we review research on factors that either put service members and veterans at higher risk for PTSD or that serve as protective factors. We focus on PTSD because of its prevalence, and its association with combat trauma, other mental health disorders, and functional outcomes. Although veterans have higher rates of PTSD than the general population (Kessler et al., 2005), most veterans do not develop diagnosable PTSD. Prospective studies that examine change in PTSD

symptoms from pre- to postdeployment indicate that the vast majority of veterans are resilient, with low levels of PTSD symptoms both prior to and following deployment (Bonanno et al., 2012; Polusny et al., 2011). Beyond resilience, similar to other traumatic events (e.g., Frazier, Conlon, & Glaser, 2001), in one study the majority of Afghanistan and Iraq War veterans reported positive changes in their lives as a result of their military experiences, such as greater appreciation of life (Pietrzak et al., 2010).

Nonetheless, it is important to identify service members at risk for developing PTSD and associated comorbidities so that interventions can be targeted accordingly. Indeed, this is a central question in trauma research more generally. Meta-analyses of the broader literature on trauma indicate that select pretrauma (e.g., female gender), trauma-related (e.g., trauma severity), and posttrauma factors (e.g., lack of social support) are associated with higher risk for PTSD (Brewin, Andrews, & Valentine, 2000; Ozer, Best, Lipsey, & Weiss, 2003). Although these studies provide clues to factors that might also put veterans at risk, both meta-analyses indicated that many of the risk factors for PTSD differed as a function of sample and study characteristics. As a result of these complex findings, Brewin et al. concluded that it couldn't be assumed that risk factors are the same across different samples (e.g., civilian vs. military).

To structure this portion of our review, we distinguish among predeployment, deployment-related, and postdeployment risk and protective factors. Within the first two categories, we specifically highlight research related to some of the unique characteristics of the current wars in and around Afghanistan and Iraq mentioned above that may put the current group of service members and veterans at more (or less) risk (e.g., multiple deployments). We also highlight factors that are modifiable (e.g., dwell time, social support) and therefore could be targeted through policies and interventions. As was the case with our review of the prevalence of various mental health problems in Afghanistan and Iraq War veterans, we particularly focused on the results of the best-designed studies, and included results of studies from outside the United States as relevant. Because research on risk and protective factors for service members and veterans formerly deployed to Afghanistan and Iraq is still developing, we also point out areas in which the research findings are conflicting.

Predeployment Factors

One particularly important predeployment risk factor is gender, given the much larger role that women are playing in the current conflicts and the potential relation between gender and PTSD. In a meta-analysis of 52 studies, women were twice as likely to be diagnosed with PTSD as were men (Tolin & Foa, 2006). However, analyses that examined only the 11 studies of combat veterans did not show a gender difference in PTSD rates or severity. Whether gender

was a significant predictor of PTSD also depended on various methodological characteristics of the studies (e.g., whether the study used self-report or interview measures).

In studies of Afghanistan and Iraq War veterans, findings regarding gender differences in PTSD also have been mixed (IOM, 2010). Some studies show that female veterans are at higher risk for PTSD (e.g., Riddle et al., 2007; Smith et al., 2008) whereas others show men to be at higher risk (e.g., Haskell et al., 2010). In contrast, a recent study of a nationally representative sample of veterans in the United States found no gender differences in mental health or PTSD symptoms (Eisen et al., 2012; Vogt et al., 2011). However, it is important for studies of gender differences in PTSD to take into account differences in levels and types of military trauma exposure. In the Vogt et al. study, although men reported slightly more exposure to combat, the aftermath of battle (e.g., observing human remains), and difficult living and working conditions, the relationship between exposure and mental health problems did not differ for men and women. In other words, combat did not have worse effects on women than men. A study of a representative sample of U.K. armed forces came to a similar conclusion (Woodhead, Wessel, Jones, Fear, & Hatch, 2012). However, women reported more exposure to military sexual assault and harassment in the Vogt et al. study and these experiences tended to be more strongly related to symptoms for women than for men. Given the increased role of women in these wars, more research is needed on gender-specific risk and protective factors and treatment needs (IOM, 2010).

Prior trauma exposure has been consistently related to greater risk of PTSD in the trauma literature (Brewin et al., 2000; Ozer et al., 2003). Not surprisingly, prior trauma exposure also appears to increase risk for PTSD among veterans of the wars in Afghanistan and Iraq. For example, in a prospective study of National Guard soldiers, those with more life stressors (e.g., sexual abuse) prior to deployment were more than twice as likely to develop new-onset probable PTSD (Polusny et al., 2011). In a nationally representative sample of Afghanistan and Iraq War veterans in the United States (Vogt et al., 2011), prior trauma was also related to greater PTSD risk, and these relations were larger than in previous research with Vietnam veterans. The authors speculated that this may be due to differences between all-volunteer military forces and draftees. Both these studies also examined positive childhood family functioning as a protective factor against PTSD among Afghanistan and Iraq War veterans. However, the risk associated with prior traumas was much larger than the protective effect of having a positive childhood family environment (Polusny et al., 2011; Vogt et al., 2011).

Deployment-Related Factors

There are several factors related to the deployment itself that also increase risk. In the broader trauma literature, trauma severity and perceived life threat

are both related to greater risk of PTSD (Brewin et al., 2000; Ozer et al., 2003). Similarly, veterans differ in the extent of combat exposure, and those with more exposure are at greater risk of PTSD and other mental health problems (e.g., Hoge et al., 2004; Mitchell, Gallaway, Millikan, & Bell, 2012; Polusny et al., 2011; Vogt et al., 2011). Not surprisingly, rates of mental health disorders, particularly PTSD, also are considerably higher among battle-injured service members compared with those who did not sustain physical injury (Forbes et al., 2012; Grieger et al., 2006; Hoge et al., 2004; Hoge, Terhakopian, Costro, Messer, & Engel, 2007; Vanderploeg et al., 2012).

As mentioned above, one of the unique aspects of the current wars is their greater reliance on Reserve and National Guard troops. Some studies suggest that Reserve and National Guard troops in the United States and United Kingdom are at greater risk for distress than are active duty troops (e.g., Browne et al., 2007; Milliken et al., 2007; Vasterling et al., 2010; see Eisen et al., 2012; Maguen, Ren, Bosch, Marmar, & Seal, 2010 for conflicting results). This may be partly because they report lower levels of unit cohesion (a known protective factor) or face greater reintegration challenges and difficulties in homecoming (Browne et al., 2007). In a large study in the United Kingdom, reservists were more likely to report feeling that people did not understand what they had been through, and to have difficulties resuming normal social activities (Harvey et al., 2011).

Another risk factor particular to Afghanistan and Iraq War veterans is repeat deployments. Overall, about 40% of current U.S. military service members have been deployed more than once (IOM, 2010). Given the relation between prior trauma exposure and PTSD, we might expect that having multiple deployments would be a risk factor for PTSD, and some studies support that conclusion. For example, in the latest Joint Mental Health Advisory Team (J-MHAT 7, 2011) report, there was a dose-response relationship between number of deployments and psychological problems among currently deployed army soldiers, suggesting that more deployments may lead to more mental health problems. However, because soldiers with mental health problems are less likely to redeploy, multiple deployers may be a more resilient group with *fewer* mental health problems. For example, in the longitudinal Millenium Cohort Study, self-reported PTSD symptoms showed *greater* improvement over time in multiple deployers than in single deployers (Bonanno et al., 2012). Thus, evidence regarding the relation between number of deployments and psychological risk is mixed and results may depend on the symptoms assessed and how multiple deployment is defined.

Length of deployment is another relevant factor. In a U.K. study, number of deployments generally was unrelated to PTSD and other mental health symptoms but longer deployments were associated with more symptoms as were longer-than-expected deployments (Rona et al., 2007). In the Mental Health Advisory Team (MHAT) V (2008) report, longer deployments were associated with several behavioral health problems (e.g., mental health problems, work problems due to

stress, substance abuse) but the relations were often complex (e.g., curvilinear), and were sometimes (but not always) explained by the fact that longer deployments involve greater combat exposure. Even with the curvilinear relationship, mental health problems were still more frequent at 15 months into deployment than at 1 month into deployment.

Dwell time—the amount of recovery time between deployments—is yet another deployment-related factor with mental health implications. Longer dwell times have been associated with reporting fewer mental health problems, less intention to leave the military, and higher morale, depending on the particular sample assessed (MHAT VI, 2009; MacGregor, Han, Dougherty, & Galarneau, 2012). The ideal length of dwell time has not been determined but some data suggest that 24–36 months are needed (MHAT VI, 2009). Longer dwell time relative to the length of the first deployment was associated with lower risk of new onset PTSD and other mental health problems in U.S. Marines that had deployed once or twice to Iraq (MacGregor et al., 2012). On average dwell time was 1.7 times longer than deployment time.

Unit cohesion is a potentially modifiable deployment-related factor with mental health benefits. Unit cohesion has been defined as a tendency for a group to stick together and remain united in its goals and objectives. A meta-analysis of research on unit cohesion in 39 military studies prior to the Afghanistan and Iraq Wars found a positive relation between cohesion and various indicators of well-being (Oliver, Harman, Hoover, Hayes, & Pandhi, 1999). Greater unit cohesion is also related to more positive outcomes in service members who deployed to Afghanistan and Iraq. For example, service members who perceived their units as more cohesive also reported fewer symptoms of PTSD, depression, suicidal ideation, anger, and self-reported physical health problems (e.g., Armistead-Jehle, Johnston, Wade, & Ecklund, 2011; Mitchell et al., 2012; see Polusny et al., 2011, and Whitesell & Owen, 2012, for conflicting results) as well as less stigma about and barriers to help-seeking (Wright et al., 2009). Stronger unit cohesion can also attenuate the effects of both combat exposure (Armistead-Jehle et al., 2011; Mitchell et al., 2012) and predeployment trauma (Brailey, Vasterling, Proctor, Constans, & Friedman, 2007; Skopp, Luxton, Bush, & Sirotin, 2011) on mental health outcomes.

In sum, although it can be difficult to control the extent of combat exposure or even perceived threat, the other deployment-related risk and protective factors here reviewed, such as dwell time and unit cohesion, are potentially modifiable.

Postdeployment Factors

Years of research on veterans from prior conflicts has taught us that the war is not necessarily over once service members complete their tour(s) of duty. The experiences veterans face as they reintegrate back into their civilian lives also

significantly affect their postdeployment outcomes. In fact, in the general trauma literature, posttrauma factors tend to be more strongly related to PTSD risk than the severity of the trauma itself (Brewin et al., 2000; Ozer et al., 2003). In the Brewin et al. meta-analysis the factors most associated with PTSD risk were poor social support and subsequent life stressors.

Recent studies confirm that both social support and postdeployment stressors are associated with postdeployment mental health in Afghanistan and Iraq War veterans. Postdeployment stressors include stressful events unrelated to deployment (e.g., being robbed, death of a family member) and events that may be related to challenges associated with reintegration (e.g., financial problems, divorce). In a prospective study of National Guard members, those with more stressful life events after deployment were twice as likely to develop probable PTSD, whereas those with more social support had reduced odds (Polusny et al., 2011). In a model that included 11 predeployment, deployment, and postdeployment factors, the only variables that predicted PTSD risk were combat exposure and postdeployment social support and stressors. Similarly, in a nationally representative sample, service members who reported less social support and more postdeployment life stressors had more PTSD symptoms (Vogt et al., 2011). The relation between social support and PTSD symptoms was particularly strong for women. Postdeployment stressors were associated with increases in PTSD symptoms from pre- to postdeployment in another study, especially for National Guard soldiers (Vasterling et al., 2010).

These studies assessed social support in terms of the availability of emotional and instrumental support from family and friends. However, lack of support is somewhat different from "support" that is perceived as unhelpful or unsupportive (referred to as negative social support). This is an important distinction because unsupportive social interactions are more strongly related to distress than are positive social interactions (Frazier et al., 2011). Common unsupportive behaviors include minimizing an event or blaming someone for their role in an event. Similarly, marital conflict is associated with higher levels of PTSD symptoms, although it is not clear whether marital conflict increases symptoms or whether symptoms increase marital conflict (Monson, Taft, & Friedman, 2009). Future studies, therefore, should assess not only the absence of social support (lack of supportive relationships) but also the receipt of negative social support (presence of unhelpful and conflictual relationships).

Resilience Training

To increase resilience in soldiers, the U.S. Army implemented the Comprehensive Soldier Fitness program which is the first large-scale psychologically based approach to improving the psychological—as opposed to physical—fitness of the military (Cornum, Matthews, & Seligman, 2011). The goal of the

Comprehensive Soldier Fitness program is to prevent psychological problems from occurring rather than treating PTSD and other indicators of combat-related distress after they have occurred. It consists of four primary components: assessment of psychological fitness, universal resilience training, individual training, and master resilience training (Cornum et al., 2011).

We will briefly describe the Master Resilience Training program because it is the only component that has been evaluated to date (Lester, Harms, Herian, Krosikova, & Beal, 2011; see Lester, McBride, Bliese, & Adler, 2011, for information on further evaluation efforts). The Master Resilience Training program uses a train-the-trainer approach in which noncommissioned officers attend a 10-day training to learn resilience skills (e.g., self-awareness, self-regulation) and how to teach them to the soldiers in their units. The Master Resilience Training program is based on the Penn Resiliency Program that has been shown to be effective in preventing depression and anxiety, primarily in children and adolescents (Reivich, Seligman, & McBride, 2011). It uses techniques and principles from positive psychology and cognitive-behavioral therapies.

The evaluation of the Master Resilience Training program compared soldiers in units with and without an officer who had gone through the training (Lester et al., 2011). The two groups were compared on the Global Assessment Tool, which assesses social (e.g., friendship), emotional (e.g., optimism), spiritual (e.g., meaning), and family (e.g., support) resilience. Comparisons between the units with ($n = 6{,}739$) and without ($n = 3{,}218$) trainers revealed significant differences only in two of the four outcomes (emotional and social fitness). In addition, most effect sizes were quite small (ds $< .10$). The authors argued that even very small effects could have a significant impact at the population level. A footnote in the report noted that another component of the Comprehensive Soldier Fitness program—the Comprehensive Resilience Modules—had no effect on resilience and is thus being revised.

The Comprehensive Soldier Fitness program has not been without controversy. After publication of a special issue of the *American Psychologist* on the program, several commentaries were published that criticized the program on both moral and scientific grounds. Moral objections included using positive psychology to help soldiers be more resilient to the horrors of war and killing—and even to "derive meaning and personal growth from their combat experience" (Cornum et al., 2011, p. 6)—rather than using positive psychology to promote peace (Phipps, 2011). Scientific concerns included launching the program without any pilot testing of its effectiveness in a military environment, especially since the program on which it was based (the Penn Resiliency Program) was developed for very different populations (Eidelson, Pilisuk, & Soldz, 2011). The army is to be applauded for comprehensively evaluating the program and for using evaluation data to identify program elements for revision (i.e., individual Comprehensive Resilience Modules). However, the short-term effects of the Master Resilience

Training aspect of the program are modest and the long-term effects are unknown. Furthermore, the Comprehensive Resilience Modules had no effect on resilience, a key outcome. In our opinion, it will be important to continue evaluating this novel program not only in terms of potential benefits but also costs and potential harms, as well as establishing objective criteria for its continuation, modification, and discontinuation.

VA Programs to Address Postdeployment Health and Reintegration Problems

Beginning in 2001, the VA provided all Afghanistan and Iraq War veterans 2 years of free healthcare for problems potentially related to military service, beginning from service separation. This benefit was extended to 5 years of free healthcare in the National Defense Authorization Act of 2008. After this period of free care, veterans are eligible to continue to use VA either for no charge or for a co-pay scaled to income. Numerous programs exist or have been developed to meet the readjustment needs of war veterans and their families. In this section, we present an overview of VA services for PTSD, TBI, and polytrauma and the VA's Disability Program, with particular attention to disability benefits for PTSD.

PTSD Treatment

As mentioned above, PTSD is the most prevalent combat-related psychiatric disorder among veterans. In 1996, the VA established specialized treatment programs for PTSD and now operates 168 such programs. In 2006, VA began national rollouts of two evidence-based psychotherapies for PTSD, Cognitive Processing Therapy and Prolonged Exposure, both of which are recommended at the highest level in the Clinical Practice Guidelines for PTSD (U.S. Department of Veterans Affairs/Department of Defense, 2010). Since that time, the VA issued a policy requiring all veterans with PTSD to have access to Cognitive Processing Therapy and Prolonged Exposure (U.S. Department of Veterans Affairs, 2008) and more than 4,600 VA clinicians have been trained to provide these treatments. However, evaluation data from the rollouts indicate that the majority of trained clinicians use these therapies with only a small proportion of their eligible patients. Therefore, Cognitive Processing Therapy and Prolonged Exposure are reaching only a small portion of the VA users with a primary PTSD diagnosis. Research is underway to identify methods to improve access to these treatments; however, this is an area warranting continued attention. In addition, those with PTSD who do not receive VA care may have even more limited access to evidence-based PTSD treatments.

TBI/Polytrauma and Amputation Systems of Care

Recognizing the need for new systems of care to meet the needs of Afghanistan and Iraq War veterans with TBI and polytrauma, in 2005 the VA put in place a comprehensive system of rehabilitation services for TBI/polytrauma which includes specialized inpatient and outpatient rehabilitation teams across the country (U.S. Department of Veterans Affairs, Office of Patient Care Services, 2005). In addition, to ensure that veterans returning from these wars with combat-related TBI receive appropriate healthcare for persistent TBI-related symptoms, in 2007 the VA instituted nationwide TBI screening for all Afghanistan and Iraq War veterans who use VA healthcare (U.S. Department of Veterans Affairs, 2010b). Currently VA is screening more than 95% of Afghanistan and Iraq War veterans seeking VA care. Of those who screened positive and received the follow-up TBI evaluation, 55% were diagnosed with TBI (Scholten, Sayer, Vanderploeg, Bidelspach, & Cifu, 2012). Although the goal of identifying and treating symptomatic TBI is laudable, some researchers have expressed concern that national screening for TBI may have unintended negative consequences, including overdiagnosis and symptom misattribution (Hoge, Goldberg, & Castro, 2009; Vanderploeg & Belanger, 2013; cf. Bahraini & Brenner, 2013). Finally, in 2009, the VA implemented the Amputation System of Care, which is a separate tiered-system with ties to the Polytrauma System of Care that provides specialty amputee-related services for veterans with limb loss.

VA Disability Program

The VA provides disability benefits to U.S. veterans who develop medical conditions related to their military service, or in VA parlance are "service connected." The VA rates service-connected disabilities on a scale from 0 (nondisabling service-related condition) to 100% (total disability), with increments in units of 10. Depending on the level of rated disability, benefits may include cash payments (disability compensation), access to VA medical care and pharmacy services with no or reduced cost, rehabilitative and employment services, life insurance, survivor benefits, and educational and health insurance benefits for family members. Unlike U.S. worker's compensation benefits, VA benefits are not limited in either the length of time or the total amount paid. Unlike U.S. Social Security disability insurance, VA disability benefits are not automatically discontinued if the recipient returns to work, or reduced to offset other income.

Although there is general acknowledgment that disability compensation can greatly improve the lives of people with chronic mental illnesses who are unable to support themselves, there are ongoing concerns that the provision of disability payments provides a disincentive for improvement, and an incentive to exaggerate symptomatology and even malinger (e.g., Frueh, Hamner, Cahill, Gold, &

Hamlin, 2000; McNally & Frueh, 2012). This concern has been focused most pointedly on disability compensation for military-related PTSD, perhaps because the determination of PTSD depends on veterans' self-report of symptoms as opposed to an objective indicator of disease and because PTSD represents the most prevalent psychiatric disorder for which veterans seek disability benefits through the VA and the third most commonly compensated disorder (U.S. Department of Veterans Affairs, 2012b). Furthermore, although veterans with PTSD represented 9% of disability beneficiaries, they received 21% of compensation payments (U.S. Department of Veterans Affairs, Office of the Inspector General, 2005).

Despite concern about the potential adverse effect of disability payments for PTSD on disease course, the weight of the evidence does not indicate that disability payments interfere with recovery or response to treatment among veterans (Marx et al., 2012). For example, compensation status for PTSD did not affect response to evidence-based PTSD treatments (Monson et al., 2006; Schnurr et al., 2007). In a large representative cohort of veterans who applied for PTSD benefits over a 10 year period, those who had obtained PTSD disability status had greater symptom reduction and reduced rates of poverty and homelessness compared to those who did not receive PTSD disability status (Murdoch et al., 2011).

Research on compensation seeking and PTSD symptom reporting has focused primarily on financial incentives. However, money may not be the only or most important factor that motivates trauma survivors to seek compensation. For example, some work suggests that VA PTSD claimants, personal injury litigants, and sexual violence survivors may use claims processes for acknowledgment of their suffering and relief from self-blame (Des Rosiers, Fedlthusen, & Hankivsky, 1998; Mayou, 1995; Sayer, Spoont, & Nelson, 2004). Sayer et al. found that veterans valued compensation for PTSD for symbolic reasons more frequently than for financial benefit, although there was an inverse relationship between income and the perceived importance of financial benefit. These few studies suggest that compensation for trauma-related problems may have an underappreciated symbolic value. Also unexamined are the possible social and system factors influencing compensation seeking. That is, PTSD sufferers may seek compensation at the behest of significant others and medical professionals, as has been found among individuals with psychiatric disorders seeking social security disability benefits (Estroff, Patrick, Zimmer, & Lachicotte, 1997). We anticipate that in the years to come, this same set of controversies regarding disability compensation and PTSD will arise regarding disability compensation for mild TBI, another prevalent condition for which the diagnosis is often based on self-report. The effect of disability compensation on disease course for combat-related problems and veteran well-being is an important area for future study.

Summary and Policy Implications

This review demonstrates that, although the majority of combat Veterans reintegrate into civilian life without long-lasting problems (e.g., Bonanno et al., 2012; Hotopf et al., 2006), a sizeable minority return from deployment with psychiatric or physical injuries that warrant specialized medical attention (e.g., Milliken et al., 2007; Seal et al., 2009; Taylor et al., 2012). Even in the absence of or in addition to diagnosable disorders, many former combatants experience functional problems that impede their full reintegration into civilian life, including as described above, relationship and employment difficulties (e.g., Sayer et al., 2010; U.S. Department of Labor, Bureau of Labor Statistics, 2012). Less common but highly concerning indicators of readjustment difficulty include homelessness, postdeployment injury, and, tragically, suicide (e.g., Bachynski et al., 2012; Kang & Bullman, 2001; IOM, 2010). Functional problems and suicide are more common in, but not exclusive to, those with psychiatric disorders, further underscoring the importance of timely mental health treatment (Sayer et al., 2010). Demographics and predeployment history, level of combat exposure, and postdeployment social support are some of the factors associated with rates of PTSD and other reintegration outcomes (e.g., IOM, 2010; MacGregor et al., 2012; Vogt et al., 2011).

Accurate information on the types and prevalence of psychiatric and other readjustment problems is needed to ensure adequate resourcing of services for these veterans. To address the influx of new veterans with mental health needs, in August 2012, President Obama issued an Executive Order aimed at improving access to mental health services for service members, veterans, and military families. The Executive Order focused on increasing capacity within VA by hiring 1,600 mental health professionals and 800 peer counselors, and establishing a small number of pilot projects with community-based providers. A challenge to determining optimal staffing levels, however, is that the prevalence of mental health diagnoses appears to increase over time (Seal et al., 2009; Sundin et al., 2010). At the same time, the presence of a diagnosis does not necessarily indicate level of impairment and health care need. Additional research on the course of postdeployment mental health problems and, importantly, their impact on social and functional outcomes is needed to inform policy to ensure adequate resourcing within VA.

This review also shows that veterans with diagnosable disorders often experience a heavy burden of comorbidity. In fact, comorbidity is the norm rather than the exception when a veteran experiences combat-related disorders such as PTSD and TBI (e.g., Cifu et al., in press; Taylor et al., 2012; Vanderploeg et al., 2012). This clinical complexity presents challenges to healthcare systems and providers who may be uncertain about which condition to address first and how best to coordinate care when multiple specialists are involved in treating the same

patient (Sayer et al., 2009). Comorbidity may also affect patients' responses to standard treatments, which generally are developed for a single condition (Westen, Novotny, & Thompson-Brenner, 2004). Healthcare systems, provider education, and treatment guidelines that address postdeployment health concerns, therefore, need to take into account cooccurring conditions. Furthermore, to provide findings that can inform healthcare policy for returning veterans, researchers need to study interventions and healthcare system factors that address comorbid conditions in combat veterans.

The Department of Defense and VA have implemented numerous programs to understand and meet the needs of service members and veterans returning from combat and more recently, their family caregivers. Examples include systematic outreach to returning service members, national hotlines for veterans and family members, national screening programs, the rollout of evidence-based PTSD treatment, the development and implementation of the TBI/polytrauma system of care, and benefits and services for family caregivers. The Department of Defense and VA are also developing and rolling out telehealth and technologies to improve access to and engagement in healthcare services. The fact that a larger proportion of veterans from Afghanistan and Iraq Wars than from prior wars have enrolled in the VA is a testimony to the success of national outreach efforts.

Nevertheless, despite new initiatives and program enhancements, not all service members and veterans with deployment-related problems receive the help they need to successfully transition to civilian life (Burnam et al., 2008; Hoge et al., 2004; IOM, 2010; Milliken et al., 2007; Seal et al., 2010). Service members and veterans may fail to report problems during a screening or medical appointment because they worry about receiving potentially career-limiting or stigmatizing diagnoses or do not see themselves as having a problem. Additionally, as mentioned above, some problems may not be manifest or interfere with functioning until an indeterminate time after deployment (Seal et al., 2009; Sundin et al., 2010). Other problems, such as relationship and employment difficulties, may be beyond the scope of what is routinely assessed in busy healthcare clinics. Therefore, despite considerable progress, it is crucial for the Department of Defense and VA to continue to expand efforts to engage service members and veterans with reintegration difficulties in needed care. How best to improve access and, once a problem is identified, improve treatment engagement, is an important topic for both policy makers and researchers. Such interventions should target not only veterans themselves, but also their social networks which can play a crucial role in promoting veteran help-seeking, even for stigmatized conditions such as PTSD (Sayer et al., 2009).

This review also highlights the absence of research on veterans who do not use the VA for healthcare. The possible unmet needs of these veterans are of concern because it is likely that private-sector healthcare systems and providers

are variably prepared to identify and address veterans' unique deployment-related needs. This review, therefore, points to the need for continued attention to the development of policy and programs to ensure that veterans who do not use the VA also receive help for their postdeployment health problems. There are already examples of successful federal-private partnerships to increase coverage of postdeployment reintegration problems that could serve as examples (Kudler, 2012). At minimum, we recommend policies that encourage providers in the private sector to screen patients for veteran status and provide them with information about how to enroll in and access VA healthcare services. This would require at least basic familiarity with the VA and common deployment-related health problems. In certain circumstances, however, it may be preferable for VA to provide tools and education to private sector providers so that they can better meet the needs of their veteran patients without referring them to the VA. In sum, this review underscores the need for research on combat veterans who do not use the VA and for policies that build on examples of successful federal-private partnerships so that veterans who receive some or all of their healthcare outside of the VA can obtain timely help for their deployment-related conditions.

Based on our review, we believe that a comprehensive and integrated public health approach that goes beyond reliance on providers who work within federal healthcare systems and specific federal-private partnerships is needed to improve veteran reintegration on a large scale. Specifically, the gaps identified through this review support the development of a systematic approach to educating providers and nonprofessionals about veterans, and how to support their reintegration and encourage their help-seeking if they experience distress or have difficulty readjusting to civilian life. Such an education effort should directly address public misperceptions or negative attitudes that interfere with veterans' help-seeking and transition from military to civilian roles.

In sum, the Department of Defense and VA have made great strides in identifying and meeting the needs of those returning from war. However, there is the need to reach more veterans and to further facilitate help-seeking and reintegration by engaging more sectors of the public. In addition, veterans with severe injuries may have informal caregivers who also have informational, support, and health service needs. A public awareness campaign may make it easier for people who come in contact with veterans or their family members to know how to demonstrate support and, when needed, help service members, veterans, and their informal caregivers access the wealth of resources that have been developed for them. With such a small proportion of the U.S. population serving in the most recent wars, most of the U.S. population may not know much about veterans other than what they see in the media. Future policy to improve reintegration outcomes should broaden its scope to include not only those in veterans' social networks and providers who work outside of the Department of Defense and VA, but also the

public, thereby expanding the resources and support available to veterans and their families to include their communities. That is, helping veterans with reintegration should not be only the responsibility of the government, veterans themselves, and their families, but of all sectors of society.

Conclusions

Considerable resources have been allocated to studying, diagnosing, treating, and compensating combat-related disorders. Taken together, this important work has resulted in significant improvements in healthcare for former war fighters. In recent years, the army has also focused resources on soldier resilience training, although the impact of that program has yet to be fully determined. Despite these efforts and much progress, many service members and veterans with reintegration problems may not receive the help they need. Based on our review, we argue that in addition to treatment and compensation of diagnosable postdeployment problems, a comprehensive approach to reintegration is needed that involves not only service members, veterans, and federal healthcare systems, but also private sector providers and the public more generally. Veteran reintegration difficulties following combat should be seen as a societal—and not just a veteran's—problem.

References

Angrist, J. D. (1990). Lifetime earnings and the Vietnam era draft lottery: Evidence from Social Security Administrative records. *American Economic Review*, *80*(3), 313–336.

American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders*. (3rd ed.). Washington, DC: American Psychiatric Association.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders*. (5th ed.). Washington, DC: American Psychiatric Association.

Armistead-Jehle, P., Johnston, S. L., Wade, N. G., & Ecklund, C .J. (2011). Posttraumatic stress in U.S. Marines: The role of unit cohesion and combat exposure. *Journal of Counseling and Development*, *89*, 81–88.

Bachynski, K. E., Canham-Chervak, M., Black, S. A., Dada, E. O., Millikan, A. M., & Jones, B. H. (2012). Mental health risk factors for suicides in the US Army, 2007–8. *Injury Prevention*, *18*, 405–412.

Bahraini, N., & Brenner, L. A. (2013.) Screening for TBI and persistent symptoms provides opportunities for prevention and intervention. *Journal of Head Trauma and Rehabilitation*, *28*, 223–226.

Bell, N. S., Amoroso, P. J., Wegman, D. H., & Senier, L. (2001). Proposed explanations for excess injury among veterans of the Persian Gulf War and a call for greater attention from policymakers and researchers. *Injury Prevention*, *7*, 4–9.

Belmont, P. J., Jr., Goodman, G. P., Waterman, B., DeZee, K., Burks, R., & Owens, B. D. (2010). Disease and nonbattle injuries sustained by a U.S. Army brigade combat team during Operation Iraqi Freedom. *Military Medicine*. *175*(7): 469–476.

Berenson, S. (2010). The movement toward veterans courts. *Clearinghouse Review: Journal of Poverty Law and Policy*. *44*, 37–577.

Black, D. W., Carney, C. P., Peloso, P. M., Woolson, R. F., Letuchy, E., & Doebbeling, B. N. (2005). Incarceration and veterans of the first Gulf War. *Military Medicine*, *170*, 612–618.

Blackstock, O. J., Haskell, S. G., Brandt, C. A., & Desai, R. A. (2012). Gender and the use of Veterans Health Administration homeless services programs among Iraq/Afghanistan veterans. *Medical Care*, *50*, 347.

Blow, F. C., Bohnert, A. S., Ilgen, M. A., Ignacio, R., McCarthy, J. F., Valenstein, M. M., & Knox, K. L. (2012). Suicide mortality among patients treated by the Veterans Health Administration from 2000 to 2007. *American Journal of Public Health*, *102*(Suppl 1), S98–104.

Blue-Howells, J. H., Clark, S. C., van den Berk-Clark, C., & McGuire, J. F. (2013). The U.S. Department of Veterans Affairs Veterans Justice Programs and the sequential intercept model: Case examples in national dissemination of intervention for justice-involved veterans. *Psychological Services*, *10*, 48–53.

Bonanno, G. A., Mancini, A. D., Horton, J. L., Powell, T. M., Leardmann, C. A., Boyko, E. J., . . . Smith, T. C. (2012). Trajectories of trauma symptoms and resilience in deployed U.S. military service members: Prospective cohort study. *British Journal of Psychiatry*, *200*, 317–323.

Boscarino, J. A. (2006). External-cause mortality after psychologic trauma: The effects of stress exposure and predisposition. *Comprehensive Psychiatry*, *47*, 503–514.

Brailey, K., Vasterling, J. J., Proctor, S. P., Constans, J. I., & Friedman, M. J. (2007). PTSD symptoms, life events, and unit cohesion in U.S. soldiers: Baseline findings from the neurocognition deployment health study. *Journal of Traumatic Stress*, *20*, 495–503.

Brenner, L. A., Ivins, B. J., Schwab, K., Warden, D., Nelson, L. A., Jaffee, M., & Terrio, H. (2010). Traumatic brain injury, posttraumatic stress disorder, and postconcussive symptom reporting among troops returning from Iraq. *Journal of Head Trauma Rehabilitation*, *25*, 307–312.

Brewin, C. R., Andrews, B., & Valentine, J. D. (2000). Meta-analysis of risk factors of posttraumatic stress disorder in trauma-exposed adults. *Journal of Consulting and Clinical Psychology*, *68*, 748–766.

Browne, T., Hull, L., Horn, O., Jones, M., Murphy, D., Fear, N. T., . . . Hotopf, M. (2007). Explanations for the increase in mental health problems in UK reserve forces who have served in Iraq. *The British Journal of Psychiatry*, *190*, 484–489.

Burnan, M. A., Meredith, L. S., Helmus, T. C., Burns, R. M., Cox, R. A., D'Amico, E., . . . Yochelson, M. R. (2008). Systems of care: Challenges and opportunities to improve access to high-quality care. In T. Tanielian & L. Jayox (Eds.), *Invisible wounds of war: Psychological and cognitive injuries, their consequences and services to assist recovery* (pp. 245–404). Santa Monica, CA: RAND Corp.

Carlson, K. F., Gravely, A. A., Noorbaloochi, S., Simon, A. B., Bangerter, A. K., & Sayer, N. A. (2011). Post-deployment injury among new combat veterans enrolled in Veterans Affairs (VA) healthcare. *Injury Prevention*, *17*, 343–347.

Carlson, K. F., Meis, L. A., Jensen, A. C., Simon, A. B., Gravely, A. A., Taylor, B. C., . . . Griffin, J. M. (2012). Caregiver reports of subsequent injuries among veterans with traumatic brain injury after discharge from inpatient polytrauma rehabilitation programs. *Journal of Head Trauma Rehabilitation*, *27*, 14–25.

Caselli, L. T., & Motta, R. W. (1995). The effect of PTSD and combat level on Vietnam veterans' perceptions of child behavior and marital adjustment. *Journal of Clinical Psychology*, *51*, 4–12.

Centers for Disease Control and Prevention. (2006) Explosions and blast injuries: A primer for clinicians. Atlanta, GA. Downloaded November 4, 2013, from http://emergency.cdc.gov/masscasualties/explosions.asp.

Chandra, A., Lara-Cinisomo, S., Jaycox, L. H., Tanielian, T., Burns, R. M., Ruder, T., & Han, B. (2010). Children on the homefront: The experience of children from military families. *Pediatrics*, *125*, 16–25.

Cifu, D. X., Taylor, B. C., Carne, W. F., Bidelspach, D. E., Sayer, N. A., Scholten, J., & Hagel, E. (In press). TBI, PTSD and pain diagnoses in Iraq and Afghanistan conflict veterans. *Journal of Rehabilitation Research and Development*.

Cohen, S. I., Suri, P., Amick, M. M., & Yan, K. (2012). Clinical and demographic factors associated with employment status in US military veterans returning from Iraq and Afghanistan. *Work*, *41*, 213–219.

Cook, J. M., Riggs, D. S., Thompson, R., Coyne, J. C., & Sheikh, J. I. (2004). Posttraumatic stress disorder and current relationship functioning among World War II ex-prisoners of war. *Journal of Family Psychology*, *18*, 36–45.

Cornum, R., Matthews, M. D., & Seligman, M .E. P. (2011). Comprehensive soldier fitness: Building resilience in a challenging institutional context. *American Psychologist*, *66*, 4–9.

Corrigan, J. D., & Bogner, J. (2007). Screening and identification of TBI. *Journal of Head Trauma Rehabilitation*, *22*, 315–317.

Defense and Veterans Brain Injury Center. (2013). *Worldwide numbers for traumatic brain injury*. Downloaded November 4, 2013, from http://www.dvbic.org/dod-worldwide-numbers-tbi.

DePalma, R. G., Burris, D. G., Champion, H. R., & Hodgson, M. J. (2005). Blast injuries. *New England Journal of Medicine*, *352*, 1335–1342.

Des Rosiers, N., Fedlthusen, B., & Hankivsky, O. A. R. (1998). Legal compensation for sexual violence: Therapeutic consequences and consequences for the judicial system. *Psychology, Public Policy, and Law*, *4*, 433–451.

Dohrenwend, B. P., Turner, J. B., Turse, N. A., Adams, B. G., Koenen, K. C., & Marshall, R. (2006). The psychological risks of Vietnam for U.S. veterans: A revisit with new data and methods. *Science*, *313*, 979–982.

Edens, E. L., Kasprow, W., Tsai, J., & Rosenheck, R. A. (2011). Association of substance use and VA service-connected disability benefits with risk of homelessness among veterans. *American Journal on Addictions*, *20*, 412–419.

Eidelson, R., Pilisuk, M., & Soldz, S. (2011). The dark side of comprehensive soldier fitness. *American Psychologist*, *66*, 643–644.

Eisen, S. V., Schultz, M. R., Vogt, D., Glickman, M. E., Elwy, A. R., Drainoni, M., . . . Martin, J. (2012). Mental and physical health status and alcohol and drug use following return from deployment to Iraq or Afghanistan. *American Journal of Public Health*, *102*, S66–S73.

Elbogen, E. B., Johnson, S. C., Newton, V. M., Straits-Troster, K., Vasterling, J. J., Wagner, H. R., & Beckham, J. C. (2012). Criminal justice involvement, trauma, and negative affect in Iraq and Afghanistan war era veterans. *Journal of Consulting and Clinical Psychology*, *80*, 1097–1102.

Erickson, S. K., Rosenheck, R. A., Trestman, R. L., Ford, J. D., & Desai, R. A. (2008). Risk of incarceration between cohorts of veterans with and without mental illness discharged from inpatient units. *Psychiatric Services*, *59*, 178–183.

Estroff, S. E., Patrick, D. L., Zimmer, C. R., & Lachicotte, W. S. (1997). Pathways to disability income among persons with severe, persistent psychiatric disorders. *Milbank Quarterly*, *75*, 495–532.

Fargo, J., Metraux, S., Byrne, T., Munley, E., Montgomer, A. E., Jones, H., . . . Culhane, D. P. (2012). Prevalence and risk of homelessness among US veterans. *Preventing Chronic Disease*, *9*, 110–112.

Fakhran, S., Yaeger, K., & Alhilali, L. (2013). Symptomatic white matter changes in mild traumatic brain injury resemble pathologic features of early Alzheimer dementia. *Radiology*, *269*, 249–257.

Fear, N. T., Jones, M., Murphy, D., Hull, L., Iversen, A. C., Coker, B., . . . Wessely, S. (2010). What are the consequences of deployment to Iraq and Afghanistan on the mental health of the U.K. armed forces? A cohort study. *Lancet*, *375*, 1783–1797.

Fisher, H. (2013). *U.S. military casualty statistics: Operation New Dawn, Operation Iraqi Freedom, and Operation Enduring Freedom*. Washington, DC: Congressional Research Service.

Forbes, H. J., Jones, N., Woodhead, C., Greenberg, N., Harrison, K., White, S., . . . Fear, N. (2012). What are the effects of having an illness or injury whilst deployed on post deployment mental health? A population based record linkage study of UK army personnel who have served in Iraq or Afghanistan. *BioMed Central Psychiatry*, *12*, 1–11.

Frazier, P., Conlon, A., & Glaser, T. (2001). Positive and negative life changes following sexual assault. *Journal of Consulting and Clinical Psychology*, *69*, 1048–1055.

Frazier, P., Gavian, M., Hirai, R., Park, C., Tennen, H., Tomich, P., & Tashiro, T. (2011). Prospective predictors of PTSD symptoms: Direct and mediated relations. *Psychological Trauma: Theory, Research, Practice, and Policy*, *3*, 27–36.

Frueh, B. C., Hamner, M. B., Cahill, S. P., Gold, P. B., & Hamlin, K. L. (2000). Apparent symptom overreporting in combat veterans evaluated for PTSD. *Clinical Psychology Review*, *20*, 853–885.

Gamache, G., Rosenheck, R., & Tessler, R. (2003). Overrepresentation of women veterans among homeless women. *American Journal of Public Health*, *93*(7), 1132.

Gawande, A. (2004). Casualties of war–military care for the wounded from Iraq and Afghanistan. *New England Journal of Medicine*, *351*, 2471–2475.

Giunta, B., Obregon, D., Velisetty, R., Sanberg, P. R., Borlongan, C. V. & Tan, J. (2012). The immunology of traumatic brain injury: A prime target for Alzheimer's disease prevention. *Journal of Neuroinflammation*, *9*, 185.

Gondusky, J. S., & Reiter, M. P. (2005). Protecting military convoys in Iraq: An examination of battle injuries sustained by a mechanized battalion during Operation Iraqi Freedom II. *Military Medicine*, *170*, 546–549.

Greenberg, G. A., & Rosenheck, R. A. (2009). Mental health and other risk factors for jail incarceration among male veterans. *Psychiatric Quarterly*, *80*(1), 41–53.

Grieger, T. A., Cozza, S. J., Ursano, R. J., Hoge, C., Martinez, P. E., Engel, C. C., & Wain, H. J. (2006). Posttraumatic stress disorder and depression in battle-injured soldiers. *American Journal of Psychiatry*, *163*, 1777–1783.

Harris, E. C., & Barraclough, B. (1997). Suicide as an outcome for mental disorders. A meta-analysis. *British Journal of Psychiatry*, *170*, 205–228.

Harvey, S., Hatch, S., Jones, M., Hull, L., Jones, N., Greenberg, N., . . . Wessely, S. (2011). Coming home: Social functioning and the mental health of UK reservists on return from deployment to Iraq or Afghanistan. *Annals of Epidemiology*, *21*, 666–672.

Haskell, S., Gordon, K., Mattocks, K., Duggal, M., Erdos, J., Justice, A., & Brandt, C. (2010). Gender differences in rates of depression, PTSD, pain, obesity, and military sexual trauma among Connecticut war veterans of Iraq and Afghanistan. *Journal of Women's Health*, *19*, 267–271.

Hauret, K. G., Taylor, B. J., Clemmons, N. S., Block, S. R., & Jones, B. H. (2010). Frequency and causes of nonbattle injuries air evacuated from Operations Iraqi Freedom and Enduring Freedom, U.S. Army, 2001–2006. *American Journal of Preventive Medicine*, *38*, S94–S107.

Hill, J. V., Johnson, R. C., & Barton, R. A. (2006). Suicidal and homicidal soldiers in deployment environments. *Military Medicine*, *171*, 228–232.

Hoge, C. W., Auchterlonie, J. L., & Milliken, C. S. (2006). Mental health problems, use of mental health services and attrition from military service after returning from deployment to Iraq or Afghanistan. *Journal of the American Medical Association*, *295*, 1023–1032.

Hoge, C. W., Castro, C. A., Messer, S. C., McGurk, D., Cotting, D. I., & Koffman, R. L. (2004). Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *New England Journal of Medicine*, *351*, 13–22.

Hoge, C. W., Goldberg, H. M., & Castro, C. A. (2009). Care of war veterans with mild traumatic brain injury–flawed perspectives. *New England Journal of Medicine*, *360*, 1588–1591.

Hoge, C. W., McGurk, D., Thomas, J. L., Cox, A. L., Engel, C. C., & Castro, C. A. (2008). Mild traumatic brain injury in U.S. Soldiers returning from Iraq. *New England Journal of Medicine*, *358*, 453–463.

Hoge, C. W., Terhakopian, A., Castro, C. A., Messer, S. C., & Engel, C. C. (2007). Association of posttraumatic stress disorder with somatic symptoms, health care visits, and absenteeism among Iraq war veterans. *American Journal of Psychiatry, 164*, 150–153.

Holbrook, J., & Anderson, S. (2011). *Veterans courts: Early outcomes and key indicators for success*. (Paper no. 11–25). Downloaded November 4, 2013, from Social Science Research Network website: http://ssrn.com/abstract=1912655.

Hotopf, M., Hull, L., Fear, N. T., Browne, T., Horn, O., Iversen, A., . . . Wessely, S. (2006). The health of U.K. military personnel who deployed to the 2003 Iraq war: A cohort study. *Lancet*, *367*, 1731–1741.

Hyman, J., Ireland, R., Frost, L., & Cottrell, L. (2012). Suicide incidence and risk factors in an active duty US military population. *American Journal of Public Health*, *102*, S138–S146.

Institute of Medicine (IOM) (2008). *Gulf War and health: Physiologic, psychologic, and psychosocial effects of deployment-related stress*. Washington, DC: National Academies Press. Downloaded November 4, 2013, from http://www.nap.edu/catalog/11922.html.

Institute of Medicine (IOM) (2010). *Returning home from Iraq and Afghanistan: Preliminary assessment of readjustment needs of veterans, service members and their families*. Washington, DC: National Academies Press.

Jacobson, I. G., Ryan, M. A., Hooper, T. I., Smith, T. C., Amoroso, P. J., Boyko, E. J., . . . Bell, N. S. (2008). Alcohol use and alcohol-related problems before and after military combat deployment. *Journal of the American Medical Association*, *300*, 663–675.

Joint Mental Health Advisory Team 7 (J-MHAT 7). (2011). *Operation enduring freedom 2010 afghanistan*. Downloaded November 4, 2013, from http://www.armymedicine.army.mil/reports/mhat/mhat_vii/J_MHAT_7.pdf.

Jordan, B. K., Marmar, C. R., Fairbank, J. A., Schlenger, W. E., Kulka, R. A., Hough, R. L., & Weiss, D. S. (1992). Problems in families of male Vietnam veterans with posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology*, *60*, 916–926.

Kang, H. K., & Bullman, T. A. (1996). Mortality among US veterans of the Persian Gulf War. *New England Journal of Medicine*, *335*, 1498–1504.

Kang, H. K., & Bullman, T. A. (2001). Mortality among US veterans of the Persian Gulf War: 7-year follow-up. *American Journal of Epidemiology*, *154*(5), 399–405.

Kang, H. K., & Bullman, T. A. (2008). Risk of suicide among US veterans after returning from the Iraq and Afghanistan war zones. *Journal of the American Medical Association*, *300*, 652–653.

Kang, H. K., Natelson, B. H., Mahan, C. M., Lee, K. Y., & Murphy, F. M. (2003). Post-traumatic stress disorder and chronic fatigue syndrome-like illness among Gulf War veterans: A population-based survey of 30,000 veterans. *American Journal of Epidemiology*, *157*, 141–148.

Katz, I. R., McCarthy, J. F., Ignacio, R. V., & Kemp, J. (2012). Suicide among veterans in 16 states, 2005 to 2008: Comparisons between utilizers and nonutilizers of Veterans Health Administration (VHA) services based on data from the National Death Index, the National Violent Death Reporting System, and VHA administrative records. *American Journal of Public Health*, *102*, S105–S110.

Kessler, R. C., Chiu, W. T., Demler, O., Merikangas, K. R., & Walters, E. E. (2005). Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, *62*, 617–627.

Killgore, W. D. S., Cotting, D. I., Thomas, J. L., Cox, A. L., McGurk, D., Vo, A. H., . . . Hoge, C. W. (2008). Post-combat invincibility: Violent combat experiences are associated with increased risk-taking propensity following deployment. *Journal of Psychiatric Research*, *42*, 1112–1121.

Knapik, J. J., Marin, R. E., Grier, T. L., & Jones, B. H. (2009). A systematic review of post-deployment injury-related mortality among military personnel deployed to conflict zones. *BioMed Central Public Health*, *9*, 231. Downloaded November 4, 2013, from http://www.biomedcentral.com/1471--2458/9/231.

Koenen, K. C., Stellman, S. D., Sommer, J. F., Jr., & Stellman, J. M. (2008). Persisting posttraumatic stress disorder symptoms and their relationship to functioning in Vietnam veterans: A 14-year follow-up. *Journal of Traumatic Stress*, *21*, 49–57.

Kudler, H. (2012). *From the battle front to the home front: The need for a public health approach to deployment mental health*. Downloaded November 4, 2013, from International Society for Traumatic Stress Studies website: http://www.istss.org/source/ContinuingEd/webinar_details.cfm?mtg=WEB0912B

Kuehn, B. M. (2009). Soldier suicide rates continue to rise: Military scientists work to stem the tide. *Journal of the American Medical Association*, *301*, 1111–1113.

Kulka, R. A., Schlenger, W. E., Fairbank, W. E., Hough, R. L., Jordan, B. K., Marmar, C. R., & Weiss, D. S. (1990). *Trauma and the vietnam war generation: Report of findings from the national vietnam veterans readjustment study*. New York: Brunner Mazel Publishers.

Lester, P. B., Harms, P. D., Herian, M. N. Krosikova, D. V., & Beal, S. J. (2011). The comprehensive soldier fitness program evaluation. *Longitudinal analysis of the impact of master resilience*

training on self-reported resilience and psychological health data (Report #3). Downloaded November 4, 2013, from http://www.ppc.sas.upenn.edu/csftechreport3mrt.pdf.

Lester, P. B., McBride, S., Bliese, P. D., & Adler, A. B. (2011). Bringing science to bear: An empirical assessment of the comprehensive soldier fitness program. *American Psychologist*, *66*, 77–81.

Lester, P., Peterson, K., Reeves, J., Knauss, L., Glover, D., Mogil, C., . . . Beardslee, W. (2010). The long war and parental combat deployment: Effects on military children and at-home spouses. *Journal of the American Academy of Child & Adolescent Psychiatry*, *49*(4), 310–320.

Levin, A. (2009). Military brass address suicide crisis and strategies to cure it. *Psychiatric News*. Downloaded November 4, 2013, from http://psychnews.psychiatryonline.org/newsArticle.aspx?articleid=112549.

Lincoln, A., Swift, E., & Shorteno-Fraser, M. (2008). Psychological adjustment and treatment of children and families with parents deployed in military combat. *Journal of Clinical Psychology*, *64*, 984–992.

Maguen, S., Ren, L., Bosch, J. O., Marmar, C. R., & Seal, K. H. (2010). Gender differences in mental health diagnoses among Iraq and Afghanistan veterans enrolled in Veterans Affairs Health Care. *American Journal of Public Health*, *100*, 2450–2456.

MacGregor, A. J., Han, P. P., Dougherty, A. L., & Galarneau, M. R. (2012). Effect of dwell time on the mental health of U.S. military personnel with multiple combat tours. *American Journal of Public Health*, *102*, S55–A59.

MacManus, D., Dean, K., Jones, M., Rona, R. J., Greenberg, N., Hull, L., . . . Fear, N. T. (2013). Violent offending by UK military personnel deployed to Iraq and Afghanistan: A data linkage cohort study. *Lancet*, *381*, 907–917.

Mansfield, A. J., Kaufman, J. S., Marshall, S. W., Gaynes, B. N., Morrissey, J. P., & Engel, C. C. (2010). Deployment and the use of mental health services among U.S. Army wives. *New England Journal of Medicine*, *362*, 101–109.

Marx, B. P., Jackson, J. C., Schnurr, P. P., Murdoch, M., Sayer, N. A., Keane, T. M., . . . Speroff, T. (2012). The reality of malingered PTSD among veterans: Reply to McNally and Frueh (2012). *Journal of Traumatic Stress*, *25*, 457–460.

Mayou, R. (1995). Medico-legal aspects of road traffic accidents. *Journal of Psychosomatic Research*, *39*, 789–798.

McCarthy, J. F., Valenstein, M., Kim, H. M., Ilgen, M., Zivin, K., & Blow, F. C. (2009). Suicide mortality among patients receiving care in the veterans health administration health system. *American Journal of Epidemiology*, *169*, 1033–1038.

McCrea, M. (2008). *Mild traumatic brain injury and post-concussion syndrome: The new evidence base for diagnosis and treatment*. New York: Oxford University Press.

McKee, A. C., Stein, T. D., Bowinski C. J., Stern, R. A., Daneshvar, D. H., Alvarez, V. E., . . . Cantu, R. C. (2013). The spectrum of disease in chronic traumatic encephalopathy. *Brain*, *136*, 43–64.

McNally, R. J., & Frueh, B. C. (2012). Why we should worry about malingering in the VA system: Comment on Jackson (2011). *Journal of Traumatic Stress*, *25*, 454–456.

Meagher, I. (2007). The war list: OEF/OIF *statistics*. Downloaded November 4, 2013, from PTSD Blogspot website: http://ptsdcombat.blogspot.com/2007/03/war-list-oefoif-statistics.html.

Meares, S., Shores, E. A., Taylor, A. J., Batchelor, J., Bryant, R. A., Baguley, I. J., . . . Marosszeky, J. E. (2008). Mild traumatic brain injury does not predict acute postconcussion syndrome. *Journal of Neurology, Neurosurgery, and Psychiatry*, *79*, 300–306.

Mental Health Advisory Team (MHAT) V. (2008). *Operation Iraqi Freedom 06–08*. Downloaded November 4, 2013, from http://www.armymedicine.army.mil/reports/mhat/mhat_v/Redacted1-MHATV-OIF-4-FEB-2008Report.pdf.

Mental Health Advisory Team (MHAT) VI. (2009). *Operation Iraqi Freedom 07–09*. Downloaded November 4, 2013, from http://www.armymedicine.army.mil/reports/mhat/mhat_vi/MHAT_VI-OIF_Redacted.pdf.

Miller, G. (2011). Neuropathology: A battle no soldier wants to fight. *Science*, *333*, 517–519.

Miller, G. (2012). Blast injuries linked to neurodegeneration in veterans. *Science*, *336*, 790–791.

Milliken, C. S., Auchterlonie, J. L., & Hoge, C. W. (2007). Longitudinal assessment of mental health problems among active and reserve component soldiers returning from the Iraq War. *Journal of the American Medical Association*, *298*, 2141–2148.

Mitchell, M. M., Gallaway, M. S., Millikan, A. M., & Bell, M. (2012). Interaction of combat exposure and unit cohesion in predicting suicide-related ideation among post-deployment soldiers. *Suicide and Life-Threatening Behavior*, *42*, 486–494.

Monson, C. M., Schnurr, P. P., Resick, P. A., Friedman, M. J., Young-Xu, Y., & Stevens, S. P. (2006). Cognitive processing therapy for veterans with military-related posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology*, *74*, 898–907.

Monson, C., Taft, C., & Fredman, S. (2009). Military-related PTSD and intimate relationships: From description to theory-driven research and intervention development. *Clinical Psychology Review*, *29*, 707–714.

Morris, M. J., Zacher, L. L., & Jackson, D. A. (2011). Investigating the respiratory health of deployed military personnel. *Military Medicine*, *176*, 1157–1168.

Mumola, C. J. (2000). *Bureau of Justice Statistics special report: Veterans in prison or jail*. (Publication # NCJ 178888). Washington, DC: U.S. Department of Justice, Office of Justice Programs.

Murdoch, M., Sayer, N. A., Spoont, M. R., Rosenheck, R., Noorbaloochi, S., Griffin, J. M., . . . Hagel, E. M. (2011). Long-term outcomes of disability benefits in US veterans with posttraumatic stress disorder. *Archives of General Psychiatry*, *68*, 1072–1080.

National Center for Telehealth and Technology (2013). *Department of Defense Suicide Event Report (DoDSER)*. Downloaded November 4, 2013, from https://t2health.org/programs/dodser

National Defense Authorization Act of 2008, H.R. 4986, 100 Cong (2008).

Noonan, M. E., & Mumola, C. J. (2007). *Bureau of justice statistics special report: veterans in state and federal prison, 2004*. (Publication # NCJ 217199). Washington, DC: U.S. Department of Justice, Office of Justice Programs.

O'Connell, M., Kasprow, W., & Rosenheck, R. (2008). Rates and risk factors for homelessness after successful housing in a sample of formerly homeless veterans. *Psychiatric Services*, *59*, 268–275.

Okie, S. (2005). Traumatic brain injury in the war zone. *New England Journal of Medicine*, *352*, 2043–2047.

Okie, S. (2006). Reconstructing lives–A tale of two soldiers. *New England Journal of Medicine*, *355*, 2609–2615.

Oliver, L. W., Harman, J., Hoover, E., Hayes, S. M., & Pandhi, N. A. (1999). A quantitative integration of the military cohesion literature. *Military Psychology*, *11*, 57–83.

Orcutt, H. K., King, L. A., & King, D. W. (2003). Male-perpetrated violence among Vietnam veteran couples: Relationships with veterans' early life characteristics, trauma history, and PTSD symptomatology. *Journal of Traumatic Stress*, *16*(4), 381–390.

Ozer, E., Best, S., Lipsey, T., & Weiss, D. (2003). Predictors of posttraumatic stress disorder and symptoms in adults: A meta-analysis. *Psychological Bulletin*, *129*, 52–73.

Palmer, C. (2008). A theory of risk and resilience factors in military families. *Military Psychology*, *20*, 205–217.

Phipps, S. (2011). Positive psychology and war: An oxymoron. *American Psychologist*, *66*, 641–642.

Pietrzak, R., Goldstein, M., Malley, J., Rivers, A., Johnson, D., Morgan, C., & Southwick, S. (2010). Posttraumatic growth in veterans of Operations Enduring Freedom and Iraqi Freedom. *Journal of Affective Disorders*, *126*, 230–235.

Plassman, B. L., Havlik, R. J., Steffens, D. C., Helms, M. J., Newman, T. N., Drosdick, D., Phillips, C., Gau, B. A., Welsh-Bohmer, K. A., Burke, J. R., Guralnik, J. M., & Breitner, J. C. S. (2000). Documented head injury in early adulthood and risk of Alzheimer's disease and other dementias. *Neurology*, *55*, 1158–1166.

Polusny, M. A., Erbes, C. R., Murdoch, M., Arbisi, P. A., Thuras, P., & Rath, M. B. (2011). Prospective risk factors for new-onset Post-Traumatic Stress Disorder in National Guard soldiers deployed to Iraq. *Psychological Medicine*, *41*, 687–698.

Polusny, M. A., Kehle, S. M., Nelson, N. W., Erbes, C. R., Arbisi, P. A., & Thuras, P. (2011). Longitudinal effects of mild traumatic brain injury and posttraumatic stress disorder comorbidity

on postdeployment outcomes in national guard soldiers deployed to Iraq. *Archives of General Psychiatry*, *68*, 79–89.

Reiber, G. E., McFarland, L. V., Hubbard, S., Maynard, C., Blough, D. K., & Gambel, J. M., . . . Smith, D. G. (2010). Servicemembers and veterans with major traumatic limb loss from Vietnam war and OIF/OEF conflicts: Survey methods, participants, and summary findings. *Journal of Rehabilitation Research and Development*, *47*, 275–297.

Reivich, K. J., Seligman, M. E. P., & McBride, S. (2011). Master resilience training in the U.S. Army. *American Psychologist*, *66*, 25–34.

Riddle, J. R., Smith, T. C., Smith, B., Corbeil, T. E., Engel, C. C., Wells, T. S., . . . Blazer, D. (2007). Millennium Cohort: The 2001–2003 baseline prevalence of mental disorders in the U.S. military. *Journal of Clinical Epidemiology*, *60*, 192–201.

Riggs, D. S., Byrne, C. A., Weathers, F. W., & Litz, B. T. (1998). The quality of the intimate relationships of male Vietnam veterans: Problems associated with posttraumatic stress disorder. *Journal of Traumatic Stress*, *11*, 87–101.

Riviere, L. A., Kendall-Robbins, A., McGurk, D., Castro, C. A., & Hoge, C. W. (2011). Coming home may hurt: Risk factors for mental ill health in US reservists after deployment in Iraq. *British Journal of Psychiatry*, *198*, 136–142.

Rona, R.J., Fear, N.T., Hull, L., Greenberg, N., Earnshaw, M., Hotopf, M., & Wessely, S. (2007). Mental health consequences of overstretch in the UK armed forces: First phase of a cohort study. *British Medical Journal*, *335*, 603–607.

Rona, R. J., Hooper, R., Jones, M., Hull, L., Browne, T., Horn, O., . . . Wessely, S. (2006). Mental health screening in armed forces before the Iraq war and prevention of subsequent psychological morbidity: Follow-up study. *British Medical Journal*, *333*, 991–994.

Rosenheck, R. A., Banks, S., Pandiani, J., & Hoff, R. (2000). Bed closures and incarceration rates among users of Veterans Affairs mental health services. *Psychiatric Services*, *51*, 1282–1287.

Rosenheck, R., & Fontana, A. (1994). A model of homelessness among male veterans of the Vietnam War generation. *American Journal of Psychiatry*, *151*, 421–421.

Ryan, M. A., Smith, T. C., Smith, B., Amoroso, P., Boyko, E. J., Gray, G. C., . . . Hooper, T. I. (2007). Millennium Cohort: Enrollment begins a 21-year contribution to understanding the impact of military service. *Journal of Clinical Epidemiology*, *60*, 181–191.

Sayer, N. A., Chiros, C. E., Sigford, B., Scott, S., Clothier, B., Pickett, T., & Lew, H. L. (2008). Characteristics and rehabilitation outcomes among patients with blast and other injuries sustained during the Global War on Terror. *Archives of Physical Medicine and Rehabilitation*, *89*, 163–170.

Sayer, N. A., Cifu, D. X., McNamee, S., Chiros, C. E., Sigford, B. J., Scott, S., & Lew, H. L. (2009). Rehabilitation needs of combat-injured service members admitted to the VA Polytrauma Rehabilitation Centers: The role of PM&R in the care of wounded warriors. *PM & R: The Journal of Injury, Function, and Rehabilitation*, *1*, 23–28.

Sayer, N. A., Friedemann-Sanchez, G., Spoont, M., Murdoch, M., Parker, L. E., & Rosenheck R. A. (2009). Qualitative study of determinants of PTSD treatment initiation in veterans. *Psychiatry: Interpersonal and Biological Processes*, *72*, 238–255.

Sayer, N. A., Noorbaloochi, S., Frazier, P., Carlson, K., Gravely, A., & Murdoch, M. (2010). Reintegration problems and treatment interests among Iraq and Afghanistan combat veterans receiving VA medical care. *Psychiatric Services*, *61*, 589–597.

Sayer, N. A., Orazem, R., Oleson, H., Gravely, A., Frazier, P., Murdoch, M., & Noorbaloochi, S. (2013, August). *Veterans with reintegration difficulties: Differences by VA user status*. Paper Presented at the 121st Annual Convention of the American Psychological Association. Honolulu, HI.

Sayer, N. A., Rettmann, N. A., Carlson, K. F., Bernardy, N., Sigford, B. J., Hamblen, J. L. & Friedman, M. J. (2009). Veterans with history of mild traumatic brain injury and posttraumatic stress disorder: Challenges from provider perspective. *Journal of Rehabilitation Research & Development*, *46*, 703–716.

Sayer, N. A., Spoont, M., & Nelson, D. (2004). Veterans seeking disability benefits for post-traumatic stress disorder: Who applies and the self-reported meaning of disability compensation. *Social Science & Medicine*, *58*, 2133–2143.

Sayers, S. L., Farrow, V. A., Ross, J., & Oslin, D. W. (2009). Family problems among recently returned military veterans referred for a mental health evaluation. *Journal of Clinical Psychiatry*, *70*, 163–170.

Schneiderman, A. I., Braver, E. R., & Kang, H. K. (2008). Understanding sequelae of injury mechanisms and mild traumatic brain injury incurred during the conflicts in Iraq and Afghanistan: Persistent postconcussive symptoms and posttraumatic stress disorder. *American Journal of Epidemiology*, *167*, 1446–1452.

Schnurr, P. P., Friedman, M. J., Engel, C. C., Foa, E. B., Shea, M. T., Chow, B. K., . . . Bernardy, N. (2007). Cognitive behavioral therapy for posttraumatic stress disorder in women: A randomized controlled trial. *Journal of the American Medical Association*, *297*, 820–830.

Schnurr, P. P., Lunney, C. A., & Sengupta, A. (2004). Risk factors for the development versus maintenance of posttraumatic stress disorder. *Journal of Traumatic Stress*, *17*(2), 85–95.

Scholten, J. D., Sayer, N. A., Vanderploeg, R. D., Bidelspach, D. E., & Cifu, D. X. (2012). Analysis of US Veterans Health Administration comprehensive evaluations for traumatic brain injury in Operation Enduring Freedom and Operation Iraqi Freedom Veterans. *Brain Injury*, *26*, 1177–1184.

Seal, K. H., Maguen, S., Cohen, B., Gima, K. S., Metzler, T. J., Ren, L., . . . Marmar, C. R. (2010). VA mental health services utilization in Iraq and Afghanistan veterans in the first year of receiving new mental health diagnoses. *Journal of Traumatic Stress*, *23*, 5–16.

Seal, K. H., Metzler, T. J., Gima, K. S., Bertenthal, D., Maguen, S., & Marmar, C. R. (2009). Trends and risk factors for mental health diagnoses among Iraq and Afghanistan veterans using Department of Veterans Affairs health care, 2002–2008. *American Journal of Public Health*, *99*, 1651–1658.

Shell, T. L., & Marshall, G. N. (2008). Survey of individuals previously deployed for OEF/OIF. In T. Tanielian & L. Jayox (Eds.), *Invisible wounds of war: Psychological and cognitive injuries, their consequences, and services to assist recovery* (pp. 87–116). Santa Monica, CA: Rand.

Skopp, N. A., Luxton, D. D., Bush, N., & Sirotin, A. (2011). Childhood adversity and suicidal ideation in a clinical military sample: Military unit cohesion and intimate relationships as protective factors. *Journal of Social and Clinical Psychology*, *30*, 361–377.

Smith, T. C., Ryan, M. A. K., Wingard, D. L., Slymen, D. J., Sallis, J. F., & Kritz-Silverstein, D. (2008). New onset and persistent symptoms of post-traumatic stress disorder self reported after deployment and combat exposures: Prospective population based U.S. military cohort study. *The British Medical Journal*, *336*, 366–371.

Stecker, T., Fortney, J., Owen, R., McGovern, M. P., & Williams, S. (2010). Co-occurring medical, psychiatric, and alcohol-related disorders among veterans returning from Iraq and Afghanistan. *Psychosomatics*, *51*, 503–507.

Sundin, J., Fear, N. T., Iversen, A., Rona, R. J., & Wessely, S. (2010). PTSD after deployment to Iraq: Conflicting rates, conflicting claims. *Journal of psychology*, *40*, 367–382.

Taylor, B. C., Hagel, E. M., Carlson, K. F., Cifu, D. X., Cutting, A., Bidelspach, D. E., & Sayer, N. A. (2012). Prevalence and costs of co-occurring traumatic brain injury with and without psychiatric disturbance and pain among Afghanistan and Iraq War Veteran VA users. *Medical Care*, *50*, 342–346.

Taylor, B. C., Hagel, E. M., Cutting, A., Carlson, K. F., Cifu, D. X., Bidelspach, D. E., & Sayer, N. A. (2012). *Fiscal year 2011 VA Utilization Report for Iraq and Afghanistan war veterans diagnosed with TBI*. Downloaded November 4, 2013, from http://vaww.queri.research.va.gov/ptbri/utilization_reports.cfm.

Terrio, H., Brenner, L. A., Ivins, B. J., Cho, J. M., Helmick, K., Schwab, K., . . . Warden, D. (2009). Traumatic brain injury screening: Preliminary findings in a US Army Brigade Combat Team. *Journal of Head Trauma Rehabilitation*, *24*, 14–23.

Teichman, R. (2012). Exposures of concern to veterans returning from Afghanistan and Iraq. *Journal of Occupational and Environmental Medicine*, *54*(6), 677–681.

Tolin, D. F., & Foa, E. B. (2006). Sex differences in trauma and posttraumatic stress disorder: A quantitative review of 25 years of research. *Psychological Bulletin*, *132*, 959–992.

U.S. Department of Defense. (2013). *U.S. casualty status for Operation Iraqi Freedom (OIF), Operation New Dawn (OND), and Operation Enduring Freedom (OEF)*. Washington, DC. Downloaded November 4, 2013, from http://www.defense.gov/news/casualty.pdf.

U.S. Department of Defense, Armed Forces Health Surveillance Center. (2011, February). *Causes of medical evacuations from Operations Iraqi Freedom (OIF), New Dawn (OND), and Enduring Freedom (OEF), active and reserve components, U.S. Armed Forces, October 2001-September 2010*. (Medical Surveillance Monthly Report. 18, 2–7). Downloaded November 4, 2013, from http://www.afhsc.mil/viewMSMR?file=2011/v18_n02.pdf#Page=02.

U.S. Department of Housing and Urban Development, Office of Community Planning and Development & U.S. Department of Veterans Affairs. (2011, January). *Veteran homelessness: A supplemental report to the 2009 Annual Homeless Assessment Report to Congress*. Downloaded November 4, 2013, from http://www.ncdsv.org/images/HUD-VA_VeteranHomelessness SuppRep2009AnnualHomelessAssessmentReportToCognress.pdf.

U.S. Department of Labor, Bureau of Labor Statistics (BLS). (2012). *Employment situation of veterans—2011*. Downloaded November 4, 2013, from http://www.bls.gov/news.release/archives/vet_03202012.htm.

U.S. Department of Veterans Affairs. (2008). *Uniform mental health services in VA medical centers and clinics*. (VHA Handbook 1160.01). Washington, DC.

U.S. Department of Veterans Affairs. (2010a). *National Center for Veterans Analysis and Statistics Data*. Downloaded November 4, 2013, from http://www.va.gov/vetdata/index.asp.

U.S. Department of Veterans Affairs (2010b). *Screening and evaluation of possible traumatic brain injury in Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) veterans. (VHA Directive 2010–012)* Washington, DC. Downloaded November 4, 2013, from http://www1.va.gov/vhapublications/publications.cfm?pub=1.

U.S. Department of Veterans Affairs. (2012a). *VA caregiver support*. Washington, DC. Downloaded November 4, 2013, from http://www.caregiver.va.gov.

U.S. Department of Veterans Affairs (2012b). *Veterans benefits administration annual benefits report fiscal year 2011*. Washington, DC. Downloaded November 4, 2013, from http://www.vba.va.gov/REPORTS/abr/2011_abr.pdf.

U.S. Department of Veterans Affairs. (2012c) *Services for family caregivers of post-9/11 veterans*. Washington, DC. Downloaded November 4, 2013, from http://www.caregiver.va.gov/support_benefits.asp.

U.S. Department of Veterans Affairs. (2013). VA/DoD Clinical Practice Guidelines. Washington, DC. Downloaded November 4, 2013, from http://www.healthquality.va.gov/.

U.S. Department of Veterans Affairs, Epidemiology Program. (2012). *Analysis of VA health care utilization among Operation Enduring Freedom, Operation Iraqi Freedom, Operation New Dawn Veterans from 1st Qtr FY 2002 through 4th Qtr Fy 2012*. Washington, DC. Downloaded November 4, 2013, from www.publichealth.va.gov/epidemiology.

U.S. Department of Veterans Affairs, Office of the Inspector General (2005). *Review of state variances in VA disability compensation payments* (Publication 05–00765–137). Washington, DC. Downloaded November 4, 2013, from http://www.va.gov/oig/52/reports/2005/VAOIG-05–00765–137.pdf.

U.S. Department of Veterans Affairs, Office of the Inspector General (2012). *Healthcare inspection, prosthetic limb care in VA facilities* (Report no. 11–02138–116). Washington, DC. Downloaded November 4, 2013, from www.va.gov/oig/pubs/VAOIG-11–02138–116.pdf.

U.S. Department of Veterans Affairs, Office of Patient Care Services. (2005). *Polytrauma rehabilitation procedures (VHA Handbook 1172.1)*. Washington, DC.

U.S. Department of Veterans Affairs, Suicide Prevention Line. (2013). *Veterans crisis line*. Washington, DC. Downloaded November 4, 2013, from http://www.veteranscrisisline.net.

U.S. Department of Veterans Affairs, Women Veterans Task Force (2012). *Strategies for serving our women veterans [Draft for public comment]*. Washington, DC. Downloaded November 4, 2013, from http://www.va.gov/opa/publications/index.asp.

U.S. Department of Veterans Affairs/Department of Defense. (2009). *Management of concussion/mild traumatic brain injury (mTBI); VA/DOD clinical practice guidelines*. Downloaded November 4, 2013, from http://www.healthquality.va.gov/management_of_concussion_mtbi.asp.

U.S. Department of Veterans Affairs/Department of Defense. (2010). *VA/DoD clinical practice guideline for the management of posttraumatic stress disorder*. Downloaded November 4, 2013, from http://www.healthquality.va.gov/ptsd/cpg_PTSD-FULL-201011612.pdf.

Vanderploeg, R. D., & Belanger, H. G. (2013). Screening for remote history of mild traumatic brain injury. *Journal of Head Trauma and Rehabilitation*, *28*, 211–218.

Vanderploeg, R. D., Belanger, H. G., & Curtiss, G. (2009). Mild traumatic brain injury and posttraumatic stress disorder and their associations with health symptoms. *Archives of Physical Medicine and Rehabilitation*, *90*, 1084–1093.

Vanderploeg, R. D., Belanger, H. G., Horner, R. D., Spehar, A. M., Powell-Cope, G., Luther, S. L. & Scott, S. G. (2012). Health outcomes associated with military deployment: Mild traumatic brain injury, blast, trauma, and combat associations in the Florida National Guard. *Archives of Physical Medicine and Rehabilitation*, *93*, 1887–1895.

Vasterling, J., Proctor, S., Friedman, M., Hoge, C., Heeren, T., King, L., & King, D. (2010). PTSD symptom increases in Iraq-deployed soldiers: Comparison with nondeployed soldiers and associations with baseline symptoms, deployment experiences, and postdeployment stress. *Journal of Traumatic Stress*, *23*, 41–51.

Veitch, D. P., Friedl, E. K., & Weiner, W. M. (2013). Military risk factors for cognitive decline, dementia and Alzheimer's disease. *Current Alzheimer Research*, *10*, 907–930.

Vinokur, A., Caplan, R. D., & Williams, C. C. (1987). Effects of recent and past stress on mental health: Coping with unemployment among Vietnam veterans and nonveterans. *Journal of Applied Social Psychology*, *17*(8), 710–730.

Vogt, D., Smith, B., Elwy, R., Martin, J., Schultz, M., Drainoni, L., & Eisen, S. (2011). Predeployment, deployment, and postdeployment risk factors for posttraumatic stress symptomatology in female and male OEF/OIF veterans. *Journal of Abnormal Psychology*, *120*, 819–831.

Vogt, D., Vaughn, R., Glickman, M., Schultz, M., Drainoni, L., Elwy, R., & Eisen, S. (2011). Gender differences in combat-related stressors and their association with postdeployment mental health in a nationally representative sample of U.S. OIEF/OIF veterans. *Journal of Abnormal Psychology*, *120*, 797–806.

Warden, D. L., Ryan, L. M., Helmick, K. M., Schwab, K., French, L. M., Lu, W., . . . Ling, G. (2005). War neurotrauma: The Defense and Veterans Brain Injury Center (DVBIC) experience at Walter Reed Army Medical Center (WRAMC). *Journal of Neurotrauma*, *22*, 1178.

Washington, D. L., Yano, E. M., McGuire, J., Hines, V., Lee, M., & Gelberg, L. (2010). Risk factors for homelessness among women veterans. *Journal of Health Care for the Poor and Underserved*, *21*, 82–91.

Weaver, C. M., Trafton, J. A., Kimerling, R., Timko, C., & Moos, R. (2013). Prevalence and nature of criminal offending in a national sample of veterans in VA substance use treatment prior to the Operation Enduring Freedom/Operation Iraqi Freedom conflicts. *Psychological Services*, *10*, 54–65.

Westen, D., Novotny, C. M., & Thompson-Brenner, H. (2004). The empirical status of empirically supported psychotherapies: Assumptions, findings, and reporting in controlled clinical trials. *Psychological Bulletin*, *130*, 631–663.

Whitesell, A. A., & Owens, G. P. (2012). The impact of patriotism, morale, and unit cohesion on mental health in veterans of Iraq and Afghanistan. *Traumatology*, *18*, 1–7.

Woodhead, C., Wessely, S., Jones, N., Fear, N. T., & Hatch, S. L. (2012). Impact of exposure to combat during deployment to Iraq and Afghanistan on mental health by gender. *Psychological Medicine*, *42*, 1985–1996.

Wright, K. M, Cabrera, O. A., Bliese, P. D., Adler, A. B., Hoge, C. W., & Castro, C. A. (2009). Stigma and barriers to care in soldiers postcombat. *Psychological Services*, *6*, 108–116.

Writer, J. V., DeFraites, R. F., & Keep, L. W. (2000) Non-battle injury casualties during the Persian Gulf war and other deployments. *American Journal of Preventive Medicine*, *18*(3 Suppl.), 64–70.

Zhou Y., Kierans, A., Kenul D., Ge, Y., Rath, J., Reaume, J., Grossman, R. I., & Lui, Y. W. (2013). Mild traumatic brain injury: Longitudinal regional brain volume changes. *Radiology*, *267*, 880–890.

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A National Cohort Study of the Association Between the Polytrauma Clinical Triad and Suicide-Related Behavior Among US Veterans Who Served in Iraq and Afghanistan

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Objectives. We examined the association of posttraumatic stress disorder (PTSD), traumatic brain injury, and chronic pain—the polytrauma clinical triad (PCT)—independently and with other conditions, with suicide-related behavior (SRB) risk among Operation Enduring Freedom (OEF; Afghanistan) and Operation Iraqi Freedom (OIF) veterans.

Methods. We used Department of Veterans Affairs (VA) administrative data to identify OEF and OIF veterans receiving VA care in fiscal years 2009–2011; we used *International Classification of Diseases, Ninth Revision, Clinical Modification* codes to characterize 211 652 cohort members. Descriptive statistics were followed by multinomial logistic regression analyses predicting SRB.

Results. Co-occurrence of PCT conditions was associated with significant increase in suicide ideation risk (odds ratio [OR] = 1.9; 95% confidence interval [CI] = 1.5, 2.4) or attempt and ideation (OR = 2.6; 95% CI = 1.5, 4.6), but did not exceed increased risk with PTSD alone (ideation: OR = 2.3; 95% CI = 2.0, 2.6; attempt: OR = 2.0; 95% CI = 1.4, 2.9; ideation and attempt: OR = 1.8; 95% CI = 1.2, 2.8). Ideation risk was significantly elevated when PTSD was comorbid with depression (OR = 4.2; 95% CI = 3.6, 4.8) or substance abuse (OR = 4.7; 95% CI = 3.9, 5.6).

Conclusions. Although PCT was a moderate SRB predictor, interactions among PCT conditions, particularly PTSD, and depression or substance abuse had larger risk increases. (*Am J Public Health.* 2015;105:380–387. doi:10.2105/AJPH.2014.301957)

The mental health of service members and veterans has been an issue of growing concern since the beginning of the US conflicts in Iraq and Afghanistan,[1–5] with marked increases in the incidence of psychological disorders among veterans accompanied by a corresponding increase in suicides and suicide-related behavior (SRB).[6,7] Although suicide has historically been lower among service members than members of the general population (the so-called healthy warrior effect),[8] suicide rates among both service members and younger veterans have been on the increase during Operation Enduring Freedom (OEF; Afghanistan) and Operation Iraqi Freedom (OIF).[9,10] Although Kang and Bullman[8] found in 2008 that suicide risk was not significantly higher among OEF and OIF veterans compared with the US population as a whole, they did identify an elevated suicide rate among former active duty service members and those diagnosed with mental disorders, suggesting the presence of vulnerable subgroups within this population. It was recently estimated that some 22 veterans died by suicide every day in 2010[11] and both the Department of Defense and the Department of Veterans Affairs (VA) have identified suicide prevention as a key priority in ongoing initiatives.[12]

Among the risk factors for suicide among veterans, the most predictive appear to be previous history of suicide attempt[13] or previous diagnosis of psychiatric disorders including posttraumatic stress disorder (PTSD), depression, substance abuse, bipolar disorder, and schizophrenia.[14–17] Approximately one fifth of OEF or OIF veterans seeking care within VA have been diagnosed with PTSD.[18] Although the increase in suicide risk associated with PTSD may be smaller than for other psychiatric diagnoses,[16,19] PTSD appears to predict increased suicide ideation in both veterans[6,20] and nonveterans.[21] Jakupcak et al.[19] have found that veterans with even subthreshold PTSD are at increased risk for suicide ideation.

Like PTSD, traumatic brain injury (TBI) has also been associated with increased suicide ideation and attempts as well as completed suicides,[6,22,23] and may be associated with damage to the frontal lobe that can increase impulsivity and suicidality.[24] Incidence of TBI has gone up sharply over the past decade,[25] and high comorbidity between TBI and PTSD has often made it difficult to distinguish their unique effects on suicide risk. At least 1 study found that TBI of any severity is associated with an increased rate of completed suicides among veterans that is not accounted for by psychiatric comorbidity[22]; others have reported increased suicide risk among military personnel with TBI when assessed within a few days of their injuries.[26] More recent evidence indicates that military personnel who have experienced multiple TBIs are at incrementally increased risk for suicidality even when the study controlled for PTSD and depression severity.[23] By contrast, studies by Barnes et al.[6] and Skopp et al.[27] have reported that mild TBI does not significantly increase risk of suicide ideation or intent among active duty service members or veterans with PTSD, suggesting that there is room for additional clarification of TBI and its role in affecting SRBs.

Alongside these signature injuries of the wars in Iraq and Afghanistan, studies also identify high rates of chronic pain among OEF and OIF veterans.[28–31] The co-occurrence of PTSD, TBI, and chronic pain, affecting as many as 42% of those receiving polytrauma care, has

come to be known as the polytrauma clinical triad (PCT).[30] Like PTSD and TBI, chronic pain has been associated with increased suicidality,[16,32,33] but no studies to date have examined the unique or combined contributions of the PCT to suicide risk among OEF or OIF veterans.

In this article we respond to previous calls in the literature for research to determine if PTSD, TBI, and pain are more strongly associated with suicide risk when occurring in certain combinations,[33,34] as well as whether PCT conditions are associated with elevated risk of suicide compared with other disorders already known to be associated with suicide and identified among a significant number of OEF and OIF veterans, including chronic disease, depression, anxiety, bipolar disorder, and substance use and sleep disorders.[34,35–39] In targeting these conditions and examining the potential impact of interactions among them, our intention was to query whether particular subgroups may be at elevated risk for SRB and thus to support improved clinical and preventive efforts to identify those who may be missed under current guidelines.

METHODS

In this retrospective cohort study, we used the Department of Veterans Affairs OEF/OIF roster file to identify VA patients returned from OEF or OIF. Those who also received VA inpatient or outpatient care at least once per year during a 3-year period (fiscal year [FY] 2009–2011: October 1, 2008, to September 30, 2011) with valid race/ethnicity data were eligible for inclusion. Baseline characteristics and comorbidities were identified in FY 2009.

Measures

Suicide-related behavior. We used *International Classification of Diseases, Ninth Revision, Clinical Modification* (*ICD-9-CM*) codes[40] from national VA inpatient and outpatient data to identify the outcomes of interest: suicide ideation (V62.84) and attempt (E950–E958: suicide and self-inflicted injury) during each of the 3 years of the study. We identified baseline suicide ideation and suicide attempt in FY 2009, and created a categorical variable of SRB during FY 2010–2011. Cohort members were grouped into 4 mutually exclusive categories: (1) neither ideation nor attempt, (2) ideation only, (3) attempt only, and (4) both ideation and attempt.

Demographic characteristics. We noted that there were relatively few older veterans in this cohort and also that previous analyses of VA data had identified increased risk for suicide among male veterans aged 25 years and younger.[17] Therefore, we clustered age in FY 2011 as follows: 18 to 25 years, 26 to 40 years, 41 to 55 years, and 56 years and older. We obtained age, gender, and race/ethnicity from the OEF/OIF roster and supplemented with VA data when missing. We classified race/ethnicity as African American, Hispanic, other (Native American, Pacific Islander, Asian, other), and non-Hispanic White (3% missing data). We conducted sensitivity analyses and determined that the effects of interest were independent of the missing race indicator and of inclusion or exclusion of cases without valid race/ethnicity. We thus excluded observations with missing race/ethnicity data. We obtained marital status (married vs other) from VA data, as well as military measures including the component of service (active duty vs Guard or Reserve) and rank (enlisted vs officer or warrant officer).

Clinical characteristics. We identified baseline clinical characteristics in FY 2009 with *ICD-9-CM* codes from validated algorithms that, with the exception of TBI, required 2 episodes of care with a diagnosis for each specific condition at least 7 days apart (Table A, available as a supplement to the online version of this article at http://www.ajph.org).[41–43] We first identified conditions included in the PCT: TBI, PTSD, and pain (which included headache and back, neck, and other noncancer pain). As VA administrative data do not include information on the number of TBIs experienced, TBI was constructed as a dichotomous yes-or-no category, as were all other conditions. We then identified previous SRB, insomnia, and other mental health diagnoses (depression, anxiety, bipolar disorder, schizophrenia, substance use disorder) as well as psychiatric hospitalization in FY 2009. Finally, we identified conditions in the Charlson Comorbidity Index with the Deyo algorithm.[43]

Analysis

We first examined descriptive statistics by suicidality category. Bivariate statistics tested the associations between clinical–demographic characteristics and outcomes with the χ^2 and student t test as appropriate.

We assessed multicollinearity with the variance inflation factor. The tolerance consistent with Allison yielded no evidence of multicollinearity when variance inflation factor values are not greater than 5 and tolerance is not less than 0.4.[44] Thus, we estimated a multinomial logistic regression model of suicidality, with neither ideation nor attempt as the reference category, with the logistic procedure in SAS version 9.2 (SAS Institute Inc, Cary, NC). With our large sample size, the study was overpowered, meaning that statistical significance was easily achieved. Because of this, we focused on moderate (odds ratio [OR] >1.5 or <0.67) to large effect sizes (OR >2.0 or <0.5).[45]

To test the hypothesis that unique combinations of postdeployment conditions are associated with suicide risk, we included interactions between PCT conditions and other SRB risk factors. To identify the latter, we examined interactions including conditions that were associated with large effect sizes (as defined previously) across all 3 SRB categories (ideation only, attempt only, and both ideation and attempt) when entered singly into the multivariate model. Two conditions, depression and substance abuse, met these criteria. We therefore examined interactions among the 3 PCT conditions, depression, and substance abuse.

RESULTS

Of 211 652 OEF or OIF veterans in this cohort, 205 899 (97.3%) had neither suicide ideation nor a suicide attempt documented in FY 2010–2011. Among those veterans with SRB (n = 5653; 2.6% of cohort), 4310 (2.0%) had ideation only, 753 (0.4%) had attempt only, and 690 (0.3%) had both ideation and attempt. Table 1 shows demographic and clinical correlates of SRB in this cohort.

In the multivariable model (Table 2), veterans in the 18- to 25-year-old group were significantly more likely and those in the groups aged 41 to 55 years and 56 years and older were less likely to engage in SRB across all categories compared with the referent category (group aged 26–40 years). African American veterans were less likely than non-Hispanic White veterans to have any SRB

TABLE 1—Demographic and Clinical Correlates of Suicide-Related Behavior Among Operation Enduring Freedom and Operation Iraqi Freedom Veterans in Department of Veterans Affairs Care: United States, Fiscal Year 2010–2011

Variable Name	No Attempt or Ideation (n = 205 899), No. (%) or Mean ±SD	Ideation Only (n = 4310), No. (%) or Mean ±SD	Attempt Only (n = 753), No. (%) or Mean ±SD	Ideation and Attempt (n = 690), No. (%) or Mean ±SD	Total (n = 211 652), No. (%) or Mean ±SD
Age, y					
18–25	11 372 (5.5)	354 (8.2)	70 (9.3)	74 (10.7)	11 870 (5.6)
26–40	123 587 (58.4)	3053 (70.8)	558 (74.1)	493 (71.5)	127 691 (60.3)
41–55	59 955 (29.1)	835 (19.4)	113 (15.0)	115 (16.7)	61 018 (28.8)
≥ 56	10 985 (5.3)	68 (1.6)	12 (1.6)	8 (1.2)	11 073 (5.2)
Race/ethnicity					
African American	37 088 (18.6)	636 (15.0)	96 (12.9)	91 (13.3)	37 911 (18.5)
Hispanic	24 923 (12.5)	622 (12.3)	84 (11.3)	63 (9.2)	25 592 (12.5)
Other	8245 (4.1)	138 (3.3)	43 (5.8)	31 (4.5)	8457 (4.1)
White	129 019 (64.7)	2945 (69.5)	519 (70.0)	502 (73.1)	132 988 (64.9)
Marital status					
Married	95 962 (46.6)	1795 (41.7)	290 (38.5)	283 (41.0)	98 330 (46.5)
Single	109 937 (53.4)	2515 (58.4)	463 (61.5)	407 (59.0)	113 322 (53.5)
Gender					
Male	177 823 (86.4)	3880 (90.0)	643 (85.4)	592 (85.8)	182 938 (86.4)
Female	28 076 (13.6)	430 (10.0)	110 (14.6)	98 (14.2)	28 714 (13.6)
Service component					
Active duty	117 618 (57.1)	2544 (59.0)	511 (67.9)	450 (65.2)	121 123 (57.2)
Guard or Reserves	88 281 (42.9)	1766 (41.0)	242 (32.1)	240 (34.8)	90 527 (42.8)
Rank					
Enlisted	192 709 (93.6)	4241 (98.4)	742 (98.5)	679 (98.4)	198 371 (93.7)
Officer or warrant officer	13 190 (6.4)	69 (1.6)	11 (1.5)	11 (1.6)	13 281 (6.3)
Charlson Comorbidity Index score	0.12 ±0.47	0.12 ±0.46	0.12 ±0.46	0.18 ±0.65	0.12 ±0.48
Headache	25 841 (12.6)	817 (19.0)	147 (19.5)	148 (21.5)	26 953 (12.7)
Insomnia	25 808 (12.8)	738 (18.2)	118 (16.7)	110 (17.6)	26 774 (12.9)
Pain	78 017 (37.9)	1914 (44.4)	328 (43.6)	324 (47.0)	80 583 (38.1)
Bipolar disorder	6465 (3.1)	577 (13.4)	113 (15.0)	135 (19.6)	7290 (3.44)
Anxiety disorder	22 442 (10.9)	1013 (23.5)	182 (24.2)	216 (31.3)	23 853 (11.3)
Substance abuse disorder	19 916 (9.7)	1599 (37.1)	296 (39.3)	327 (47.4)	22 138 (10.5)
Schizophrenia	1002 (0.5)	132 (3.1)	16 (2.1)	22 (3.2)	1172 (0.6)
Psychiatric hospitalization, FY 2009	4002 (1.9)	851 (19.7)	158 (21.0)	195 (28.3)	5206 (2.5)
Suicide-related behavior, FY 2009	1925 (0.9)	631 (14.6)	172 (22.8)	174 (25.2)	2902 (1.4)

Note. FY = fiscal year. All variables presented were significant in χ^2 analysis at the $P < .001$ level, with the exception of the Charlson score, for which *t* test was more appropriate because of low numbers in some cells. Differences by suicide-related behavior category in mean Charlson score were also significant at the $P < .001$ level.

during the study period. Hispanic veterans were less likely than non-Hispanic Whites to both attempt and ideate, although there were no differences in odds of ideation or attempt alone. Veterans of other race/ethnicity were at increased risk of attempting suicide but not of ideating or both attempting and ideating. Female veterans were more likely than male veterans to attempt suicide or to both attempt and ideate, but were less likely to report ideation alone. Guard or Reserve status was associated with increased odds of reporting ideation and decreased odds of suicide attempt compared with active-duty status, but there was no significant relationship with service component among those who had both attempt and ideation. Higher rank was associated with significantly reduced risk of all SRBs.

The multivariable model revealed no significant increase in odds of SRB among those with insomnia. Veterans with a diagnosis of bipolar disorder, anxiety, substance abuse, schizophrenia, depression, or PTSD were significantly more likely to be diagnosed with all 3 categories of SRB. Psychiatric hospitalization in FY 2009 was also significantly associated with ideation and combined attempt and ideation in FY 2010–2011. Previous SRB was a significant predictor of subsequent suicidality across all categories. Having a TBI was not independently associated with any SRB. Pain was associated with significantly reduced

TABLE 2—Multivariable Model of Demographic and Clinical Characteristics Associated with Suicide-Related Behavior Among Operation Enduring Freedom and Operation Iraqi Freedom Veterans in Department of Veterans Affairs Care: United States, Fiscal Year 2010–2011

Variable	Ideation Only, OR (95% CI)	Attempt Only, OR (95% CI)	Ideation and Attempt, OR (95% CI)
Age, y			
18–25	1.4** (1.2, 1.6)	1.5** (1.1, 1.9)	1.8** (1.4, 2.4)
26–40 (Ref)	1.0	1.0	1.0
41–55	0.7** (0.6, 0.8)	0.6** (0.5, 0.8)	0.7** (0.5, 0.9)
≥ 56	0.4** (0.3, 0.5)	0.5* (0.3, 0.8)	0.3** (0.2, 0.7)
Race/ethnicity			
African American	0.9* (0.8, 1.0)	0.8* (0.6, 1.0)	0.8* (0.6, 1.0)
Hispanic	1.0 (0.9, 1.1)	0.9 (0.7, 1.2)	0.7* (0.6, 1.0)
Other	0.9 (0.7, 1.0)	1.5* (1.1, 2.0)	1.1 (0.8, 1.6)
White (Ref)	1.0	1.0	1.0
Married vs single	1.0 (0.9, 1.0)	1.0 (0.8, 1.2)	0.9 (0.7, 1.1)
Female vs male	0.8** (0.7, 0.9)	1.3* (1.0, 1.6)	1.3 (1.0, 1.6)
Guard or Reserve vs active duty	1.2** (1.1, 1.2)	0.8** (0.7, 0.9)	0.9 (0.7, 1.0)
Officer or warrant officer vs enlisted	0.5** (0.4, 0.6)	0.5** (0.3, 0.8)	0.5* (0.3, 0.9)
Charlson Comorbidity Index score	1.0 (0.9, 1.1)	1.1 (0.9, 1.2)	1.2** (1.1, 1.4)
Insomnia	1.0 (1.0, 1.1)	1.0 (0.8, 1.2)	0.9 (0.7, 1.1)
Bipolar disorder	1.7** (1.6, 1.9)	1.8** (1.5, 2.3)	2.2** (1.7, 2.7)
Anxiety disorder	1.3** (1.2, 1.4)	1.3** (1.1, 1.5)	1.7** (1.4, 2.1)
Schizophrenia	2.4** (2.0, 3.0)	1.6 (0.9, 2.7)	2.1** (1.3, 3.3)
Psychiatric hospitalization, FY 2009	1.9** (1.6, 2.1)	0.9 (0.7, 2.1)	1.5* (1.2, 2.1)
Suicide-related behavior, FY 2009	3.5** (3.1, 4.1)	10.0** (7.7, 13.2)	6.6** (5.0, 8.6)
No TBI, PTSD, pain, depression, or SA (Ref)	1.0	1.0	1.0
Single conditions			
TBI only (n = 1260)	0.9 (0.5, 1.7)	1.5 (0.5, 4.7)	0.6 (0.1, 4.6)
PTSD only (n = 13 468)	2.3** (2.0, 2.6)	2.0** (1.4, 2.9)	1.8** (1.2, 2.8)
Pain only (n = 38 426)	0.7** (0.6, 0.8)	0.7 (0.5, 1.0)	0.8 (0.5, 1.25)
Depression only (n = 6568)	2.8** (2.4, 3.4)	2.5** (1.7, 3.9)	3.2** (2.1, 5.0)
SA only (n = 2607)	3.6** (2.9, 4.5)	2.7** (1.5, 4.8)	3.7** (2.1, 6.5)
2 co-occurring conditions			
Comorbid TBI + PTSD (n = 1469)	2.3** (1.6, 3.4)	3.7** (1.9, 7.4)	1.1 (0.3, 4.4)
Comorbid TBI + pain (n = 2018)	1.0 (0.6, 1.6)	1.6 (0.7, 4.0)	0.9 (0.2, 3.5)
Comorbid TBI + depression (n = 232)	1.8 (0.7, 5.0)	2.6 (0.4, 18.6)	3.0 (0.4, 21.9)
Comorbid TBI + SA (n = 92)	4.5** (1.8, 11.5)	5.3 (0.7, 38.8)	. . .[a]
Comorbid PTSD + pain (n = 14 018)	2.3** (2.0, 2.7)	1.7** (1.2, 2.5)	2.0** (1.3, 3.1)
Comorbid PTSD + depression (n = 7729)	4.2** (3.6, 4.8)	3.7** (2.6, 5.3)	3.8** (2.6, 5.7)
Comorbid PTSD + SA (n = 2871)	4.7** (3.9, 5.6)	4.3** (2.7, 6.7)	5.2** (3.3, 8.3)
Comorbid pain + depression (n = 6744)	3.2** (2.7, 3.8)	3.0** (2.0, 4.5)	3.4** (2.2, 5.2)
Comorbid pain + SA (n = 1252)	3.2** (2.3, 4.4)	2.7* (1.2, 6.2)	4.2** (2.0, 8.8)
Comorbid depression + SA (n = 1341)	6.8** (5.4, 8.4)	6.8** (4.2, 11.1)	6.2** (3.6, 10.7)
3 co-occurring conditions			
TBI + PTSD + pain (n = 4383)	1.9** (1.5, 2.4)	1.7 (1.0, 3.2)	2.6** (1.5, 4.6)
TBI + PTSD + depression (n = 848)	3.2** (2.2, 4.7)	3.0* (1.2, 7.5)	4.6** (2.0, 10.6)
TBI + PTSD + SA (n = 426)	5.4** (3.6, 8.0)	4.2** (1.5, 11.6)	2.5 (0.6, 10.2)
TBI + pain + depression (n = 569)	2.6** (1.5, 4.5)	1.0 (0.1, 7.0)	1.2 (0.2, 8.6)

Continued

risk of suicide ideation during the study period, but there was no association with either attempt or attempt and ideation.

On the basis of our study hypotheses, we examined interactions for PCT, depression, and substance abuse. When we examined conditions occurring dually, we identified significant interactions for TBI and PTSD in the ideation- and attempt-only categories and for TBI and substance abuse in the ideation-only category. We identified significant interactions across all categories for co-occurring PTSD and pain, PTSD and depression, PTSD and substance abuse, pain and depression, pain and substance abuse, and depression and substance abuse. When we examined comparative risk by assessing where confidence intervals overlapped between interaction conditions, we found that, although veterans with comorbid TBI and PTSD or TBI and substance abuse were at elevated risk of SRB, TBI comorbidity was not associated with increased risk of SRB compared with PTSD or substance abuse alone. In addition, pain comorbidity was not associated with increased risk of SRB over PTSD, depression, or substance abuse alone. By contrast, adding comorbid depression to a diagnosis of PTSD significantly increased odds of ideation over that associated with PTSD alone, and adding comorbid substance abuse to a diagnosis of PTSD resulted in significantly increased odds of both ideation and ideation and attempt, although not attempt only. Veterans with comorbid PTSD and depression were at greater risk for ideation than those with depression alone, but not for attempt or attempt and ideation; comorbid PTSD made no additional contribution to risk for SRB among those with substance abuse.

We also examined interactions occurring when these conditions occurred in groups of 3, 4, or 5. As expected, nearly all of these combinations were associated with increased risk of SRB, including the triad of TBI, PTSD, and pain, which was associated with increased ideation and ideation and attempt, although not with attempt alone. Even so, the co-occurrence of all 3 PCT conditions did not increase risk above that associated with PTSD, depression, or substance abuse alone. As a general trend, as the number of comorbidities increased, those interactions including PTSD,

TABLE 2—*Continued*

TBI + pain + SA (n = 143)	2.7* (1.1, 6.8)	5.7* (1.4, 24.3)	. . .[a]
TBI + depression + SA (n = 45)	6.9** (2.4, 20.1)	9.0* (1.2, 69.0)	. . .[a]
PTSD + pain + depression (n = 11 038)	4.4** (3.9, 5.0)	4.2** (3.1, 5.7)	3.5** (2.4, 5.0)
PTSD + pain + SA (n = 2505)	5.1** (4.2, 6.1)	6.2** (4.1, 9.4)	8.1** (5.3, 12.3)
PTSD + depression + SA (n = 3178)	6.9** (5.9, 8.1)	6.2** (4.3, 8.8)	9.4** (6.6, 13.4)
4 co-occurring conditions			
TBI + PTSD + pain + depression (n = 3486)	4.3** (3.5, 5.2)	4.7** (3.0, 7.1)	4.1** (2.5, 6.7)
TBI + PTSD + pain + SA (n = 912)	7.5** (5.8, 9.7)	6.8** (3.8, 12.4)	7.3** (3.9, 13.7)
TBI + PTSD + depression + SA (n = 457)	6.0** (4.2, 8.6)	10.5** (5.8, 19.1)	8.0** (3.9, 16.6)
TBI + pain + depression + SA (n = 103)	4.0** (1.6, 10.1)	9.3** (2.2, 39.2)	19.1** (6.6, 55.7)
PTSD + pain + depression + SA (n = 3705)	7.7** (6.6, 8.9)	7.4** (5.3, 10.3)	7.7** (5.4, 11.1)
5 co-occurring conditions: TBI + PTSD + pain + depression + SA (n = 1497)	6.0** (4.9, 7.4)	7.4** (4.8, 11.4)	10.9** (7.2, 16.5)

Note. CI = confidence interval; FY = fiscal year; OR = odds ratio; PTSD = posttraumatic stress disorder; SA = substance abuse; TBI = traumatic brain injury.
[a]Too few cases for meaningful estimated effect.
*$P \leq .05$; **$P \leq .01$.

depression, and substance abuse continued to be associated with the highest levels of risk.

DISCUSSION

We report on a multiyear study of SRB among a national cohort of OEF and OIF veterans receiving care at the VA. In contrast with research reporting that TBI may increase risk of suicide[22] and despite a significant relationship between TBI and SRB in bivariate analyses, we found no association in the multivariable model once we included demographic and other clinical characteristics. Likewise, there was no increased risk of SRB associated with pain in the multivariable model; moreover, pain was associated with decreased risk of suicide ideation. Although this is somewhat surprising, as previous studies have linked pain with increased suicide ideation,[46] at least 1 other study has reported that pain is no longer associated with SRB among veterans once mental health diagnoses are taken into account.[34] As both TBI and pain ceased to be significantly associated with increased SRB risk in the multivariable model, it was not surprising that the interaction for PCT (co-occurring PTSD, TBI, and pain) conditions, though significantly associated with ideation and with ideation and attempt, did not appear to increase risk for SRB above that associated with PTSD, depression, or substance abuse alone.

We also examined the interaction between PTSD and TBI and found that, although veterans with both PTSD and TBI were at elevated risk of SRB, their risk was not significantly greater than that posed by PTSD alone. This may be attributable in part to the relative infrequency of TBI occurring without a comorbid PTSD diagnosis, making the chance of counting SRBs less likely because of small numbers. Adding depression or substance abuse to PTSD significantly increased risk for suicide ideation, thus reaffirming the role of these conditions—both independently and when co-occurring alongside PTSD—in suicidality.

Depression and substance abuse may be of particular importance in understanding suicide risk among OEF and OIF veterans. In contrast to the Ilgen et al.[16] study of suicidality among veterans of other eras, our study indicates that depression is associated with risk greater than or comparable to bipolar depression or anxiety disorder. Previous studies have been mixed in their findings with regard to the impact of co-occurring PTSD and depression on risk of SRB,[20] with some studies suggesting that depression asserts its influence independently of PTSD[47,48] and others suggesting that the 2 conditions may interact to amplify suicidality.[49] These mixed results may reflect differential risk associated with suicide ideation versus attempts, as we found that those with comorbid PTSD and depression were significantly more likely to exhibit suicide ideation than those with depression alone, but that the increase in risk was not significantly greater for those with attempts or attempts and ideation.

The multivariable model also reinforced previous research demonstrating the importance of substance abuse as a predictor for SRBs among veterans, particularly when co-occurring alongside depression or TBI or both.[50,51] This is consistent with previous findings that indicators of substance abuse, such as blood alcohol content at the time of death, are common among veterans who die by suicide, particularly those who are young or middle-aged.[17] The importance of substance abuse in our analyses is worrying, as some studies suggest that VA providers may underdiagnose substance use disorders.[52,53] However, it may also be that more severe substance abuse disorders are overrepresented in this sample because of this tendency, thus contributing to the power of substance abuse in predicting SRB in this analysis. Additional research will be required to better understand these linkages and how best to address them in clinical practice.

In accordance with previous literature, age, gender, bipolar disorder, anxiety, schizophrenia, previous psychiatric hospitalization, and previous SRB remained important predictors for SRB in this analysis. Veterans of OEF or OIF aged 56 years and older were least likely to exhibit SRB, with risk highest in the group aged 18 to 25 years. This finding is in contrast to age-related suicide risk among the broader population of veterans of all eras, for whom 69% of completed suicides are among those aged 50 years and older.[11] It may reflect the fact that older individuals in the OEF and OIF population are likely in better health than other veterans or nonveterans of the same age, having been healthy enough to deploy to a combat zone in the recent past. Veterans of officer or warrant officer rank were at markedly reduced risk for SRB, consistent with previous research.[54,55] Previous psychiatric hospitalization correlated with later ideation or ideation and attempt, but not attempt only. Previous SRB, which included any previous ideation as well as attempts, emerged as the strongest predictor of later SRB, and chronic

SRB may be among the most telling clinical predictors for completed suicide.[13,56]

It was interesting that we also found that female veterans were less likely than male veterans to exhibit suicide ideation, which directly contradicts previous research findings in this area[49] and may suggest that women are less comfortable reporting ideation within VA.[57,58] It is worth noting as a broader point that documented cases of suicide attempt outnumber cases of both suicide ideation and attempt, which suggests that suicide ideation may frequently go undetected—further highlighting the importance of developing improved strategies for identifying those at risk.

Strengths and Limitations

There are a number of strengths to this study, which reports on multiple years of data from a VA-wide patient sample and goes beyond self-reported assessments to draw on suicide ideation and attempts as documented by providers. Limitations include the following: only veterans enrolled in the VA health care system are included in the sample; providers are not always accurate in their coding of SRB or other conditions, thus introducing potential error into the data; and VA administrative data do not report on completed suicides and we therefore cannot determine which of the examined risk factors may be most closely linked to risk of death by suicide. Given their consistent utilization of VA services (at least 1 visit each year in FY 2009–2011), veterans in this cohort may have poorer health than the population of all OEF and OIF veterans. Use of VA administrative codes to identify suicide attempts is known to have high specificity, if low sensitivity.[59] Although an attribution of pain required 2 diagnoses occurring at least 7 days apart and therefore captured primarily chronic pain conditions, the pain variable may include some instances of acute as well as chronic pain.

Also, our analyses are based on categorical rather than continuous variables and so they do not address how SRB may be affected by the severity of conditions (e.g., PTSD) or frequency of utilization events (e.g., SRB). This may be especially relevant for our examination of TBI, for which several studies have suggested differential risk by severity of injury.[22,26] Our findings also do not capture the severity of ideation or the lethality of attempts. Use of categorical variables does suggest that our results are relatively conservative, as they account for all cases of a particular condition rather than solely the most severely affected.

Clinical Implications

In recent years, VA has placed increasing emphasis on improving clinical care for PTSD and TBI in an effort to respond to the growing numbers of men and women returning from combat deployment with cognitive and psychological sequelae. In confirming the role of PTSD as an independent predictor of both suicide ideation and attempts, our findings attest to the importance of such efforts. At the same time, this study reasserts the importance of depression and substance abuse as additional risk factors for suicide among OEF and OIF veterans,[3,14] particularly those with comorbid PTSD. Because these conditions remain strong predictors of suicide risk for this population, and may exacerbate suicidality among those struggling with symptoms of other "invisible wounds of war,"[60] it is more than ever essential to ensure that all veterans receive appropriate screening and treatment of symptoms of depression and substance abuse.

It may be that VA's suicide prevention efforts can benefit from developing screening criteria explicitly tailored to address the risk factors most salient for OEF and OIF veterans. The VA's system of electronic records and clinical reminders can be used to aid providers in targeting the needs of veterans of a particular cohort, age, or comorbidity profile. For example, a targeted OEF and OIF cohort risk assessment template could highlight the age group of 18 to 25 years as a time for heightened risk of suicidality.

Such a template might also signal a history of previous suicidality or presence of other psychiatric illness, including co-occurrence of depression or substance abuse alongside PTSD, as important "red flags" suggesting that additional screening, care integration, or follow-up care may be indicated. It may be appropriate to reexamine how depression and substance abuse treatment are integrated into existing care management for OEF and OIF veterans in primary and specialty mental health care settings. It may also be that those with comorbid PTSD and depression or substance abuse can benefit from an enhanced treatment model that is attentive to their full spectrum of mental health and rehabilitation needs. It is our hope that these findings can inform the development of more effective strategies to decrease suicide among our nation's most recent veterans. ■

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Contributors

M. J. V. Pugh is the principal investigator on the study from which these data were drawn. All authors made contributions to the design of research questions and data analyses. E. P. Finley was responsible for drafting the article and integrating co-author feedback. M. E. Amuan completed statistical analyses. All authors provided input on interpretation of findings and the final article. E. P. Finley and M. J. V. Pugh had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the analyses.

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Human Participant Protection

The study was approved by the authors' institutional review boards before initiation.

References

1. Hoge CW, Auchterlonie JL, Milliken CS. Mental health problems, use of mental health services, and attrition from military services after returning from deployment to Iraq or Afghanistan. *JAMA.* 2006;295 (9):1023–1032.

2. Hoge CW, Castro CA, Messer SC, McGurk D, Cotting DI, Koffman RL. Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *N Engl J Med.* 2004;351(1):13–22.

3. Wells TS, LeardMann CA, Fortuna SO, et al. A prospective study of depression following combat deployment in support of the wars in Iraq and Afghanistan. *Am J Public Health.* 2010;100(1):90–99.

4. Cohen BE, Gima K, Bertenthal D, Kim S, Marmar CR, Seal KH. Mental health diagnoses and utilization of VA non-mental health medical services among returning Iraq and Afghanistan veterans. *J Gen Intern Med.* 2010;25(1):18–24.

5. Seal KH, Bertenthal D, Miner CR, Sen S, Marmar C. Bringing the war back home: mental health disorders among 103,788 US Veterans returning from Iraq and Afghanistan seen at Department of Veterans Affairs facilities. *Arch Intern Med.* 2007;167(5):476–482.

6. Barnes SM, Walter KH, Chard KM. Does a history of mild traumatic brain injury increase suicide risk in veterans with PTSD? *Rehabil Psychol.* 2012;57(1): 18–26.

7. Kaplan MS, Huguet N, McFarland B, Newsom J. Suicide among male veterans: a prospective population-based study. *J Epidemiol Community Health.* 2007;61 (7):619–624.

8. Kang HK, Bullman TA. Risk of suicide among U.S. Veterans after returning from the Iraq or Afghanistan war zones. *JAMA.* 2008;300(6):652–653.

9. Katz IR, McCarthy JF, Ignacio RV, Kemp J. Suicide among veterans in 16 states, 2005–2008: comparisons between utilizers and nonutilizers of Veterans Health Administration (VHA) services based on data from the National Death Index, the National Violent Death Reporting System, and VHA administrative records. *Am J Public Health.* 2012;102(suppl 1): S105–S110.

10. Defense Casualty Analysis System. Active duty military deaths by year and manner. 2012. Available at: https://www.dmdc.osd.mil/dcas/pages/report_by_year_manner.xhtml. Accessed April 18, 2013.

11. Kemp J, Bossarte R. Suicide data report, 2012. Washington, DC: Department of Veterans Affairs, Mental Health Services, Suicide Prevention Program; 2012.

12. *VA/DoD Clinical Practice Guideline for Assessment and Management of Patients at Risk for Suicide.* Washington, DC: Veterans Affairs, Department of Defense; 2013.

13. Weiner J, Richmond TS, Conigliaro J, Wiebe DJ. Military veteran mortality following a survived suicide attempt. *BMC Public Health.* 2011;11:374.

14. Ilgen MA, McCarthy JF, Ignacio RV, et al. Psychopathology, Iraq and Afghanistan service, and suicide among Veterans Health Administration Patients. *J Consult Clin Psychol.* 2012;80(3):323–330.

15. Pietrzak RH, Goldstein MB, Malley JC, Rivers AJ, Johnson DC, Southwick SM. Risk and protective factors associated with suicidal ideation in veterans of Operations Enduring Freedom and Iraq Freedom. *J Affect Disord.* 2010;123(1-3):102–107.

16. Ilgen MA, Bohnert ASB, Ignacio RV, et al. Psychiatric diagnoses and risk of suicide in Veterans. *Arch Gen Psychiatry.* 2010;67(11):1152–1158.

17. Kaplan MS, McFarland BH, Huguet N, Valenstein MM. Suicide risk and precipitating circumstances among young, middle-aged, and older male veterans. *Am J Public Health.* 2012;102(suppl 1):S131–S137.

18. Seal KH, Metzler TJ, Gima KS, Bertenthal D, Maguen S, Marmar CR. Trends and risk factors for mental health diagnoses among Iraq and Afghanistan veterans using Department of Veterans Affairs health care, 2002–2008. *Am J Public Health.* 2009;99(9):1651–1658.

19. Jakupcak M, Hoerster K, Varra A, Vannoy S, Felker B, Hunt S. Hopelessness and suicidal ideation in Iraq and Afghanistan war veterans reporting subthreshold and threshold posttraumatic stress disorder. *J Nerv Ment Dis.* 2011;199(4):272–275.

20. Guerra VS, Calhoun PS, Mid-Atlantic Mental Illness Research, Education and Clinical Center Workgroup. Examining the relation between posttraumatic stress disorder and suicidal ideation in an OEF/OIF veteran sample. *J Anxiety Disord.* 2011;25(1):12–18.

21. Wilcox HC, Storr CL, Breslau N. Posttraumatic stress disorder and suicide attempts in a community sample of urban American young adults. *Arch Gen Psychiatry.* 2009;66(3):305–311.

22. Brenner LA, Ignacio RV, Blow FC. Suicide and traumatic brain injury among individuals seeking Veterans Health Administration services. *J Head Trauma Rehabil.* 2011;26(4):257–264.

23. Bryan CJ, Clemens TA. Repetitive traumatic brain injury, psychological symptoms, and suicide risk in a clinical sample of deployed military personnel. *JAMA Psychiatry.* 2013;70(7):686–691.

24. Yurgelun-Todd DA, Bueler CE, McGlade EC, Churchwell JC, Brenner LA, Lopez-Larson MP. Neuroimaging correlates of traumatic brain injury and suicidal behavior. *J Head Trauma Rehabil.* 2011;26(4):276–289.

25. MacGregor AJ, Dougherty AL, Tang JJ, Galarneau MR. Postconcussive symptom reporting among US combat veterans with mild traumatic brain injury from Operation Iraqi Freedom. *J Head Trauma Rehabil.* 2013;28(1):59–67.

26. Bryan CJ, Clemans TA, Hernandez AM, Rudd MD. Loss of consciousness, depression, posttraumatic stress disorder, and suicide risk among deployed military personnel with mild traumatic brain injury. *J Head Trauma Rehabil.* 2013;28(1):13–20.

27. Skopp NA, Trofimovich L, Grimes J, Oetjen-Gerdes L, Gahm GA. Relations between suicide and traumatic brain injury, psychiatric diagnoses, and relationship problems, active component, U.S. Armed Forces, 2001–2009. *MSMR.* 2012;19(2):7–11.

28. Gironda RJ, Clark ME, Ruff RL, et al. Traumatic brain injury, polytrauma, and pain: challenges and treatment strategies for the polytrauma rehabilitation. *Rehabil Psychol.* 2009;54(3):247–258.

29. Sayer NA, Chiros CE, Sigford B, et al. Characteristics and rehabilitation outcomes among patients with blast and other injuries sustained during the Global War on Terror. *Arch Phys Med Rehabil.* 2008;89(1):163–170.

30. Lew HL, Otis JD, Tun C, Kerns RD, Clark ME, Cifu DX. Prevalence of chronic pain, posttraumatic stress disorder, and persistent postconcussive symptoms in OIF/OEF veterans: polytrauma clinical triad. *J Rehabil Res Dev.* 2009;46(6):697–702.

31. Brotman DJ, Golden SH, Wittstein IS. The cardiovascular toll of stress. *Lancet.* 2007;370(9592):1089–1100.

32. Ilgen MA, Zivin K, Mccammon RJ, Valenstein MM. Pain and suicidal thoughts, plans, and attempts in the United States. *Gen Hosp Psychiatry.* 2008;30(6):521–527.

33. Britton PC, Ilgen MA, Valenstein M, Knox K, Claassen CA, Conner KR. Differences between veteran suicides with and without psychiatric symptoms. *Am J Public Health.* 2012;102(suppl 1):S125–S130.

34. Magruder KM, Yeager D, Brawman-Mintzer O. The role of pain, functioning, and mental health in suicidality among Veterans Affairs primary care patients. *Am J Public Health.* 2012;102(suppl 1):S118–S124.

35. Ilgen MA, Conner KR, Roeder KM, Blow FC, Austin K, Valenstein MM. Patterns of treatment utilization before suicide among male veterans with substance use disorders. *Am J Public Health.* 2012;102(suppl 1):S88–S92.

36. Jakupcak M, Cook JW, Imel Z, Fontana A, Rosenheck RA. Posttraumatic stress disorder as a risk factor for suicidal ideation in Iraq and Afghanistan War veterans. *J Trauma Stress.* 2009;22(4):303–306.

37. Pigeon WR, Britton PC, Ilgen MA, Chapman B, Conner KR. Sleep disturbance preceding suicide among veterans. *Am J Public Health.* 2012;102(suppl 1):S93–S97.

38. Fontana A, Rosenheck R. Attempted suicide among Vietnam veterans: a model of etiology in a community sample. *Am J Psychiatry.* 1995;152(1):102–109.

39. Kaplan MS, McFarland BH, Huguet N, Valenstein M. Suicide risk and precipitation circumstances among young, middle-aged, and older male Veterans. *Am J Public Health.* 2012;102(suppl 1):S131–S137.

40. Buck CJ. *2012 ICD-9-CM for Physicians 2, Professional Edition.* Vol 1. St Louis, MO: Elsevier Saunders; 2012.

41. Department of Defense. Department of Defense *ICD-9* coding guidance for traumatic brain injury. Available at: http://dvbic.dcoe.mil/sites/default/files/DCoE_ICD-9-Coding-Guidance.pdf. Accessed February 12, 2013.

42. Selim AJ, Fincke G, Ren XS, et al. Comorbidity assessments based on patient report: results from the Veterans Health Study. *J Ambul Care Manage.* 2004;27 (3):281–295.

43. Deyo RA, Cherkin D, Ciol M. Adapting a clinical comorbidity index for use with *ICD-9-CM* administrative databases. *J Clin Epidemiol.* 1992;45(6):613–619.

44. Allison P. *Logistic Regression Using SAS: Theory and Application.* Cary, NC: SAS Institute; 2001.

45. Wickens TD, ed. *Multiway Contingency Tables Analysis for the Social Sciences.* Hillsdale, NJ: Taylor and Francis Inc; 1989.

46. Ilgen MA, Zivin K, Austin K, et al. Severe pain predicts greater likelihood of subsequent suicide. *Suicide Life Threat Behav.* 2010;40(6):597–608.

47. Bryan CJ, Corso K. Depression, PTSD, and suicidal ideation among active duty veterans in an integrated primary care clinic. *Psychol Serv.* 2011;8(2):94–103.

48. Holtzheimer PE, Russo J, Zatzick D, Bundy C, Roy-Byrne PP. The impact of comorbid posttraumatic stress disorder on short-term clinical outcome in hospitalized patients with depression. *Am J Psychiatry.* 2005;162 (5):970–976.

49. Lemaire CM, Graham DP. Factors associated with suicidal ideation in OEF/OIF veterans. *J Affect Disord.* 2011;130(1-2):231–238.

50. Kim HM, Smith EG, Ganoczy D, et al. Predictors of suicide in patient charts among patients with depression in the Veterans Health Administration health system: importance of prescription drug and alcohol abuse. *J Clin Psychiatry.* 2012;73(10):e1269–e1275.

51. Olson-Madden JH, Forster JE, Huggins J, Schneider A. Psychiatric diagnoses, mental health utilization, high-risk behaviors and self-directed violence among veterans with comorbid history of traumatic brain injury and substance use disorders. *J Head Trauma Rehabil.* 2012;27(5):370–378.

52. Grossman LS, Willer JK, Stovall JG, McRae SG, Maxwell S, Nelson R. Underdiagnosis of PTSD and substance use disorders in hospitalized female veterans. *Psychiatr Serv.* 1997;48(3):393–395.

53. Bonn-Miller MO, Bucossi MM, Trafton J. The underdiagnosis of cannabis use disorders and other axis-I disorders among military veterans within VHA. *Mil Med.* 2012;177(7):786–788.

54. Maclean A, Edwards RD. The pervasive role of rank in the health of US Veterans. *Armed Forces Soc.* 2010;36 (5):765–785.

55. Bell NS, Harford T, Amoroso PJ, Hollander I, Kay A. Prior health care utilization patterns and suicide among U.S. Army soldiers. *Suicide Life Threat Behav.* 2010;40 (4):407–415.

56. Owens D, Horrocks J, House A. Fatal and non-fatal repetition of self-harm: systematic review. *Br J Psychiatry.* 2002;181:193–199.

57. Street AE, Vogt DS, Dutra L. A new generation of women veterans: stressors faced by women deployed to Iraq and Afghanistan. *Clin Psychol Rev.* 2009;29(8): 685–694.

58. Mattocks KM, Haskell SG, Krebs EE, Justice AC, Yano EM, Brandt C. Women at war: understanding how women veterans cope with combat and military sexual trauma. *Soc Sci Med.* 2012;74(4):537–545.

59. Kim HM, Smith EG, Stano CM, et al. Validation of key behaviorally based mental health diagnoses in administrative data: suicide attempt, alcohol abuse, illicit drug abuse, and tobacco use. *BMC Health Serv Res.* 2012;12:18.

60. Tanielian T, Jaycox LH. Invisible wounds of war: psychological and cognitive injuries, their consequences, and services to assist recovery. San Diego, CA: RAND Corp; 2008.

Suicide Among Veterans in 16 States, 2005 to 2008: Comparisons Between Utilizers and Nonutilizers of Veterans Health Administration (VHA) Services Based on Data From the National Death Index, the National Violent Death Reporting System, and VHA Administrative Records

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Objectives. We sought to compare suicide rates among veterans utilizing Veterans Health Administration (VHA) services versus those who did not.

Methods. Suicide rates from 2005 to 2008 were estimated for veterans in the 16 states that fully participated in the National Violent Death Reporting System (NVDRS), using data from the National Death Index, NVDRS, and VHA records.

Results. Between 2005 and 2008, veteran suicide rates differed by age and VHA utilization status. Among men aged 30 years and older, suicide rates were consistently higher among VHA utilizers. However, among men younger than 30 years, rates declined significantly among VHA utilizers while increasing among nonutilizers. Over these years, an increasing proportion of male veterans younger than 30 years received VHA services, and these individuals had a rising prevalence of diagnosed mental health conditions.

Conclusions. The higher rates of suicide for utilizers of VHA among veteran men aged 30 and older were consistent with previous reports about which veterans utilize VHA services. The increasing rates of mental health conditions in utilizers younger than 30 years suggested that the decreasing relative rates in this group were related to the care provided, rather than to selective enrollment of those at lower risk for suicide. (*Am J Public Health.* 2012;102:S105–S110. doi: 10.2105/AJPH.2011.300503)

Since the start of the wars in Afghanistan and Iraq, there has been increasing interest in suicide among American military veterans. This reflects a number of important issues. First, veterans constitute a sizeable population that has been identified as being at increased risk for suicide by some[1,2] but not all,[3] research studies. Second, there is increasing evidence that suicide may be a consequence of the stresses related to the experience of deployment and combat.[4] Third, there have been concerns about the extent to which the Veterans Health Administration (VHA), the Department of Veterans Affairs (VA) health care system, has addressed the needs of veterans, especially those who have returned from service in Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF), the wars in Afghanistan and Iraq.

Since the start of OEF and OIF, there have been a number of reports on rates and risk factors for death from suicide among all American veterans, independent of whether they have received VHA health care services,[1-3,5-9] as well as a greater number of reports on those who utilize VHA services,[10-22] and on mixed samples.[23] Currently, the literature is not clear as to whether rates in veterans as a whole are higher than those for other Americans after controlling for demographic variables. However, there is evidence for increased rates in veterans utilizing VHA health care services. To date, there have been no reports of comparisons between veterans who utilize VHA services (utilizers) and those who do not (nonutilizers). This information is critical to advance a population-based approach to suicide prevention in veterans; to evaluate how the burden of suicide is distributed in the total veteran population; and to assess how completely VHA, the nation's largest integrated health care system, addresses the needs of the population it was established to serve.

Comparisons between suicide rates among veterans who are VHA utilizers versus nonutilizers can also provide information on the impact of recent changes in the VHA and the patients it serves. Toward the end of 2005, VHA began to implement a mental health strategic plan based on recommendations from the President's New Freedom Commission on Mental Health[24] as well as recognition of the mental health needs of returning veterans. At the same time, VHA began to increase the budget for mental health services to support this strategy. As a result of these enhancements, systemwide VA mental health staffing increased 26.1%, from 13 667 at the start of 2005 to 17 234 at the end of 2008. Over this same period, the total number of veterans seen per year in VHA increased 3.6%, from 5.02 million in 2005 to 5.20 million in 2008; the number with diagnosed mental health conditions increased 15.0%, from 1.45 to 1.69 million; and the percentage of veteran patients with mental health conditions increased by 11.1%, from 28.9% to 32.1%.[25]

Veterans returning from OEF and OIF are all eligible for VHA services during the first 5 years after they return from deployment without additional requirements. For veterans who served in previous eras, VHA eligibility is determined by factors such as service-connected health conditions, disability, age, and income.[26] The differences in eligibility requirements, as well as differences in the recency of deployment and the acuity of deployment-related conditions, suggest the importance of

testing for differences between age groups both when comparing suicide rates in veterans who are VHA utilizers versus nonutilizers and when evaluating changes in rates over time.

For our study, we compared rates of suicide and assessed changes over time among veterans who utilized VHA health care services and those who did not, by gender, age group, and year. Given greater morbidity among those veterans who received VHA services, we hypothesized that suicide rates were higher among veterans who were VHA utilizers than those who were nonutilizers. Given the magnitude of VHA mental health enhancements, we hypothesized that rates among VHA utilizers would decrease over time. Finally, given greater acuity of mental health problems in OEF and OIF veterans, we hypothesized that among VHA utilizers decreases in rates would be greater among younger than older veterans.

METHODS

Suicide rates for veterans using VHA health services and for other veterans were estimated using VHA administrative data, vital status, and cause of death records from the National Center for Health Statistics' National Death Index (NDI),[27] and state-level information on suicides among veterans, by gender and age, from the Center for Disease Control and Prevention's National Violent Death Reporting System (NVDRS).[28] Clinical information from the VHA's electronic health records was not utilized because it was not available for those who did not utilize VHA services.

Suicide rates, expressed as suicide deaths per 100 000 person-years, were estimated for veterans in the 16 states that fully participated in NVDRS from 2005 to 2008 (Alaska, Colorado, Georgia, Kentucky, Maryland, Massachusetts, New Jersey, New Mexico, North Carolina, Oklahoma, Oregon, Rhode Island, South Carolina, Utah, Virginia, and Wisconsin).

Suicide mortality among individuals receiving VHA services was estimated using VHA administrative data included in the National Patient Care Database and NDI data using previously described methods.[19,21] Briefly, we identified all patients with VHA inpatient or outpatient encounters from 2005 to 2008 who had no VHA encounters in subsequent years, and we queried the NDI to determine these individuals' vital status, and, for those who died, their cause of death. To estimate state-level suicide rates, VHA users who died from suicide were assigned to specific states based on the location of the VHA medical center where they last received services. Rates among VHA users were estimated for each year, sex, and age group (18–29, 30–64, and 65 years and older), using the total number of suicides among those who received VHA services in the 16 NVDRS states, divided by the total number of veterans receiving care from VHA medical centers in those states.

The NVDRS provided information on the total number of suicide deaths among veterans, independent of whether they received VHA services, by year, sex, and age category for each of the 16 states from 2005 to 2008 based on the methods detailed in their coding manual.[29] NVDRS data included information on each decedent's veteran status, which was used in previous studies.[2,8,9] This was assessed from an indicator of whether the decedent ever served in the US Armed Forces, which was derived from the standardized death certificates in the NVDRS states and is included in a section that is usually completed by funeral directors on the basis of all of the information and reports available to them.[30,31] For each year, gender, and age group, suicide rates among all veterans in the NVDRS states were estimated from the total number of veteran suicides identified by NVDRS divided by the total number of veterans in those states. Data on the size of the total veteran population, and for veterans who were VHA utilizers versus nonutilizers, were derived from the Veteran Population (VetPop) 2007 file[32] maintained by the VA.

The nature of the data use agreements between NVDRS and the states precluded disclosure of identifying information on decedents. Consequently, suicide rates for nonutilizers were estimated indirectly, using the relevant numerators and denominators for the 16 states. The numerators were estimated from the total number of veterans identified as having died from suicide in NVDRS data for the 16 states minus the number of suicide deaths among VHA utilizers in these states. Denominators were estimated by subtracting the number of individuals served by VA facilities in the NVDRS states from the total number of veterans in those states as indicated from the VetPop 2007 data.

Statistical analyses were conducted using Predictive Analytics SoftWare Statistics 18 (SPSS Statistics, Hong Kong). Comparisons of suicide rates were conducted using the generalized linear modeling command, with Poisson log linear modeling for counts.

RESULTS

Suicide counts, populations, and rates in the 16 states for 2005–2008, overall and by VHA user status, are presented in Table 1 for veteran women and in Table 2 for veteran men. These provided information by year for veterans in the 16 states, overall and by age category.

Among all veteran women in the 16 states, approximately 21.8% utilized VHA services: 28.1% of veteran women younger than 30 years, 22.2% of those aged 30 to 64 years, and 15.5% of those 65 years and older. There were no significant changes in suicide rates between 2005 and 2008. Suicide rates for veteran women were lower than those observed for men, overall, for each of the age categories and among both VHA utilizers and nonutilizers. The relatively low numbers of suicides among women in these states precluded meaningful comparisons between rates in utilizers and nonutilizers across the years.

For veteran men in the 16 states, approximately 17.9% utilized VHA services: 15.5% of those younger than 30 years, 16.2% of those aged 30–64 years, and 20.8% of those 65 years and older. The proportion of veterans younger than 30 years who utilized VHA health care increased significantly from 14.3% in 2005 to 16.8% in 2008 (average of 0.87% per year). There were no significant changes over time for those aged 30–64 years or for those aged 65 years and older.

Further, among all veteran men, for those aged 30–64 years and those aged 65 years and older, there were no significant changes in suicide rates over time (Figure 1). For each of these groups, suicide rates for utilizers were consistently higher than for nonutilizers (Figure 2).

However, for all men younger than 30 years, suicide rates increased from 2005 to 2008 (Poisson log linear model; Wald $\chi^2_1 = 5.559$; $P = .018$), with significant increases among nonutilizers (Wald $\chi^2_1 = 9.204$; $P = .002$) but no significant increases among utilizers (Table 2; Figure 1). When models considered both

TABLE 1—Suicide Counts, At Risk Populations, and Suicide Rates Among Veteran Women, Overall and by Veterans Health Administration User Status: 16 National Violent Death Reporting System States, 2005–2008

	All Veteran Women			VA Utilizer Women			VA Nonutilizer Women		
Ages, y	Suicides, No.	Population, No.	Suicide Rate	Suicides, No.	Population, No.	Suicide Rate	Suicides, No.	Population, No.	Suicide Rate
					2005				
All	50	527 208	9.48	9	110 904	8.12[a]	41	416 304	9.85
18–29	10	59 507	16.81[a]	0	16 102	0.00[a]	10	43 405	23.04[a]
30–64	36	387 007	9.30	8	82 765	9.67[a]	28	304 242	9.20
≥ 65	4	80 694	4.96[a]	1	12 036	8.31[a]	3	68 658	4.37[a]
					2006				
All	65	536 668	12.11	16	114 654	13.96[a]	49	422 014	11.61
18–29	9	59 280	15.18[a]	2	16 931	11.81[a]	7	42 349	16.53[a]
30–64	53	396 950	13.35	13	85 751	15.16[a]	40	311 199	12.85
≥ 65	3	80 438	3.73[a]	1	11 972	8.35[a]	2	68 466	2.92[a]
					2007				
All	72	545 600	13.20	21	119 327	17.60	51	426 521	11.96
18–29	9	58 791	15.31[a]	2	17 269	11.58[a]	7	41 769	16.76[a]
30–64	60	407 003	14.74	19	90 338	21.03[a]	41	316 665	12.95
≥ 65	3	79 806	3.76[a]	0	11 720	0.00[a]	3	68 086	4.41[a]
					2008				
All	55	517 566	10.63	18	118 812	15.15[a]	37	398 754	9.28[a]
18–29	9	58 614	15.35[a]	4	15 988	25.02[a]	5	42 626	11.73[a]
30–64	43	376875	11.41	14	88 531	15.81[a]	29	288 344	10.06
≥ 65	3	82 077	3.66[a]	0	14 293	0.00[a]	3	67 784	4.43[a]

[a]Rates based on small sample sizes must be interpreted with caution, as they are sensitive to small differences in counts.

differences between years and between VHA utilizers versus nonutilizers, the interaction term was significant (Wald $\chi^2_1 = 4.949$; $P = .026$), reflecting decreasing suicide rates in utilizers compared with nonutilizers over time (Figure 2). In 2005, rates were 21.9% higher in young male utilizers than in nonutilizers; by 2008, rates among young male utilizers were 46.8% lower (Figure 2).

A number of the findings reported here identified veteran men younger than age 30 as an important subgroup. Men younger than age 30 as a proportion of the total number of men in the 16 states receiving VA health care services increased from 2.8% in 2005 to 3.2% in 2006, to 3.6% in 2007, and to 3.9% in 2008 (Table 2). During this period, there were also substantial increases (> 50%) in the proportion of these young men who served in Afghanistan or Iraq, and in those diagnosed with a substance use disorder, depression, posttraumatic stress disorder (PTSD), another anxiety disorder, or any mental health condition. There were marginal increases in the proportion with diagnoses of bipolar disorder and decreases in the proportion with diagnoses of schizophrenia (Table 3).

DISCUSSION

The findings reported here are important for 2 reasons. First, they demonstrated the feasibility and utility of linking information from NVDRS, NDI, and VHA sources to compare outcomes in veterans who utilized VHA healthcare services and those who did not. Second, they constituted the first reported comparison of suicide rates between veteran utilizers and nonutilizers.

The findings presented here demonstrated that for veteran men overall, for those aged 30–64 years, and for those 65 years and older, suicide rates among VHA utilizers were persistently higher than for nonutilizers. Other findings demonstrated important trends among veteran men younger than 30 years. The number of these veterans and the proportion of them using VHA services increased from 2005–2008. Suicide rates increased in the overall population of young veteran men in parallel with the rates in VHA service nonutilizers, as opposed to nonsignificant changes in VHA service utilizers. Most significantly, from 2005–2008, there were dramatic decreases in suicide rates in young male VHA utilizers relative to nonutilizers. We noted that in the general US population in the 16 states, the Web-based Injury Statistics Query and Reporting System/NVDRS web site indicated that suicide rates in 2008 were 19.4 per 100 000 among men age 18 to 29 years, and 25.1 and 28.3 among men age 30–64 and 65 years and older, respectively. Finally, findings were consistent with previous reports that suicide rates were higher for men than for women, both in veteran and nonveteran populations.[19,33] Given the lower prevalence of suicide in women and the relatively low proportion of veterans who were women, it was not feasible to compare rates among veteran women by VHA utilization status in the 16 NVDRS states. Consequently, this discussion focused on findings among veteran men.

The results for all veteran men, for those aged 30–64 years and for those aged 65 years and older, were consistent with reported comparisons of suicide rates between VHA utilizers and age- and gender-matched individuals in the general population.[19] As discussed previously,[19] these findings might be related to selection of those who were more likely to be mentally ill, chronically ill, disabled, and economically disadvantaged by the eligibility criteria for enrollment in VHA.[26] Several lines of investigation supported selective use of VHA services by those with risk factors for suicide. Research conducted before the first Gulf War demonstrated that high illness levels and service connected disability were associated with use of VA health care services.[34] Research between the first Gulf War and OEF/OIF demonstrated that veterans who were unemployed and with greater levels of disability were more likely to use VA relative to non-VA outpatient health care services.[35] Findings from the first years of OEF and OIF demonstrated that the proportion of enrollees with serious mental illness in VHA was greater than that in private insurance plans or the Military Treatment System, and comparable to

TABLE 2—Suicide Counts, at Risk Populations, and Suicide Rates Among Veteran Men, Overall and by Veteran Health Administration User Status: 16 National Violent Death Reporting System States, 2005–2008

	All Veteran Men			VA Utilizer Men			VA non-Utilizer Men		
Ages, y	Suicides, No.	Population, No.	Suicide Rate	Suicides, No.	Population, No.	Suicide Rate	Suicides, No.	Population, No.	Suicide Rate
				2005					
All	1767	6 193 444	28.53	423	1151 260	36.74	1344	5 042 184	26.66
18–29	100	222 255	44.99	17	31 966	53.18[a]	83	190 289	43.62
30–64	931	3 636 370	25.60	217	594 346	36.51	714	3 042 024	23.47
≥ 65	736	2 334 819	31.52	189	524 948	36.00	547	1 809 871	30.22
				2006					
All	1600	6 118 208	26.15	396	1 049 666	37.73	1204	5 068 542	23.75
18–29	104	229 848	45.25	15	33 827	44.34[a]	89	196 021	45.40
30–64	900	3 575 049	25.17	219	548 316	39.94	681	3 026 733	22.50
≥ 65	596	2 313 311	25.76	162	467 523	34.65	434	1 845 788	23.51
				2007					
All	1787	6 052 918	29.52	391	1 072 818	36.45	1396	4 980 100	28.03
18–29	137	241 339	56.77	18	38 544	46.70[a]	119	202 795	58.68
30–64	965	3 490 677	27.65	216	563 769	38.31	749	2 926 908	25.59
≥ 65	685	2 320 902	29.51	157	470 504	33.37	528	1 850 398	28.53
				2008					
All	1843	5 982 534	30.81	435	1 085 111	40.09	1408	4 897 423	28.75
18–29	144	250 070	57.58	14	42 113	33.24[a]	130	207 957	62.51
30–64	992	3 406 930	29.12	248	575 991	43.06	744	2 830 939	26.28
≥ 65	707	2 325 534	30.40	173	467 007	37.04	534	185 8527	28.73

[a]Rates based on small sample sizes must be interpreted with caution, as they are sensitive to small differences in counts.

the proportion among Medicaid recipients; the proportion of those with depression was greater in the VA than any of the other coverage systems.[36] Finally, findings that PTSD predicted use of VHA services among Vietnam-era veterans[37] were consistent with recent unpublished findings that PTSD and other mental health conditions predicted VHA use among OEF and OIF veterans. The findings reported here were consistent with the hypothesis that suicide rates were higher among veterans who received VHA services than among those who did not receive VHA services. The results did not, however, confirm the hypothesis that mental health enhancements led to decreases over time in suicide rates. We noted that VHA mental health enhancements continued beyond 2008, and further monitoring is needed to determine whether these enhancements led to decreases in suicide rates.

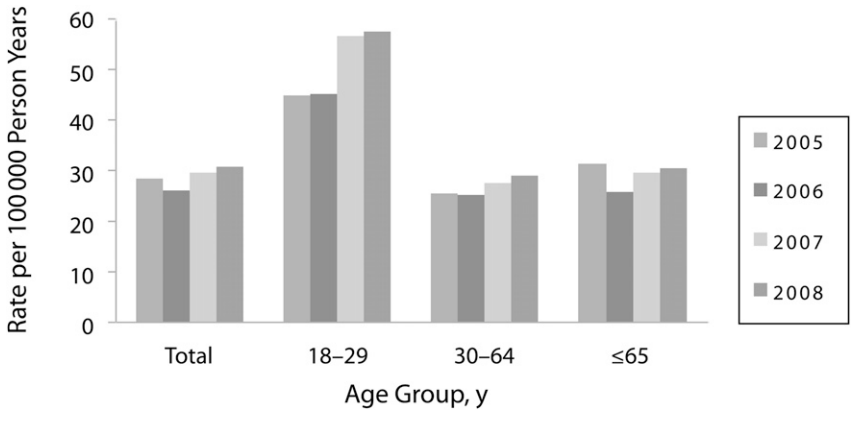

FIGURE 1—Suicide rates among veteran men, by year and age group: 16 National Violent Death Reporting System states, 2005–2008

Our findings demonstrate important trends among veteran men younger than 30 years. First, suicide rates increased between 2005 and 2008 in the total population of young veteran men in the 16 states included in NVDRS. Although the mechanisms underlying this increase remain to be determined, it is important to note that this effect appeared to parallel the increases observed among active duty service members.[38,39] Second, as hypothesized, rates among young utilizers decreased relative to those among nonutilizers. In principle, this effect could occur for either of 2 reasons. First, it could result from selection factors, if over time, the young men who came to VHA for services were increasingly at lower risk for suicide. Alternatively, the relative decline among VHA utilizers could occur as a result of enhancements in access to effective treatments or if VHA services became more effective at preventing suicide. Given that mental health conditions are major risk factors for suicide,[21] the increasing prevalence of mental health conditions in male VHA utilizers younger than 30 years (Table 3) appeared inconsistent with the possibility that the relative decreases in suicide rates in the young men served by VHA could be because of the enrollment of patients at lower risk. Accordingly, it was likely that the observed decreases in suicide rates for young male utilizers were because of enhancements in the effectiveness of VHA services. The findings presented in Figure 2 could be explained by assuming that young veteran men represented a group for whom the outcomes of care were most sensitive to these enhancements, possibly as a reflection of the acuity of their mental health conditions.

There were multiple potential limitations involved with the data sources and the necessary assumptions for completing these analyses. Of course, study findings might not be generalizable to the entire United States or the entire VHA health care system, to the extent

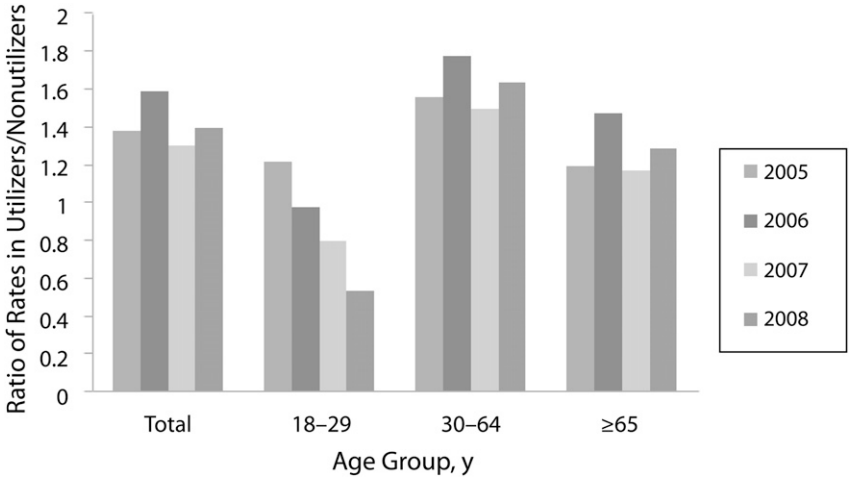

FIGURE 2—Ratio of suicide rates among veteran men utilizing Veterans Affairs health care services and among nonutilizers, by year and age group: 16 National Violent Death Reporting System states, 2005–2008

that the 16 NVDRS states were not representative of the nation or the VHA health system, for example, with respect to the geographic distribution of veterans and patterns of VHA utilization. Also, there were constraints related to measurement. Most concerning was the possibility that the NVDRS indicators of veterans status were derived from responses regarding whether decedents had ever served in the US Armed Forces. In some cases, positive responses might have included nonveterans (e.g., active duty personnel, National Guard members who were never activated or deployed), and negative responses might have failed to identify veterans (e.g., those with previous service in the Coast Guard or Public Health Services; veteran decedents whose survivors were unaware of their veteran status). This raised important concerns regarding study findings, as secular trends in suicide mortality among activity duty personnel could affect the assessment of trends in suicide mortality among veterans who did not utilize VHA services. Certainly further research is needed to address this concern. Finally, we noted 3 other sources of potential measurement error. First, the source of veteran population counts was based on census data, information from the Department of Defense, and updates estimated using actuarial methods. Given the recent increases in the number of veterans returning from Afghanistan and Iraq, there might have been greater imprecision in the veteran population estimates, particularly for younger veterans. Second, because it was not possible to directly match individuals who were counted as veteran suicides by NVDRS with the VHA data, the calculation of rates among veteran nonutilizers was perforce estimated; rates for utilizers and nonutilizers were calculated for the 16 states from the number of individuals identified by VHA as utilizers in these states and, for nonutilizers, by the total number counted by NVDRS minus the number identified by VHA. Third, although the NVDRS attributed individuals to states based on the location of their deaths, the VHA attributed veterans to states based on the location of the facility where they last received VHA services. Consequently, the different processes might have resulted in mismatches and noise or bias in the findings.

TABLE 3—OEF/OIF Status and Clinical Characteristics of Veteran Men Younger Than 30 Years Utilizing the Veterans Health Administration: 16 National Violent Death Reporting System States, 2005–2008

	2005, %	2006, %	2007, %	2008, %
OEF/OIF	3.60	47.61	57.57	63.75
SUD	5.28	6.33	8.18	10.36
Depression	11.28	12.70	15.30	18.23
PTSD	7.93	11.50	16.65	21.68
Other anxiety	5.17	6.08	7.93	9.71
Bipolar	1.95	2.00	2.19	2.37
Schizophrenia	1.27	1.23	1.16	1.08
Any MH condition	23.16	27.04	33.53	39.42

Note. MH = mental health; OEF/OIF = Operation Enduring Freedom/Operation Iraqi Freedom; PTSD = posttraumatic stress disorder; SUD = substance use disorder.

Mindful of these concerns, we noted that this study applied existing data to investigate pressing public health and health policy questions. Study findings offered new perspectives regarding suicide among veterans and differences in suicide rates between VHA utilizers and nonutilizers. The most significant findings might be the consistently higher rate of suicide among VHA utilizers aged 30–64 years and those 65 years and older and, among veterans younger than 30 years, the observed decreasing rates in VHA utilizers relative to nonutilizers between 2005 and 2008. Although definitive explanations for these findings will require additional research, the available evidence suggested that the increased rates in men aged 30–64 years and in elder populations might be because of the selective use of VHA services by individuals at increased risk, whereas among veterans younger than 30 years, the decreasing rates in VHA utilizers relative to nonutilizers might result from the ongoing enhancements in VHA mental health services. ■

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Contributors

I. R. Katz originated the analytic plan. I. R. Katz, J. F. McCarthy, and R. V. Ignacio conducted the analyses, interpreted the data, and wrote the article. All authors contextualized the findings, approved the final article, and take responsibility for the data integrity and accuracy of the analyses.

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Human Participants Protection

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References

1. Kaplan MS, Huguet N, McFarland BH, Newsom JT. Suicide among male veterans: a prospective population-based study. *J Epidemiol Community Health.* 2007; 61:619–624.

2. McFarland BH, Kaplan MS, Huguet N. Datapoints: self-inflicted deaths among women with U.S. military service: a hidden epidemic? *Psychiatr Serv.* 2010; 61:1177.

3. Miller M, Barber C, Azrael D, Calle EE, Lawler E, Mukamal KJ. Suicide among US veterans: a prospective study of 500,000 middle-aged and elderly men. *Am J Epidemiol.* 2009;170:494–500.

4. Institute of Medicine. *Deployment-Related Stress and Health Outcomes.* Vol 6. Washington, DC: National Academy Press; 2007.

5. Boscarino JA. External-cause mortality after psychologic trauma: the effects of stress exposure and predisposition. *Compr Psychiatry.* 2006;47:503–514.

6. Kang HK, Bullman TA. Risk of suicide among US veterans after returning from the Iraq or Afghanistan war zones. *JAMA.* 2008;300:652–653.

7. Maynard C, Boyko EJ. Datapoints: suicide rates in the Washington State veteran population. *Psychiatr Serv.* 2008;59:1245.

8. Kaplan MS, McFarland BH, Huguet N. Characteristics of adult male and female firearm suicide decedents: findings from the National Violent Death Reporting System. *Inj Prev.* 2009;15:322–327.

9. Kaplan MS, McFarland BH, Huguet N. Firearm suicide among veterans in the general population: findings from the National Violent Death Reporting System. *J Trauma.* 2009;67:503–507.

10. Kausch O, McCormick RA. Suicide prevalence in chemical dependency programs: preliminary data from a national sample, and an examination of risk factors. *J Subst Abuse Treat.* 2002;22:97–102.

11. Thompson R, Kane VR, Sayers SL, Brown GK, Coyne JC, Katz IR. An assessment of suicide in an urban VA Medical Center. *Psychiatry.* 2002;65:327–337.

12. Thompson R, Katz IR, Kane VR, Sayers SL. Cause of death in veterans receiving general medical and mental health care. *J Nerv Ment Dis.* 2002;190:789–792.

13. Desai RA, Dausey DJ, Rosenheck RA. Mental health service delivery and suicide risk: the role of individual patient and facility factors. *Am J Psychiatry.* 2005; 162:311–318.

14. Zivin K, Kim HM, McCarthy JF, et al. Suicide mortality among individuals receiving treatment for depression in the Veterans Affairs health system: associations with patient and treatment setting characteristics. *Am J Public Health.* 2007;97:2193–2198.

15. Desai RA, Dausey D, Rosenheck RA. Suicide among discharged psychiatric inpatients in the Department of Veterans Affairs. *Mil Med.* 2008;173:721–728.

16. Mills PD, DeRosier JM, Ballot BA, Shepherd M, Bagian JP. Inpatient suicide and suicide attempts in Veterans Affairs hospitals. *Jt Comm J Qual Patient Saf.* 2008;34:482–488.

17. Desai MM, Rosenheck RA, Desai RA. Time trends and predictors of suicide among mental health outpatients in the Department of Veterans Affairs. *J Behav Health Serv Res.* 2008;35:115–124.

18. Ilgen MA, Downing K, Zivin K, et al. Exploratory data mining analysis identifying subgroups of patients with depression who are at high risk for suicide. *J Clin Psychiatry.* 2009;70:1495–1500.

19. McCarthy JF, Valenstein M, Kim HM, Ilgen M, Zivin K, Blow FC. Suicide mortality among patients receiving care in the Veterans Health Administration health system. *Am J Epidemiol.* 2009;169:1033–1038.

20. Pfeiffer PN, Ganoczy D, Ilgen M, Zivin K, Valenstein M. Comorbid anxiety as a suicide risk factor among depressed veterans. *Depress Anxiety.* 2009;26:752–757.

21. Ilgen MA, Bohnert AS, Ignacio RV, et al. Psychiatric diagnoses and risk of suicide in veterans. *Arch Gen Psychiatry.* 2010;67:1152–1158.

22. Ilgen, MA, Zivin K, Austin KL, et al. Severe pain predicts greater likelihood of subsequent suicide. *Suicide Life Threat Behav.* 2010;40:597–608.

23. Flood AM, Boyle SH, Calhoun PS, et al. Prospective study of externalizing and internalizing subtypes of posttraumatic stress disorder and their relationship to mortality among Vietnam veterans. *Compr Psychiatry.* 2010;51:236–242.

24. The President's New Freedom Commission on Mental Health. Achieving the Promise. Transforming Mental Health Care in America. Final Report. 2003. Available at: http://store.samhsa.gov/product/SMA03-3831. Accessed January 20, 2012.

25. Department of Veterans Affairs. *Administrative Data.* Washington, DC: Department of Veterans Affairs; 2011.

26. Veterans Health Administration. Enrollment Priority Groups. Available at: http://www.va.gov/healthbenefits/resources/priority_groups.asp. Accessed January 10, 2012.

27. Centers for Disease Control and Prevention, National Center for Health Statistics. National Death Index. Available at: http://www.cdc.gov/nchs/data_access/ndi/about_ndi.htm. Accessed January 10, 2012.

28. Centers for Disease Control and Prevention. National Violent Death Reporting System. Available at: http://www.cdc.gov/ViolencePrevention/NVDRS/index.html. Accessed January 10, 2012.

29. National Center for Injury Prevention, Control, Centers for Disease Control and Prevention. National Violent Death Reporting System Coding Manual Version 3. 2008. Available at: http://www.cdc.gov/violenceprevention/NVDRS/coding_manual.html. Accessed January 10, 2012.

30. National Center for Health Statistics, Centers for Disease Control and Prevention. Medical Examiners' and Coroners' Handbook on Death registration and Fetal Death Reporting (2003 Revision). Available at: http://www.cdc.gov/nchs/data/misc/hb_me.pdf. Accessed January 10, 2012.

31. National Center for Health Statistics, Centers for Disease Control and Prevention. Funeral Directors' Handbook on Death Registration and Fetal Death Reporting (2003 Revision). Availableat: http://www.cdc.gov/nchs/data/misc/hb_fun.pdf. Accessed January 10, 2012.

32. Department of Veterans Affairs. VetPop 2007. Available at: http://www.va.gov/VETDATA/Demographics/Demographics.asp. Accessed January 10, 2012.

33. Centers for Disease Control and Prevention. National Suicide Statistics at a Glance. Available at: http://www.cdc.gov/violenceprevention/suicide/statistics/aag.html. Accessed January 10, 2012.

34. Rosenheck R, Massari L. Wartime military service and utilization of VA health care services. *Mil Med.* 1993;158:223–228.

35. Elhai JD, Grubaugh AL, Richardson JD, Egede LE, Creamer M. Outpatient medical and mental healthcare utilization models among military veterans: results from the 2001 National Survey of Veterans. *J Psychiatr Res.* 2008;42:858–867.

36. Gibson TB, Lee TA, Vogeli CS, et al. A four-system comparison of patients with chronic illness: The Military Health System, Veterans Health Administration, Medicaid, and Commercial Plans. *Mil Med.* 2009;174:936–943.

37. Rosenheck R, Fontana A. Do Vietnam-era veterans who suffer from posttraumatic stress disorder avoid VA mental health services? *Mil Med.* 1995;160:136–142.

38. United States Army. Army Health Promotion, Risk reduction, and Suicide Prevention Report. 2010. Available at: http://www.army.mil/article/42934. Accessed January 10, 2012.

39. Department of Defense Task Force on the Prevention of Suicide by Members of the Armed Forces. Executive Summary. 2010. Available at: http://www.health.mil/dhb/downloads/TaskForce2010/Suicide%20Prevention%20Task%20Force_EXEC%20SUM_08-20-10%20v6.doc. Accessed January 10, 2012.

PTSD in Returning Wounded Warriors: Ensuring Medically Appropriate Evaluation and Legal Representation Through Legislative Reform

Bryan A. Liang[‡] & Mark S. Boyd[*]

ABSTRACT

Recent military engagements including Operation Enduring Freedom and Operation Iraqi Freedom have created a tremendously large cohort of wounded warriors returning with Post Traumatic Stress Disorder (PTSD). Indeed, PTSD is deemed a "signature" wound of these conflicts. Yet PTSD is as ancient as war itself, and has been recognized in the US as early as the Civil War. But getting assistance requires navigating a highly complex disability claims process while these veterans are disabled. Further, the process has is flawed on clinical and legal bases. The disability system for wounded warriors prohibits attorney assistance at the outset, or even any charges beyond $10 for assistance—the level set during the Civil War. Further, the determination of disability is not premised upon clinically recognized standards and characteristics such as the Diagnostic Statistical Manual (DSM) for mental health disorders. This system results in a legal, medical, and ethical failure to adhere to the social contract for these military personnel. In response, we propose reform addressing these system weaknesses. Through federal statute, we first address medical evaluation standards. Wounded warrior disability determinations would be required to exclusively employ clinical definitions based on the DSM. These evaluations could be performed by both VA physicians as well as those outside the VA. Such a system will maximize the number of wounded warriors recognized for potential PTSD and available for assistance. We then address the legal concerns. Taking the successful Social Security Administration system that as a model, we propose a similar system for wounded warriors to allow lawyer assistance to navigate the complex VA disability system. Reasonable caps on fees would be put into place. Through this reformed system, wounded warriors returning from recent and future conflicts can be assured that when they return home, their injuries will be addressed using a medically sound standards, they will be able to access needed legal assistance, and the social contract between them and their country is fulfilled.

TABLE OF CONTENTS

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I. INTRODUCTION

It is forecasted that up to 20% of Iraq and Afghanistan veterans have either been diagnosed with, or will suffer from Post Traumatic Stress Disorder ("PTSD") symptoms.[1] Many of these veterans face challenges negotiating the minefield of the Department of Veterans Affairs ("VA") disability claims process – a process that includes a lengthy application[2] and strict deadlines.[3]

In order to receive a PTSD diagnosis and compensation, wounded warriors must work through two separate entities within the VA system. First, veterans must obtain a medical diagnosis from the Veterans Health Administration ("VHA"). Then, they must pursue disability compensation through the Veterans Benefit Administration ("VBA"). During this process, veterans confront a complex rating system with conflicting

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[1] Benjamin R. Karney et al., *Invisible Wounds: Predicting the Immediate and Long-Term Consequences of Mental Health Problems in Veterans of Operation Enduring Freedom and Operation Iraqi Freedom*, 5 (Rand Center for Military Health Policy Research Working Paper No. WR-546-CCF, April 2008), *available at* http://www.rand.org/pubs/working_papers/2008/RAND_WR546.pdf. *See also* United States Department of Veterans Affairs How Common is PTSD? Fact Sheet, http://www.ptsd.va.gov/public/pages/how-common-is-ptsd.asp (last visited May 27, 2010) (stating 11-20% of OEF/OIF veterans experience PTSD).

[2] Department of Veterans Affairs, VA FORM 21-526, *available at* http://www.vba.va.gov/pubs/forms/VBA-21-526-ARE.pdf. Prior to September 2009, the application was 23 pages long.

[3] A claimant has one year to complete an application, 38 C.F.R § 3.109 (2010), one year from the date of the notification of a VA decision to file an appeal, 38 C.F.R. § 20.302 (2010), and one year before a claim is considered abandoned, 38 C.F.R § 3.158 (2010).

requirements.[4] Veterans with PTSD are prone to fall through the cracks along the way. Confusion, inaccuracies, and missed deadlines often result in denial of claims, and appeals.[5] In addition, PTSD symptoms themselves, such as lack of concentration,[6] exacerbate the complexities faced by wounded warriors and prevent some veterans from successfully completing a claim for disability.[7]

Statutes and VA regulations currently prohibit attorneys from receiving compensation for representing or assisting veterans during the initial application. These regulations essentially ban representation for all but a few cases.[8] In 2006, Congress enacted the Veterans Benefits, Healthcare, and Information Technology Act.[9] The Act allowed attorneys to be compensated for representing veterans only on appeal of denied disability claims. Prior to 2006, attorneys were allowed to represent veterans, but could not be compensated for their work.[10]

While appellate representation was a step in the right direction, this focus is inappropriate, particularly for PTSD-affected veterans. Attorney representation at the initial stages of a claim would help veterans at the time they need most, resulting in a PTSD file that is complete with substantiated claims, filed on time, focused on the claims

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[4] *See* 38 C.F.R. § 4.125, 4.130 (2010).

[5] *Henderson v. Shinseki*, 589 F.3d 1201, 1220 (Fed. Cir. 2009) (holding Veterans Court lack jurisdiction to consider veteran's appeal that was filed 15 days late and rejecting the argument that the pro-claimant nature of the veterans system precluded the stringent application of a time of review provision).

[6] PTSD symptoms include lack of concentration; re-experiencing trauma; increased anxiety; desire to avoid re-occurrence of events; avoidance of activities, places, or people that arouse recollections of the trauma; diminished interest or participation in significant activities; and detachment or estrangement from others. *See* DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS (DSM-IV-TR) (2000) (PTSD Diagnostic Criteria).

[7] The stigma associated with a PTSD diagnosis also keeps some veterans from seeking and receiving care. *See* Charles W. Hoge, M.D. et al., *Combat Duty in Iraq and Afghanistan, Mental Health Problems, and Barriers to Care*, 351 NEW ENG. J. MED. 13, 20-21 (2004).

[8] *See* 38 U.S.C. § 5904(c) (2010). However, attorneys may represent veterans on a pro bono basis.

[9] Veterans Benefits, Health Care, and Information Technology Act of 2006, Pub. L. No. 109-461, 120 Stat. 3404 (2006) (signed into law by President Bush on December 22, 2006).

[10] The passage of the Act created an incentive for attorneys to represent veterans at the appellate level.

process and tasks, and with an appropriate outcome of maximum disability benefits to which they are entitled.

This piece proposes legislative reform that would allow veterans who struggle with the claims process, such as those with PTSD, the choice to hire an attorney to represent them during the initial claims process. It also calls for use of clinically-focused evaluations of disability for PTSD and other mental health disorders through adherence to DSM-IV-TM diagnostic standards to bring rationality into the process. Part II provides a background on the VA and discusses disability compensation, adjudication of claims, and the instruments used to rate a disability. Part III discusses PTSD and its increasing recognition as a key disability in recent wounded warriors from Operation Enduring Freedom/Operation Iraqi Freedom ("OEF/OIF"). Part IV reviews the inherent problems within the veterans compensation system, including PTSD, including the VA's use of an outdated General Rating Formula (the "Schedule"); the confusing, combined use of the Diagnostic and Statistical Manual, Fourth Edition, Text Revision (hereafter "DSM-IV-TR") and the Schedule for rating PTSD; and proof issues in showing a service connected stressor; and problems with assessments. Part V outlines attorney representation for Social Security Disability Income claims, which are comparable in size and scope to VA disability claims, and details arguments for adopting a similar attorney 'friendly' system for wounded warriors. To address the concerns raised, Part VI contains a proposed statute that gives reforms the veteran disability evaluation and assessment system. It reforms the medically-oriented wounded warrior evaluation by requiring DSM-IV-TR use and standards to assess potential PTSD disability. It also permits both VA and non-VA physicians to perform this evaluation to maximize the number of veterans identified

for disability benefits. In addition, adopting the Social Security Administration model, it provides veterans a choice to have early attorney representation, addressing issues veterans face with PTSD disability claim filing. Reasonable limits on attorney charges would be put into place. In Part VII, the paper concludes with some final remarks.

II. BACKGROUND

A. The Department of Veterans Affairs and Disability Compensation

Veterans suffering from a disability as a result of military service are entitled to compensation.[11] As President Lincoln stated in his 1865 inaugural address – *"*to care for him who shall have borne the battle, and for his widow and his orphan …"[12] is the government's social and moral obligation, that is, to care for those injured during war and to provide for the families of those who perished on the battlefield. The VA affirmed this belief in 1959 when they adopted this phrase as their official motto.[13]

There are two Administrations within the Department of Veteran Affairs that work independently of one another but they are critical to the compensation process. The VHA provides medical care to veterans through a network of 153 hospitals and hundreds of community clinics and Vet Centers.[14] Hospitals within VHA provide higher quality

[11] 38 U.S.C. §1110 (2010) (stating the United States will pay compensation to any disabled veteran, unless veteran was dishonorably discharged or the disability was caused by the veteran's own willful misconduct or abuse of alcohol or drugs).

[12] INAUGURAL ADDRESS OF ABRAHAM LINCOLN (Mar. 4, 1865), *available at* http://memory.loc.gov/cgi-bin/ampage?collId=lprbscsm&fileName=scsm0553/lprbscsmscsm0553.db&recNum=0&itemLink=h?ammem/scsmbib:@field(DOCID+@lit(scsm000553)).

[13] United States Department of Veterans Affairs The Origin of the VA Motto: Lincoln's Second Inaugural Address, http://www1.va.gov/opa/publications/celebrate/vamotto.pdf (last visited May 27, 2010).

[14] United States Department of Veterans Affairs VA Stats at a Glance April 2010, http://www1.va.gov/VETDATA/Pocket-Card/4X6_spring10_sharepoint.pdf (last visited May 27, 2010) [hereinafter VA Stats at a Glance] (153 VA Hospitals; 788 VA Community-Based Outpatient Clinics; 232 VA Vet Centers).

care than most private sector hospitals.[15] In most cases, VHA healthcare professionals, or those under contract with the VA, conduct the physical examinations required for benefit determinations.[16]

The other administration that plays a role in veteran disability compensation is the VBA. The VBA's primary function is to manage non-medical benefits for the VA through 57 Regional Offices ("RO's").[17] The VBA manages the Compensation and Pension Program for the VA, handles all claims processing, and schedules evaluations.[18]

Unlike the VHA, the VBA does not have a very good record of performance.[19] The VBA determines compensation through a ratings process that uses the Schedule and

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[15] OFFICE OF QUALITY AND SAFETY, DEPARTMENT OF VETERANS AFFAIRS/VETERANS HEALTH ADMINISTRATION, 2009 VHA FACILITY QUALITY AND SAFETY REPORT 7, 11, 14 (October 2009), *available at* http://www1.va.gov/health/docs/HospitalReportCard2009.pdf ("Where direct comparisons are available, the performance of VHA equals or exceeds that reported by commercial health plans, Medicare or Medicaid, in several instances, by a considerable margin.").

[16] COMMITTEE ON MEDICAL EVALUATION OF VETERANS FOR DISABILITY COMPENSATION, A 21ST CENTURY SYSTEM FOR EVALUATING VETERANS FOR DISABILITY BENEFITS 7 (Michael McGeary, Morgan A. Ford, & David K. Barnes eds., Institute of Medicine, National Academies Press 2007) [hereinafter 21ST CENTURY].

[17] UNITED STATES GOVERNMENT ACCOUNTABILITY OFFICE, REPORT TO THE COMMITTEE ON VETERANS' AFFAIRS, U.S. SENATE, VETERANS' DISABILITY BENEFITS: FURTHER EVALUATION OF ONGOING INITIATIVES COULD HELP IDENTIFY EFFECTIVE APPROACHES FOR IMPROVING CLAIMS PROCESSING 2 (January 2010); VA Stats at a Glance, *supra* note 14(57 VBA Regional Offices).

[18] 38 U.S.C. §§ 7701, 7703 (2010).

[19] *See* H.R. REP. NO. 110-789, at 2 (2008); OFFICE OF AUDITS & EVALUATIONS, VA OFFICE OF INSPECTOR GENERAL, REPORT NO. 09-02135-107, DEPARTMENT OF VETERANS AFFAIRS: AUDIT OF VA'S EFFORTS TO PROVIDE TIMELY COMPENSATION AND PENSION MEDICAL EXAMINATIONS 3-6 (March 17, 2010) [hereinafter OIG REPORT NO. 09-02135-107], *available at* http://www4.va.gov/oig/52/reports/2010/VAOIG-09-02135-107.pdf; *Veteran's Disability Benefits, VA Has Improved Its Programs for Measuring Accuracy and Consistency, but Challenges Remain: GAO Testimony Before the Subcommittee on Disability Assistance and Memorial Affairs, Committee on Veterans' Affairs, House of Representatives*, GAO-10-530T, 6 (March 24, 2010) (Statement of Daniel Bertoni, Director Education, Workforce, and Income Security); OFFICE OF AUDITS & EVALUATIONS, VA OFFICE OF INSPECTOR GENERAL, REPORT NO. 10-00936-158, INSPECTION OF THE VA REGIONAL OFFICE, MUSKOGEE, OK, 2 (May 21, 2010), *available at* http://www4.va.gov/oig/52/reports/2010/VAOIG-10-00936-158.pdf (reporting 23% inaccuracy rating); OFFICE OF AUDITS & EVALUATIONS, VA OFFICE OF INSPECTOR GENERAL, REPORT NO. 10-00936-156, INSPECTION OF THE VA REGIONAL OFFICE, ALBUQUERQUE, NM, 2 (May 20, 2010), *available at* http://www4.va.gov/oig/52/reports/2010/VAOIG-10-00935-156.pdf (reporting 36% inaccuracy rating); OFFICE OF AUDITS & EVALUATIONS, VA OFFICE OF INSPECTOR GENERAL, REPORT NO. 09-03848-130, INSPECTION OF VA REGIONAL OFFICE, WACO, TX 1 (April 16, 2010), *available at* http://www4.va.gov/oig/52/reports/2010/VAOIG-09-03848-130.pdf (reporting 36% inaccuracy rating); *and* OFFICE OF AUDITS & EVALUATIONS, VA OFFICE OF INSPECTOR GENERAL, REPORT NO. 09-01996-41, INSPECTION OF VA REGIONAL OFFICE, SAN JUAN, PR, 2 (Dec. 4, 2009), *available at*

evidence from a veteran's service and medical records to determine disability compensation.[20]

B. Compensation

Compensation is meant to make up for the occupational losses a veteran may experience due to a disability.[21] Yet the challenges to obtain compensation are significant, and often are unable to be successfully addressed by recently injured veterans. For example, wounded warriors of OEF/OIF are often vulnerable with severe emotional and physical disabilities and face challenges in supporting themselves financially.[22] In fact, many OEF/OIF veterans end up homeless.[23]

Compensation for discharged veterans seeking service related disability claims is based on a complex, three-step process. The first step in the process is filing a claim with the VA. Filing a claim involves a significant amount of paperwork, a daunting task for those that lack focus and are unable to complete tasks, which is typical of veterans who return from engagements, and particularly those with PTSD. Once a claim is filed, the veteran is assigned a claim number.

The second step of the process is scheduling a Compensations and Pension Examination ("C&P"). The C&P is a physical and abbreviated mental status assessment

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http://www4.va.gov/oig/52/reports/2010/VAOIG-09-01996-41.pdf (reporting 40% inaccuracy rating).

[20] 38 C.F.R. § 3.203 (2010); 38 U.S.C. § 1155 (2010).

[21] 38 U.S.C. §1155 (2010).

[22] ERIC CHRISTENSEN ET AL., CENTER FOR NAVAL ANALYSIS, ECONOMIC IMPACT ON CAREGIVERS OF THE SERIOUSLY WOUNDED, III, AND INJURED 4 (2009), *available at* http://www.cna.org/documents/D0019966.A2.pdf (stating average impact on caregiver is $60,300 over 19 months).

[23] 2,000 homeless OEF/OIF veterans applied for assistance from the VA in 2009, but the VA has pinpointed 3,717 homeless OEF/OIF veterans. The nationwide total could be as many as 7,400. Thom Patterson, *U.S. Seeing More Female Homeless Veterans*, CNN, Sept. 25, 2009, *available at* http://www.cnn.com/2009/LIVING/09/25/homeless.veterans/. *See also A National Commitment to End Veterans' Homelessness: Hearing Before the Committee on Veterans' Affairs U.S. House of Representatives*, 111th Cong. 111-25, at 89 (2009) (statement of Mary Cunningham, Senior Research Associate Metropolitan Housing and Communities Center, the Urban Institute).

that is used to determine the overall health of the veteran. These examinations are scheduled by the RO and are conducted by VA healthcare professionals or outside professionals that meet strict educational and licensing requirements.[24]

Once the C&P is completed, the results are sent to the VBA for a "Rater" to review. The Rater determines whether or not the disability is connected to, or caused/aggravated by, military service. In this final step, if service connection is found, then the Rater will deny, grant, or deny in part or grant in part the veteran's claim. This includes determining the level of disability based on the percentage of lost occupational wages the 'average' veteran would suffer as a result of the disability.[25] The Rater is required to calculate this percentage using the Schedule. The Rater then must notify the veteran with a written decision.[26]

C. Claims Adjudication

Once a claim has been denied or granted in full or in part, the veteran has the choice to either do nothing, attempt to re-file the claim with new evidence or appeal the claim within one year. A large fraction of claims—approximately 39%—are denied each year at the local RO level.[27]

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[24] Department of Veterans Affairs Disability Examination Worksheets Review Examination for Post-Traumatic Stress Disorder, http://www.vba.va.gov/bln/21/benefits/exams/disexm56.htm (last visited May 27, 2010).

[25] 38 U.S.C. §§ 1155. Ratings shall be based upon the average impairments of earning capacity resulting from such injuries in civil occupations.

[26] In 2009, the average time to receive a written decision was 161 days (down from179 days in 2008) after a claim was filed. DEPARTMENT OF VETERANS AFFAIRS, FISCAL YEAR 2009 PERFORMANCE AND ACCOUNTABILITY REPORT II-10 (2009), *available at* http://www4.va.gov/BUDGET/docs/report/PartII/FY2009-VAPAR_PartII_Strategic_Goal_1.pdf.

[27] 61% were granted in part, fully granted, or granted with a later eligibility date. The VA does not keep record of or distinguish the specific disposition of these claims; it merely reports them as granted. *See* James D. Ridgway, *Why So Many Remands?: A Comparative Analysis of Appellate Review by the United States Court of Appeals for Veterans Claims*, 1 VETERANS L. REV. 113, 148 (2009).

To contest the denial of a claim a veteran must write a letter, known as a Notice of Disagreement ("NOD"),[28] to the VA stating that he or she disagrees with the decision.[29] Unfortunately, this requirement alone appears difficult for some wounded warriors, with less than 14%[30] of all claims that are initially denied that are contested.[31] If a claim is contested, the VA is required to issue a Statement of the Case ("SOC") explaining the decision based on legal reasoning.[32] At that point, if the veteran still disagrees with the decision, then the veteran has 60 days to file a formal appeal.[33]

A formal appeal is a request for a hearing at the local RO or before the Board of Veterans Appeals ("Board"). Veterans that choose to have a hearing at the RO level will meet with a Decision Review Officer ("DRO"). A DRO has the authority to consider any other evidence in support of a veterans claim. Veterans still have the right to appeal the decision of the DRO to the Board. Alternatively, veterans can appeal directly to the Board without DRO review.

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[28] No official form is required, and the letter may be in any format. *See* 38 U.S.C § 7105 (2010).

[29] These letters are referred to as a Notice of Disagreement ("NOD"). NODs may be filed because either the veteran disagrees with the rating, disagrees with the effective date of the rating, or was denied benefits entirely.

[30] The actual percentage could be much lower. Of the 14%, there is no way to determine how many veterans are contesting a full denial, versus contesting a partial denial or lodging a disagreement with their assigned eligibility date. This is because the VA does not keep record of how many claims were fully denied and then appealed. *See* Ridgway, *supra* note 27, at 149.

[31] The 14% figure is based on the total number of NODs received by the VBA. By the end of fiscal year 2009, 133,376 NODs had been filed, out of approximately 1,000,000 claims made. *See* BOARD OF VETERANS APPEALS, REPORT OF THE CHAIRMAN: FISCAL YEAR 2009 19 (2009), *available at* http://www.bva.va.gov/docs/Chairmans_Annual_Rpts/BVA2009AR.pdf (reporting that 133,376 NODs had been received); *and* News Release, Department of Veterans Affairs, White House Seeks $125 Billion for Veterans in 2011: Homelessness, Claims Increases and Access – Priorities for VA Budget (February 1, 2010), *available at* http://www1.va.gov/opa/pressrel/pressrelease.cfm?id=1848 (stating that the VA received 1,014,000 claims in 2009).

[32] In 2009, the average time for a veteran to receive a SOC was 222 days. BOARD OF VETERANS APPEALS, REPORT OF THE CHAIRMAN, *supra* note 31, at 16.

[33] 38 U.S.C § 7105(d)(3) (2010). Veterans may file a formal appeal by using either VA Form 9 or submitting a letter. The formal appeal must be filed 60 days from the day the SOC was *mailed* to the veteran (i.e., postmarked), not from the date when the veteran received the SOC.

Although some claims are resolved at the local RO hearing, approximately 35% of contested claims are formally appealed (representing less that 5% of all claims filed) and eventually make it to the Board for review,[34] In over 60% of the cases in 2009, the Board 'allowed' the appeal, that is, overturned the decision of the RO, or, more frequently, remanded the case back to the RO for further development.[35] In other words, 60% of the time in appealed cases, the Board concluded that the RO made an incorrect assessment, took the wrong action, and/or prejudiced the veteran in some way.

The appeals process is slow and highly inefficient. Fewer than 25% of cases reviewed by the Board are granted in favor of the veteran without any further action.[36] The remaining 73%[37] of appeals are remanded or denied, thus continuing the 'hamster wheel' of the disability claims process within the VA.[38] In 2009, it took a *minimum* of three years from the day the NOD was filed to receive a decision from the Board.[39]

Finally, Board decisions can also be appealed to the United States Court of Appeals for Veterans Claims, however, the appeal must be filed with the clerk within 120 days of when the final VBA decision was mailed to the veteran. [40] Appealed Board decisions can take up to 10-12 years from the date the claim was first filed to be

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[34] The 35% figure is based on the number of formal appeals filed, divided by the total number of NODs received in fiscal year 2009. *See* BOARD OF VETERANS APPEALS, REPORT OF THE CHAIRMAN, *supra* note 31, at 15, 19 (reporting 51,481 new appeals filed and 133,376 NODs received).

[35] *Id.* at 20. The Board had the highest remand rate in 2009 (37.3%) of the last four years.

[36] *Id.*

[37] 35.4% of appeals were denied by the Board and 37.5% were remanded back to the RO. *Id*. at 21

[38] H.R. REP. NO. 110-789, at 18-20 (2008) (discussing problems with the high percentage of remanded cases). An appealed claim takes at least another two years to make its way back to the Board after a case is remanded to the RO for further clarification or corrective action. *See also Veterans for Common Sense v. Peake*, 563 F.Supp 2d 1049, 1075 (N.D. Cal. 2008).

[39] *Id.* at 16. Total time from NOD to decision from the Board was 36.06 months.

[40] The United States Court of Appeals for Veterans Claims is a national court of record, established under Article I of the Constitution of the United States. The Court has exclusive jurisdiction to provide judicial review of final decisions by the Board of Veterans' Appeals, an entity within the Department of Veterans Affairs. *See* The United States Court of Appeals for Veterans Claims Welcome Page, *available* at http://www.uscourts.cavc.gov (last visited June 20, 2010).

resolved.[41] In the interim, disabled veterans are either receiving no compensation or lower compensation than entitled, because of an error by the VA.

D. The Schedule

A key challenge to and weakness of the veterans disability process is the use of the Schedule. The Schedule was originally created in 1917 to address the needs of returning World War I veterans.[42]

The Schedule brings together more than "700 diagnostic codes representing distinct physical and mental impairments that are grouped by body systems or like symptoms"[43] and provides ten grades of disability, 10% through 100%, in increments of ten.[44]

Tables are used to rate veterans disabilities and levels of compensation. A *Combined Rating Table* is used when the veteran has more than one service-connected disability.[45] The percentages for each disability are combined using a complex algorithm, rather than added.[46]

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[41] *See e.g. Marlow v. West*, 12 Vet. App. 548, 550 (Vet. App. 1999) (12 years from BVA decision to resolution of appeal); *Blackwell v. Shinseki*, 2009 WL 1041433, *3 (Vet. App. April 20, 2009) (unpublished) (noting the court was "extremely troubled by the length of time (10 years) and number of remands (four) involved in this case"). *See also* H.R. REP. NO. 110-789, at 18; *Examining the U.S. Department of Veterans Affairs' Claims Processing System: Hearing Before the Subcommittee on Disability Assistance and Memorial Affairs* 110th Cong. (February 14, 2008) (statement of Gordon P. Erspamer, Senior Counsel, Morrison and Foerster).

[42] H.R. Rep. No. 110-789, at 4.

[43] *The U.S. Department of Veterans Affairs Schedule for Ratings Disabilities: Hearing Before the Subcommittee on Disability Assistance & Memorial Affairs of the Committee on Veterans' Affairs U.S. House of Representatives*, 110th Cong. 110-71, at 105 (2008) (Statement of Bradley G. Mayes Director, Compensation and Pension Service, Veterans Benefits Administration).

[44] 38 U.S.C. § 1155 (2010).

[45] 38 C.F.R. § 3.323(a) (2010).

[46] For example,

> [A] person having a 60 percent disability is considered 40 percent efficient. Proceeding from this 40 percent efficiency, the effect of a further 30 percent disability is to leave only 70 percent of the efficiency remaining after consideration of the first disability, or 28 percent efficiency altogether [through use of the combined ratings table]. The individual is thus 72 percent disabled.

38 C.F.R. § 4.25 (2010).

The *extra-schedular rating* schedule is used for exceptional or unusual disability not compensated by the regular schedule.[47] An example of an extra-schedular rating is when a veteran receives compensation for loss of an organ or extremity.[48]

In addition to schedular ratings, veterans can also receive compensation for unemployability, or inability to maintain substantially gainful employment.[49] This is a key factor for many wounded warriors. For example, unemployability is very common with PTSD patients because PTSD symptoms themselves cause impairment in social and occupational functioning.

III. PTSD

A. Clinical Background

According to the DSM-IV-TR, PTSD is an anxiety disorder that can develop in a person after a traumatic experience where "the person has experienced, witnessed, or been confronted with an event or events that involve actual or threatened death or serious injury, or a threat to the physical integrity of oneself or others;"[50] and "the individual's response involved intense fear, helplessness, or horror."[51] The individual must also experience one symptom of intrusive recollections, three symptoms of avoidance/numbing, and two symptoms of hyper-arousal.[52] All symptoms must be present for one month or greater.[53] In order for PTSD to be diagnosed as a disorder,

[47] 38 C.F.R. § 3.321(b) (2010).
[48] 38 C.F.R. § 3.350 (2010); 38 U.S.C. § 1114 (2010).
[49] 38 C.F.R. § 4.16 (2010) (allowing the VA to pay at the 100% level if medical evidence demonstrates a veteran is unable to obtain or maintain substantially gainful employment as the result of a service-connected disability).
[50] DSM-IV-TR, *supra* note 6 (PTSD Diagnostic Criteria A.1).
[51] *Id.* (PTSD Diagnostic Criteria A.2).
[52] *Id.* (PTSD Diagnostic Criteria B, C, and D).
[53] *Id.* (PTSD Diagnostic Criteria E).

"clinically significant distress [must be present] or impairment in social, occupational, or other important areas of functioning."[54]

PTSD received official recognition and a separate diagnostic heading with the DSM-III publication in 1980. However, the symptoms of PTSD have been recognized for centuries. In the civil war, generals noted that the troops were suffering from 'insanity,' while in WWI, the diagnosis was 'conditions of the heart,' and in WWII it was called 'battle fatigue' or combat stress.[55] In modern times and engagements such as OEF/OIF, symptoms of PTSD are called 'acute stress,' perhaps in an effort to reduce stigma among deployed troops.[56] Whatever its appellation, it is deemed a 'signature wound'[57] of the Iraq and Afghanistan engagement veterans.

B. Prevalence of PTSD

1. Estimates: Static

PTSD prevalence is widely disputed in medical literature, particularly its prevalence among military personnel.[58] However, amongst the general population, "approximately 8% of the population meets criteria for PTSD during their lifetime."[59] PTSD stressors in the general population are the result of a traumatic event (violent crime, accident, etc) and not combat. With regard to military personnel, the range of

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[54] *Id.* (PTSD Diagnostic Criteria F).

[55] INSTITUTE OF MEDICINE, GULF WAR AND HEALTH, VOL. 6, PHYSIOLOGIC, PSYCHOLOGIC, AND PSYCHOSOCIAL EFFECTS OF DEPLOYMENT-RELATED STRESS 75 (2008).

[56] MENTAL HEALTH ADVISORY TEAM (MHAT) IV OPERATION IRAQI FREEDOM 05-07, OFFICE OF THE SURGEON MULTINATIONAL FORCE-IRAQ & OFFICE OF THE SURGEON GENERAL U.S. ARMY MEDICAL COMMAND, FINAL REPORT, 19 (2006) [hereinafter MHAT], *available at* http://i.a.cnn.net/cnn/2007/images/05/04/mhat.iv.report.pdf.

[57] *See* Karney et al., *supra* note 1, at iii (noting that PTSD and Traumatic Brain Injury ("TBI") are considered 'signature wounds').

[58] *See* Rajeev Ramchand et al., *Disparate Prevalence Estimates of PTSD Among Service Members Who Served in Iraq and Afghanistan: Possible Explanations,* 23 J. TRAUMATIC STRESS 1, 59-68 (2010); Lisa K. Richardson et. al., *Prevalence Estimates of Combat-Related Post-Traumatic Stress Disorder: Critical Review*, 44 AUSTL. & N.Z. J. OF PSYCHIATRY 1, 4-19 (2010).

[59] *See* Karney et al., *supra* note 1, at 5.

estimates is wide: "PTSD is the most prevalent mental health disorder among deployed service members and affects roughly 5 to 15% of service members, depending on who is assessed and when they are assessed."[60]

A recent RAND study reviewed 29 studies to determine factors that caused disparities in PTSD prevalence estimates in the military.[61] According to its analysis, estimates vary based primarily on representativeness and the way PTSD is defined.[62] The only common predictor was combat exposure.[63] To put this into perspective, a review of the numbers of deployed personnel and more recent empirical data is instructive.

From October 2001 to April 2008, approximately 1.64 million U.S. troops had been deployed in OEF/OIF engagements.[64] As of October 2009, "more than 2 million men and women have shouldered [the] deployments, with 793,000 of them deploying more than once."[65] Nearly 40% (39.7%) of OEF/OIF veterans had multiple deployments, and multiple 'combat' exposures. Even at the low end, a 5% incidence of PTSD among deployed veterans would equal 100,000 OEF/OIF veterans with PTSD.

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[60] *Id.* at xviii.

[61] Ramchand et al., *supra* note 58, at 60.

[62] *Id.* (variance of representativeness include those seeking treatment and/or wounded vs. those previously deployed members not seeking treatment. Variances in the methods used to define PTSD include self-reports and Primary Care screening vs. clinical observations and checklists. Contact rates for treatment-seeking subjects were 46% and non-response bias for both groups was between 40-60%). *See also* Richardson et al., *supra* note 58, at 4-19 (stating variability in prevalence is likely due to sampling strategies; measurement strategies; inclusion and measurement of DSM-IV clinically significant impairment criterion; timing and latency of assessments; and combat experiences).

[63] Ramchand et al., *supra* note 58, at 65.

[64] *See* Karney et al., *supra* note 1, at iii.

[65] Michelle Tan, *2 Million Troops Have Deployed Since 9/11*, THE MARINE CORPS TIMES, December 18, 2009, *available at* http://www.marinecorpstimes.com/news/2009/12/military_deployments_121809w/. *See also* Fact Sheet, Veterans for Common Sense, Consequences of Iraq and Afghanistan Wars (April 13, 2010), *available at* http://www.veteransforcommonsense.org/images/articles/PDFsforArticles/vcs_dod_fact_sheet_04-13-2010.pdf (showing 2,052, 405 service members have been deployed and 831,169 deployed more than once, based on figures obtained from the Department of Defense under the Freedom of Information Act).

However, this 5% is questionable on broader assessment, and most likely an underestimate. Using VA data, fully 23% of OEF/OIF veterans seen at the VA received a preliminary diagnosis of PTSD.[66]

Further analysis of the same data shows that only 50% of these PTSD patients had approved PTSD claims.[67] Therefore, nearly half of OEF/OIF veteran patients receiving treatment for PTSD from the VA were not receiving compensation,[68] and hence are likely undercounted as victims of PTSD.

In addition, since approximately 40% of service members are still in the military, considering active military PTSD cases is also instructive. Surveys of deployed Army soldiers and Marines show between 14-17% met screening criteria for PTSD while they were deployed between 2003 and 2007.[69] This data lends additional support that the estimate of 5% prevalence of PTSD is empirically low.

2.Estimates: Dynamic

In addition to looking at static diagnosis and screening criteria to determine incident rates of PTSD, it is important to examine dynamically at symptomology to predict the impact that PTSD could have on OEF/OIF veterans.

For example, one year after their return from Iraq, 17% of combat troops experienced PTSD symptoms.[70] This rate is significantly higher than the initial numbers reported immediately following their return from Iraq (approximately 5%).[71] This increase indicates the latency of PTSD that may not be reflected in static estimates.

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[66] DEPARTMENT OF VETERANS AFFAIRS, ORGANIZATIONAL BRIEFING BOOK 9 (2009).
[67] *Id.*
[68] *Id.*
[69] GULF WAR AND HEALTH, *supra* note 55, at 79. This data shows that at least some veterans of Iraq and Afghanistan meet the criteria for PTSD, much like their counterparts who are no longer in service, and are not receiving compensation because they are still in the military.
[70] *Id.* (citing Hoge et al., *supra* note 7 and MHAT, *supra* note 56).
[71] *Id.*

Therefore, longitudinal studies that follow OEF/OIF veterans over several years are necessary. Since these studies have not yet been completed,[72] forecasting the long-term impact of PTSD on OEF/OIF veterans can be performed using mathematical models.

To accomplish this, one study using two dynamic mathematical models[73] analyzed OIF data to predict the incidence of symptomatic PTSD cases over the next several years. This analysis resulted in an estimated 294,000-313,000 service members will exhibit PTSD symptoms by the year 2023, which equates to 32% of Reserve forces and 40% of Active Army and Marine forces.[74] The higher rate takes into account repeated deployments and delayed onset of PTSD among deployed veterans.[75]

On this basis, researchers found that the relative risk of developing PTSD for those serving only one tour was 24%.[76] The risk increased to 39% for a second tour and to 64% for four or more tours.[77]

These projections appear reasonable.[78] Using historical data from Vietnam Veterans, it has been estimated that that as many as 30%[79] of OEF/OIF veterans may experience PTSD at some point in their lives.[80]

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[72] *See* The Millennium Cohort Study, http://www.millenniumcohort.org (last visited May 27, 2010) (organization currently conducting OEF/OIF multiyear longitudinal study).

[73] Michael P. Atkinson et al., *A Dynamic Model for Post Traumatic Stress Disorder Among U.S. Troops in Operation Iraqi Freedom*, 55 MGMT. SCIENCE 1455, 1457, 1463 (2009) (using Poisson model and Probit models which varied by less than 10%).

[74] *Id.* at 1461.

[75] *Id.* at 1454.

[76] *Id.* at 1465.

[77] *Id.*

[78] The projected range of PTSD patients and claims caused by the two current wars is between 350,000 and 665,000. Letter from Paul Sullivan, Executive Director, Veterans for Common Sense, to Robert McFetridge, Director Regulations Management, Department of Veterans Affairs (October 14, 2009), *available at* http://www.veteransforcommonsense.org/index.php/veterans-category-articles/1424-vcs.

[79] GULF WAR AND HEALTH, *supra* note 55, at 80 (stating an estimated 30.9% of Vietnam Veterans had lifetime combat-related PTSD). However, this number has been criticized. EDGAR JONES & SIMON WESSELY, SHELL SHOCK TO PTSD: MILITARY PSYCHIATRY FROM 1900 TO THE GULF WAR 133-134 (2005) (stating 30% is an overestimate). In a reassessment of 260 Vietnam veterans from the original study, the estimate was reduced to nearly 20%. Bruce P. Dohrenwend et al., *The Psychological Risks of Vietnam for*

IV. ISSUES WITH VETERANS DISABILITY COMPENSATION AND PTSD

A. Inherent Problems with the Schedule

The Schedule has inherent weaknesses for calculating and addressing disability claims for wounded warriors. In particular, the key signature wound of PTSD for today's veterans returning injured from OEF/OIF engagements has created a significant burden for these individuals that is difficult and, at times, impossible to navigate to obtain disability benefits rightfully theirs.

Specifically, for disability assessments, the PTSD rating schedule has not changed in nearly 15 years.[81] Therefore, it contains criteria that are at odds with modern standards of care.[82] Applying this outdated Schedule and assessment tools poses a unique challenge to Raters, and may cause lower PTSD ratings. Indeed, in some cases, PTSD claims may be denied altogether because the veteran did not meet the bureaucratic Schedule criteria even though the veteran has met the clinical diagnostic criteria.

The Schedule for evaluating PTSD claims uses the same set of criteria for rating all mental health disabilities. It focuses on symptoms from schizophrenia, mood, and

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U.S. Veterans: A Revisit with New Data and Methods, 313 SCIENCE 979 (2006) (finding 18.7% of Vietnam veterans experience PTSD over their lifetime).

[80] The VA reports that 11-20% of OEF/OIF veterans experience PTSD, 10% of Desert Storm veterans experience PTSD, and 30% of Vietnam veterans experience PTSD. *See* United States Department of Veterans Affairs How Common is PTSD, http://www.ptsd.va.gov/public/pages/how-common-is-ptsd.asp (last visited May 27, 2010). Note also that Vietnam veterans had PTSD 15 years or more after returning from that conflict. *See* B. P. Dohrenwend et al., *The psychological risks of Vietnam for US veterans: a revisit with new data and methods,* 313 SCIENCE 979 (2006). Indeed, this latency effect can go on for decades; for example, World War II and Korean veterans have been reported to have a prevalence of 12% for PTSD even after 45 years after combat. *See* A. Spiro III, et al., *Combat-related posttraumatic stress disorder symptoms in older men,* 9(1) PSYCHOL. AGING 17 (1994).

[81] 21ST CENTURY, *supra* note 16, at 111 (stating the ratings for mental disorders were last revised in 1996). The 1996 revision of the mental disorders section of the Rating Schedule used a single rating formula to rate all mental conditions except eating disorders. VETERANS' DISABILITY BENEFITS COMMISSION, HONORING THE CALL TO DUTY: VETERANS' DISABILITY BENEFITS IN THE 21ST CENTURY 71 (2007) [hereinafter HONORING THE CALL TO DUTY], *available at* http://www.vetscommission.org/pdf/FinalReport10-11-07-compressed.pdf.

[82] 21ST CENTURY, *supra* note 16, at 5, 110-12.

anxiety disorders, rather than symptoms that PTSD patients more commonly experience such as episodes of recurrence, avoidance, and social withdrawal.[83]

This systemic concern has not gone unnoticed. The Veterans' Disability Benefits Commission ("VDBC"), commissioned by Congress, did an extensive two and a half year review of the VA's compensation system and produced a 500-page report in cooperation with the Institute of Medicine ("IOM") and the Center for Naval Analysis.[84] The committee found that the Schedule's criteria are "at best a crude and overly general instrument for the assessment of PTSD disability."[85] As a result, criteria from the Schedule might override PTSD symptoms in DSM-IV-TR, which could produce lower ratings or no rating at all. For example, the criteria for PTSD under the Schedule for a 100% disability rating are:

> [G]ross impairment in thought processes or communication; persistent delusions or hallucinations; grossly inappropriate behavior; persistent danger of hurting self or others; intermittent inability to perform activities of daily living (including maintenance of minimal personal hygiene); disorientation to time or place; memory loss for names of close relatives, own occupation, or own name.[86]

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[83] *Review of Veterans' Disability Compensation Expert Work on PTSD and Other Issues: Hearing Before the Committee on Veterans' Affairs United States Senate*, 110th Cong. 110-638, 21 (2008) [hereinafter *Hearing*] (statement of Dean Kilpatrick, Ph.D., Professor and Director, National Crime Victims Research and Treatment Center, Medical University of South Carolina). PTSD Diagnostic code 9411 falls under Anxiety Disorders, which are rated under the same Schedule of Ratings for all Mental Disorders. *See* 38 C.F.R. § 4.130 (2010).

[84] HONORING THE CALL TO DUTY, *supra* note 81. *See also Hearing*, *supra* note 83, at 2 (statement of Hon. Patty Murray, U.S. Senator from Washington) (noting that the report "is the most expansive analysis of veterans' disability benefits in more than 50 years").

[85] HONORING THE CALL TO DUTY, *supra* note 81, at 146.

[86] 38 C.F.R. § 4.130 (2010).

Yet the only symptoms that are present on both the Schedule and clinical DSM-IV-TR for a 100% rating are hallucinations, and possibly irritability or outbursts of anger (danger of hurting self or others on the Schedule). At least seventeen other PTSD symptoms listed in DSM-IV-TR are *not* found in the Schedule at the 100% rating.[87] Likewise, there are only two PTSD symptoms present on both the Schedule for a 70% rating and DSM-IV-TR.[88] These symptoms include: near continuous panic (compared to hypervigilance on DSM-IV-TR) or depression (compared to markedly diminished interest or participation in significant activities, feeling of detachment or estrangement from others, and restricted range of affect, and sense of a foreshortened future on DSM-IV-TR).[89] Further, there is no mention of sleep disturbances, re-occurrence, difficulty concentrating or exaggerated startle response anywhere in the 70% or 100% rating on the Schedule,[90] even though these are listed in the medically-based DSM-IV-TR.

These findings indicate that most of the clinical criteria for PTSD in DSM-IV-TR are not found at the highest levels of the Schedule and may therefore result in inappropriately lower disability ratings.[91] Although the VA Best Practice Guidelines state: "[a] veteran does not need to have any or all of the specific examples of signs and symptoms listed in the general rating formula for mental disorders in order for a

[87] *Compare* DSM-IV-TR, *supra* note 6, *and* 38 C.F.R. § 4.130.
[88] 38 C.F.R. § 4.130.
[89] *Id.*
[90] *Id.*
[91] Strict interpretation of the Schedule would put most PTSD symptoms found in DSM-IV-TR at the 50% or lower level.

particular evaluation level of PTSD to be assigned,"[92] there is no mention of this distinction in the Schedule itself.[93]

B. Requirement to Use Both DSM-IV-TR and the Schedule

There is clearly a need for clarification and further development of the disability ratings process generally and as applied to PTSD. This has been recognized to some extent, as the VA and the courts have indicated that both the Schedule and DSM-IV-TR must be considered when rating veterans for disabilities.[94] However, these pronouncements have not been clear, and instead have created conflicting criteria in disability claim analysis.

Although it is clear that officials at the VA must be familiar with both DSM-IV-TR and its associated nomenclature as well as the Schedule, since VA regulations make the DSM-IV-TR standards integral to the disability ratings process.[95] However, neither the Schedule nor regulations specify *how* to use and integrate both the Schedule and DSM-IV in disability assessments for PTSD.

Importantly, the courts have not provided clarification in this regard. For example, in 2002, the Veterans Court attempted to clarify the relationship between DSM-IV and the general rating formula for disability benefits for PTSD in *Mauerhan v. Principi*.[96] Mr. Mauerhan was a Vietnam veteran who appealed a Board denial of an increase in his disability claim for service-connected PTSD. Mr. Mauerhan claimed "the Board erred in

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[92] PATRICIA WATSON, PH.D. ET AL., DEPARTMENT OF VETERANS AFFAIRS, BEST PRACTICE MANUAL FOR POSTTRAUMATIC STRESS DISORDER (PTSD) COMPENSATION AND PENSION EXAMINATIONS 56 (2001), *available at* http://www.avapl.org/pub/PTSD%20Manual%20final%206.pdf.

[93] 38 CFR 4.130 (2010) (citing 'symptoms such as' indicating examples, but does not acknowledge that the lack of any of the examples could still result in a rating).

[94] *See e.g. Mauerhan v. Principi,* 16 Vet. App. 436 (2002); *Sellers v. Principi*, 372 F.3d 1318 (Fed. Cir. 2004).

[95] 38 C.F.R. §§ 4.125, 4.130 (2010).

[96] *Mauerhan v. Principi,* 16 Vet. App. 436 (2002).

relying on the 30% and 50% rating criteria listed under [the Schedule], as *requirements* rather than *examples*, because those criteria apply to all mental disorders."[97] Instead, he claimed the Board "should have considered the criteria specific to PTSD, set forth in DSM-IV."[98] He also observed that many of the symptoms listed in Schedule are not found in the DSM-IV for PTSD and, therefore, the criteria in DSM-IV should serve as a definitive basis for a disability rating in PTSD cases.[99]

The court rejected his assertion that the DSM-IV should serve as the definitive tool for disability analysis. It stated the VA "is to consider all symptoms of a claimants condition that affect the level of occupational and social impairment, including, if applicable, those identified in DSM-IV."[100]

Other challenges have gotten no further. Two years later, in *Sellers v. Principi*, the Federal Circuit Court of Appeals similarly held that "the symptoms listed in DSM-IV do not replace, but rather supplement, the criteria listed in [the Schedule] as the basis for rating PTSD claims."[101] Hence, it is clear that DSM-IV-TR has not replaced the ratings schedule; the issue of how to use both DSM-IV-TR and the ratings schedule together generally and for PTSD-afflicted wounded warriors.

C. Problems with PTSD Assessments

Beyond the uncertain sign and symptom standards for disability review, PTSD is also assessed by a variety of methods including questionnaires, patient interviews, and biological and neurological tests. One of the earliest PTSD assessment tools was the

[97] *Id.* at 440 (emphasis in original). Note that the most recent DSM-IV-TR was in version DSM-IV at the time of the case.
[98] *Id.*
[99] *Id.*
[100] *Id.* at 443.
[101] *Sellers v. Principi*, 372 F.3d 1318, 1327 (Fed. Cir. 2004).

Global Assessment of Functioning ("GAF") Scale, which was adapted from the Global Assessment Scale ("GAS") developed in 1976 as a structured interview for patients with schizophrenia.[102] The GAF became the fifth axis in the DSM-III profile, and has remained so in subsequent revisions to the present DSM-IV-TR.[103]

The GAF used by the VA employs a scale of 1-100 where 1 represents the lowest and 100 the highest level of functioning.[104] The VA started using GAF scores in 1991 to chart progress of discharged psychiatric patients.[105] The VA began an initiative in 1998 to increase mental health scores of severely mentally ill ("SMI") patients by tracking them with GAF scores. The goal was to increase the average GAF scores of SMI patients by 5% between fiscal years 1998 and 2003.[106] To do this, the Department of Veterans Affairs mandated that starting in FY 1998, "mental health clinicians [were] required to record at least one GAF score … reflecting the 'current level of functioning' for each VA patient seen at any VHA mental health inpatient or outpatient setting."[107]

Unfortunately, the GAF score soon became a benchmark to measure disability and compensation, whereby anyone scoring above 40 was deemed not disabled and under 40 was disabled.[108] The most significant problem with using the GAF for PTSD is that "the anchors for the most severe levels (1-40) are almost universally drawn from

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[102] COMMITTEE ON VETERANS' COMPENSATION FOR POSTTRAUMATIC STRESS DISORDER, INSTITUTE OF MEDICINE AND NATIONAL RESEARCH COUNCIL, PTSD COMPENSATION AND MILITARY SERVICE 91 (2007) [hereinafter PTSD COMPENSATION AND MILITARY SERVICE].

[103] WATSON, PH.D. ET AL., *supra* note 92 at 9.

[104] *Id.*

[105] VHA Directive 97-059, Department of Veterans Affairs, Instituting Global Assessment of Function (GAF) Scores in Axis V for Mental Health Patients (November 25, 2007), *available at* http://www.hadit.com/forums/lofiversion/index.php/t2636.html.

[106] *Id.*

[107] *Id.*

[108] WATSON, PH.D. ET AL., *supra note* 92, at 11.

symptoms of mood disorders and schizophrenia."[109] This means that the GAF does not adequately capture symptoms that are more common to PTSD.

Additionally, even the VA warns in its Best Practice Guidelines of 2001: "Do not base a rating solely or mainly on the GAF score … the GAF score does not translate directly to the rating schedule criteria."[110] The Best Practice Guidelines explain that "[t]he GAF scale is generally acknowledged to be an unreliable tool for assessment, although it may have value for treatment and prognostic purposes."[111] Despite these deficiencies, the GAF is still widely used even today as a disability ratings tool.

D. Proof of Service Connection

Assuming wounded warriors can navigate the medical-legal landscape of the Schedule application, varied DSM-IV-TR assessments, as well as potentially inappropriate GAF review, to obtain a PTSD diagnosis and disability designation, veterans still have to prove that their PTSD was caused by a stressor that occurred in service or was the result of military service.[112] For some 'combat' veterans this task may be straightforward. A 'combat' veteran can show a combat medal or award, or some other proof of combat actions, and provide lay testimony thereof. However, for most 'non combat' veterans, proving service connectedness is very difficult, particularly for those with PTSD. This process can take years for the VA and/or the veteran to secure and review documentation or proof.

For example, a VA healthcare use report obtained using the Freedom of Information Act ("FOIA") showed that less that half (43%) of OEF/OIF veterans who

[109] PTSD COMPENSATION AND MILITARY SERVICE, *supra* note 102, at 91.
[110] WATSON, PH.D. ET AL., *supra note* 92, at 56.
[111] *Id*. at 60.
[112] 38 C.F.R. §§ 3.303(a); 3.304(f) (2010).

were *already* diagnosed by VA mental health professionals with PTSD received compensation for PTSD in FY 2009.[113] Likewise, in FY 2008, the Chairman of the Veterans Affairs Subcommittee on Disability Assistance and Memorial Affairs reported that more than 100,000 OEF/OIF veterans have been found to have PTSD, but only 42,000 have been granted service-connected disability for their condition (about 42%).[114] The most common reason why these veterans are uncompensated is the lack of service connection, whereby the veteran was not able to prove 'combat' experience or that they 'engaged with the enemy.'

Further, about 12,600 OEF/OIF veterans who are currently receiving compensation for other conditions had disability claims for PTSD denied over the period from October 2001 through March 2008 because their PTSD could not be verified as service-connected.[115] These veterans received a lower rating than they were entitled to because they were unable to prove their PTSD was 'combat' related.

Even with a PTSD disability rating of only 30% (mild to moderate), the impact to the overall compensation for the veteran is significant. The Congressional Budget Office ("CBO") estimates that, in 2009, the annual difference between a 40 percent and a 70 percent rating was $17,175, and will increase to nearly $20,800 by 2018.[116] Veterans who are clearly in need of assistance, who have already met the criteria for PTSD as determined by VA healthcare professionals, are therefore not receiving the financial assistance they are entitled to.

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[113] *See* Letter, *supra* note 78 (discussing VA healthcare use report obtained by Veterans for Common Sense ("VCS") by using the Freedom of Information Act ("FOIA").

[114] Press Release, John Hall U.S. Representative from New York, Hall Announces Major Veterans PTSD Legislation (Feb. 9, 2009), *available at* http://johnhall.house.gov/index.php?option=com_content&task=view&id=715&Itemid=32.

[115] H.R. REP. NO. 100-789, at 23 (2008).

[116] *Id.*

Because of the backlog of pending PTSD claims, in 2008 the VA decided to eliminate the proof of stressor requirement if a veteran received a diagnosis of PTSD during service and the in-service stressor is consistent with the circumstances, conditions, or hardships of the veteran's service.[117] For a veteran diagnosed with PTSD while in service, the veteran's description of the stressor alone will be enough to establish a service-connected claim.[118] This rule will help alleviate the struggle that many veterans face by overcoming this hurdle of the claims process. However, the stigma associated with PTSD will likely keep many veterans from receiving this diagnosis while in service.[119]

Another effort in reducing the burden of proof of 'combat' service is the new regulation published July 13, 2010 in the Federal Register concerning the evidence a veteran must present to the VA if the claimed PTSD 'stressor' is tied to fear of hostile military or terrorist activity.[120] The rule would recognize that service members do not need to be in combat to experience intense fear and, depending on the individual, that fear may become debilitating even when individuals are removed from a threatening environment.[121] On its face, the proposed rule seems like a significant advance for veterans who have struggled to prove stressors occurred in a 'combat' environment. However, further analysis of the proposed rule reveals that only a VA psychiatrist or psychologist, or those under contract with the VA, can make the nexus determination

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[117] *See* 38 C.F.R. § 3.304(f) (2010); Fast Letter 08-08, Department of Veterans Affairs, Additional Guidance on Post Traumatic Stress Disorder (PTSD) (April 7, 2008), *available at* http://jimstrickland912.com/uploads/FL08-008.doc; Military.com, Military PTSD Requirements Relaxed http://www.military.com/military-report/military-ptsd-requirements-relaxed (last visited May 2, 2010).

[118] Fast Letter 08-08, *supra* note 117.

[119] Hoge, M.D. et al., *supra* note 7.

[120] Stressor Determinations for Posttraumatic Stress Disorder, 75 FED. REG. 39843 (July 13,2010) (to be codified at 38 C.F.R 3.304).

[121] *Id.*

between the PTSD diagnosis and the stressor resulting from hostile military or terrorist activity.[122] This may result in the same systems issues of Schedule, clinical DSM-IV-TR, GAF application, and other factors arising and limiting the appropriate disability scores and claims for the wounded warrior, as well as create challenges for veterans who are not in close proximity to VA providers or prefer not to use VA systems in evaluating their condition.

E. Increased Claims

Even if veterans receive a PTSD diagnosis and establish a service connection, they will still face challenges to obtain compensation due to the overwhelming numbers of disability claims currently in the system. According to a VA OIG Report, "the national C&P exam workload exceed[ed] 900,000 requests in FY 2009" and projections for FY 2010 were 1.1 million exam requests and 1.2 million claims.[123] This is approximately a 75 percent increase over the 579,000 claims received in 2000, and the VA expects a 30 percent increase in claims from 2009 levels, to 1.3 million in 2011.[124] Inevitably, because of the increase in claims, the length of time for processing claims has also increased, as has the time to obtain final appeal decisions. For example, current appeals before the courts are over 10 years old and the claimants, typically Vietnam or WWII vets, often die during the appeal process.[125]

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[122] *Id.*

[123] OIG REPORT NO. 09-02135-107, *supra* note 17, at 9-10.

[124] Swords-to-plowshares.org, VA Claim Delays Continue, http://www.swords-to-plowshares.org/newsDetails?id=122 (last visited May 27, 2010).

[125] Most cases currently pending before the Veterans Court are appeals from 2004-2005. Until 2003, the disability claim died with the veteran. Now, accrued benefits may be paid to the veteran's beneficiary. *See* 38 U.S.C. § 5121 (2010). *See also The Challenges Facing the U.S. Court of Appeals for Veterans Claims: Hearing Before the Subcommittee on Disability Assistance and Memorial Affairs of the Committee on Veterans' Affairs*, 110th Cong. 110-24 (2007) (Opening Statement of Hon. John J. Hall, Chairman,

Subcommittee on Disability Assistance and Memorial Affairs).

An addition to significantly more claims, claims have become more complex, with "[t]he number of cases with eight or more disabilities claimed nearly tripled from 21,814 in 2000 to 61,598 in 2008."[126] Many veterans of Iraq and Afghanistan have a high school diploma or less, and will find the process of applying for disability complicated.[127] Compounding these additional conditions to a diagnosis of PTSD combined with difficulty maintaining concentration or completing tasks results in few veterans actually complete the process. It is evident that substantial assistance may be required for these veterans.[128]

F. Consequences of the Current System

There are significant ethical, moral, and economic consequences of under rating or denying a legitimate PTSD disability claim. The societal costs of PTSD are tremendous. These costs include loss of productivity, unemployment, costs of treatment, and suicide, and are estimated at approximately $6.2 billion over only two years.[129]

Of course, the ethical consequences are similarly dramatic. Beyond the commitment that the country has made to ensure support of wounded warriors, the social injustice and shifting the burden of care for veterans with PTSD to their families or local communities violates that social contract. Failing to appropriately compensate all veterans with PTSD is to make them 'whole' reflects poorly on society.

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[126] *See* Jonathan Creekmore Koltz, *Unstacking the Deck: In Defense of the Veterans Benefits, HealthCare, and Information Technology Act of 2006*, 17 FED. CIR. B.J. 79, 90 (2007) (showing 21,814 for 2000) *and* PowerPoint Presentation: Veterans Benefits Administration, Advisory Committee for Women Veterans, at 10 (October 28, 2009), *available at http://www1.va.gov/womenvet/docs/VBA.ppt#395,10,Disability Compensation - Highlights* (showing 61,598 for 2008).

[127] *Peake*, 563 F.Supp 2d at 1070.

[128] *Id.*

[129] H.R. REP. NO. 110-789, at 14 (2008).

In addition, failing to compensate veterans who have been disabled leads to harm because PTSD has a high risk of co-occurring disorders. These disorders strike deeply at veterans' ability to adjust to adequate functionality, and include alcohol abuse or dependence (51.9%), major depressive episodes (47.9%), and drug abuse and dependence (34.5%).[130] Indeed, these co-occurring disorders lead to social and occupational problems, unemployment, and homelessness of these veterans.

In addition, PTSD compensation is not only necessary for daily living, but is also directly linked to access to health care treatment. A higher overall rating provides access to low cost/no cost health care.[131] Claim approval is hence associated with increased participation in PTSD treatment.[132] An appropriate disability rating also entitles a veteran to ancillary services, such as vocational rehabilitation and employment counseling that can provide the wounded warrior with transition and skills to re-enter civilian society.[133] These are critical services needed by returning wounded warriors, as PTSD is associated with impaired cognitive performance,[134] greater health care needs, and higher risk of a spectrum of debilitating health care conditions,[135] including dementia.[136]

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[130] Athealth.com, PTSD Fact Sheet, http://www.athealth.com/Consumer/disorders/ptsdfacts.html (last visited May 27, 2010).

[131] 21ST CENTURY, *supra* note 13, at 3.

[132] *See* Letter, *supra* note 81. (noting that "claim approval is associated with *increased* participation in mental health treatment") (emphasis in original); Michele Spoont et al., *Does Filing a Post-Traumatic Stress Disorder Disability Claim Promote Mental Health Care Participation Among Veterans?*, 172 MIL. MED. 572 (2007); and Nina A. Sayer et al., *Use of Mental Health Treatment Among Veterans Filing Claims for Posttraumatic Stress Disorder*, 20 J. OF TRAUMATIC STRESS 15 (2007).

[133] 21ST CENTURY, *supra* note 13, at 3.

[134] *See, e.g.,* K. W. Samuelson et al., *Neuropsychological functioning in posttraumatic stress disorder and alcohol abuse,* 20(6) NEUROPSYCHOLOGY 716 (2006); and J. J. Vasterling et al., *Neuropsychological outcomes of Army personnel following deployment to the Iraq war,* 296(5) J. AM. MED. ASSN. 519 (2006).

[135] *See, e.g.,* J. A. Boscarino, Posttraumatic stress disorder and physical illness: results from clinical and epidemiologic studies, 1032 ANN. N.Y. ACAD. SCI. 141 (2004); K. D. Drescher et al., Causes of death among male veterans who received residential treatment for PTSD, 16 J. OF TRAUMA STRESS 535

The incidence of PTSD, the long-term effects PTSD can have on veterans, and the consequences of a vague, inconsistent, and unsound rating system helps to put into perspective the magnitude of the problems encountered with PTSD disability compensation. Reform is therefore needed.

V. COMPARISON TO SOCIAL SECURITY DISABILITY

A. Social Security Administration

It is apparent that systemic reform is needed to assist disability claims and benefits administration for wounded warriors. The Social Security Administration ("SSA") provides important lessons for consideration.

SSA handles similar claims, with a similar population. In 2009, SSA paid nearly $109.5 billion[137] to 8 million disabled Americans.[138] The number of applications for disability insurance surpassed 3 million in 2009.[139] The average processing time for initial claims in 2009 was only 101 days.[140] Applicants can appeal denied claims to an

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(2003); P. P. Schnurr et al., Physician-diagnosed medical disorders in relation to PTSD symptoms in older male military veterans, 19(1) HEALTH PSYCHOL. 91 (2000).

[136] *See, e.g.,* K. Yaffe et al., *Posttraumatic Stress Disorder and Risk of Dementia Among US Veterans*, 67(6) ARCH. GEN. PSYCH. 608 (2010). Indeed, some research has indicated that PTSD accelerates the aging process generally. *See* R. Yehuda et al., Relationship between cortisol and age-related memory impairments in Holocaust survivors with PTSD, 30(7) PSYCHONEUROENDOCRINOLOGY 678 (2005).

[137] SocialSecurity.gov, Budget Fact Card 2009, http://www.socialsecurity.gov/budget/FactCard2009.pdf (last visited May 27, 2010).

[138] Disability-blog.com, Social Security Disability Claims Top the 3 Million Mark, http://disability-blog.com/2010/04/social-security-disability-claims-top-the-3-million-mark/ (last visited May 27, 2010).

[139] SOCIAL SECURITY ADMINISTRATION, PERFORMANCE AND ACCOUNTABILITY REPORT FISCAL YEAR 2009 12 (2009) [hereinafter SSA REPORT FY 2009], *available at* http://www.ssa.gov/finance/2009/Full%20FY%202009%20PAR.pdf.

[140] *Id*. at 17 (21% of SSA claims were filed online). Compare this to the VA, which "takes an average of more than six months to make a decision—70 percent more time than it took four years ago." Amanda Ruggeri, *Veterans Groups Sue Bush Administration Over Delayed Benefits Claims*, U.S. NEWS AND WORLD REPORT, Nov, 10, 2008, *available at* http://www.usnews.com/articles/news/national/2008/11/10/veterans-groups-sue-bush-administration-over-delayed-benefits-claims.html?PageNr=1. The courts have ruled that these delays at the VA are not 'unreasonable.' *See e.g. Peake*, 563 F.Supp.2d at 1084. (Ruling that alleged delays by the VA in adjudicating service-connected claims which include an average 183 days (about 6 months) to adjudicate a

Administrative Law Judge ("ALJ"). About 554,000 cases were decided by ALJs in 2009. The judges approved benefits in 63% of those cases, after an average processing time of 491 days, which dropped to 442 days this year.[141] At the end of 2009, less than 1% (0.14%) of hearings pending exceeded 850 days.[142] The entire process takes an average of 777 days, or a little more than two years.[143]

Despite the larger volume of cases (nearly three times that of the VA) and an almost identical backlog of 1 million claims, the SSA still manages to process claims much faster and has a higher approval rating than the VA. The reason is most likely due to the claimant friendly and investigatory nature of SSA's claims process, and, importantly, attorney representation.[144]

B. Legal Representation

1. SSA

The claims process is much less time consuming with SSA claims, and this can be attributed to the fact that attorneys are not only allowed, but also encouraged, to assist applicants for Social Security disability benefits. Attorneys are, however, limited to contingency fees of 25% of past due benefits or a maximum of $6,000, whichever is

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claim filed by a veteran, and an average 1,419 days (about 3 years) to receive a decision on appeal, were not unreasonable under the Administrative Procedure Act (APA)).

[141] *Id.* at 11. *See also* Stephen Ohlemacher*, Spike in Disability Claims Clogs Overloaded System*, Associated Press, May 9, 2010, *available at* http://www.BOSTON.com/business/articles/2010/05/09/spike_in_disability_claims_clogs_overloaded_system/?page=2.

[142] SSA REPORT FY 2009, *supra* note 139, at 49.

[143] Ohlemacher, *supra* note 141.

[144] Along with this investigatory model, a program that prioritized wounded warriors from OEF/OIF has created drastic results. A retrospective review of approximately 16,000 OEF/OIF veterans that would otherwise be eligible for VA disability, also applied for SSDI benefits. It is telling that the approval rate for these wounded warriors identified in SSA data was 34% within 6 months, and 60% within 12 months of application. *See* SSA REPORT FY 2009, s*upra* note 139, at 54-56.

lower, unless unusually complex claims or circumstances exist.[145] Another "key difference between the SSA system and that of the VA is that the SSA adheres to an 'investigatory model' of hearings once benefits have been denied . . .. This system is inquisitorial, with the ALJ bearing a duty to develop arguments both in favor of the claimants and in favor of the government."[146] Within the VA claims process, the veteran has the burden to prove the claim was denied in error.[147]

2. VA

In deep contrast to SSA assessments, legal representation is discouraged in veteran's cases. This has an ancient history.

In 1862, congress imposed a $5 cap on the fee attorneys could charge to represent veterans of the Civil War. Their reasoning was to prevent unscrupulous lawyers from charging veterans with limited literacy exorbitant fees for filling out uncomplicated forms for pension benefits.[148] The cap remained at $5 until 1864, when it was moderately increased to $10.[149] From 1864 to 1988 the cap remained at $10, essentially preventing attorneys from representing veterans unless they did so pro bono.[150]

In 1988, Congress passed the Veterans Judicial Review Act.[151] Under this Act, veterans were banned from paying attorneys to represent them until after the first time the Board made a final decision in the case. This Act's prohibitions remained unchanged for 20 years.

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[145] 42 U.S.C. § 406 (2010); Maximum Dollar Limit in the Fee Agreement Process, 74 Fed. Reg. 6,080 (Feb. 4, 2009) (announcing maximum dollar amount for fee agreements would increase to $6,000).

[146] Koltz, *supra* note 126, at 92.

[147] Known as a clear and unmistakable error ("CUE"), *see* 38 U.S.C. 5109A(b), 38 U.S.C 7111; *see also* 38 C.F.R. § 20.1404(b)(2010) (explaining that when a veteran asserts CUE the motion must specifically identify the error of fact or law).

[148] 8 STEVEN W. FELDMAN, WEST'S FEDERAL FORMS § 13421, n.2 (2d ed. 2010).

[149] *Id.*

[150] *Id.*

[151] Act of Nov. 18, 1988, PUB. L. NO. 100-687, 102 Stat. 4105 (1988).

In 2000, Congress passed the Veterans' Claims Assistance Act of 2000 ("VCAA").[152] In seeking to support a 'pro-veteran' process, a duty to assist the veteran was created. This duty shifted the burden from the veteran to the VBA to produce medical and service records necessary to substantiate a claim. In addition to creating a duty to assist all claimants in collecting the evidence necessary to substantiate their claim,[153] the VCAA also mandated a grant of the 'benefit of the doubt' to veterans when VBA analyzes their claims.[154] However, no legal representation reform was included for veteran assistance.

In 2006, the Veterans Benefits, Healthcare, and Information Technology Act was signed into law.[155] This law, instead of promoting legal assistance to veteran's, continued the almost century and a half bias against representation. Attorneys' fees are prohibited from being "charged, allowed, or paid for services of agents and attorneys with respect to services provided before the date on which a notice of disagreement is filed …."[156] Therefore, representation continues to be barred for initial claims, and are only permitted for appeals.[157]

C. VA Arguments for the Status Quo

The VA claims that the system is pro-veteran, and relies on Veteran Service Officers ("VSO's") to help veterans navigate the system free of charge.[158] The VA also

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[152] Veterans Claims Assistance Act of 2000, Pub. L. No. 106–475, 114 Stat. 2096 (2000).

[153] 38 C.F.R. §3.159 (2010).

[154] 38 C.F.R. §3.102 (2010).

[155] Veterans Benefits, Health Care, and Information Technology Act of 2006, Pub. L. No. 109-461, 120 Stat. 3404 (2006).

[156] 38 U.S.C. § 5904 (c)(1) (2010).

[157] An attorney representing a claimant before the Board of Veterans' Appeals must file a copy of any fee agreement with the Board, and the total fee payable to the attorney is limited to 20% of the total amount of any past-due benefits awarded. *See* 38 C.F.R. § 14.636 (e)-(g) (2010).

[158] *Walters v. Nat'l Ass'n of Radiation Survivors*, 473 U.S. 305, 311, n.4 (1985): *see also* 38 U.S.C. § 5902(b)(1) (2010).

highlights that there is no specific form required to file a notice of disagreement, only a simple written notification of appeal.[159] The VA also indicates that it is 'mandated' to err in favor of the veteran with respect to notice and even with respect to deciding between criteria for rating disabilities.[160] Lastly, the VA states that veterans get to keep 100% of any award or back pay.[161]

However, despite VA claims, assessing the empirical experience paints a different picture. Over 37% of cases are remanded to the RO and delayed.[162] Moreover, the system is not pro-veteran for physically or mentally impaired veterans because they do not have the capacity, capability, or resources to 'work' complex cases. This reality is highly applicable to and especially true for PTSD-afflicted veterans.

Arguments to permit paid expert assistance are compelling.[163] Attorneys could help streamline and case manage the difficult process for veterans, who are often at the most difficult time in their lives.[164] This assistance could eliminate errors, and result in at least some or even greater compensation compared to what the veteran can do alone. The veteran may pay a small percentage of back compensation in attorney's fees; however, representation may result in a more successful resolution of the claim with greater and more comprehensive compensation. For example, if a veteran pays the 20% maximum

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[159] 38 U.S.C § 7105(d)(3) (2010).

[160] 38 C.F.R. § 4.3 (2010) (Resolution of reasonable doubt).

[161] However, under 38 U.S.C. § 5904(d), reasonable attorney fees for appellate representation are paid out of any award received.

[162] BOARD OF VETERANS APPEALS, REPORT OF THE CHAIRMAN, *supra* note 31, at 21.

[163] Paid competence in other settings of vulnerable patient populations have been shown to be more effective than volunteer-based efforts. *See, e.g.,* Bryan A. Liang, *Elder Abuse Detection in Nursing Facilities: Using Paid Clinical Competence to Address the Nation's Shame*, 39(4) J. HEALTH L. 527 (2006) (reporting paid clinical experts superior to volunteer ombudsmen when identifying and reporting elder abuse in nursing homes).

[164] *See Bryan A. Liang, Systems Issues Regarding Treatment of Returning Wounded Warriors, Testimony for President's Commission on Care for America's Returning Wounded Warriors*, Navy Medical Center San Diego, May 25, 2007 (discussing streamlining systems and case management to address challenges with returning wounded warrior treatment) (on file with author).

allowed for contingency fees to an attorney from a total award of $100,000, then the veteran would sacrifice $20,000 of his back pay from the settlement. However, if the veteran receives a higher disability rating (i.e., 70% instead of 40%) because he or she had legal representation, the annual compensation would be nearly $20,000 more per year. [165] The veteran would break even in one year, and continue to collect the additional $20,000 annually for the remainder of the time he or she is disabled.

Furthermore, fears that attorneys would 'run amuck' and take advantage of veterans have not materialized. It has been expressly noted that "There is no evidence that veterans have been abused by their attorneys (by charging exorbitant fees, for example) upon their being provided representation services before the Veterans Court and then on remand from the Court to the BVA."[166] However, few attorneys actually have become certified to represent veterans.[167]

D. Veterans with Representation Have Better Results

Analysis of available data indicate that legal representation appears to provide significant benefits to veterans. Using veteran's appeal results, legal representation provides greater recoveries for these wounded warriors before the Board.[168]

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[165] H.R. REP. NO. 110-789, at 28 (2008).

[166] *Benefits Legislative Initiatives Currently Pending Before the U.S. Senate Committee on Veterans' Affairs: Hearing Before the Committee on Veterans' Affairs United States Senate*, S. Hrg. 109-715, 42 (June 8, 2006) (Statement of Mr. Richard F. Weidman, Director of Government Relations, Vietnam Veterans of America).

[167] Under current regulations, the VA regulates and 'certifies' all private attorneys who represent veterans before the VA. 38 C.F.R. § 14.629(b) (2010). Yet the accreditation process has proven to be slow. Despite being implemented 2006, formal accreditation procedures were not completed until 2007. The VA had only 400 accredited attorneys through September 2008. As of April 2009, the total number of accredited attorneys totaled just over 2,146, and it now stands at 5,050. *See* United States Department of Veterans Affairs Complete List of Accredited Attorneys, http://www4.va.gov/ogc/apps/accreditation/attorneyexcellist.asp (last visited May 31, 2010). This is likely because of the prohibition against representing veterans until the appeals stages.

[168] Prior to 1985, lawyers represented only 2% of veterans before the Board. *Walters v. Nat'l Ass'n of Radiation Survivors*, 473 U.S. 305, 312, n.4 (1985). The percentage of attorney represented claims before the Board has slowly increased from 3.2% in 1995, to 6.3% in 2000, and 7.7% in 2009. BOARD OF

For fiscal years 2008 and 2009, unrepresented veterans fared, on average, worse than their represented counterparts did. Figures for 2008 and 2009 show that 21.9% and 24% of all dispositions before the Board resulted in veteran full allowances (i.e., the case was won, claim approved).[169] However, those veterans without representation only had 16.3% and 18.7% of their allowances granted, respectively.[170]

Furthermore, even in cases that do not initially result in a full allowance, veterans with attorneys had the highest remand rate out of all the groups (46.4%) compared to 32.4% for unrepresented veterans.[171] Remands allow the attorney or veteran to continue to build a case and gather evidence to support a claim. This result provides the represented wounded warrior with additional opportunities to obtain appropriate disability compensation, rather than having the claim rejected.

In terms of full denial, unrepresented veterans in 2008 had nearly half (49%) of their claims denied.[172] This was the highest rate of denied claims out of all groups. In 2009, that figure dropped slightly to 46.1% of unrepresented veterans being denied their

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VETERANS APPEALS, REPORT OF THE CHAIRMAN: FISCAL YEAR 1995 20 (1995), *available at* http://www.bva.va.gov/docs/Chairmans_Annual_Rpts/BVA1995AR.pdf (reporting 3.2% of veterans were represented by an attorney); BOARD OF VETERANS APPEALS, REPORT OF THE CHAIRMAN: FISCAL YEAR 2000 6 (2000), *available at* http://www.bva.va.gov/docs/Chairmans_Annual_Rpts/BVA2000AR.pdf (reporting that 6.3% of veterans were represented by private attorneys); BOARD OF VETERANS APPEALS, REPORT OF THE CHAIRMAN, *supra* note 31, at 21 (reporting that 7.7% of veterans were represented by attorneys). Veterans at the initial stages are sometimes provided with counselors to help them gather their records and fill out the paperwork. Roughly 86% of veterans use VA provided counselors, but these counselors are not lawyers. Melinda F. Podgor, Note, *The Inability of World War II Atomic Veterans to Obtain Disability Benefits: Time is Running Out on Our Chance to Fix the System*, 13 ELDER L.J. 519, 545 (2006).

[169] BOARD OF VETERANS APPEALS, REPORT OF THE CHAIRMAN, *supra* note 31, at 21.

[170] *Id*.; BOARD OF VETERANS APPEALS, REPORT OF THE CHAIRMAN: FISCAL YEAR 2008 23 (2000) [hereinafter BOARD OF VETERANS APPEALS, 2008 REPORT OF THE CHAIRMAN], *available at* http://www.bva.va.gov/docs/Chairmans_Annual_Rpts/BVA2008AR.pdf.

[171] BOARD OF VETERANS APPEALS, REPORT OF THE CHAIRMAN, *supra* note 31, at 21.

[172] BOARD OF VETERANS APPEALS, 2008 REPORT OF THE CHAIRMAN, *supra* note 170, at 23.

claim by the Board. Yet attorney represented veterans had a significantly lower 28.8% denial rate in 2009, similar to its the 29.9% denial rate in 2008.[173]

Finally, assessing absolute compensation awards of represented versus unrepresented veterans reveals the former received approximately 42% higher awards than unrepresented veterans (average of $11,162 vs. $4,728).[174] These figures demonstrate that veterans represented by an attorney receive more favorable decisions, fewer denials, and better outcomes than those who did not have representation. Providing unrepresented veterans access to an attorney may help strengthen claims and the disparities in appeals and remands.

VI. PROPOSED LEGISLATION

A. Major Concerns

There is a clear need for reform in the wounded warrior compensation system. The basis of disability evaluation must be founded first and foremost on rational, clinically established standards, i.e., the DSM-IV-TM and equivalents, rather than an amalgam of antiquated and non-medical approaches under current jurisprudence and practice. This effort will bring the veterans' disability assessment system into the modern era, and will provided wounded warriors with medically founded diagnosis and concomitant treatment through better access to care and targeted strategies to optimize the health of the veteran.

In addition, attorney representation is clearly key to assist wounded warriors during disability claim efforts. Attorneys can help level the disparities in benefits

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[173] BOARD OF VETERANS APPEALS, REPORT OF THE CHAIRMAN, *supra* note 31, at 21. Only the Vietnam Veterans of America (26.4%) and the Paralyzed Veterans of America (24.6%) fared better than represented veterans. *Id.*

[174] *Injured Vets Shortchanged Again*, ASSOCIATED PRESS, July 19, 2007, *available at* http://www.military.com/NewsContent/0,13319,142878,00.html.

awarded to veterans, particularly those with psychological wounds of war. Specifically, veterans with PTSD are already at a disadvantage because of the difficulty of concentrating on, and completing, tasks which are essential to the claims process.[175] Navigating the initial claims process alone places them at even a greater disadvantage. These highly vulnerable populations therefore require legal expertise, which has been shown to have substantively assisted these patient populations to obtain the medical and support resources needed to address key social needs.

B. A Proposed Annotated Statute

The following annotated proposed bill can address some of these key issues for the modern wounded warrior. We adopt a statutory approach due to its efficiency to accomplish these important goals.[176]

A Bill

H.R. —

To amend Title 38, United States Code, to ensure appropriate and adequate determinations of disability for mental health disorders for wounded warriors, and to remove certain limitations on attorney representation of claimants for veterans benefits in administrative proceedings before the Department of Veterans Affairs, and for other purposes.

A BILL

To amend Title 38, United States Code, to ensure appropriate and adequate determinations of disability for mental health disorders for wounded warriors, and to remove certain limitations on attorney representation of claimants for veterans benefits in administrative proceedings before the Department of Veterans Affairs, and for other purposes

[175] For example, making and keeping appointments, going out in public, meeting new physicians, and recounting histories of wartime stressors.

[176] *See, e.g.,* Richard A. Epstein, *The Social Consequences of Common Law Rules*, 95 HARV. L. REV. 1717 (1982) (noting legislation is more efficient and effective for achieving social change as compared to common law).

SECTION 1. SHORT TITLE. This Act may be cited as the "Veterans Disability Compensation Reform Act."

SECTION 2. FINDINGS.—Congress makes the following findings:

"(1) Veterans from recent conflicts, including Operation Enduring Freedom/Operation Iraqi Freedom (OEF/OIF), have returned from these engagements with significant mental health disorders, including post-traumatic stress disorder (PTSD).

"(2) PTSD is a "signature wound" of OEF/OIF conflicts, and afflicts a large fraction of returning wounded warriors.

"(3) However, to receive disability benefits for PTSD, veterans must engage in a complex administrative system, using conflicting standards in assessing disability, and without legal representation to assist in initial claims, which may take years to process.

"(4) The complexity of the veterans disability claims system may preclude wounded warriors, who return severely injured and with limited ability to navigate the administrative requirements for fair claims review, to obtain the benefits to which they are entitled.

"(5) The General Ratings Formula (Schedule) used in determining disability benefits for wounded warriors is an antiquated, non-medically founded system for assessing disability and has been described by the Veterans' Disability Benefits Commission, the Institute of Medicine, and the Center for Naval analysis as 'at best a crude and overly general instrument for the assessment of PTSD disability.'

"(6) In addition to Schedule concerns, the Veterans Administration's Global Assessment of Functioning (GAF) used in mental health evaluations as used by the Department of Veterans Affairs in mental health disability assessments has been inappropriately applied.
Legal representation has been shown to increase favorable benefits determination in other similar circumstances such as the Social Security System, as well as resulted in efficiencies in claim filing and outcomes.

"(7) Because of the concatenation of these factors associated with mental health disability evaluation and administrative review, inconsistent findings with respect to disorders such as PTSD has occurred, and the negative consequences of the complex process includes inadequate and inefficient grant of disability benefits to veterans and veteran homelessness."

Here, the title of the proposed Act is provided, as well as the key findings that require attention in the proposed legislation. Importantly, the findings of Congress focus upon the challenges of veterans in navigating a complicated administrative system when they have suffered mental trauma and are afflicted with PTSD, issues with the Schedule and its use,

and limited legal representation when wounded warriors need it most: at the initial claims benefit stages.

To address these issues, current laws must be amended to fill the systemic holes in the benefits process for veterans. The first area addressed is moving modern assessments of disability for mental health disorders to focus on diagnosis using accepted medical approaches, including DSM-IV-TR.

> "SECTION 3. TO ENSURE APPROPRIATE AND ADEQUATE DETERMINATIONS OF WOUNDED VETERANS DISABILITIES FOR MENTAL HEALTH DISORDERS BENEFITS IN ADMINISTRATIVE PROCEEDINGS BEFORE THE DEPARTMENT OF VETERANS AFFAIRS.
>
> "(a) Section 1154 of Title 38 of the United States Code is amended by inserting after subsection (b) the following:
>
> '(c) Notwithstanding (a) and (b), and any regulations promulgated thereto, evaluation of disability claims by veterans by the Department of Veterans Affairs for mental health disorders, including PTSD and all disorders within the Diagnostic and Statistical Manual, Fourth Edition, Text Revision (DSM-IV-TR), shall be based on the DSM-IV-TR criteria for the purposes of diagnosis of PTSD and other mental health disorders.
>
> '(d) The DSM-IV-TR shall replace the Schedule and GAF, and the Department of Veterans Affairs shall issue regulations that describe disability calculations using DSM-IV-TR, as updated, in determining disability levels and benefits for veterans afflicted with mental health disorders, including PTSD.'"

Here, the bill addresses the key concern of clinically outdated and/or inappropriate application of the Schedule and GAF to mental health disability assessments, including those for PTSD. Importantly, a focus of using the medically validated DSM-IV-TR, as updated, for disability assessments is expressly required, replacing the outdated and conflicting Schedule. In addition, elimination of the GAF scale as used by Raters is also noted. Recall that the DSM-IV-TR in fact has its own GAF scale as its fifth axis of diagnosis, and hence the replacement of the Schedule and GAF by the DSM-IV-TR also includes a GAF scale for evaluation. Regulations are called for in the legislation to

implement these criteria. These sections hence clarify the standards by which disability assessment for PTSD and other mental health disorders is done, and eliminates confusion of using both DSM-IV-TR and the Schedule.

To ensure that veterans are able to use convenient health care providers in claiming disability benefits, all veterans who are in need of disability evaluations for mental health disorders, including PTSD, should be able to use VHA providers or physicians of their own choosing. This is addressed next.

> ‘(e) Notwithstanding provisions in this Section and Section 5125, Title 38 of the United States Code, or any regulations thereof or relating thereto, the assessment of mental health disorders for a definitive diagnosis as it relates to a mental health disability claim by a veteran shall be performed by VA psychiatrist or psychologist, a psychiatrist or psychologist with whom the VA has contracted, or a private psychiatrist or psychologist of the veteran’s choosing.
>
> ‘(f) Once a diagnosis is established as contemplated in this Section, in the absence of clear and convincing evidence to the contrary, and a finding that the claimed stressor is consistent with the places, types, and circumstances of the veteran’s service, a veteran’s lay testimony alone shall establish the occurrence of the claimed in-service stressor.
>
> ‘(g) It is expressly noted that the provisions associated with subsection (e) and (f) shall include both combat and non-combat veterans.”

In these provisions, additional weaknesses associated with the disability evaluation process for veterans are addressed. Specifically, to expand access and availability of the modernized provisions that utilize DSM-IV-TR, veterans would be able to use any VA, VA-contracted, or private physicians when providing proof of a diagnosis of PTSD or other mental health disorder. This provision hence improves veterans’ access to providers for this purpose as well as addresses key trust issues that have emerged in comments to

the approved but limited regulations.[177] In addition, these provisions expressly note that both combat and non-combat veterans are included within the rule, hence extending PTSD and mental health disorders to all those who are afflicted.

Once the standards of evaluation are brought into the modern era through the use of DSM-IV-TR and service connectedness is established using a valid provider diagnosis of a mental health disorder including PTSD, the wounded warrior should have access to legal representation to shepherd him or her through the complex administrative process. This is addressed below.

> "SECTION 4. TO ENSURE EQUAL REPRESENTATION FOR VETERANS CLAIMS BEFORE THE DEPARTMENT OF VETERANS AFFAIRS.
>
> "(a) Subsection (a) of Section 5904 of Title 38, United States Code, is amended—
>
> "(1) by striking the paragraph (1); and replacing it with the following:
>
> 'Except as provided in paragraph (4), a reasonable fee as described in paragraph (5), may be paid or charged in connection with an initial or appealed claim or proceeding before the Department of Veterans Affairs with respect to benefits under laws administered by the Secretary.';
>
> "(2) by striking paragraph (2); and replacing it with the following:
>
> 'A person who, acting as agent or attorney in a case referred to in paragraph (1) of this subsection, represents a person before the Department with respect to the case shall file a copy of any fee agreement between them with the Secretary pursuant to regulations prescribed by the Secretary.";
>
> "(3) by striking paragraph (5); and replacing it with the following:
>
> 'The Secretary may, by rule and regulation, prescribe the maximum fees which may be charged for services performed in

[177] The current regulations, as noted previously, only permit veterans to use VA or VA-contracted physicians for PTSD diagnosis. *See* Stressor Determinations for Posttraumatic Stress Disorder, *supra* note 120 at 39852. As well, the reliance upon VA or VA-contracted health care providers was negatively received by veterans: "The majority of comments that VA received expressed disagreement with the requirement that the evidentiary standard for establishing occurrence of the stressor will be liberalized only if [VA or VA-contracted providers are used.]" *See id.* at 39846.

> connection with any claim before the Department under this Section, and any agreement in violation of such rules and regulations shall be void. Whenever the Secretary, in any claim before the Department for benefits under this Section, makes a determination favorable to the claimant, the Secretary shall, if the claimant was represented by an attorney in connection with such claim, evaluate the fee agreement to ensure fairness to the veteran. A fee that does not exceed 20 percent of the amount of benefits awarded on a claim shall be presumed to be reasonable. If there is no fee agreement, or if the fee agreement is deemed by the Secretary as unreasonable, the Secretary shall fix, in accordance with the regulations prescribed pursuant to this Section, a reasonable fee to compensate such attorney for the services performed by him or her in connection with such claim.'
>
> "(b) Subsection (c)(1) of Section 5904 of Title 38, United States Code, is amended—
>
> "(1) by striking the paragraph (1); and replacing it with the following:
>
> > 'Attorney or agent fees charged with respect to services provided for initial or appealed claims or proceedings before the Department shall be permitted and subject to the fee requirements in this Section. The limitation in the preceding sentence does not apply to fees charged, allowed, or paid for services provided with respect to proceedings before a court."
>
> "SECTION 5. Effective Date—The amendments made by this shall apply on or after the date that is 90 days after the date of the enactment of this Act."

These provisions address the important attorney representation needs of veterans when attempting to navigate the disability process. Of note, both initial and appellate proceedings would now permit veterans to have legal guidance to create effective claims files for veterans with mental health disorders. As noted previously,[178] legal assistance may be particularly important and apt for PTSD-afflicted wounded warriors. Importantly, there are limits to fees charged by attorneys, but are consistent with previous assessments and amounts, as well as may be changed by rule and regulation by the Secretary of Veterans Affairs as needed. The statute also ensures that the fee limitations indicated are

[178] *See, e.g., supra* notes 130-136 (discussing cognitive and other mental health challenges of wounded warriors with PTSD).

only applicable to Department of Veterans Affairs adjudications, rather than any court-based litigation. Finally, the law indicates that it will take effect within 90 days of enactment.

VII. CONCLUSION

PTSD is not a new disease. The symptoms of PTSD are as old as war itself. However, PTSD has become a 'signature wound' of the Iraq and Afghanistan wars. We must diagnose, treat, and compensate our veterans so that they can live the fullest lives possible in exchange for their service and sacrifice. PTSD may not manifest itself like other diseases, but it is a silent killer. Left untreated, veterans turn to alcohol and drugs to treat the symptoms themselves, which cause even more severe symptoms and co-occurring disorders. Unchecked, PTSD can lead to social impairment, loss of employment, homelessness or incarceration, risk of suicide, and even death.

To do so, the disability evaluation system applied to wounded warriors must be reformed. Lincoln addressed the social and moral obligation that society, and the government, has to veterans in his now famous inaugural address. In his speech, Lincoln expressed his desire to help heal the wounds of a Civil War that split our country in two and pitted brother against brother. This part of his speech is less known, perhaps because the VA omitted it from their motto, but it answers the why we should care for him or her who shall have borne the battle. He stated, "let us strive on to finish the work we are in, to bind up the nation's wounds, to care for him who shall have borne the battle and for his widow and his orphan …."[179]

[179] INAUGURAL ADDRESS OF ABRAHAM LINCOLN (Mar. 4, 1865), *available at* http://memory.loc.gov/cgi-bin/ampage?collId=lprbscsm&fileName=scsm0553/lprbscsmscsm0553.db&recNum=0&itemLink=h?ammem/scsmbib:@field(DOCID+@lit(scsm000553)).

While many recommendations have been made to substantially change the VA's compensation system,[180] the primary step must be to ensure that veterans receive the compensation they deserve. Reforming an antiquated review standard through introduction of express and explicit medically-based standards such as the DSM-IV-TR and its associated provisions provides a rational basis on which to assess a diagnosis and function of a wounded veteran. Further, by allowing veterans to have attorney representation during the initial claims process, like SSA claimants, veterans have a better chance of submitting complete and accurate initial claims, which in turn could result in more approvals, and a reduced backlog.

Indeed, more deeply, attorneys can help veterans gather documentation to better substantiate their claims, which, in turn, may help Raters struggling with the lack of medical knowledge and conflicting requirements, to make more timely findings. Consequently, the entire process may be shortened if the first claim submitted is be "ready to rate."[181] Therefore, allowing attorneys earlier in VA proceedings would likely improve the quality and reduce administrative costs.

The way to bind our nation's current wounds is to treat the 'invisible wounds of war' and to revamp the compensation system. Efforts must be made to reform rating requirements and to eliminate inequities in disability evaluation and compensation with attorney representation. Only then can we 'finish the work we are in' and care for those who 'borne the battle'. It is our ethical and moral duty to do so.

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[180] HONORING THE CALL TO DUTY, *supra* note 81, at 11 (making 113 recommendations).

[181] Also, veterans will avoid having to resubmit claims, unless absolutely necessary. The VDBC found that 81% of claims were reopened claims (claims that were initially denied, or the veteran was dissatisfied with the disability rating, or effective date of a decision) and approximately 20% were original claims. HONORING THE CALL TO DUTY, *supra* note 81, at 304-05.